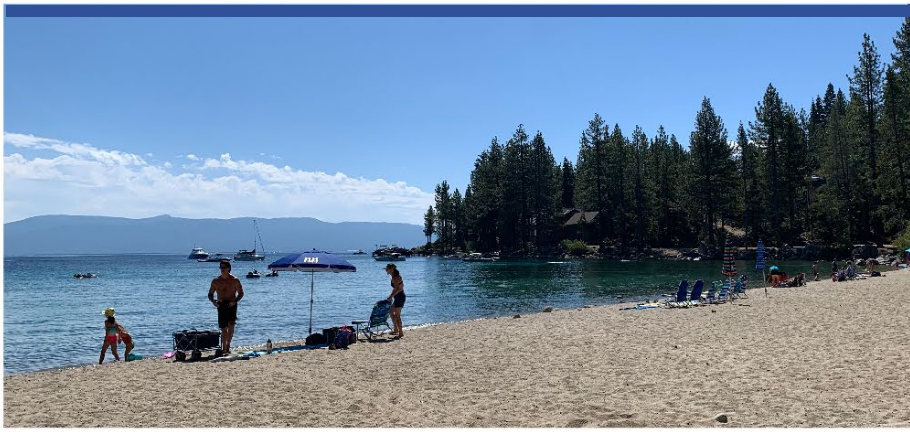

FINAL ENVIRONMENTAL IMPACT STATEMENT/
ENVIRONMENTAL IMPACT STATEMENT/ENVIRONMENTAL IMPACT REPORT

Meeks Bay Restoration Project

State Clearinghouse No. 2018092031

Prepared for:

April 2024

FINAL ENVIRONMENTAL IMPACT STATEMENT/ENVIRONMENTAL IMPACT STATEMENT/ ENVIRONMENTAL IMPACT REPORT (EIS/EIS/EIR)

Meeks Bay Restoration Project

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LIST OF ABBREVIATIONS

$\mu g/m^3$	micrograms per cubic meter
2020 RTP	2020 Regional Transportation Plan
AB	Assembly Bill
ACHP	Advisory Council on Historic Preservation
ADA	Americans With Disabilities Act
AIS	aquatic invasive species
AMWG	adaptive management working group
ASCE	American Society of Civil Engineers
ATP	Active Transportation Plan
Basin Plan	Water Quality Control Plan for the Lahontan Region
BMI	Benthic Macroinvertebrates
BMP	best management practices
CA MUTCD	California Manual of Uniform Traffic Control Devices
CAA	Clean Air Act
CAAQS	California ambient air quality standards
CAFE	corporate average fuel economy
CAL FIRE	California Department of Forestry and Fire Protection
Cal/OSHA	California Occupational Safety and Health Administration
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulation
CHRIS	California Historical Resources Information System
CI	carbon intensity
CMP	Corridor Management Plan
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO_2	carbon dioxide
Code	TRPA Code of Ordinances
Compact	Tahoe Regional Planning Compact
Conservation Strategy	Tahoe Yellow Cress Conservation Strategy
County	El Dorado County
CWA	Clean Water Act
CWHR	California Wildlife Habitat Relationship

dB	decibel
dbh	diameter at breast height
dBpeak	peak
dBSEL	sound exposure level
diesel PM	particulate matter exhaust from diesel engines
DO	dissolved oxygen
DOC	dissolved organic carbon
Draft EIS/EIS/EIR	draft environmental impact statement/environmental impact statement/environmental impact report
DTSC	California Department of Toxic Substances Control
DVTE	daily vehicle trip ends
EDCAQMD	El Dorado County Air Quality Management District
EDCEMD	El Dorado County Environmental Management Department
EIP	Environmental Improvement Program
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act of 1986
ESA	Endangered Species Act
EV	electric vehicles
FEMA	Federal Emergency Management Agency
FHSZ	fire hazard severity zones
FHWA	Federal Highway Administration
Forest Plan	Land Management Plan for LTBMU
Forest Service	U.S. Department of Agriculture, Forest Service
FR	Federal Register
FRAP	California Department of Forestry and Fire Protection Fire and Resources Assessment Program
FTA	Federal Transit Administration
GHG	greenhouse gas
HAP	hazardous air pollutant
Hz	hertz
I-80	Interstate 80
in/sec	inches per second
ITE	Institute of Transportation Engineers
km	kilometers
Lahontan RWQCB	Lahontan Regional Water Quality Control Board
LCD	Land capability districts
LCFS	Low Carbon Fuel Standard
LCT	Lahontan cutthroat trout
L_{dn}	Day-Night Level
L_{eq}	Equivalent Continuous Sound Level
LHMP	*Local Hazard Mitigation Plan*
LiDAR	Light Detection and Ranging
L_{max}	Maximum Sound Level
LOS	Level of service
LTAB	Lake Tahoe Air Basin
LTBMU	Lake Tahoe Basin Management Unit
LTD	Lake Tahoe Datum

MBFPD	Meeks Bay Fire Protection District
MBTA	Migratory Bird Treaty Act
mi	miles
Mm^{-1}	inverse mega meters
$MMTCO_2e$	metric tons of carbon dioxide equivalent
mPa	micro-Pascals
mph	miles per hour
MSI	Minimum Scenic Integrity
MSS	Minimum Scenic Stability
$MTCO_2e$	metric tons of carbon dioxide equivalent
$MTCO_2e$/year	metric tons of carbon dioxide equivalent per year
MY	Model Year
NAAQS	national ambient air quality standards
NAHC	Native American Heritage Commission
NCCP	natural community conservation plan
NEHRP	National Earthquake Hazards Reduction Program
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NFS	National Forest System
NHPA	National Historic Preservation Act
NO	nitric oxide
NO_2	nitrogen dioxide
NOI	Notice of Intent
NO_X	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NRHP	National Register of Historic Places
NTFPD	North Tahoe Fire Protection District
NTU	Nephelometric Turbidity Units
ONRW	Outstanding National Resource Water
OPR	Governor's Office of Planning and Research
OSHA	Occupational Safety and Health Administration
PAOT	persons at one time
PAS	plan area statement
PCAPCD	Placer County Air Pollution Control District
PIA	Project Impact Assessment Guidelines
PM	particulate matter
PM_{10}	respirable particulate matter with an aerodynamic diameter of 10 microns or less
$PM_{2.5}$	fine particulate matter with an aerodynamic diameter of 2.5 or less
Porter-Cologne Act	Porter-Cologne Water Quality Control Act of 1970
ppm	parts per million
PPV	peak particle velocity
PRC	Public Resources Code
project	Meeks Bay Restoration Project
PSAP	public safety answer point

RHNA	Regional Housing Needs Assessment
ROG	reactive organic gases
RPM	resource protection measure
rpm	revolutions per minute
RPS	Renewable Portfolio Standard
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Boards
SAFE Rule	Safer Affordable Fuel-Efficient Vehicles Rule
SAP	Sustainability Action Plan
SB	Senate Bill
SCS	Sustainable Communities Strategy
SEZ	Stream Environment Zone
SIP	State implementation plan
SLF	sacred land file
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMS	Scenery Management System
SPCC	Spill Prevention, Control, and Countermeasure
SPL	sound pressure level
SQIP	scenic quality improvement program
SR 89 Corridor Plan	Corridor Management Plan
SR	sensitive receptors
State Water Board	State Water Resources Control Board
Superfund Act or CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
SWPPP	storm water pollution prevention plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TAG	technical advisory group
TART	Truckee Area Regional Transit
TCPUD	Tahoe City Public Utility District
TDFPD	Tahoe Douglas Fire Protection District
TFFT	Tahoe Fire and Fuels Team
TMDL	total maximum daily load
TMPO	Tahoe Metropolitan Planning Organization
TOC	Total organic carbon
TRPA Code	TRPA Code of Ordinances
TRPA	Tahoe Regional Planning Agency
TTC	temporary traffic control
TTD	Tahoe Transportation District
TYC	Tahoe yellow cress
UAIC	United Auburn Indian Community of the Auburn Rancheria
US	U.S. Route
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USCG	U.S. Coast Guard
USDOT	U.S. Department of Transportation
USFS	U.S. Department of Agriculture, Forest Service
USFWS	U.S. Fish and Wildlife Service
UST	underground storage tanks

VdB	vibration decibels
VMS	Visual Management System
VMT	vehicle miles traveled
WEAP	Worker Environmental Awareness Program
WUI	West Shore Wildland Urban Interface
ZEV Aerially deposited lead	zero-emission vehicle

EXECUTIVE SUMMARY

ES.1 INTRODUCTION

The USDA Forest Service, Lake Tahoe Basin Management Unit (LTBMU or USDA Forest Service), Tahoe Regional Planning Agency (TRPA), and Lahontan Regional Water Quality Control Board (Lahontan RWQCB) have prepared this joint environmental document for the proposed Meeks Bay Restoration Project (project). The joint document consists of an environmental impact statement (EIS) for the purposes of the National Environmental Policy Act (NEPA) (42 U.S. Code [USC] Section 4321-4347), Council on Environmental Quality (CEQ) Regulations Implementing NEPA (40 Code of Federal Regulation [CFR] Section 1500-1508), and USDA Forest Service NEPA Regulations (36 CFR Part 220); an environmental impact statement (EIS) for TRPA pursuant to the Tahoe Regional Planning Compact (Public Law 96-551) and 1980 revision (Compact), Code of Ordinances, and Rules of Procedure; and an environmental impact report (EIR) for the purposes of the California Environmental Quality Act (CEQA) (Public Resources Code [PRC] Section 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations [CCR] Section 15000 et seq.). This EIS/EIS/EIR evaluates the environmental consequences of implementing the project. USDA Forest Service, TRPA, and Lahontan RWQCB are the lead agencies.

ES.2 BACKGROUND

The proposed Meeks Bay Restoration Project area (project area) includes approximately 74 acres of National Forest System lands along the shore of Lake Tahoe, which historically included a stream channel, wetland, lagoon, and barrier beach. Historic development along Meeks Bay, including construction of Meeks Bay Marina, displaced wetland and lagoon habitat, modified the stream channel, created conditions conducive to aquatic invasive species (AIS), and accelerated sediment delivery into Lake Tahoe. The LTBMU acquired the project area in 1974 and manages it through concession agreements. The project area has heavy summer recreation activity, including camping, boating, and beach use. The site is within the homeland of the Washoe Tribe of Nevada and California, which manages the Meeks Bay Resort and is participating in the restoration of Meeks Meadow upstream of the project area. Management actions are necessary to protect resources and move the project area toward desired conditions while continuing to support sustainable recreation opportunities.

The USDA Forest Service, TRPA, and Lahontan RWQCB released a scoping notice for the project in September 2018. During the scoping period, the LTBMU received over 100 comments on the project, the majority of which were supportive of restoration but opposed to a new pier or boat ramp at Meeks Bay. Others questioned the need to remove the existing marina to achieve restoration objectives. Based on feedback received during the scoping period, the lead agencies initiated a stakeholder planning process to address issues and concerns. The lead agencies brought in a neutral, third-party facilitator to interview stakeholders and invited stakeholder representatives to participate in a Stakeholder Forum. Participants included representatives from the Washoe Tribe, Friends of the West Shore, Lake Tahoe Marina Association, Tahoe Lakefront Owners Association, Meeks Bay Yacht Club, League to Save Lake Tahoe, Lake Tahoe Water Trail, and the Meeks Bay Fire District. The lead agencies hosted five stakeholder forum meetings and two public workshops to understand concerns, get input on project alternatives and design features, and compile the best available information for the environmental analysis.

This EIS/EIS/EIR evaluates the environmental effects of five alternatives (including the No Action Alternative) that were developed through the stakeholder planning process, consistent with NEPA, Tahoe Regional Planning Compact, TRPA Code of Ordinances, TRPA Rules of Procedure, and State CEQA Guidelines. Alternative 4 reflects the “proposed action” for purposes of NEPA and the “project” for purposes of CEQA and TRPA. It involves removal of Meeks Bay Marina; restoration of Meeks Creek and associated wetland/lagoon habitat; eradication of AIS; reconfiguration or construction of pedestrian and vehicle circulation and parking areas, and reconfiguration of the campgrounds; installation of utility infrastructure and best management practices (BMPs), shoreline stabilization, habitat enhancement, and resource protection features; and other associated improvements.

The Draft EIS/EIS/EIR was distributed for public review for 60 days from June 10 through August 9, 2022. A total of 64 letters on the Draft EIS/EIS/EIR were received from agencies, organizations, and individuals. The responses to these comments are located in Appendix F.

ES.3 PURPOSE, NEED, AND OBJECTIVES

The purpose of the project is to move the Meeks Creek stream channel and wetland/lagoon below the State Route (SR) 89 to a more natural condition where geomorphic and hydrologic processes support a functioning ecosystem while continuing to support sustainable recreation opportunities. The proposed action and alternatives include strategies to meet the following needs and project objectives:

- Improve hydrologic function and processes of Meeks Creek, Meeks lagoon, and associated floodplain.
- Restore degraded aquatic, riparian, and wetland habitats and barrier beaches to provide high quality habitat that is resilient to a changing climate.
- Improve fish passage and flood flow conveyance through the SR 89 stream crossing, and control or eradicate current populations of terrestrial and aquatic invasive plant and animal species.
- Promote the Threatened, Endangered, Proposed, Candidate, and Sensitive species Tahoe yellowcress (*Rorippa subumbellata*) and Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*).
- Replace the SR 89 Caltrans bridge to allow for aquatic organism passage and flood flow conveyance.
- Maintain and enhance access to Lake Tahoe and National Forest System lands.
- Provide sustainable recreation opportunities consistent with a functioning ecosystem.
- Enhance educational and interpretive opportunities.
- Enhance species of value to the Washoe Tribe.

ES.4 PROJECT LOCATION

The Meeks Bay Restoration Project area (project area) is located on the west shore of Lake Tahoe in El Dorado County, California. The project area is approximately 74 acres and extends from approximately 75 feet upstream of SR 89 in the east to the Lake Tahoe shorezone in the west (see Figure 2-2 in Chapter 2, "Description of the Proposed Action and Alternatives"). The project area encompasses recreation facilities including Meeks Bay Marina, Meeks Bay Resort, and Meeks Bay Campground.

ES.5 SUMMARY OF THE PROPOSED ACTION AND ALTERNATIVES

The lead agencies, in collaboration with stakeholders and interested members of the public, developed four action alternatives, which are evaluated along with a no action alternative in this EIS/EIS/EIR. Each of the action alternatives includes different combinations of design features intended to achieve the project purpose, needs, and objectives while minimizing adverse effects. The alternatives listed below are evaluated in this EIS/EIS/EIR. Alternative 4 is the preferred alternative that is proposed for adoption by the lead agencies. It constitutes the "proposed action" for purposes of NEPA, and the "project" that is evaluated pursuant to CEQA and TRPA.

- **Alternative 1 – Restoration with Boating Pier**. This alternative includes restoration of the creek and lagoon and installation of a pier to provide motorized boat access. It includes replacement of the SR 89 bridge, relocation of two motel-style cabins, and other changes to facilities while not substantially changing the extent of any existing land uses.

- **Alternative 2 – Restoration with Pedestrian Pier.** This alternative includes restoration of the creek and lagoon and installation of a shorter pier to provide pedestrian access. It includes replacement of the SR 89 bridge and changes to upland facilities while not substantially changing the extent of any existing land uses.
- **Alternative 3 – Restoration with No Pier.** This alternative includes restoration of the creek and lagoon with no pier. It includes replacement of the SR 89 bridge, non-motorized lake access features, and changes to upland facilities including expanded campgrounds and parking.
- **Alternative 4 – Preferred Alternative.** This alternative is proposed for adoption by the lead agencies. It includes full restoration of the creek and lagoon with no pier. It includes replacement of the SR 89 bridge, non-motorized lake access features, and changes to upland facilities including expanded parking and the relocation of two motel-style cabins.
- **No Action Alternative.** This alternative reflects future conditions with the current marina, boat launch, and upland recreation facilities and management approaches if the proposed action is not adopted.

ES.6 ENVIRONMENTAL IMPACTS AND RECOMMENDED MITIGATION MEASURES

ES.6.1 Project Impacts

This EIS/EIS/EIR has been prepared to evaluate the physical environmental effects of the proposed Meeks Bay Restoration Project. Table ES-1, presented at the end of this chapter, provides a summary of the environmental impacts for the project. The table provides the level of significance of the impact before mitigation, recommended mitigation measures, and the level of significance of the impact after implementation of the mitigation measures.

ES.6.2 Significant and Unavoidable Impacts

As documented throughout Chapter 3 of this EIS/EIS/EIR, after implementation of the recommended mitigation measures, most of the impacts associated with the proposed Meeks Bay Restoration Project would be reduced to a less-than-significant level. The following impacts are considered significant and unavoidable; that is, no feasible mitigation is available to reduce the project's impacts to a less-than-significant level.

- **Impact 3.1-4:** Affect Local Access or Opportunities for Motorized Watercraft is potentially significant and unavoidable for Alternatives 1, 2, 3, and 4.
- **Impact 3.2-2:** Alter Views of Lake Tahoe from Meeks Bay is significant and unavoidable for Alternative 1.
- **Impact 3.11-1:** Short-Term Project-Related Construction Noise Levels is significant and unavoidable for Alternatives 1, 2, 3, and 4.

The significant and unavoidable impacts of the project related to Impacts 3.1-4 and3.2-2 are taken into consideration with tradeoffs resulting from the benefits of the Meeks Creek restoration and removal of the marina. The significant and unavoidable impact related to Impact 3.11-1 is taken into consideration with the tradeoff of reducing overall construction duration associated with construction of the SR 89 bridge.

ES.7 AREAS OF CONTROVERSY

Throughout the public scoping period, five stakeholder forum meetings, and two public workshops, numerous comments and concerns were raised. Many of the concerns were addressed through the stakeholder planning process that resulted in the alternatives evaluated in this EIS/EIS/EIR. Key concerns and issues that were raised by multiple individuals and which were not completely resolved through the stakeholder planning process include the following:

- Opposition to a pier or motorized boating facilities in Meeks Bay due to concerns over traffic, noise, crowding, and user conflicts;
- Concerns over the loss of moorings and motorized/sailing boat launch opportunities with the removal of the marina; and
- A desire for improved public safety access with a pier or other structure that provides public safety boat access at Meeks Bay.

The EIS/EIS/EIR evaluates the potential environmental effects (e.g., transportation, noise, crowding, user conflicts) from four alternatives that were developed to provide a range of improvements related to recreation opportunities in the project area. The alternatives provide several options that offset the loss of the marina, boat ramp, and mooring opportunities. As further described under Section 2.12, "Alternatives Considered but Not Evaluated," alternatives were considered that maintained boat access in the project area; however, these alternatives were eliminated due to not achieving the project objectives and potential effects on beach recreation, proximity to residences, and tree removal, scenic, and traffic and circulation impacts.

Table ES-1 Summary of Impacts and Mitigation Measures

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
3.1 Recreation			
Impact 3.1-1: Affect the Quality of Recreational Opportunities	Alt. 1-4 = LTS NAA = NI	No mitigation is required for this impact.	Alt. 1-4 = LTS NAA = NI
Impact 3.1-2: Create Recreational User Conflicts	Alt. 1-4 = LTS NAA = NI	No mitigation is required for this impact.	Alt. 1-4 = LTS NAA = NI
Impact 3.1-3: Affect Regional Access or Opportunities for Motorized Watercraft	Alt. 1-4 = PS NAA = NI	Mitigation Measure 3.1-3: Maintain Capacity for Public Moorings *This mitigation measure will apply to Alternatives 1, 2, 3, and 4.*	Alt. 1-4 = LTS NAA = NI
Impact 3.1-4: Affect Local Access or Opportunities for Motorized Watercraft	Alt. 1-4 = PS NAA = NI	Mitigation Measure 3.1-4: Maintain Capacity for Public Moorings *This mitigation measure will apply to Alternatives 1, 2, 3, and 4.*	Alt. 1-4 = PSU NAA = NI
Impact 3.1-5: Affect Recreational User Access to Lake Tahoe and the Project Area	Alt. 1-4 = B NAA = NI	No mitigation is required for this impact.	Alt. 1-4 = B NAA = NI
3.2 Scenic Resources			
Impact 3.2-1: Substantially Degrade Views of Meeks Bay from Lake Tahoe	Alt. 1-4 = LTS NAA = NI	No mitigation is required for this impact.	Alt. 1-4 = LTS NAA = NI
Impact 3.2-2: Alter Views of Lake Tahoe from the Project Area	Alt. 1 = S Alt. 2-4 = LTS NAA = NI	No mitigation is required for Alternatives 2, 3, and 4. There is no additional feasible mitigation that would reduce the impact of the proposed pier in Alternative 1, while still achieving the intent of Alternative 1.	Alt. 1 = SU Alt. 2-4 = LTS NAA = NI
Impact 3.2-3: Substantially Degrade Views from SR 89	Alt. 1-4 = LTS NAA = NI	No mitigation is required for this impact.	Alt. 1-4 = LTS NAA = NI
Impact 3.2-4: Degrade the Visual Character of the Project Area	Alt. 1-4 = LTS NAA = NI	No mitigation is required for this impact.	Alt. 1-4 = LTS NAA = NI
3.3 Cultural and Tribal Cultural Resources			
Impact 3.3-1: Cause a Substantial Adverse Change in the Significance of a Historical Resource	Alt. 1-4 = LTS NAA = NI	No mitigation is required for this impact.	Alt. 1-4 = LTS NAA = NI

B = Beneficial NI = No impact LTS = Less than significant PS = Potentially significant S = Significant PSU = Potentially significant and unavoidable SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.3-2: Cause a Substantial Adverse Change in the Significance of Unique Archaeological Resources	Alt. 1-4 = PS NAA = N	Mitigation Measure 3.3-2a: Develop and implement a Worker Environmental Awareness Program *This mitigation measure will apply to Alternatives 1, 2, 3, and 4.* Mitigation Measure 3.3-2b: Establish an Archaeological Buffer for P-09-003861 *This mitigation measure will apply to Alternatives 1, 2, 3, and 4.* Mitigation Measure 3.3-2c: Retain an Archaeological Monitor and Native American Monitor, and Halt Ground-Disturbing Activity Upon Discovery of Subsurface Archaeological Features *This mitigation measure will apply to Alternatives 1, 2, 3, and 4.*	Alt. 1-4 = LTS NAA = NI
Impact 3.3-3: Cause a Substantial Adverse Change in the Significance of a Tribal Cultural Resource or Affect Unique Ethnic Cultural Values or Restrict Sacred Uses	Alt. 1-4 = PS NAA = N	Mitigation Measure 3.3-3: Avoid Degradation of Tribal Cultural Resources, Ethnic, and Cultural Values *This mitigation measure will apply to Alternatives 1, 2, 3, and 4.*	Alt. 1-4 = LTS NAA = NI
Impact 3.3-4: Disturb Human Remains	Alt. 1-4 = LTS NAA = NI	No mitigation is required for this impact.	Alt. 1-4 = LTS NAA = NI
3.4 Terrestrial Biological Resources			
Impact 3.4-1: Result in Disturbance, Loss, or Reduced Abundance of Tahoe Yellow Cress and Other Special-Status Plants	Alt. 1-4 = LTS NAA = PS	No mitigation is required for this impact.	Alt. 1-4 = LTS NAA = PS
Impact 3.4-2: Result in Disturbance, Loss, or Reduced Abundance of Special-Status Wildlife from Construction and Recreational Uses	Alt. 1-4 = LTS NII = LTS	No mitigation is required for this impact.	Alt. 1-4 = LTS NII = LTS
Impact 3.4-3: Result in Disturbance or Loss of Common Terrestrial Vegetation Communities and Wildlife Habitats, Trees, Sensitive Natural Communities, and Riparian Habitat	Alt. 1-4 = LTS NAA = LTS	No mitigation is required for this impact.	Alt. 1-4 = LTS NAA = LTS
Impact 3.4-4: Result in Disturbance or Loss of State or Federally Protected Wetlands	Alt. 1-4 = LTS NAA = PS	No mitigation is required for this impact.	Alt. 1-4 = LTS NAA = PS
Impact 3.4-5: Interfere with Wildlife Movement Corridors or Impede the Use of Wildlife Nurseries	Alts. 1-4 = LTS NAA = LTS	No mitigation is required for this impact.	Alts. 1-4 = LTS NAA = LTS
Impact 3.4-6: Conflict with Local Policies and Ordinances	Alts. 1-4 = LTS NAA = LTS	No mitigation is required for this impact.	Alts. 1-4 = LTS NAA = LTS
3.5 Aquatic Biological Resources			
Impact 3.5-1: Short-Term Aquatic Habitat Degradation	Alts. 1-4 - LTS NAA = PS	No mitigation is required for this impact.	Alts. 1-4 = LTS NAA = LTS

B = Beneficial NI = No impact LTS = Less than significant PS = Potentially significant S = Significant PSU = Potentially significant and unavoidable SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.5-2: Stranding of Aquatic Biota from Dewatering Worksites	Alts. 1-4 = LTS NAA = NI	No mitigation is required for this impact.	Alts. 1-4 = LTS NAA = NI
Impact 3.5-3: Short-Term Disruption of Fish Passage/Migration	Alts. 1-4 = LTS NAA = NI	No mitigation is required for this impact.	Alts. 1-4 = LTS NAA = NI
Impact 3.5-4: Long-Term Disruption of Fish Passage/Migration	Alts. 1-4 = B NAA = PS	No mitigation is required for this impact.	Alts. 1-4 = B NAA = PS
Impact 3.5-5: Introduction and Spread of Aquatic Invasive Species by Construction Activities	Alts. 1-4 = LTS NAA = LTS	No mitigation is required for this impact.	Alts. 1-4 = LTS NAA = LTS
Impact 3.5-6: Long-Term Disruption of Nearshore Aquatic Habitat	Alts. 1-4 = LTS NAA = LTS	No mitigation is required for this impact.	Alts. 1-4 = LTS NAA = LTS
Impact 3.5-7: Long-Term Change in in Habitat Conditions Associated with Restoration and Enhancement	Alts. 1-4 = B NNA = PS	No mitigation is required for this impact.	Alts. 1-4 = B NNA = PS
3.6 Hydrology and Water Quality			
Impact 3.6-1: Degradation of Lake Tahoe and Meeks Creek Water Quality from Restoration Activities and Facility Construction and Maintenance	Alts. 1-4 = LTS NAA = PS	No mitigation is required for this impact.	Alts. 1-4 = LTS NAA = PS
Impact 3.6-2: Alteration of Lake Currents, Littoral Processes, and Shoreline Erosion	Alts. 1-4 = LTS NAA = NI	No mitigation is required for this impact.	Alts. 1-4 = LTS NAA = NI
Impact 3.6-3: Water Quality Effects of Motorized Boating	Alt. 1 = LTS Alts. 2-4 = B NAA = NI	No mitigation is required for this impact.	Alt. 1 = LTS Alts. 2-4 = B NAA = NI
Impact 3.6-4: Potential for Increase in Stormwater Runoff, Impacts to Existing Drainage Systems, or Alteration of Drainage Patterns	Alts. 1-4 = LTS NAA = LTS	No mitigation is required for this impact.	Alts. 1-4 = LTS NAA = LTS
Impact 3.6-5: Groundwater Impacts	Alts. 1-4 = LTS NAA = NI	No mitigation is required for this impact.	Alts. 1-4 = LTS NAA = NI
3.7 Geology and Soils			
Impact 3.7-1: Compact or Cover Soil with Impervious Surfaces Beyond the Limits Allowed by the Land Capability Districts	Alts. 1-4 = B NAA = NI	No mitigation is required for this impact.	Alts. 1-4 = B NAA = NI
Impact 3.7-2: Result in Substantial Soil Erosion or Loss of Topsoil	Alts. 1-4 = LTS NAA = LTS	No mitigation is required for this impact.	Alts. 1-4 = LTS NAA = LTS

B = Beneficial NI = No impact LTS = Less than significant PS = Potentially significant S = Significant PSU = Potentially significant and unavoidable SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.7-3: Substantially Increase Exposure of People or Property to Geologic Hazards Such as Earthquakes, Landslides, Backshore Erosion, Avalanches, Mud Slides, Ground Failure, Seiche, or Similar Hazards	Alts. 1-4 = LTS NAA = NI	No mitigation is required for this impact.	Alts. 1-4 = LTS NAA = NI
Impact 3.7-4: Substantially Disturb Native Soils and Geologic Structures or Change Topography in a Manner Inconsistent with the Natural Surroundings	Alts. 1-4 = B NAA = NI	No mitigation is required for this impact.	Alts. 1-4 = B NAA = NI
3.8 Air Quality			
Impact 3.8-1: Short-Term Impacts From Construction-Generated Emissions of Criteria Air Pollutants and Precursors	Alts. 1-4 = S NAA = NI	Mitigation Measure 3.8-1: Implement El Dorado County Air Quality Management District-Approved Fugitive Dust Control Measures During Construction *This mitigation measure will apply to Alternatives 1, 2, 3, and 4.*	Alts. 1-4 = LTS NAA = NI
Impact 3.8-2: Long-Term Impacts From Operational-Related Emissions of Regional Criteria Air Pollutants and Precursors	Alts. 1-4 = LTS NAA = NI	No mitigation is required for this impact.	Alts. 1-4 = LTS NAA = NI
Impact 3.8-3: Expose Sensitive Receptors to Emissions of Toxic Air Contaminants	Alts. 1-4 = LTS NAA = NI	No mitigation is required for this impact.	Alts. 1-4 = LTS NAA = NI
3.9 Climate Change and Energy			
Impact 3.9-1: Project-Generated GHG Emissions	Alts. 1-4 = LTS NAA = LTS	No mitigation is required for this impact.	Alts. 1-4 = LTS NAA = LTS
Impact 3.9-2: Wasteful, Inefficient, or Unnecessary Consumption of Energy during Project Construction or Operation	Alts. 1-4 = LTS NAA = LTS	No mitigation is required for this impact.	Alts. 1-4 = LTS NAA = LTS
Impact 3.9-3: Conflict with or Obstruct a State or Local Plan for Renewable Energy or Energy Efficiency	Alts. 1-4 = LTS NAA = LTS	No mitigation is required for this impact.	Alts. 1-4 = LTS NAA = LTS
3.10 Public Safety and Hazards			
Impact 3.10-1: Interfere with Implementation of an Adopted Emergency Response Plan or Emergency Evacuation Plan	Alts. 1-4 = LTS NAA = LTS	No mitigation is required for this impact.	Alts. 1-4 = LTS NAA = LTS
Impact 3.10-2: Emergency Access to and from Lake Tahoe	Alt. 1 = LTS Alts. 2-4 = LTS NAA = LTS	No mitigation is required for this impact.	Alt. 1 = B Alts. 2-4 = LTS NAA = LTS
Impact 3.10-3: Increased Demand for Emergency Response Resources	Alts. 1-4 = LTS NAA = NI	No mitigation is required for this impact.	Alts. 1-4 = LTS NAA = NI

B = Beneficial NI = No impact LTS = Less than significant PS = Potentially significant S = Significant PSU = Potentially significant and unavoidable SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.10-4: Navigational Hazards to Motorized and Nonmotorized Recreation	Alts. 1-4 = LTS NAA = LTS	No mitigation is required for this impact.	Alts. 1-4 = LTS NAA = LTS
Impact 3.10-5: Accidental Release of Hazardous Substances	Alts. 1-4 = LTS NAA = NI	No mitigation is required for this impact.	Alts. 1-4 = LTS NAA = NI
Impact 3.10-6: Potential Changes in Wildfire Risk	Alts. 1-4 = LTS NAA = LTS	No mitigation is required for this impact.	Alts. 1-4 = LTS NAA = LTS
3.11 Noise			
Impact 3.11-1: Short-Term Project-Related Construction Noise Levels	Alts. 1-4 = S NAA = NI	Mitigation Measure 3.11-1 Construction Noise Reduction *This mitigation measure will apply to Alternatives 1, 2, 3, and 4.*	Alts. 1-4 = SU NAA = NI
Impact 3.11-2: Short-Term Vibration Impact from Project Construction	Alts. 1-4 = LTS NAA = NI	No mitigation is required for this impact.	Alts. 1-4 = LTS NAA = NI
Impact 3.11-3: Long-Term Changes in Boat Noise	Alt. 1 = LTS Alts. 2-4 = B NAA = LTS	No mitigation is required for this impact.	Alt. 1 = LTS Alts. 2-4 = B NAA = LTS
Impact 3.11-4: Long-Term Traffic Noise Levels	Alts. 1-4 = LTS NAA = NI	No mitigation is required for this impact.	Alts. 1-4 = LTS NAA = NI
3.12 Transportation and Circulation			
Impact 3.12-1: Conflict with a Program, Plan, Ordinance or Policy Addressing the Circulation System, Including Transit, Roadway, Bicycle, and Pedestrian Facilities	Alts. 1-4 = B NAA = NI	No mitigation is required for this impact.	Alts. 1-4 = B NAA = NI
Impact 3.12-2: Conflict or Be Inconsistent with CEQA Guidelines Section 15064.3, Subdivision (b) Regarding Vehicle Miles Traveled	Alts. 1-4 = LTS NAA = NI	No mitigation is required for this impact.	Alts. 1-4 = LTS NAA = NI
Impact 3.12-3: Substantially Increase Transportation Hazards due to a Design Feature or Incompatible Uses	Alts. 1-4 = LTS NAA = NI	No mitigation is required for this impact.	Alts. 1-4 = LTS NAA = NI
Impact 3.12-4: Result in Inadequate Emergency Access	Alts. 1-4 = LTS NAA = NI	No mitigation is required for this impact.	Alts. 1-4 = LTS NAA = NI
3.13 Land Use			
Impact 3.13-1: Consistency with Adopted Plans and Policies	Alts. 1-4 = B NAA = NI	No mitigation is required for this impact.	Alts. 1-4 = B NAA = NI

B = Beneficial NI = No impact LTS = Less than significant PS = Potentially significant S = Significant PSU = Potentially significant and unavoidable SU = Significant and unavoidable

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1 INTRODUCTION

This environmental impact statement/environmental impact statement/environmental impact report (EIS/EIS/EIR) evaluates the environmental impacts of the proposed Meeks Bay Restoration Project (project). It has been prepared under the direction of the U.S. Department of Agriculture, Forest Service Lake Tahoe Basin Management Unit (LTBMU) in accordance with the requirements of the National Environmental Policy Act (NEPA) (42 U.S. Code Sections 4321-4347) and Council on Environmental Quality regulations implementing NEPA (40 Code of Federal Regulation [CFR] Sections 1500-1508); the Tahoe Regional Planning Agency (TRPA) in accordance with the Tahoe Planning Compact (Public Law 96-551) and TRPA Code of Ordinances; and the Lahontan Regional Water Quality Control Board (Lahontan RWQCB) in accordance with the requirements of the California Environmental Quality Act (CEQA) (Public Resources Code [PRC] Section 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations Section 15000 et seq). This chapter of the EIS/EIS/EIR provides information on the following:

- project requiring environmental analysis (synopsis),
- purpose, need, and project objectives,
- intended uses of this EIS/EIS/EIR,
- agency roles and responsibilities,
- public engagement and stakeholder process,
- scope of this EIS/EIS/EIR, and
- topics dismissed from detailed review.

1.1 PROJECT REQUIRING ENVIRONMENTAL ANALYSIS

The following is a synopsis of the project characteristics. For further information on the project, see Chapter 2, "Description of the Proposed Action and Alternatives."

The project encompasses approximately 74 acres of Lake Tahoe shoreline and upland areas surrounding Meeks Creek, which historically included a stream channel, wetland, lagoon, and barrier beach. Historical development along Meeks Bay, including the construction of the Meeks Bay Marina displaced wetland and lagoon habitat, modified the remaining stream channel, created conditions conducive to aquatic invasive species (AIS), and accelerated pollutant delivery into Lake Tahoe.

Management actions are necessary to protect resources and move the project area toward desired conditions while continuing to support sustainable recreation opportunities. LTBMU developed the proposed project through a collaborative interagency and stakeholder process to restore and enhance ecological conditions and provide an opportunity to maintain and improve the recreational opportunities consistent with the restoration. The project involves removal of Meeks Bay Marina; restoration of Meeks Creek and associated wetland/lagoon habitat; continued management of AIS; replacement of the State Route (SR) 89 bridge; reconfiguration or construction of pedestrian and vehicle circulation, parking areas, and campgrounds; installation of utility infrastructure and best management practices, shoreline stabilization, habitat enhancement, and resource protection features; and other associated improvements. It also involves the potential for new recreation facilities, such as a pier or paddlecraft launch, to offset the loss of motorized boating access with the removal of the marina.

Four action alternatives and the no action alternative are evaluated in this EIS/EIS/EIR. Each action alternative achieves the purpose and need and objectives of the project while including different approaches to achieve objectives related to sustainable recreation. Alternative 4 has been identified by LTBMU, TRPA, and Lahontan RWQCB as the preferred alternative proposed for adoption. Alternative 4 constitutes the proposed action for purposes of NEPA and the proposed project for the purposes of CEQA.

1.2 PURPOSE, NEED, AND PROJECT OBJECTIVES

NEPA requires disclosure of a project's purpose and need in an EIS and CEQA requires a description of the basic objectives of a project in an EIR. TRPA regulations do not specifically require discussion of a project's purpose, need, and objectives in an environmental document, but they are typically described.

The purpose of the project is to move the Meeks Creek stream channel and wetland/lagoon below SR 89 to a more natural condition where geomorphic and hydrologic processes support a functioning ecosystem while continuing to support sustainable recreation opportunities.

To move toward the desired conditions for sustainable recreation and to achieve the purpose of the project, the following needs and project objectives have been identified:

- Improve hydrologic function and processes of Meeks Creek, Meeks lagoon, and associated floodplain.
- Restore degraded aquatic, riparian, and wetland habitats and barrier beaches to provide high quality habitat that is resilient to a changing climate.
- Improve fish passage and flood flow conveyance through the SR 89 stream crossing, and control or eradicate current populations of terrestrial and aquatic invasive plant and animal species.
- Promote the Threatened, Endangered, Proposed, Candidate, and Sensitive species Tahoe yellowcress (*Rorippa subumbellata*) and Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*).
- Replace the SR 89 bridge to allow for aquatic organism passage and flood flow conveyance.
- Maintain and enhance access to Lake Tahoe and National Forest System lands.
- Provide sustainable recreation opportunities consistent with a functioning ecosystem.
- Enhance educational and interpretive opportunities.
- Enhance species of value to the Washoe Tribe.

1.3 INTENDED USES OF THIS FINAL EIS/EIS/EIR

NEPA requires that federal agencies prepare an EIS to assess the potential impacts of federal actions that could significantly affect the quality of the human environment. The Tahoe Regional Planning Compact requires that TRPA prepare and consider a detailed EIS before deciding to approve or carry out a project that may have a significant effect on the environment. According to CEQA, preparation of an EIR is required whenever it can be fairly argued, based on substantial evidence, that a proposed project may result in a significant environmental impact. This joint EIS/EIS/EIR meets the requirements of NEPA, TRPA, and CEQA for the project.

An EIS/EIS/EIR is an informational document used to inform the public and agency decision makers of the significant environmental impacts of a preferred alternative, identify possible ways to minimize the significant impacts, and describe other reasonable alternatives to the proposal that could feasibly attain most of the basic objectives of the project while substantially lessening or avoiding any of the significant environmental impacts. Public and agency comments on the Draft EIS/EIS/EIR were considered and responses and revisions to the Draft EIS/EIS/EIR are incorporated into this Final EIS/EIS/EIR. Public agencies are required to consider the information presented in the Final EIS/EIS/EIR when determining whether to approve the project.

This EIS/EIS/EIR has been prepared to meet the requirements of a project-level EIS/EIS/EIR pursuant to TRPA, NEPA, and CEQA. A project-level analysis focuses on the changes in the physical environment that would result from the implementation of a project, including its planning, construction, and operation. The intention of the lead agencies in preparing a project EIS/EIS/EIR is that no further environmental analysis would be required for regulatory approvals following approval of the project, absent conditions requiring supplemental analysis, such as substantially modified project conditions. Additional detailed design and regulatory approvals will be required prior to implementation of the project. If conditions requiring additional environmental review are identified after additional detailed design, a lead agency may prepare a re-evaluation, and/or a subsequent, supplement, or addendum to this EIS/EIS/EIR, or a separate environmental review that incorporates by reference or tiers from information in this EIS/EIS/EIR.

1.4 AGENCY ROLES AND RESPONSIBILITIES

1.4.1 Lead Agencies

The LTBMU, TRPA, and Lahontan RWQCB are the lead agencies responsible for approving and carrying out the project and for ensuring that the requirements of NEPA, the TRPA Code, and CEQA have been met. After the EIS/EIS/EIR process is complete, LTBMU will prepare a Record of Decision documenting LTBMU's rationale for its decision regarding the project. Then, the TRPA Governing Board and Executive Officer of Lahontan RWQCB will determine whether to certify the EIS/EIS/EIR and approve the project, and TRPA and Lahontan will prepare and adopt findings pursuant to the TRPA Code and CEQA Guidelines, respectively.

1.4.2 Cooperating, Trustee, and Responsible Agencies

Under NEPA regulations, a cooperating agency is any Federal agency, other than the lead agency, which has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposed project or project alternative. Under CEQA and the CEQA Guidelines, a trustee agency is a State agency that has jurisdiction by law over natural resources that are held in trust for the people of the State of California, and a responsible agency is a public agency, other than the lead agency, which has discretionary approval responsibility for reviewing, carrying out, or approving elements of a project. For the Meek's Bay Restoration Project, the U.S. Army Corps of Engineers and U.S. Fish and Wildlife Service are Federal cooperating agencies. While the U.S. Environmental Protection Agency has review authority, it is not considered a cooperating agency. The California Department of Fish and Wildlife and California State Lands Commission are trustee agencies with jurisdiction over resources potentially affected by the project, and Caltrans, with discretionary approval for project activities within the SR 89 right-of-way, including the proposed replacement of the SR 89 bridge, is a responsible agency. Tahoe City Public Utility District (TCPUD) is also a responsible agency with discretionary approval over changes to infrastructure managed by TCPUD, including utility lines that cross Meeks Creek. Other responsible agencies, their jurisdictions, and approval authorities are listed below.

Responsible and trustee agencies should participate in the lead agencies' environmental process, review the lead agency's environmental document, and use the document when making decisions on project elements.

1.4.3 Required Permits and Approvals

The following lists identify permits and other approval actions that may be required before implementation of individual elements of the project. The list of necessary permits will be refined, and applicable permits and approvals will be sought after design of project components are completed.

FEDERAL ACTIONS/PERMITS

U.S. Army Corps of Engineers: Department of the Army permit under Section 404 and Section 10 of the Clean Water Act for discharges of dredged or fill material into waters of the United States.

U.S. Environmental Protection Agency: Review of the EIS, filing and noticing, and concurrence with the Section 401 Clean Water Act permit.

U.S. Fish and Wildlife Service: Endangered Species Act consultation and issuance of incidental-take authorization for the take of federally listed endangered and threatened species, if take of a species is anticipated.

STATE ACTIONS/PERMITS

California Department of Transportation: Encroachment permit for work involving bridge replacement and the SR 89 right-of-way. Work on transportation facilities (i.e., SR 89 bridge) that occurs on National Forest System lands outside of a highway right-of-way requires a temporary construction special use permit. If structures are proposed outside of the existing highway right-of-way, perfection of the right-of-way may occur.

California State Lands Commission Lease of State Lands: Construction of any type of structure, such as a pier, on lands under the Commission's jurisdiction (i.e., the state's sovereign lands in Lake Tahoe below 6,223 feet) requires a lease of State Lands.

Lahontan Regional Water Quality Control Board (Region 6): National Pollutant Discharge Elimination System construction stormwater permit (Notice of Intent [NOI] to proceed under general construction permit) for disturbance of more than one acre, discharge permit for stormwater, general order for dewatering, Section 401 Clean Water Act certification or waste discharge requirements, and Basin Plan Prohibition Exemption.

REGIONAL ACTIONS/PERMITS

Tahoe Regional Planning Agency: The TRPA and the USFS have a Memorandum of Understanding (MOU) in which the Forest Service agrees to the review of projects that are not exempt under the MOU for compliance with the TRPA code of ordinances. The following is the excerpt from the MOU detailing the relationship between the TRPA and the USFS:

> I. <u>PURPOSE OF THE MEMORANDUM OF UNDERSTANDING (MOU)</u>
>
> The following will direct the USDA Forest Service (FS) and the Tahoe Regional Planning Agency (TRPA) in the review of FS activities. FS activities that are exempt from TRPA review are listed. Activities not exempt are considered projects and are reviewed by the TRPA. Certain of these projects, as listed herein, are required to be reviewed by the TRPA Governing Board.
>
> This MOU is executed pursuant to the TRPA Code of Ordinances (hereinafter referred to as Code). Upon execution, the MOU will become a part of Code Section 4.8.
>
> II. <u>GENERAL PROCEDURES</u>
>
> A. The FS agrees to:
>
> 1. Inform the TRPA of activities being considered for implementation on national forest land in the Lake Tahoe Basin. The Lake Tahoe Basin Management Unit (LTBMU) "PROJECT PLANNING REPORT", which is published and distributed quarterly, will be the principal means of disseminating information about activities being analyzed.
> 2. Conduct all exempt activities in accordance with federal laws and regulations, the applicable provisions of the FS manuals and handbooks, and the management direction of the LTBMU Land and Resource Management Plan when those directions are consistent with the TRPA Regional Plan and Code.
> 3. Conduct those exempt activities for which there is no applicable direction in the LTBMU Land and Resource Management Plan in accordance with the TRPA Regional Plan and Code.
> 4. Provide TRPA with complete applications for review of those activities that are not exempt from review by this MOU. Accompanying the application will be environmental documents, maps, drawings, and other information requested by TRPA.
> 5. Require that applicants seeking a permit to use or occupy the national forest, for an activity not otherwise exempt from TRPA review, also make application to the TRPA.
>
> B. TRPA AGREES TO:
>
> 1. Review projects not exempted by this MOU for conformance with the Regional Plan Package.

2. Affirm that water quality, air quality, and noise management proposals for the area are appropriate.
3. Advise where other goals for the Lake Tahoe Basin can be furthered by the project where appropriate.
4. Make the following findings, if appropriate per Section 6.3 of the Code.

1.5 PUBLIC ENGAGEMENT AND STAKEHOLDER PROCESS

The Meeks Bay Restoration Project and this EIS/EIS/EIR were informed by a collaborative public and stakeholder process beginning in 2018. The public engagement process exceeded the requirements of NEPA, TRPA regulations, and CEQA, and sought to gather broad input to identify issues and possible design approaches to achieve the purpose and need and objectives of the project while minimizing adverse effects. The alternatives evaluated in this EIS/EIS/EIR are a result of the collaborative engagement process and, because of public input, several boat ramp alternatives were dismissed from further evaluation (see Section 2.12.2, "Boat Ramp Alternatives"). The EIS/EIS/EIR addresses the range of potential environmental effects raised in public comments. Major steps in the process to date include:

1.5.1 Public Engagement Prior to the Release of the Draft EIS/EIS/EIR

- September 11, 2018 – LTBMU, TRPA, and Lahontan RWQCB released a Notice of Preparation/NOI and scoping letter. This initiated a 45-day public scoping period.
- October 10, 2018 – The lead agencies hosted a public scoping meeting at Meeks Bay Resort to solicit scoping comments.
- May – July 2020 – An independent mediator interviewed individuals that provided scoping comments, community members, and other stakeholders to gain a better understanding of key concerns and viewpoints on the project. The results were summarized in a stakeholder assessment and a representative group of stakeholders with diverse viewpoints were selected as a stakeholder forum.
- July 15, 2020 – A virtual public stakeholder forum meeting was held to discuss project background and the role of the stakeholder forum.
- August 5, 2020 – A virtual public stakeholder forum charrette was held to identify design elements to be considered in the project alternatives.
- August 19, 2020 – A virtual public workshop was held to share information on the project and solicit input on project alternatives.
- September 9, 2020 – A virtual public stakeholder forum workshop was held to develop alternative themes and preliminary alternative diagrams.
- December 9, 2020 – A virtual public stakeholder forum meeting was held to collect feedback on preliminary project alternatives and collect input on considerations for the EIS/EIS/EIR.
- January 7, 2021 – A virtual public workshop was held to share the project alternatives and seek input on alternative features and environmental concerns.
- January 27, 2021 – A meeting of the TRPA Regional Plan Implementation Committee provided an overview of the project alternatives and collected TRPA board member and public input to refine the project alternatives
- July 21, 2021 – A virtual public stakeholder forum meeting was held to review input received to date, discuss the selection of a preferred alternative, and seek input on considerations for this EIS/EIS/EIR.
- July 29, 2021 – The project alternatives were shared at a meeting of the TRPA Governing Board to provide an opportunity for TRPA board members and public to provide input on the project alternatives and issues for consideration in this EIS/EIS/EIR.

1.5.2 Public Engagement after the Release of the Draft EIS/EIS/EIR

The EIS/EIS/EIR was circulated for public review and comment for a period of 60 days from June 10 through August 9, 2022. During this period, comments from the public as well as organizations and agencies on environmental issues were submitted to the lead agencies and the list of commenters is provided below in Table 1-1. Responses to all comments submitted during the public review period are included in Appendix F. Changes to the Draft EIS/EIS/EIR in response to comments are summarized below and incorporated into this Final EIS/EIS/EIR.

Three public meetings were held on the Draft EIS/EIS/EIR via online webinar at the following dates and times. Instructions on attending these webinars were available at: www.meeksbayproject.org.

- Stakeholder Forum Meeting: 1:00 p.m. on June 14, 2022.
- TRPA Governing Board Meeting: on June 22, 2022 (refer to www.trpa.gov one week prior to the meeting for the start time and agenda).
- Public Workshop: 5:30 p.m. on June 27, 2022.

Table 1-1 List of Commenters on the Draft EIS/EIS/EIR

Commenter	Date
Agencies	
Washoe Tribe of Nevada and California Herman Fillmore Rhiana Jones	August 2, 2022 August 9, 2022
US Environmental Protection Agency Sarah Samples and Jean Prijatel	August 3, 2022
Meeks Bay Fire Protection District Edward Miller	August 4, 2022
Nevada State Clearinghouse Scott Carey	August 9, 2022
California State Lands Commission Eric Gillies and Jason Ramos	August 9, 2022
Tahoe City Public Utility District Matthew Homolka	August 9, 2022
Organizations and Individuals	
Gina Thompson	June 10, 2022
Joann Helmus	June 10, 2022
Marc Roos	June 10, 2022
Cory Allison	
Robin Albee-Kesich	June 16, 2022
Kathy Astromoff	June 17, 2022
Michael Bosse	June 17, 2022
Whitney Foehl	June 21, 2022
Harold Appleton	June 22, 2022
Doris Healy	June 22, 2022
Maureen Montgomery	June 25, 2022
Dr. Owen Hughes	June 27, 2022
Owen Hughes	June 28, 2022

Commenter	Date
Owen Hughes	June 28, 2022
Owen Hughes	June 28, 2022
Meeks Bay Vista Property Owners Association William Lyons, Jr.	June 28, 2022
Kimberly Enzensperger	June 28, 2022
Connie Spencer	June 28, 2022
Dana Schneider	June 29, 2022
Donna Reid	June 30, 2022
Friends of the West Shore Judith Tornese	July 4, 2022
Walter Mirczak	July 6, 2022
Michael Henriques	July 6, 2022
Lori Krumrei	July 6, 2022
Natural Heritage Institute Gerald Meral	July 7, 2022
John Dayberry	July 19, 2022
David Coward	July 28, 2022
David Coward	July 28, 2022
Gerald Meral	August 3, 2022
Belinda Breyer	August 3, 2022
Marilyn Henriques	August 4, 2022
Katie Roos	August 4, 2022
Jason Steves	August 4, 2022
Jeanne Baker	August 5, 2022
Jerry Winters	August 6, 2022
Tahoe Area Group, Sierra Club Peggy McKee	August 7, 2022
Friends of the West Shore Judith Tornese	August 8, 2022
Bill Ray	August 8, 2022
David Coglizer	August 8, 2022
Owen Hughes	August 8, 2022
Dennis Kuzak	August 9, 2022
Robert Tolin	August 9, 2022
Patricia Ferguson	August 9, 2022
Linnea and Greg Kehlet Hull	August 9, 2022
Friends of the West Shore Judith Tornese	August 9, 2022
Doug and Valerie Welch	August 9, 2022
Tahoe Lakefront Owners' Association Jan Brisco	August 9, 2022

Commenter	Date
Susan Hacker	August 9, 2022
Linnea Kehlet Hull	August 9, 2022
Kirk Robinson	August 9, 2022
Julie Hutchinson	August 9, 2022
Mike Hacker	August 9, 2022
The League to Save Lake Tahoe Laura Patten	August 10, 2022
Roberta Freeberg	August 9, 2022
Joseph Carroll	August 10, 2022
Mimi Morris	August 10, 2022
Julie Hutchinson	August 10, 2022

Source: Compiled by Ascent Environmental in 2022.

The Meeks Bay Restoration Project Draft EIS/EIS/EIR and this Final EIS/EIS/EIR are available for public and agency review online at www.meeksbayproject.org.

Before approving the project and obtaining any required permits to implement the project, the lead agencies are required to certify that the EIS/EIS/EIR has been completed in compliance with NEPA, TRPA requirements, and CEQA, that the decision-making body reviewed and considered the information in the EIS/EIS/EIR, and that the document reflects the independent judgment of the lead agencies.

This project is subject to the predecisional objection process (36 CFR 218 subpart A and B), which identifies who may file an objection (36 CFR 218.5):

(a) Individuals and entities as defined in Section 218.2 who have submitted timely, specific written comments regarding a proposed project or activity that is subject to these regulations during any designated opportunity for public comment may file an objection. Opportunity for public comment on a draft EIS includes request for comments during scoping, the 40 CFR 1506.10 comment period, or other public involvement opportunity where written comments are requested by the responsible official.

(b) Federally recognized Indian Tribes and Alaska Native Corporations are also eligible to file an objection when specific written comments as defined in Section 218.2 are provided during Federal-Tribal consultations.

(c) Comments received from an authorized representative(s) of an entity are considered those of the entity only. Individual members of that entity do not meet objection eligibility requirements solely on the basis of membership in an entity. A member or an individual must submit timely, specific written comments independently in order to be eligible to file an objection in an individual capacity.

(d) When an objection lists multiple individuals or entities, each individual or entity must meet the requirements of paragraph (a) of this section. If the objection does not identify a lead objector as required at Section 218.8(d)(3), the reviewing officer will delegate the first eligible objector on the list as the lead objector. Individuals or entities listed on an objection that do not meet eligibility requirements will not be considered objectors. Objections from individuals or entities that do not meet the requirements of paragraph (a) of this section will not be accepted and will be documented as such in the objection record.

1.6 REVISIONS TO THE DRAFT EIS/EIS/EIR

In response to information provided in public and agency comments, the lead agencies made several revisions to the project description and analysis included in the Draft EIS/EIS/EIR. These edits are incorporated into the text of this Final EIS/EIS/EIR. The vast majority of the revisions include text clarifications, additional detail, or technical corrections. These revisions more clearly explain the project alternatives and the analysis, but do not provide substantial new information or alter the findings or significance determinations found in the Draft EIS/EIS/EIR.

Two minor revisions are made to the alternatives in this Final EIS/EIS/EIR. The Draft EIS/EIS/EIR described the paddlecraft launch structure in Alternatives 3 and 4 as being located at the south end of the beach. In this Final EIS/EIS/EIR, the paddlecraft launch is still depicted in the same location in those alternatives, but the alternative description notes that because the paddlecraft structure is moveable and does not include permanent infrastructure, it could be relocated to other areas on the beach, as needed to respond to use patterns, access needs, and visitor congestion. In addition, the Draft EIS/EIS/EIR described disturbance associated with the replacement of the SR 89 bridge and installation of a new bridge or bridges as occurring within 50 feet upstream of the existing bridge. The alternatives description has been revised to disclose that disturbance could occur up to 75 feet from the existing bridge.

These two minor revisions to the alternatives would not result in new environmental impacts or alter the analysis and conclusions included in the Draft EIS/EIS/EIR. In the case of the paddlecraft launch, the effects of the launch would be the same regardless of where it was located along the beach. For instance, the scenic resource analysis evaluates the structure based on the size, color, and design of the proposed structure, but does not rely on its location at a specific point on the beach to support significance determinations. Similarly, allowing disturbance 75 feet upstream of the SR 89 bridge (instead of 50 feet upstream) would not alter the impact determinations. Disturbance would still be limited to riparian areas adjacent to the existing bridge and meadow habitat would not be affected. The same Resource Protection Measures and permit requirements would apply to all activities upstream of the bridge as described in the Draft EIS/EIS/EIR and the effects would be very similar. These revisions would not affect the significance determination with respect to any of the resource analyses in the Draft EIR/EIS for the purposes of CEQA and TRPA, nor would they increase the intensity or alter the context of any direct, indirect or cumulative effects for the purposes of NEPA. These revisions do not constitute “significant new information” requiring recirculation. (See Public Resources Code Section 21092.1 and CEQA Guidelines Section 15088.5.)

1.7 FINAL EIS/EIS/EIR ORGANIZATION

This Final EIS/EIS/EIR is organized into the following chapters:

The “Executive Summary”: This chapter introduces the Meeks Bay Restoration Project; provides a summary of the environmental review process, effects found not to be significant, and key environmental issues; and lists significant impacts and mitigation measures to reduce significant impacts to less-than-significant levels.

Chapter 1, “Introduction”: This chapter provides a brief overview of the project; purpose, need, and objectives; description of the lead and responsible agencies; the legal authority and purpose for the document; and the public review process.

Chapter 2, “Description of the Proposed Action and Alternatives”: This chapter describes the background, location, and the project alternatives in detail. Resource protection measures that would be implemented as part of the alternatives are included in Appendix A.

Chapter 3, “Environmental Impacts and Mitigation Measures”: The sections within this chapter evaluate the expected environmental impacts generated by the project alternatives, arranged by subject area (e.g., land use, hydrology and water quality). Within each subsection of Chapter 3, the regulatory background, existing conditions, analysis methodology, and thresholds of significance are described. The anticipated changes to the existing conditions after development of each alternative are evaluated for each subject area. For any significant or potentially significant impact that would result from implementation of an alternative, mitigation measures are presented and the level of impact significance after mitigation is identified. Environmental impacts are numbered sequentially within each section (e.g., Impact 3.2-1, Impact 3.2-2, etc.). Any required mitigation measures are numbered to correspond to the impact numbering; therefore, the mitigation measure for Impact 3.2-2 would be Mitigation Measure 3.2-2.

This Draft EIS/EIS/EIR includes an evaluation of the following 13 environmental issue areas as well as other NEPA-, TRPA-, and CEQA-mandated issues (e.g., cumulative impacts, growth-inducing impacts, significant unavoidable impacts):

- recreation;
- scenic resources;
- cultural and tribal cultural resources;
- terrestrial biological resources;
- aquatic biological resources;
- hydrology and water quality;
- geology and soils;
- air quality;
- climate change and energy;
- public safety and hazards;
- noise;
- transportation and circulation; and
- land use.

Chapter 4, "Other Sections Required by Statute": This chapter evaluates growth-inducing impacts and irreversible and irretrievable commitment of resources and discloses any significant and unavoidable adverse impacts.

Chapter 5, "Report Preparers": This chapter identifies the preparers of the document.

Chapter 6, "References": This chapter identifies the organizations and persons consulted during preparation of this Draft EIS/EIS/EIR and the documents and individuals used as sources for the analysis.

Appendices: Four appendices are attached, which include: detailed technical analysis, a list of Resource Protection Measures that would apply to all alternatives, a Mitigation Monitoring and Reporting Program as required by CEQA, and a list of public comments and responses to comments submitted on the Draft EIS/EIS/EIR.

1.8 TOPICS DISMISSED FROM DETAILED REVIEW

Consistent with NEPA, TRPA, and CEQA requirements, a lead agency may limit discussion of environmental effects when such effects are not considered potentially significant. Information used to determine which impacts would be potentially significant was derived from review of the project, review of applicable planning documents and environmental documentation, field work, feedback from public and agency consultation, and comments received during a public scoping period and public engagement process.

The alternatives would not result in significant effects related to the topics described below and they have been dismissed from detailed review in this EIS/EIS/EIR:

- **Mineral Resources:** The alternatives would include restoration and public access amenities that would not preclude the use of a state or locally important mineral resource. Nor do any known mineral deposits occur within the vicinity of the project area. Thus, the alternatives would not affect mineral resources.
- **Population and Housing:** The alternatives would not displace people or existing housing, nor would the alternatives create housing. They would require temporary workers to implement restoration actions and facility improvements, but the demand for workers would be a small incremental increase over existing regional

demands, and workers would be expected to come from the existing local workforce. As a result, the alternatives would not affect population and housing.

- **Public Services and Utilities:** The alternatives would not generate an increased need for some public services, such as schools or parks, because there would be no changes in population or housing resulting from the alternatives. They would not result in the need for new or altered governmental facilities and would, therefore, not affect the public services identified above. The alternatives would not change land uses within the project area nor would they substantially increase the capacity of existing facilities or substantially increase the demand for water, wastewater treatment, or solid waste disposal. Police and fire protection services are addressed in this EIS/EIS/EIR in Section 3.10, "Public Safety and Hazards."
- **Agricultural and Forestry Resources:** The alternatives would not affect prime agricultural land or forestry resources; thus, these topics are not addressed in detail in this EIS/EIS/EIR.
- **Old Growth:** On December 20, 2023, the Department of Agriculture published a Notice of Intent to prepare an environmental impact statement for a National Old Growth Amendment in the Federal Register. The proposed amendment establishes national intent to maintain and improve amounts and distributions of old-growth forest conditions within national forest ecosystems and watersheds so that old-growth forest conditions are resilient and adaptable to stressors and likely future environments. The project area does not include any existing or potential old growth forest; therefore, the project would not affect old growth and additional analysis is not addressed in detail in this EIS/EIS/EIR.

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2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

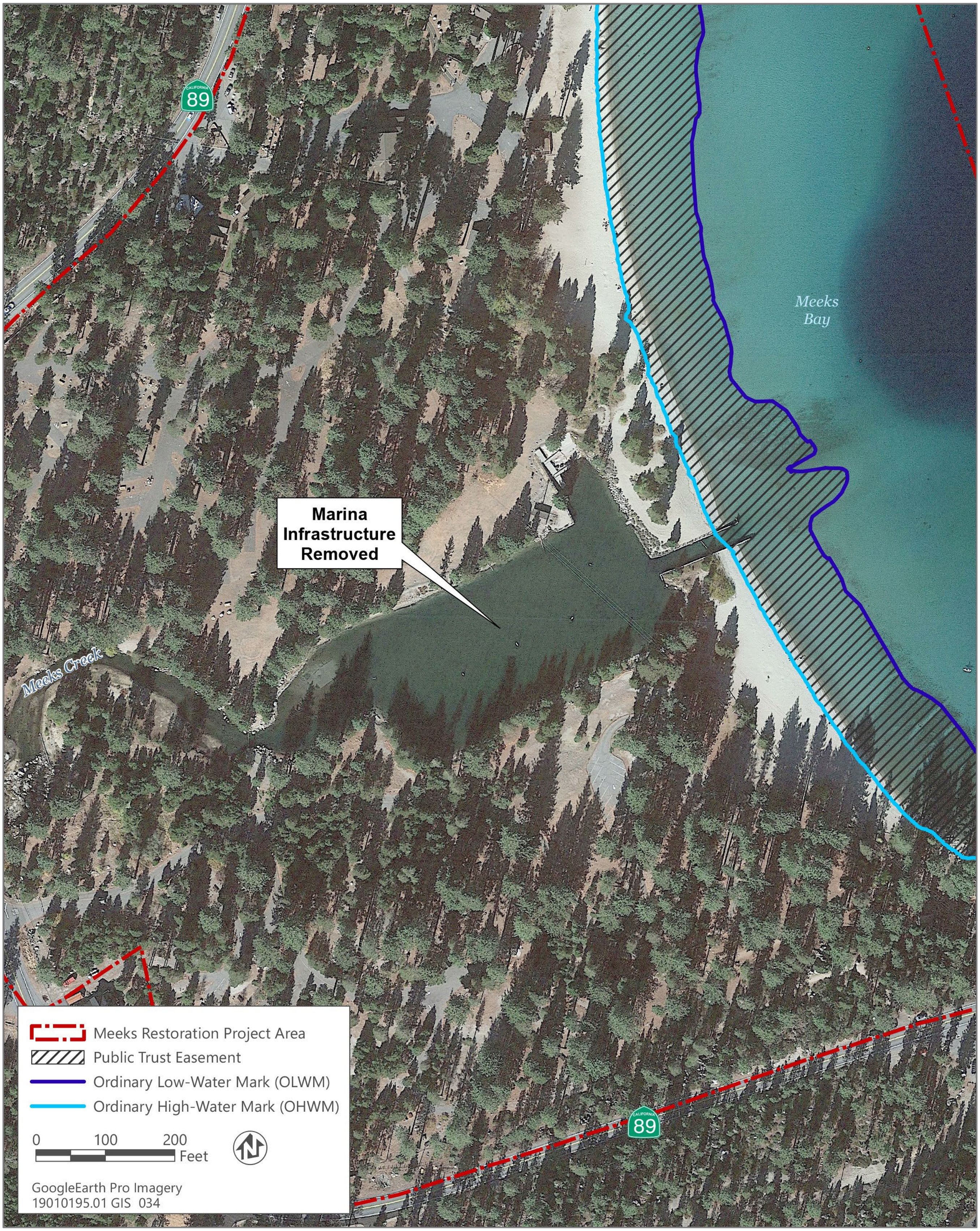
2.1 BACKGROUND

The proposed Meeks Bay Restoration Project (project) encompasses approximately 74 acres of Lake Tahoe shoreline and upland areas surrounding Meeks Creek, which historically included a stream channel, wetland, lagoon, and barrier beach. Historical development along Meeks Bay displaced wetland and lagoon habitat, modified the remaining stream channel, created conditions conducive to aquatic invasive species (AIS), and accelerated pollutant delivery into Lake Tahoe. This historic development included construction of Meeks Bay Marina, which involved excavation, filling, dredging, and installation of sheet pile bulk heads, a boat ramp, and approximately 120 boat slips within the original stream channel and lagoon.

The Meeks Bay Marina was constructed in the early 1960s and was in operation through 2015 in all years in which water levels were sufficient to support the marina. In 2015, LTBMU removed the moveable elements of the marina, including the floating slips (see Figure 2-1), and temporarily closed the marina to address water quality concerns and facilitate Aquatic Invasive Species (AIS) management. An additional challenge of operating this marina is its location at the mouth of a creek that flows into the lake requires regular dredging to remove sediment because the marina experiences a high volume of sediment carried in by the creek that settles in the marina. LTBMU did not permanently closed the marina and the permanent physical elements of the marina, including bulkheads and the boat ramp, remain in place. This planning process for the Meeks Bay Restoration Project is the forum to decide on the long-term fate of the marina. Removal of the marina is necessary to facilitate restoration and operation of this marina is limited based on adequate lake levels, water quality concerns, AIS management, and ongoing maintenance challenges with dredging. For these reasons the project proposes permanent closure of the marina and restoration of Meeks Creek.

The project area is a popular summer recreation site providing opportunities for camping, boating, picnicking, swimming, and beach use. The USDA Forest Service, Lake Tahoe Basin Management Unit (LTBMU or USDA Forest Service) acquired the project area in 1974. It is within the homeland of the Washoe Tribe, which manages the Meeks Bay Resort on the north side of the project area through a special use permit with the USDA Forest Service. The Washoe Tribe is also leading the restoration of Meeks Meadow upstream of the project area. The south side of the project area is managed by Tahoe Recreation, a private company that operates outdoor recreation facilities and related hospitality services, under a special use permit from the USDA Forest Service.

Management actions are necessary to protect resources and move the project area toward desired conditions while continuing to support sustainable recreation opportunities and achieve the project purpose described in Section 1.2, “Purpose, Need, and Project Objectives,” in Chapter 1, “Introduction.” LTBMU developed the proposed Meeks Bay Restoration Project to restore the Meeks Creek channel, wetlands, lagoon, and barrier beach; improve other environmental conditions; and continue to provide high-quality recreation at the site while implementing restoration. The project involves removal of Meeks Bay Marina; restoration of Meeks Creek and associated wetland/lagoon habitat; continued management of AIS; replacement of the State Route (SR) 89 bridge, reconfiguration or construction of pedestrian and vehicle circulation and parking areas, and campgrounds; installation of utility infrastructure and best management practices (BMPs), shoreline stabilization, habitat enhancement, aquatic organism passage improvements; flood flow conveyance improvements, resource protection features; and other associated improvements. It also involves the potential for new recreation facilities, such as a pier, to offset the loss of motorized boating access with the removal of the marina. These actions as part of the project would fulfill the need and project objectives listed in Section 1.2.



Source: Adapted by Ascent Environmental in 2022.

Figure 2-1 Closed Marina with Floating Slips Removed (2015)

In September 2018, LTBMU, the Tahoe Regional Planning Agency (TRPA), and the Lahontan Regional Water Quality Control Board (Lahontan RWQCB) initiated public scoping for a joint EIS/EIS/EIR. During the scoping period, 123 comment letters were submitted, many of which identified issues and concerns with the proposed action. Since that time, the planning team has led a stakeholder and public engagement process to refine the proposed action and develop project alternatives. The process involved 1) an initial stakeholder assessment, 2) creation of a representative stakeholder forum that met multiple times to provide input into the development of alternatives, and 3) a series of public workshops during which members of the public provided input into the development of the proposed action and alternatives. The result was development of four action alternatives carried forward for analysis in this joint EIS/EIS/EIR.

2.2 LOCATION

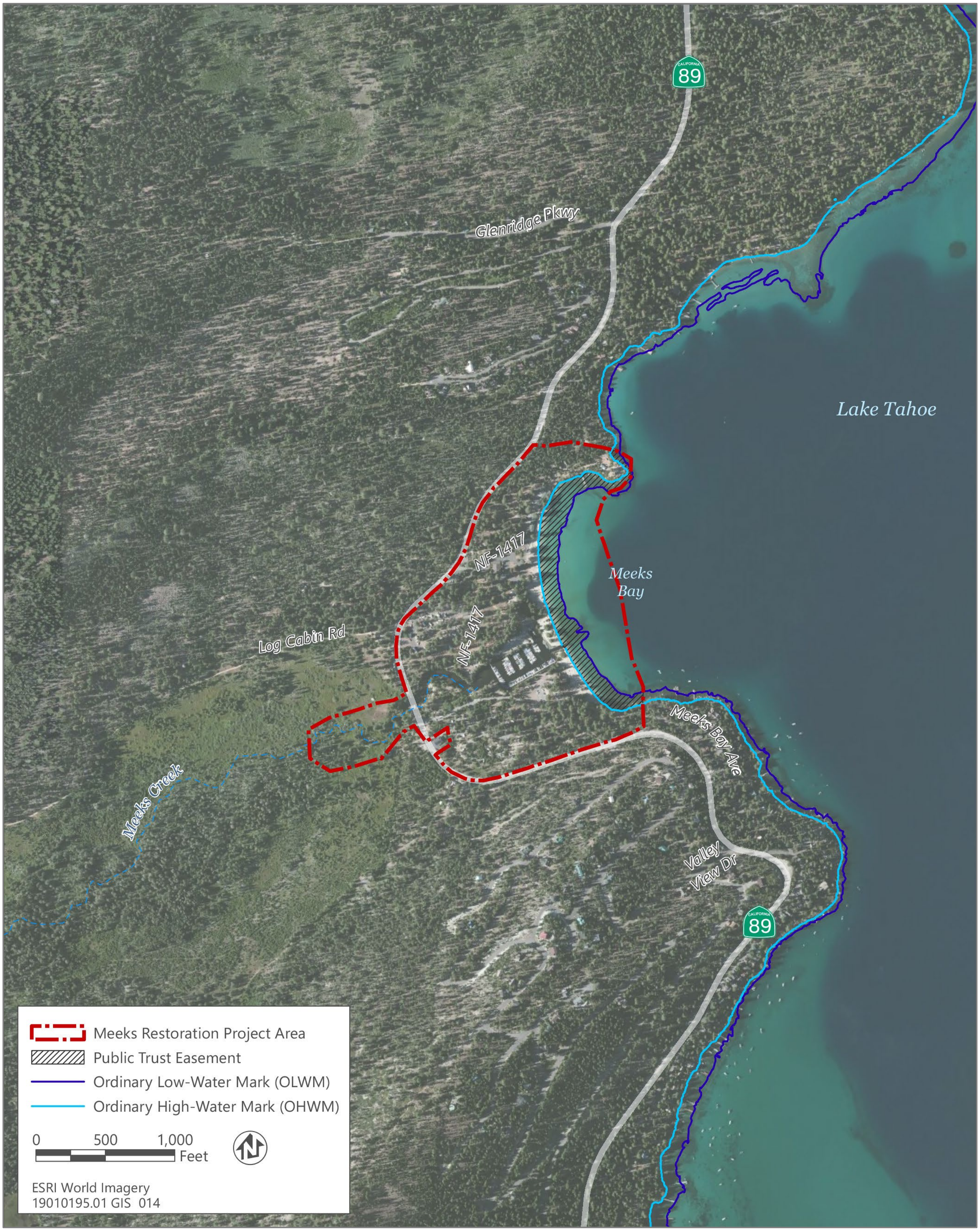
The Meeks Bay Restoration Project area is located on the west shore of Lake Tahoe in El Dorado County, California. The project area is approximately 74 acres and extends from approximately 75 feet upstream of SR 89 in the east to the Lake Tahoe shorezone in the west (Figure 2-2). The project area encompasses recreation facilities including Meeks Bay Marina, Meeks Bay Resort, and Meeks Campground.

2.3 OVERVIEW OF THE ALTERNATIVES

NEPA, TRPA, and CEQA require the evaluation of alternatives in an EIS/EIS/EIR. The alternatives described in this chapter comply with these requirements as mandated in Section 1502.14 of the Council on Environmental Quality Regulations for Implementing NEPA, Section 15126.6 of the State CEQA Guidelines, Article VII(a)(3) of the Tahoe Regional Planning Compact, and Section 3.7 of the TRPA Code of Ordinances. Each alternative is potentially feasible, based on relevant economic, environmental, social, technological, and legal factors. In general, the evaluation of alternatives is intended to provide decision-makers and the public with an understanding of the potential tradeoffs among different approaches to achieve the purpose, need, and objectives of the project.

The lead agencies, in collaboration with stakeholders and interested members of the public, developed four action alternatives, which are evaluated along with a no action alternative in this EIS/EIS/EIR. Each of the action alternatives includes different combinations of design features intended to achieve the project purpose, need, and objectives while minimizing adverse effects. The alternatives listed below are evaluated in this EIS/EIS/EIR. Table 2-1 provides a summary of the features of each alternative, and additional detail is included in Sections 2.5 through 2.8 of this chapter. Alternative 4 is the preferred alternative that is proposed for adoption by the lead agencies. It constitutes the "proposed action" for purposes of NEPA, and the "proposed project" that is evaluated pursuant to CEQA and TRPA.

- **Alternative 1 – Restoration with Boating Pier**. This alternative includes full restoration of the creek and lagoon and installation of a pier to provide motorized boat access. It includes replacement of the SR 89 bridge, relocation of two motel-style cabins, and other changes to facilities while not substantially changing the extent of any existing land uses.
- **Alternative 2 – Restoration with Pedestrian Pier.** This alternative includes full restoration of the creek and lagoon and installation of a shorter pier to provide pedestrian access. It includes replacement of the SR 89 bridge and changes to upland facilities while not substantially changing the extent of any existing land uses.
- **Alternative 3 – Restoration with No Pier.** This alternative includes full restoration of the creek and lagoon with no pier. It includes replacement of the SR 89 bridge, a moveable and universally accessible paddlecraft lake access feature, and changes to upland facilities including expanded campgrounds and parking.
- **Alternative 4 – Preferred Alternative.** This alternative is proposed for adoption by the lead agencies. It includes full restoration of the creek and lagoon with no pier. It includes replacement of the SR 89 bridge, a moveable and universally accessible paddlecraft lake access feature, and changes to upland facilities including expanded parking and the relocation of two motel-style cabins.
- **No Action Alternative.** This alternative reflects future conditions with current facilities and management approaches if the proposed project is not adopted.



Source: Adapted by Ascent Environmental in 2020.

Figure 2-2 Meeks Bay Restoration Project Area

Table 2-1 Key Features of Each Alternative

Alternative Feature	Alternative 1 Restoration with Boating Pier	Alternative 2 Restoration with Pedestrian Pier	Alternative 3 Restoration with No Pier	Alternative 4 Preferred Alternative	No Action Alternative
Restoration	Remove marina infrastructure and restore creek, lagoon, and barrier beach.	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1	No restoration, marina remains
Pier	Centrally located pier to accommodate boat access	Centrally located pedestrian pier with no motorized boat access	No pier	No pier	No pier
Campgrounds	Reconfigured campgrounds with up to 50% of sites providing alternative camping, such as yurts or camping cabins. ▸ 36 sites at Meeks Bay Resort campground ▸ 36–42 sites at the Meeks Bay campground	Same as Alternative 1	Reconfigured campgrounds with up to 50% of sites providing alternative camping, such as yurts or camping cabins. ▸ 41–46 sites at Meeks Bay Resort campground ▸ 42–52 sites at the Meeks Bay campground	Same as Alternative 1	No change at either of the campgrounds: ▸ 36 sites at Meeks Bay Resort campground ▸ 40 sites at the Meeks Bay campground
Parking	No change	Reconfigured with no change in the number of parking spaces	Relocated parking with up to 14 additional spaces	Reconfigured parking with up to additional 14 spaces	No change
Paddlecraft infrastructure	Paddlecraft storage rack	Same as Alternative 1	Moveable, universally accessible paddlecraft launch platform and paddlecraft storage rack	Same as Alternative 3	None
SR 89 bridge	Replace SR 89 bridge with a longer span bridge of an appropriate length to accommodate the creek's flow and provide terrestrial and aquatic organism passage. The bridge would include either a multi-use path or sidewalks and bike lanes and a terrestrial wildlife undercrossing.	Replace SR 89 bridge with a longer span bridge of an appropriate length to accommodate the creek's flow and provide terrestrial and aquatic organism passage. Add a terrestrial wildlife undercrossing. Construct a separate multi-use path just east of the road bridge and a wildlife undercrossing.	Same as Alternative 2	Same as Alternative 1	No change
Fish management structure	Construct fish management structure between 75 feet upstream of the SR 89 bridge and new bridge with multi-use path to manage fish passage upstream of the lake.	Similar to Alternative 1	Similar to Alternative 1	Similar to Alternative 1	No change
Day-use areas	Reconfigure and slightly expand day-use areas	Similar to Alternative 1	Similar to Alternative 1	Similar to Alternative 1	No change
Multi-use path	Create multi-use path along SR 89 with a spur loop through the project area with a new bridge	Similar to Alternative 1	Similar to Alternative 1	Similar to Alternative 1	None
Parking[1]	Retain existing parking capacity throughout the project area: ▸ South of Meeks Creek ▪ 76 day-use parking spaces ▸ Meeks Bay Resort ▪ 300 overnight/day-use parking spaces	Same as Alternative 1	Add 14 day-use parking spaces to South of Meeks Creek: ▸ 90 day-use parking spaces Retain existing parking capacity at Meeks Bay Resort: ▸ 300 overnight/day-use parking spaces	Same as Alternative 3	No change/Same as Alternative 1
Cabin relocation	Remove two motel-style cabins near the beach and replace them with new cabins farther from the beach	No change	No change	Same as Alternative 1	No change
Shoreline stabilization	Replace existing shoreline protection in front of and north of cabins	Replace existing shoreline protection north of cabins	Same as Alternative 2	Same as Alternative 1	No change
AIS control	Implement ongoing AIS control	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
Habitat enhancement	Add nest/perch structures and Tahoe Yellow Cress protection	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1	None
Interpretive features	Add interpretative path and features	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1	No change

[1] There is overlap in parking for day-use and overnight guests in the project area for existing and proposed parking. There is not necessarily dedicated day-use or overnight parking spaces. Permit holders (i.e., Washoe Tribe and Tahoe Recreation) manage the parking areas for overflow parking for the overnight visitors, as needed.

Source: Compiled by Ascent Environmental in 2022.

2.4 NO ACTION ALTERNATIVE

The No Action Alternative represents the future conditions if the project is not implemented (Figure 2-3). Under this alternative, there would be no restoration and the marina would remain in place, with a boat ramp and approximately 120 slips. Currently, some marina infrastructure, including the floating platforms and slips, have been removed from the marina to facilitate management actions. With the No Action Alternative, this infrastructure could be reinstalled, in coordination with ongoing AIS control measures. Under the No Action Alternative, the marina would continue to operate as it had in the past. The marina would be operational during navigable, high lake levels and would not be operational during periods of low lake levels. Upland features would remain in their current configuration, which includes 76 campsites in two campgrounds and two day-use areas. The No Action Alternative would continue to implement ongoing AIS control measures, such as bottom barrier treatments within the marina. Other activities that could occur under this alternative would be retrofits to the marina for health and safety purposes (e.g., if sheet piling is unsafe) and typical maintenance activities. No other resource enhancement measures would be implemented.

Under existing conditions, Meeks Creek is degraded and lacks the wetland, lagoon, and barrier beach habitat that historically existed in the project area. A barrier to fish passage exists at the SR 89 bridge, which prevents native and game fish species from accessing the upper watershed. These degraded conditions would continue and may worsen under the no action alternative.

2.5 ELEMENTS COMMON TO THE ACTION ALTERNATIVES

2.5.1 Restoration of Meeks Creek and Lagoon

All four action alternatives would involve removal of the marina and boat launch infrastructure to allow for full restoration of Meeks Creek, lagoon, and barrier beach along the reach of the creek from SR 89 to Lake Tahoe. To accomplish restoration goals, the existing marina infrastructure, including the concrete boat launch, steel and concrete retaining walls that form the perimeter of the marina, boulder riprap, marina office, and other ancillary infrastructure both above- and below-ground would be entirely removed. Restoration of the historic lagoon and stream channel within the project area would restore 0.5 acres of lentic habitat (i.e., habitat characterized by standing or slow flowing water) and 2.8 acres of lotic habitat (i.e., habitat with running water, rivers or streams) for aquatic and riparian dependent species.

Restoration would occur upstream of and within the footprint of the existing marina infrastructure. To accommodate full restoration of Meeks Creek, the parking area adjacent to the boat ramp on the north side of the marina would be removed. All four action alternatives would replace lost parking with relocated parking in the northern portion of Meeks Bay (see discussion on parking, below). Upon removal of Meeks Bay Marina, the natural stream channel, floodplain, lagoon, and barrier beach of Meeks Creek would be restored. Anthropogenic fill surrounding Meeks Creek in the vicinity of the marina would be removed or regraded as necessary to recreate a shallow lagoon and to restore channel and floodplain topography along Meeks Creek from SR 89 to Lake Tahoe. Before removal or regrading of fill, soil would be tested to confirm there are no chemical contaminants consistent with federal requirements outlined in Section 3.10, "Public Safety and Hazards." Marina removal and restoration would require substantial earth moving and grading, preliminarily estimated from the conceptual design as 30,000 cubic yards of excavation and 32,000 cubic yards of fill placement (Balance Hydrologics 2021). Lagoon soil containing AIS particles would be over-excavated and removed from site to a sufficient depth to prevent propagation of AIS. Following grading, the channel banks and lagoon would be revegetated with emergent lagoon and riparian plant species native to the Lake Tahoe Basin. Figure 2-4 shows a conceptual restoration plan, including a conceptual alignment for a proposed bridge with multi-use path (described in Section 2.5.4). Additional restoration design and engineering would occur to establish detailed design parameters. The restoration design would be closely coordinated with the design of the SR 89 bridge, which would also supports achieving restoration goals.

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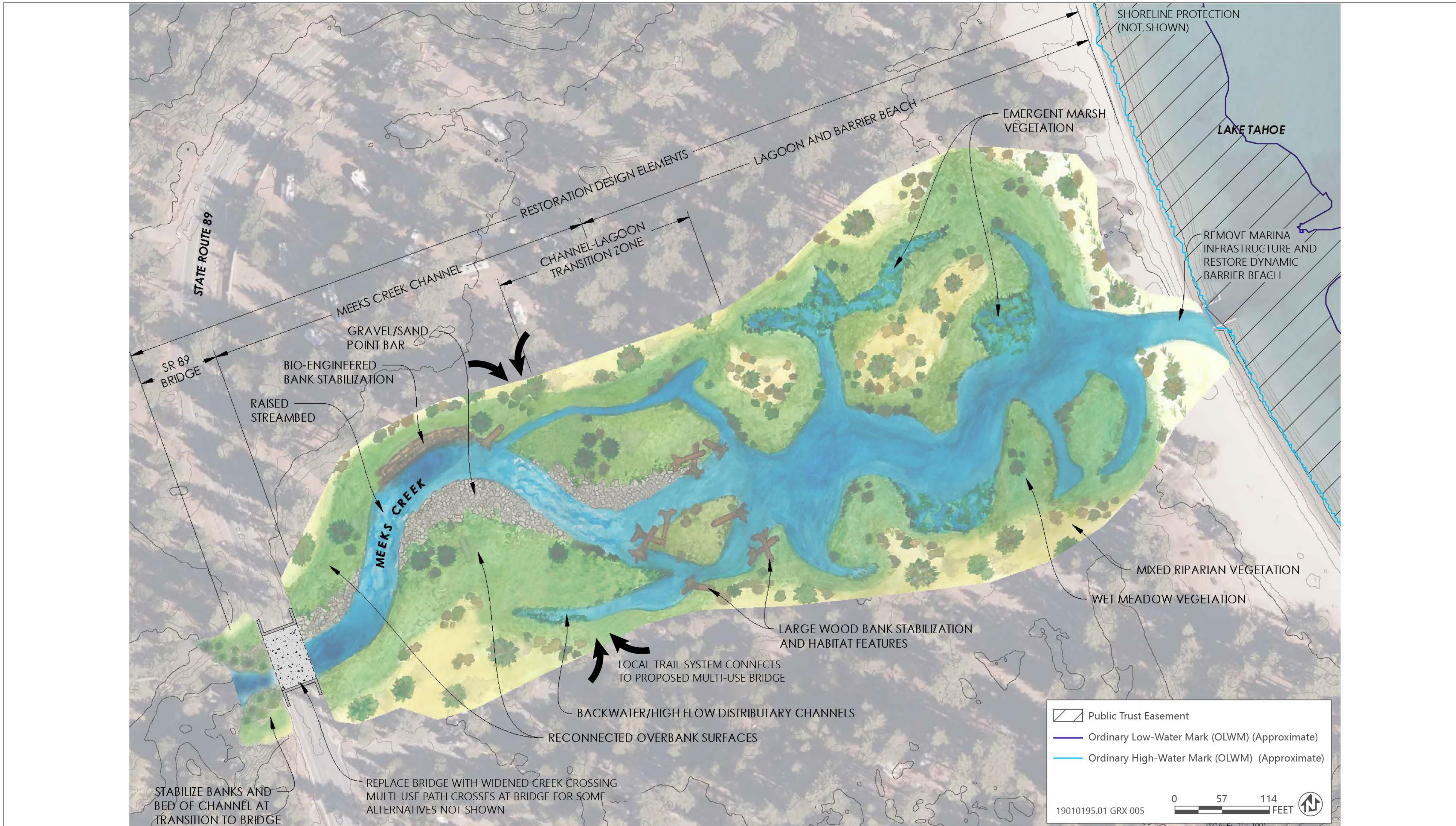
Source: Image produced and provided by Design Workshop in 2021.

Figure 2-3 No Action Alternative Conceptual Plan



Source: Image produced and provided by Balance Hydrologics, Inc. in 2021.

Figure 2-4 Meeks Bay Conceptual Restoration Design

The restored channel would be designed such that the restored creek and lagoon would not increase the extent or frequency of flooding on adjacent areas outside of the restored floodplain. Riparian areas and floodplain surfaces would include microtopographic features (hummocks and depressions), large woody debris roughness features, as well as backwater channels, oxbow features, and multiple distributary channels to promote habitat complexity and vegetation diversity. Channel bed material would consist of natural materials to allow a limited amount of mobilization during high flows while maintaining bed elevation, blend with the surrounding landscape, and control depths and velocities that would allow fish passage. The channel bed would include various and appropriately spaced bedforms (i.e., pools and riffles) that promote habitat complexity. Upper bank stabilization would be provided by bio-engineered treatments selected for consistency with the surrounding landscape. Rock stabilization would be limited.

The area containing the existing marina would be filled with clean gravel and sand substrate to an elevation consistent with the inferred pre-marina elevation of the lagoon bottom and be graded to a range of elevations to support a mix of natural obligate wetland and riparian vegetation. Once restored, lagoon waters would naturally interact with the backshore of Lake Tahoe and the elevation of the lagoon bottom would support the long-term stability of the upstream channel under the range of possible lake levels. The restored mouth of Meeks Creek would allow natural lateral migration, and the sand bar at the mouth of Meeks Creek would be allowed to form and breach naturally.

The project would be observed post construction by USFS consistent with permit requirements to make sure vegetation is established and project elements function as intended.

2.5.2 State Route 89 Bridge Replacement

Under the four action alternatives, the existing SR 89 bridge over Meeks Creek would be replaced to improve the structural integrity, flood flow conveyance, aquatic organism passage, and geomorphic conditions. Under Alternatives 1 and 4 the bridge would be widened to accommodate a multi-use path, and under Alternatives 2 and 3 a separate bridge to accommodate a second multi-use path and would be constructed adjacent to the east side of the SR 89 bridge.

The existing SR 89 bridge was built in 1928 and consists of two 8-foot-high by 12-foot-wide concrete box culverts (Swanson H+G 2006). Channel incision on the downstream side of the bridge has created an approximately 4-foot-high vertical drop that is a barrier to fish passage. Meeks Creek on the upstream side of the bridge is generally vertically stable because the box culvert provides grade control and has limited incision from progressing from downstream of the bridge to upstream areas. Installation of the bridge and historical land use on the upstream side of the bridge, however, has disturbed portions of the meadow, which continues to adjust in response to the disturbance. The bridge has also provided scour protection for several utility crossings. The existing bridge is considered able to convey the entire 100-year flood—estimated as 1,000 cubic feet per second by Swanson H+G (2006)—but creates a hydraulic bottleneck such that the bridge causes backwater in the meadow for approximately 700 feet upstream (this distance would be less for a smaller flood) and accelerated, erosive flows downstream. The current width of the bridge, as well as the vertical separator between the two box culverts, limits the transport of large woody debris. Beavers have leveraged the constriction created by the bridge in the past and have built dams within and immediately upstream of the box culverts.

The existing bridge would be replaced with a natural substrate crossing and would include design elements to control the grade at the bridge. Early conceptual designs (i.e., Swanson H+G 2006) showed a clear span crossing, but the design has not been finalized and detailed design for the bridge has not been completed.

The bridge railings would be constructed of stone or painted molded concrete that closely resembles the existing stone railings. A small under-bridge structure would allow small animals to cross SR 89 underneath the bridge.

Minor grading would be completed on the upstream side of the bridge, but only to the extent that it is required for the grading to conform with the new bridge, maintain grade control, and improve the crossing and lagoon on the downstream side. This grading would be restricted to within 75 feet of the bridge.

2.5.3 Resource Enhancement

FISH MANAGEMENT STRUCTURE

A fish management structure would be constructed in the creek channel near the SR 89 bridge, multi-use path bridge, or in the channel between the SR 89 and the restored lagoon. The fish management structure would consist of a weir or similar in-channel structure that could be adjusted to block or allow the movement of fish. Additionally, the structure would be located and constructed in a fashion to avoid stream flows bypassing the structure, streambank erosion, undercutting, and/or restricting flows causing backwatering or increased velocity. Because of some uncertainty of optimal location and designs to meet objectives, a feasibility study would be completed prior to implementation. This structure would be managed to prevent the movement of non-native fish species into the upper watershed in order to protect and support the recovery of native fish species in the upper watershed.

AQUATIC INVASIVE SPECIES CONTROL

AIS have been introduced into the Meeks Creek watershed ecosystem primarily through operation of the Meeks Bay Marina and associated boat access. The Meeks Bay Marina is a partially enclosed structure that reduces water circulation, resulting in elevated water temperatures and poor water quality from a lack of mixing with open water. These characteristics have created optimal habitat for non-native warmwater invasive fish, American bullfrog, and invasive aquatic plants such as Eurasian milfoil. When boats visit or launch, they serve as vectors for the spread of AIS species to other parts of the lake.

An ongoing AIS control project is already occurring within the Meeks Bay Marina with the objective of AIS eradication before the start of restoration activities. This is being accomplished through manual control mechanisms such as the placement of bottom barrier mats to smother AIS. No chemicals would be used to control AIS. Additional AIS control measures would be implemented before and during construction of restoration features to prevent the spread of AIS during construction and reduce the risk of AIS re-establishment after construction. Resource Protection Measures (RPMs) for invasive species control are summarized in Appendix A.

It is anticipated that the habitat for warmwater fish and bullfrogs would be reduced after restoration of the lagoon; however, there may be a need to provide ongoing control of AIS (e.g., warmwater fish, American bullfrogs, aquatic invasive weeds) from the proposed project area using manual (chemical free) methods. Manual methods of aquatic invasive species removal could include bottom barriers and diver-assisted hand pulling of weeds, and electro-shocking and netting of bull frogs and warmwater fish.

SHORELINE STABILIZATION

Reconstructed shoreline stabilization features are proposed in the northern portion of the project area. The existing rock gabion wall and concrete structures (Figure 2-5) would be removed, and the shoreline would be stabilized through a combination of natural-appearing erosion prevention measures such as boulders and native vegetation. The shoreline stabilization would accommodate natural littoral processes and beach sand movement to the extent feasible while providing enough stabilization to allow the continued use of the dirt access road to the Meeks Bay Resort cabins and Kehlet House in the north end of Meeks Bay. The stabilization features would be designed to be stable over the full range of water fluctuation levels in Lake Tahoe while avoiding accelerated erosion near the structures.

Source: Photograph taken by Design Workshop in 2020.

Figure 2-5 Gabion Wall Proposed for Removal

RESOURCE PROTECTION BARRIERS

Tahoe yellow cress (TYC) is designated as a sensitive plant by the USDA Forest Service, a threshold indicator species by TRPA and is listed as endangered in California under the California Endangered Species Act (CESA). TYC occurs only on the sandy beaches of Lake Tahoe, growing on coarse and sandy soils of active beaches, stream inlets, beach dunes and backshore depressions, generally within a few feet of the water table. Suitable habitat for TYC exists within the project area along the beaches near the creek outlet (Figure 2-6). Because of the heavy recreation use of the beaches and the associated threat to TYC from trampling or crushing by beachgoers, resource protection barriers and interpretive information would be installed to protect the species where it is at risk of trampling. Protective barriers would include natural materials such as vegetation screening, downed logs, and boulders, or manufactured materials such as exclusion fencing to direct people away from TYC.

Source: Ascent Environmental 2020.

Figure 2-6 Tahoe Yellow Cress

WILDLIFE ENHANCEMENT STRUCTURES

Wildlife enhancement features would be installed in the project area to improve habitat conditions for native species. These would include nesting and perch structures for waterfowl, which are a group of bird species designated by TRPA as special interest and known to occur on beaches at Lake Tahoe; bat boxes to provide a safe environment for bats to roost and raise their young; and willow plantings in select locations to reduce erosion and generate habitat for native species that depend on riparian habitat.

WATER QUALITY INFRASTRUCTURE

Permanent BMP features would include a suite of specially designed erosion and sedimentation control features that assist in preventing sediment-laden runoff from entering Lake Tahoe. BMPs would be installed at all parking lot locations, both existing and new; near restrooms; at the campsites, specifically the yurts and cabins; and along roadways and any other paved surfaces. BMPs may include, but would not be limited to infiltration trenches, swales, pervious pavement, infiltration basins, permanent barriers to protect unpaved areas from vehicle damage, and aeration of compacted soils in high-traffic areas. BMP designs would be consistent with the TRPA BMP Handbook (TRPA 2014).

2.5.4 Upland Recreation Facilities

PADDLECRAFT AND SWIM AREA MANAGEMENT

A paddlecraft storage rack or lockers would be placed in the southern portion of the project area, set back from the beach in the trees, screened from views from Lake Tahoe and located near the day-use area for easy access by beachgoers. It would provide a temporary secure storage option near the beach for kayaks and stand-up paddleboards. Figure 2-7 shows some potential design options that could be considered for the paddlecraft storage. Placement of storage facilities would be hidden from view from Lake Tahoe. The paddlecraft storage area would include paddlecraft cleaning stations to allow for AIS decontamination. Educational materials about AIS would be provided at the paddlecraft storage area and near watercraft rental locations at Meeks Bay Resort.

Source: Open source photos assembled by Ascent in 2021.

Figure 2-7 Representative Photographs of Paddlecraft Storage

The action alternatives would continue to provide designated swim areas along the beach north and south of Meeks Creek. The designated swim areas would be demarcated with swim buoys. The use of paddlecraft, like kayaks and paddleboards, would be prohibited from use in these areas. The designated swim areas would not encompass the entire beach areas so that there would be sufficient room for paddlecraft to launch onto the lake outside of the swim areas.

DAY USE

The existing day-use areas consist of forested areas containing picnic tables and grills adjacent to the beach (Figure 2-8). Those in the northern and southern parts of the project area would be reconfigured and/or expanded to various degrees under each of the four action alternatives. The northern day-use area located within the boundary of Meeks Creek Resort would be expanded to occupy some of the space formerly dedicated to the marina, resort, and day-use parking, and would be enhanced with additional picnic sites. The day-use area in the southern part of the project area would be expanded and reconfigured to varying degrees under each of the alternatives. With each action alternative, the day-use areas would be larger, with better accessibility and additional picnic tables. Large group grills would be provided that could be used for events, but no additional small individual grills would be included, and existing grills would be removed to reduce wildfire risk and associated litter.

Source: Photograph taken by Design Workshop in 2020.

Figure 2-8 Existing Day-Use Area at Meeks Bay Resort

INTERPRETATION

Interpretive opportunities would be installed along the restored reach of Meeks Creek to highlight the restored condition of the creek, the history of Meeks Bay, Washoe Tribe cultural heritage, or other appropriate natural or cultural history themes relevant to the site. Interpretive features could include signs, kiosks, interpretive panels, interactive displays, and/or a self-guided nature trail. The USDA Forest Service would develop interpretative content and identify specific locations and designs of interpretive elements as part of the final design for the restoration features. Multiple languages targeted at diverse users would be incorporated into interpretive materials, where appropriate and feasible.

2.5.5 Other Common Features

PARKING

Parking in the southern part of the project area would vary by alternative (see the description of alternatives in Sections 2.6 through 2.8, below), but parking in the northern part would be relocated and reconfigured under all four action alternatives, retaining the existing number of parking spaces (a total of approximately 300 spaces). Parking at the Meeks Bay Resort consists of approximately 300 total parking spaces interspersed throughout the resort and includes formal paved parking areas, dispersed parking areas along access roads, parking associated with cabins, and approximately 50 informal parking spaces on unpaved areas adjacent to the marina that has provided boat trailer parking. The majority of the existing parking throughout the project area is intended to be used for day-use purposes to facilitate access to the beach. A portion of the parking is used by guests at Meeks Bay Resort and the permit holders (i.e., Washoe Tribe and Tahoe Recreation) manage the parking areas for overflow parking for overnight visitors, as needed. Implementation of each of the action alternatives would result in a continuation of the existing patterns of parking uses. Designated parking in the Meeks Bay Resort would be located in areas surrounding the general store and cabins. The existing, unpaved parking spaces would be restored to natural conditions and or paved to current standards and the new spaces would be constructed with water quality BMPs. New bicycle racks would also be installed near both day-use areas to accommodate cyclists accessing the project area via the proposed Tahoe Trail multi-use path.

UTILITY INFRASTRUCTURE

Utility infrastructure, including water, sewer, electric, and communication facilities that would impede restoration or be adversely affected by it, would be upgraded or relocated, either above or below ground. An existing Tahoe City Public Utility District (TCPUD) sewer line crosses Meeks Creek. This line could be protected at its current elevation by burying it at a sufficient depth and/or encasing it in additional concrete. However, because the final restoration design is not complete, the ultimate location of the TCPUD sewer line is uncertain. Thus, the USDA Forest Service would consult with TCPUD on the design of the bridge as it relates to maintaining TCPUD infrastructure through the project area. If modifications to the TCPUD sewer line are necessary, those modifications would be incorporated as part of the restoration project proposed by USDA Forest Service. Powerlines inside the restoration project footprint would be relocated. The USDA Forest Service water line that crosses Meeks Creek at SR 89 would be relocated as needed to facilitate restoration to below the scour limits of the restored Meeks Creek channel.

2.6 ALTERNATIVE 1 – RESTORATION WITH BOATING PIER

Alternative 1 would include removal of the marina; restoration of the creek, lagoon, and barrier beach; and implementation of all other features described in Section 2.5, "Elements Common to the Action Alternatives." This section describes those elements of Alternative 1 that are not the same for all alternatives.

2.6.1 Alternative 1 Boating Pier

To partially offset the loss of boating access at the marina, this alternative would include a 300-foot-long boating pier (Figure 2-9). This pier would allow boaters to temporarily dock and access the beach and facilities in the project area, but it would not accommodate recreational launching or long-term mooring of motorized boats. The pier would be located near the center of Meeks Bay, north of the creek. It would be approximately 300 feet long to reach a lakebed elevation of 6,217 feet Lake Tahoe Datum (LTD), which would allow for motorized boat access during typical low water conditions. The pier would be a fixed (not floating) design supported by steel pilings with a composite, wood, or metal decking. It would be a medium tan color that blends into the background view of the beach. At the landward end of the pier, a universally accessible walkway would connect the pier to nearby day-use and parking areas.

The pier would be 10 feet wide and include a 20-foot-wide pierhead along the most lakeward 30 feet of the pier (Figure 2-10). The pierhead would include one boatlift capable of supporting a 29-foot-long emergency services boat. The boat lift and adjacent portions of the pierhead would be closed to public access with a locking gate, while the remainder of the pier would be publicly accessible. Electrical lines would be affixed to the pier and hidden from view. They would power the boat lift and necessary safety and navigation lighting. No fuel pumps or tanks, or other utility infrastructure would be included on the pier. A water taxi is not proposed as part of the project, but the project does not preclude the use of a water taxi that temporarily docks at the pier. The existing swim area in the vicinity of the pier would be modified to create two swim areas on either side of the pier.

2.6.2 Alternative 1 Campgrounds

With Alternative 1, the Meeks Bay Resort Campground, on the north side, would remain similar to its current condition. Minor improvements may occur, which could include repair or repaving of existing roads and parking spaces and minor roadway and parking space realignments to improve vehicle access. Selective plantings; signage; and placement of boulders, bollards, or other barriers could be used to provide additional privacy, separation of sites, and to direct parking away from unauthorized areas. The existing parking spurs and electrical hookups would continue to accommodate RV camping.

The Meeks Bay Campground, on the south side of the project area, would be reconfigured to provide additional privacy between campsites. The total number of campsites would be slightly increased or decreased as needed to accommodate an improved layout, from the current 40 sites to 36–42 sites. Improvements to the campground would include repair or repaving of existing roads and parking spaces, as well as selective plantings, barriers, and signage to provide additional privacy, separation of sites, and to direct parking away from unauthorized areas. Electrical hookups would not be provided, shorter campsite parking spur lengths, and smaller turning radiuses would discourage large RVs from use of this campground, while maintaining access for emergency vehicles.

Over time, some campsites in both campgrounds could be replaced with alternative camping facilities such as yurts, tent cabins, or hard sided cabins to provide a greater diversity of camping options. The cabins or yurts would replace campsites and would not increase capacity. These sites may include electrical hookups, but would not include water or sewage hookups, dedicated restrooms, or cooking facilities. The exact number of alternative camping facilities has not been determined, but they would not exceed 50 percent of the total number of campsites.

2.6.3 Alternative 1 Parking and Circulation

Overall, parking capacity at Meeks Bay Resort (300 spaces) and south of Meeks Creek near the day-use area (76 spaces) would remain the same as under existing conditions. Reconfiguration or improvements would be made to the existing parking areas for resource protection and to achieve more efficient use of the area. See discussion under “Parking” in Section 2.5.5, “Other Common Features,” and in the first paragraph under Section 2.6, “Alternative 1 – Restoration with Boating Pier.”

All action alternatives would result in circulation improvements to reduce the number of internal roadways and reduce the potential for conflicts between vehicles and pedestrians/bicyclists.

Two multi-use paths would be constructed to provide bicycle and pedestrian connectivity through the project area (see Figure 2-9). The paths would connect with the existing Tahoe Trail in the northern portion of the project area, where they would diverge and provide two routes for access through the project area, converging again in the southern portion of the project area. The multi-use path would then connect to a proposed section of the Tahoe Trail multi-use path along SR 89, consistent with the SR 89 Corridor Management Plan (TRPA et al. 2020). The multi-use paths, including bridge across Meeks Creek, would not impede aquatic organism passage or restrict stream flows.

The western multi-use path would be a primary route along SR 89, providing convenient through access for bicyclists and pedestrians. It would be a minimum of 10 feet wide and would be designed based on completion of a West Shore Trail Feasibility Study. Under Alternative 1, this route would cross Meeks Creek on a widened SR 89 bridge and would likely be used by through bikers traveling along the west shore, which would reduce the amount of bicycle traffic moving through the internal portions of the project area.

The eastern multi-use path would be a spur loop that would pass through the center of the project area and across the restored Meeks Creek via a multi-use path bridge located approximately 450 feet east of the SR 89 bridge. This spur loop would provide lower speed access for bicycles and pedestrians traveling through the project area or accessing the project area from the Tahoe Trail. In the southern part of the project area, this path would provide access between the day-use area and adjacent beach. The spur loop would be managed for low-speed use and through traffic would be directed to the multi-use path along SR 89. This multi-use path would connect to the pier on the north side of the project area, then direct users inland to a crossing of the restored creek, then direct users back along the beach on the south side of the project area. This alignment would result in a longer multi-use path through the project area than under the other alternatives.

The multi-use path bridge located approximately east of the SR 89 bridge and upstream of the restored lagoon would be designed to support emergency or administrative vehicle access. The bridge, as well as any portion of the multi-use path within the restored floodplain, would be elevated to allow for the conveyance of flood flows across the entire floodplain. Various design options including a bridge spanning the entire restoration area, or boardwalks connecting to one or more bridges, could be used to provide for floodplain flow conveyance. The bridge would span the entire creek channel (i.e., no abutments on the bank or support piers in channel) and be above the FEMA 100-year flood elevation. The bridge would be designed with sufficient capacity so that the velocity of water moving under the bridge does not exceed the flow velocity in adjacent reaches upstream or downstream. This multi-use path bridge would be designed to be vehicle-rated to allow for maintenance vehicle and emergency vehicle access across Meeks Creek within the project area. Design of the bridge would utilize composite, wood, or metal materials with natural colors that would be consistent with TRPA and USFS design standards, which would minimize contrasts with the natural environment (Figure 2-11). While the final design of the bridge has not been completed, it is anticipated to be of a similar design as a recent multi-use trail bridge constructed over Trout Creek (see Figure 2-11). Because of the distance from the highway and the intervening trees and vegetation, people traveling on SR 89 would likely not be able to see the bridge. For the same reasons, people would not be able to see the multi-use path bridge from the lake.

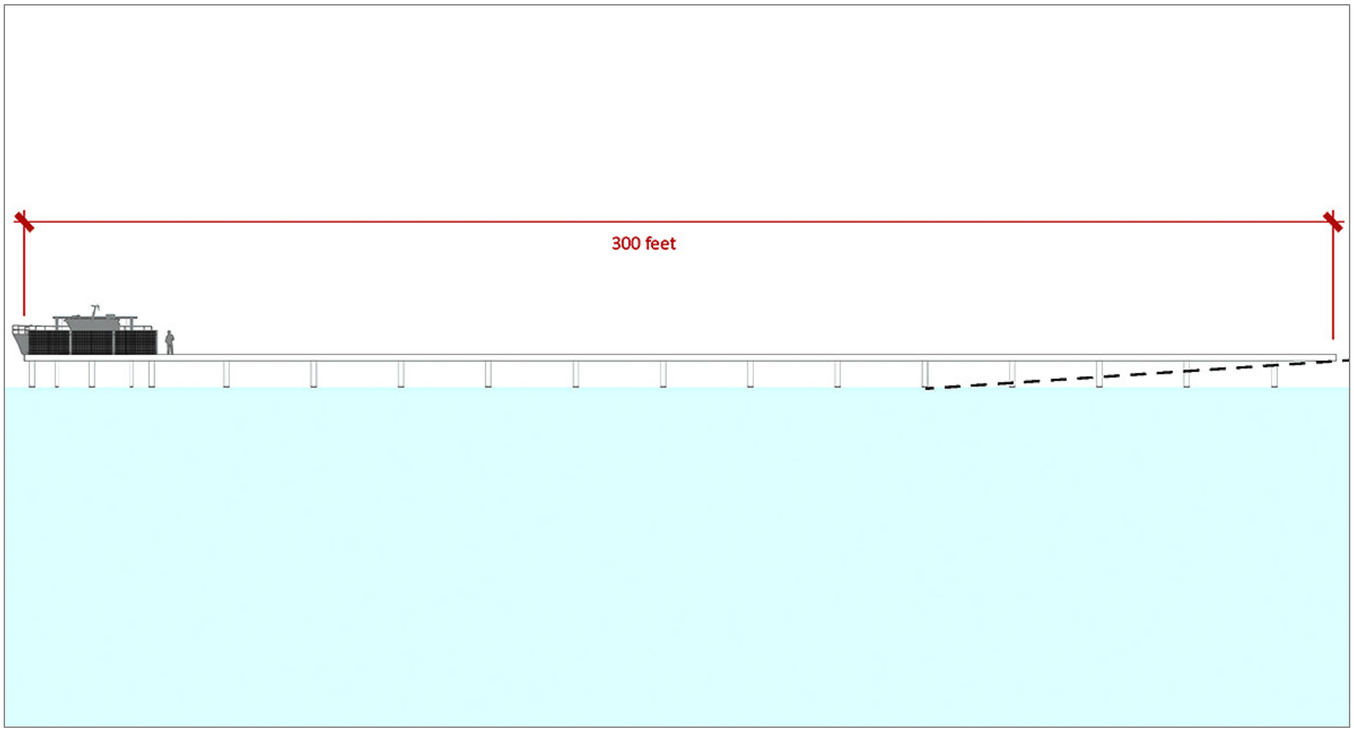
The southern entrance to the Meeks Bay Recreation Area would accommodate bicycle and pedestrian access from SR 89 and connect with other portions of the multi-use path within the project area.

2.6.4 Alternative 1 Cabin Relocation

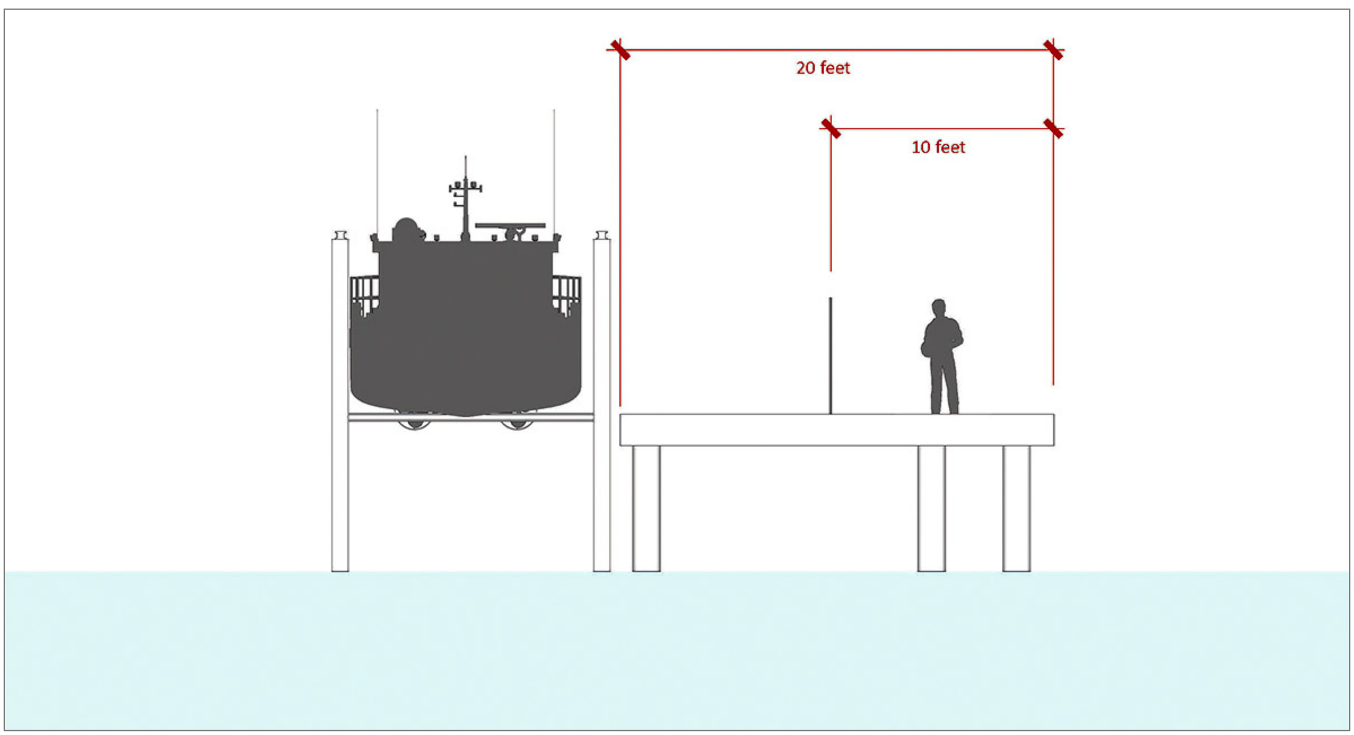
To expand the useable beach space on the north end of the bay and improve natural shoreline conditions, this alternative would relocate the two motel-style cabin units in the Meeks Bay Resort farther inland and replace them with smaller cabin units while maintaining the existing overnight visitor capacity.

Source: Image produced and provided by Design Workshop in 2021.

Figure 2-9 Alternative 1 – Restoration with Boating Pier Conceptual Plan



Source: Ascent Environmental 2022.



Source: Ascent Environmental 2022.

Figure 2-10 Diagram of Alternative 1 Boating Pier

Source: US Forest Service 2022.

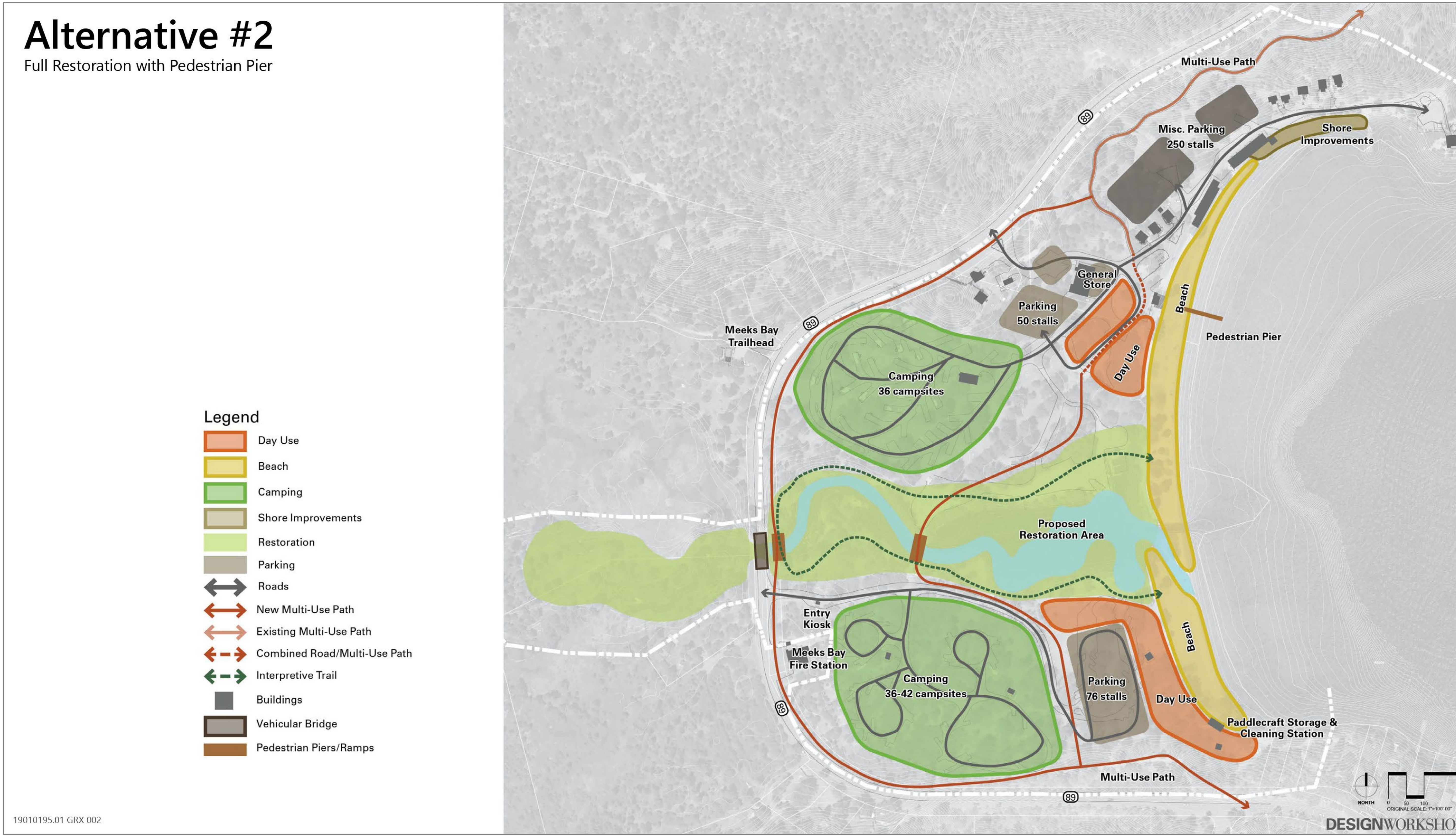
Figure 2-11 Example of Similar Multi-Use Path Bridge at Trout Creek

2.7 ALTERNATIVE 2 – RESTORATION WITH PEDESTRIAN PIER

As with Alternative 1, this alternative would involve removal of the marina and full restoration of the creek, lagoon, and barrier beach (Figure 2-12). Alternative 2 would include an approximately 100-foot-long pedestrian pier, which would provide recreational access to the lake for visitors in the project area. The pedestrian pier would not provide access for motorized boats. This alternative would also include features common to all the action alternatives, as described in Section 2.5, above.

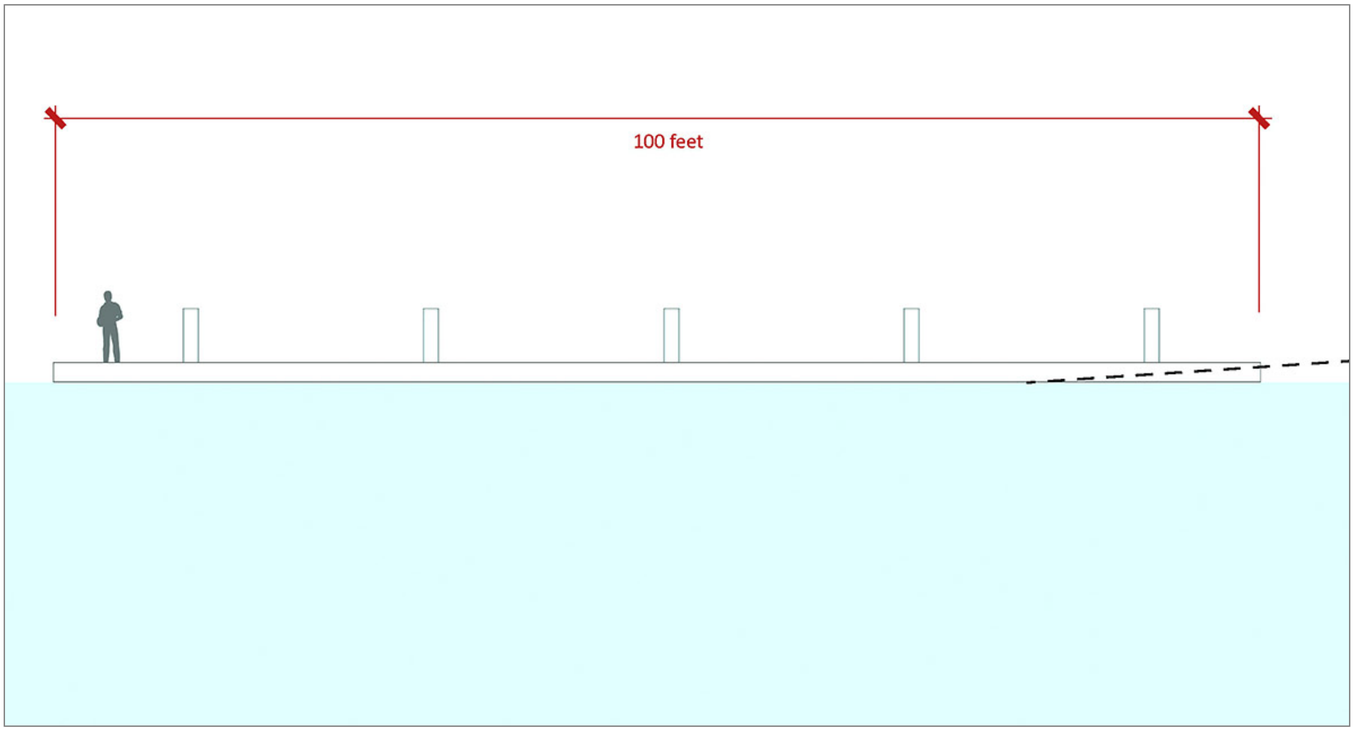
2.7.1 Alternative 2 Pedestrian Pier

The pedestrian pier would be located near the center of Meeks Bay, north of the creek in the same location as the boating pier included in Alternative 1. It would be approximately 100 feet long and 10 feet wide to provide recreational access for swimming, paddlecraft, fishing, and sightseeing during normal lake levels (Figure 2-13). It could be a fixed or floating pier design. For purposes of this analysis. It is assumed here to be a floating pier with fixed steel pilings and a floating composite or metal pier deck that could slide up and down on the pilings as lake levels change. It would be a medium tan color to blend into the background views of the beach or dark to medium grey color, consistent with TRPA design standards. At the landward end of the pier, a universally accessible walkway would connect the pier to nearby day-use and parking areas. The pier would not include a pierhead, boatlift, electrical service, lighting, or other utility infrastructure. No fuel pumps or tanks, or other utility infrastructure would be included on the pier. A water taxi is not proposed as part of the project and a water taxi, like other motorized boats, would not be able to dock at the pier. The existing swim area in the vicinity of the pier would be modified to create two swim areas on either side of the pier.

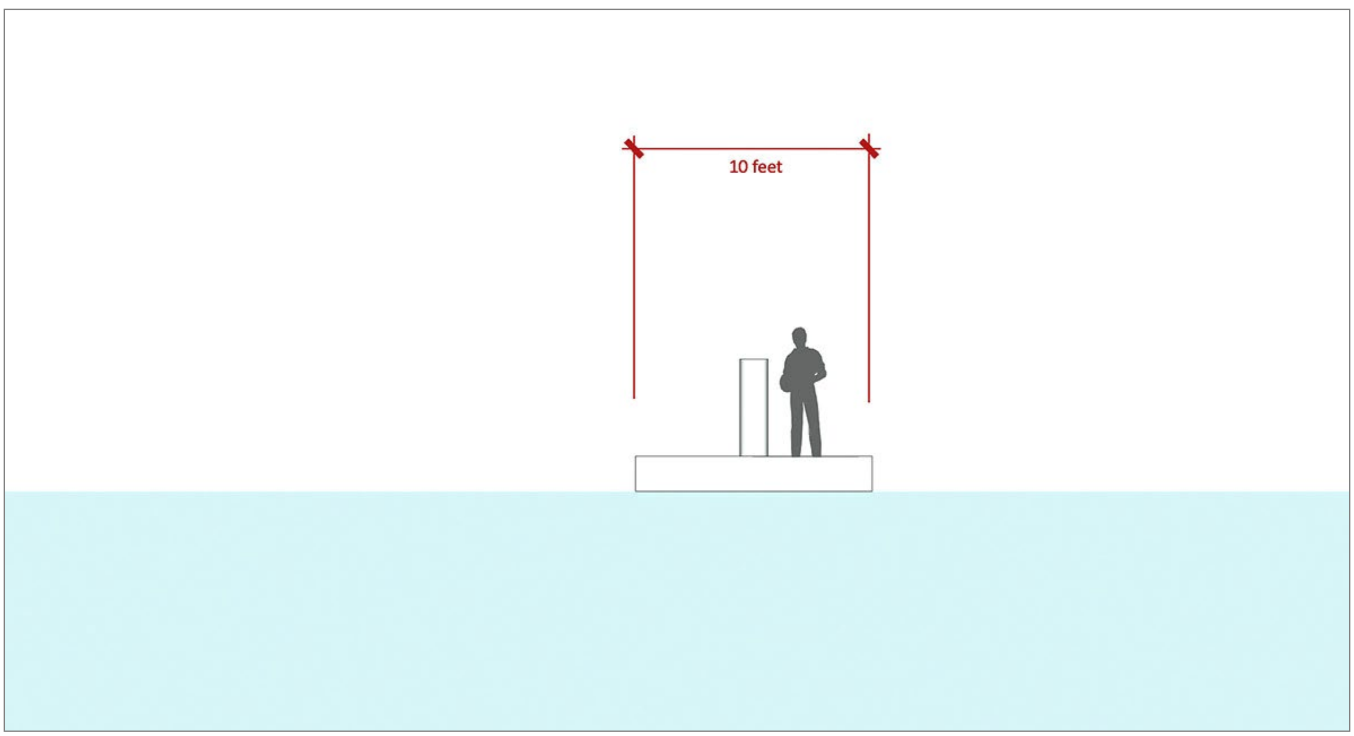


Source: Image produced and provided by Design Workshop in 2021.

Figure 2-12 Alternative 2 – Restoration with Pedestrian Pier Conceptual Plan



Source: Ascent Environmental 2022.



Source: Ascent Environmental 2022.

Figure 2-13 Diagram of Alternative 2 Pedestrian Pier

2.7.2 Alternative 2 Campgrounds

With Alternative 2, the campgrounds would be the same as described above for Alternative 1.

2.7.3 Parking and Circulation

Parking and circulation improvements under Alternative 2 would be similar to Alternative 1. Overall, parking capacity at Meeks Bay Resort (300 spaces) and south of Meeks Creek (76 spaces) would remain the same as under existing conditions. Reconfiguration or improvements would be made to the existing parking areas for resource protection and efficient use of the area. See discussion under “Parking” in Section 2.5.5, “Other Common Features,” and in the first paragraph under Section 2.6, “Alternative 1 – Restoration with Boating Pier.”

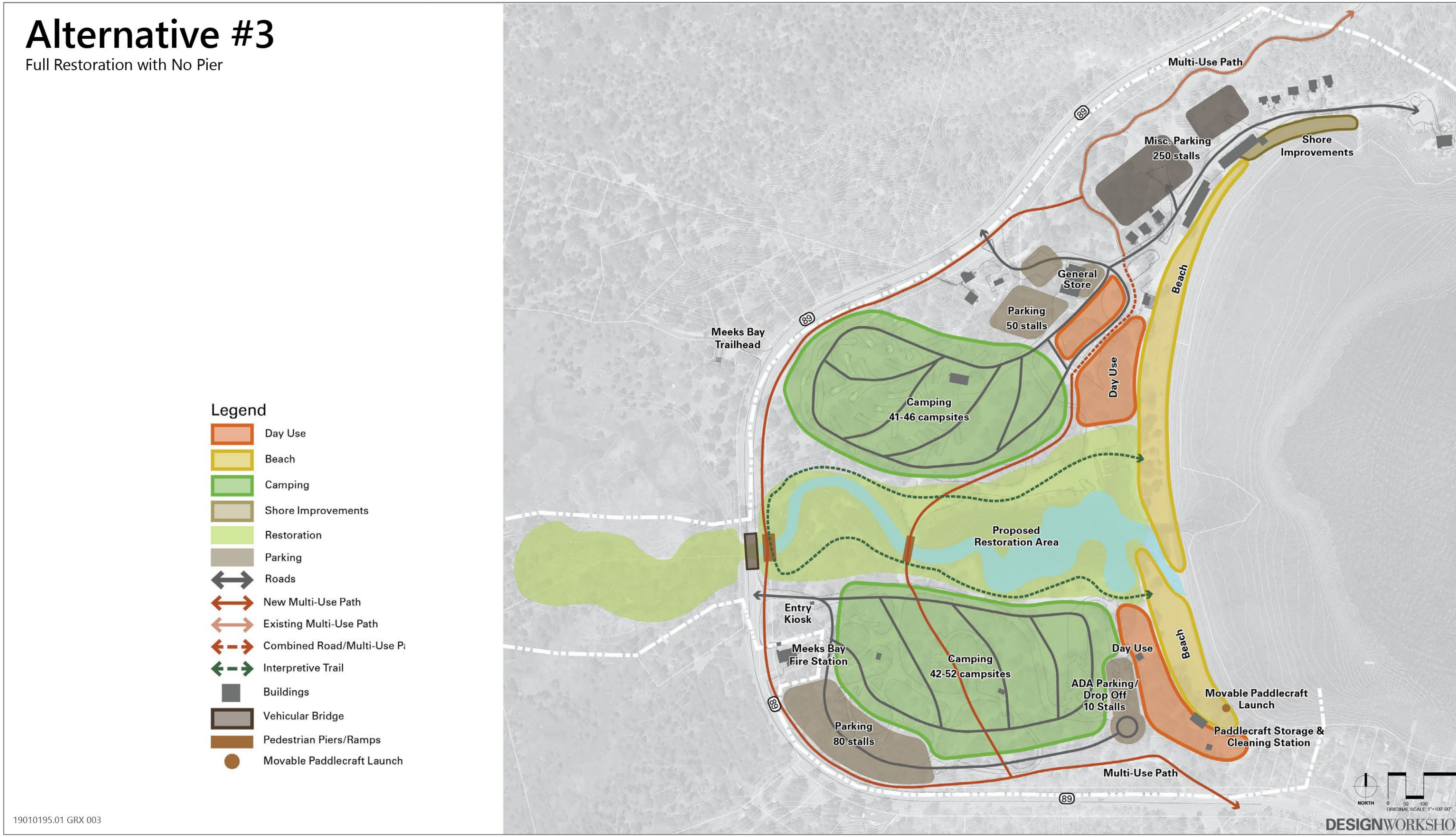
Rather than a multi-use path bridge connected to the SR 89 bridge, this alternative would include two multi-use path bridges. One bridge would provide direct access for cyclists and pedestrians that choose to travel close to the highway and bypass Meeks Bay Resort and Meeks Bay Campground (note that this path and bridge would be separate from and adjacent to the SR 89 bridge). The second multi-use path bridge would be located approximately 450 feet east of the SR 89 bridge as described above under Section 2.6.3, “Parking and Circulation.” This multi-use path bridge would be part of a multi-use spur loop through the project area that would seek to balance access to the lake with an efficient route through the project area. This multi-use path would connect to the day-use area near the pier on the north side of the project area, then direct users inland to a crossing of the restored creek, then direct users between the parking area and campground through the south side of the project area. This alignment would result in a shorter multi-use path through the project area than under Alternative 1. All alternatives would result in circulation improvements to reduce the number of internal roadways and reduce the potential for vehicle and pedestrian/bicycle conflicts. One of the two multi-use path bridges constructed as part of this alternative would be vehicle-rated to allow for maintenance vehicle and emergency vehicle access across Meeks Creek within the project area. In the event that the multi-use path bridge nearest SR 89 is vehicle rated, the multi-use path further from SR 89 could be constructed as a boardwalk. The multi-use paths, including bridges across Meeks Creek, would not impede aquatic organism passage or restrict stream flows. As it relates to appearance and materials used, design of this multi-use path bridge would be similar to that described above for Alternative 1 (see Section 2.6.3).

2.8 ALTERNATIVE 3 – RESTORATION WITH NO PIER

As with Alternatives 1 and 2, this alternative would involve removal of the marina and full restoration of the creek, lagoon, and barrier beach. Alternative 3 would not include a pier but would include a small, moveable, and universally accessible paddlecraft launch structure (Figure 2-14). This alternative would relocate the parking on the south end of the project area and expand parking capacity by 14 spaces. It would also include upland features common to all the action alternatives, as described above under Section 2.5.

2.8.1 Alternative 3 Paddlecraft Launch

Alternative 3 would include a moveable and universally accessible paddlecraft launch platform or ramp in the southern portion of the project area. The temporary, moveable characteristics of this facility allow for this launch facility to be located elsewhere in the project area to best serve operations and the recreation needs of visitors. The facility would include a floating platform or dock of up to 30 feet in length that could move with lake level fluctuations and be relocated if needed to accommodate access during periods of low lake level or during winter months. It would include a ramp for paddlecraft launching. It could include handrails along the launch ramp, but otherwise would not include features extending above the floating platform/dock. This structure would not require construction of any permanent features or the installation of pilings. The launch facility would be medium tan or grey color that blends into the surroundings. Access to the launch would be provided by a universally accessible path. Representative photographs of similar paddlecraft launch facilities are shown in Figure 2-15.



Source: Image produced and provided by Design Workshop in 2021.

Figure 2-14 Alternative 3 – Restoration with No Pier Conceptual Plan

Source: Open source photos assembled by Ascent in 2021.

Figure 2-15 Representative Photographs of Paddlecraft Launch Facilities

2.8.2 Alternative 3 Campgrounds

With Alternative 3, the Meeks Bay Resort and Meeks Bay campgrounds would be expanded and reconfigured. The Meeks Bay Resort Campground would be expanded from 36 sites to 41–46 sites (an increase of up to 10 sites) and the Meeks Bay Campground would be expanded from 40 sites to 42–52 sites (an increase of up to 12 sites), for a total increase of 7–22 campsites in the project area. Both campgrounds would be expanded to the east to include areas that are currently parking lots, access roads, informal parking, and open space. The Meeks Bay Campground would also be partially relocated away from SR 89 in the southwest corner of the project area to reduce noise in the campground. The campsites would be reconfigured to provide additional space between campsites and selective plantings could be included to provide increased privacy and visual screening between campsites. Like Alternatives 1 and 2, the electrical hookups and layout of Meeks Bay Resort Campground would continue to support RV camping and the Meeks Bay Campground would not accommodate large RVs. As with Alternatives 1 and 2 up to 50 percent of the sites could be converted into alternative camping facilities.

2.8.3 Alternative 3 Parking and Circulation

Overall, parking capacity would be increased by 14 spaces. At Meeks Bay Resort, parking capacity would remain the same as under existing conditions (300 spaces). Reconfiguration or improvements would be made to the existing parking areas at the resort for resource protection and efficient use of the area. See discussion under "Parking" in Section 2.5.5, "Other Common Features," and in the first paragraph under Section 2.6, "Alternative 1 – Restoration with Boating Pier."

On the south side of the project area, parking would be expanded by 14 spaces to include a total of 90 stalls. Eighty of these stalls would be located in a new parking area near the entrance to the Meeks Bay campground in the southwest corner of the project area. The relocation of the parking area would provide a visual and noise buffer between SR 89 and the campground and provide a more direct connection between the campground and the beach by removing the intervening parking area. A drop off area near the beach and day-use area would be provided, which would include up to 10 accessible parking spaces.

Like Alternative 2, this alternative would include a multi-use path along SR 89 that crosses Meeks Creek on a separate multi-use path bridge adjacent to the SR 89 bridge and a multi-use spur loop through the project area that would seek to provide an efficient route through the project area. This multi-use path would pass through the day-use area on the north side of the project area, then connect to a crossing of the restored creek, then direct users directly through the expanded campground on the south side of the project area. This alignment would result in a shorter multi-use path through the project area than under the other alternatives. Alternative 3 would include two multi-use path bridges like those discussed above for Alternative 2, which would include one of these bridges designed to be vehicle rated to allow for maintenance vehicle and emergency vehicle access across Meeks Creek within the project area. The multi-use paths, including bridges across Meeks Creek, would not impede aquatic organism passage or restrict stream flows. As it relates to appearance and materials used, design of this multi-use path bridge would be similar to that described above for Alternative 1 (see Section 2.6.3).

2.9 ALTERNATIVE 4 – PREFERRED ALTERNATIVE

Alternative 4 is the preferred alternative that is proposed for adoption by the lead agencies. This alternative serves as the "project" for purposes of CEQA. Alternative 4 was developed by the lead agencies after review of the other action alternatives and consideration of public and agency feedback on Alternatives 1, 2, and 3. It includes a combination of features from Alternatives 1, 2, and 3 that lead agencies believe would most effectively achieve the objectives of the project, while minimizing adverse effects.

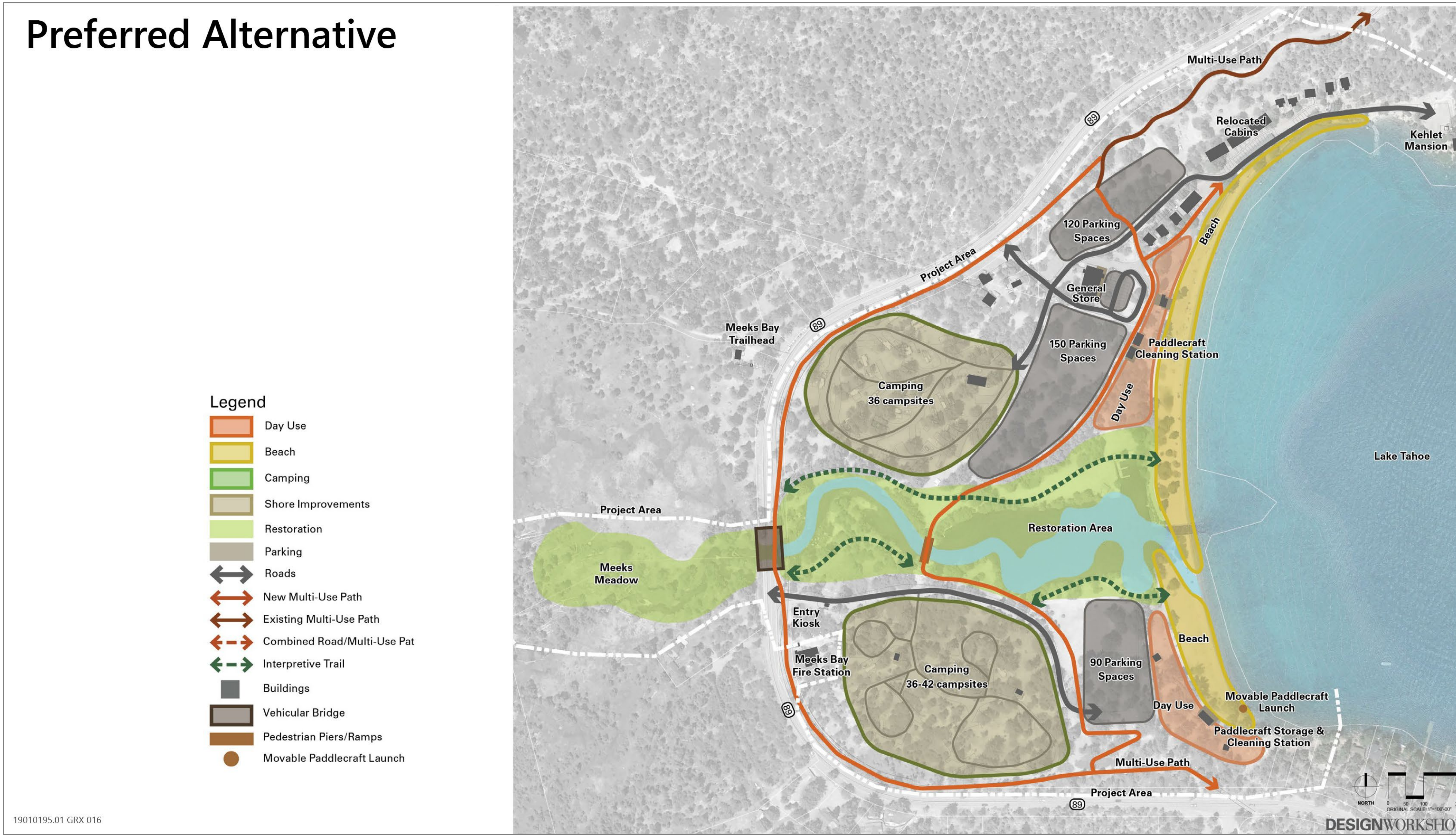
As with Alternatives 1, 2, and 3, this alternative would involve removal of the marina and full restoration of the creek, lagoon, and barrier beach (Figure 2-16). Like Alternative 3, it would not include a pier but would include a moveable, universally accessible paddlecraft launch structure. The location of this structure is identified on the south end of the bay, but because of the temporary, moveable characteristics of this facility, this launch facility could be located elsewhere in the project area to best serve operations and the recreation needs of visitors. As with Alternative 1, this alternative would relocate the two motel style cabin units in Meeks Bay Resort farther inland and replace them with three smaller cabin units while maintaining the existing overnight visitor capacity. This alternative would not relocate the parking on the south end of the project area, but it would expand parking capacity by 14 spaces. It would also include replacement of the SR 89 bridge and upland features common to all the action alternatives, as described above in Section 2.5.

2.9.1 Alternative 4 Campgrounds

With Alternative 4, improvements at the campgrounds would be similar to Alternatives 1 and 2. The Meeks Bay Resort Campground, on the north side of the project area, would remain similar to its current condition with minor improvements as described under Alternative 1. The Meeks Bay Campground, on the south side of the project area would be reconfigured to provide additional privacy between campsites. The total number of campsites in this campground would be slightly increased or decreased as needed to accommodate an improved layout, from the current 40 sites to 36–42 sites. Like Alternative 1, some campsites in both campgrounds could be replaced with alternative camping facilities such as yurts, tent cabins, or hard sided cabins to provide a greater diversity of camping options. The exact number of alternative camping facilities has not been determined, but they would not exceed 50 percent of the total number of campsites.

2.9.2 Alternative 4 Parking and Circulation

Like Alternative 3, overall parking capacity under Alternative 4 would be increased by 14 spaces. At Meeks Bay Resort, parking capacity would remain the same as under existing conditions (300 spaces). Reconfiguration or improvements would be made to the existing parking areas at the resort for resource protection and efficient use of the area. See discussion under "Parking" in Section 2.5.5, "Other Common Features," and in the first paragraph under Section 2.6, "Alternative 1 – Restoration with Boating Pier." On the south side of the project area, parking would be expanded to include 90 stalls in the existing parking lot between the campground and day-use area.



Source: Image produced and provided by Design Workshop in 2021.

Figure 2-16 Alternative 4 – Preferred Alternative

Like Alternative 1, this alternative would include a multi-use path along SR 89 that would cross Meeks Creek on a new, wider SR 89 bridge as well as a multi-use path bridge located approximately 450 feet east of the SR 89 bridge. Design of this multi-use path bridge would be similar to that described above for Alternative 1 (see Section 2.6.3) as it relates to appearance, materials used, and vehicle rating for maintenance vehicle and emergency vehicle access. Similar to the other action alternatives, Alternative 4 would include a multi-use spur loop through the project area that would seek to balance access to the lake with an efficient route through the project area. This multi-use path would be located west of the day-use area on the north side of the project area, then direct users inland to a crossing of the restored creek, then direct users between the parking area and campground through the south side of the project area. This alignment would result in a shorter multi-use path through the project area than under Alternative 1 but a longer route than under Alternative 3. None of the multi-use paths, including bridge across Meeks Creek, included in this alternative would impede aquatic organism passage or restrict stream flows.

2.10 CONSTRUCTION

Construction activities for all of the project components would be reviewed and approved, as required, under TRPA's Code of Ordinances, Lahontan RWQCB requirements, and US Army Corps of Engineers permit requirements, which would include preparation and implementation of a Stormwater Pollution Prevention Plan. TRPA "Standard Conditions of Approval for Grading Projects" includes standards such as temporary BMPs, equipment idling times, erosion control requirements, lighting standards, and landscaping specifications. In addition, the action alternatives would incorporate the following construction techniques and practices.

The features of the project would be constructed in phases over multiple years based on funding availability. Construction of some project components could begin as early as 2024 with completion of all components anticipated by 2035 subject to funding availability. Construction activities would be phased such that recreation features removed to accommodate restoration would be replaced during the same construction phase, to minimize the temporary loss of recreation features. Active construction areas would be temporarily closed to public access for one or more construction season. All excavation, filling, or other disturbance of the soil would be limited to the May 1-October 15 timeframe unless a TRPA grading season extension is issued for the project. In-channel restoration work would generally occur in late summer or early fall when water levels in Meeks Creek are lowest. Access to portions of the project area would be temporarily closed during periods of active construction.

2.10.1 Restoration of Meeks Creek and Removal of Meeks Bay Marina

The marina removal and restoration of Meeks Creek and lagoon would include substantial grading within the existing creek and marina areas. Soil from the banks and nearby upland areas would be placed in the dredged marina to recreate a shallow lagoon. Native wetland and riparian vegetation would be re-established throughout the restoration area.

Before removal of the marina, a temporary impervious barrier, or barriers, would be placed near the mouth of Meeks Creek to separate the restoration area from Lake Tahoe. During construction, the flow of the creek would be diverted via a temporary diversion dam constructed upstream of the affected areas. The creek's flow would be captured in pipes and diverted into Lake Tahoe downstream of the project area by gravity flow. Pumping for construction site dewatering in the creek channel and lagoon may also be required; in such cases, pumping could occur continuously for several days during daytime construction hours. Water pumped from excavation activities would contain suspended sediments and other solids. The suspended sediments would not be discharged into Meeks Creek, Lake Tahoe, wetlands (as defined by the U.S. Army Corps of Engineers), or storm drains. Water pumped from the construction area would be disposed of within temporary infiltration basins or dispersed through sprinklers or similar methods. Construction water would only be discharged into the creek or Lake Tahoe if it meets water quality requirements outlined in the project's National Pollution Discharge Elimination System (NPDES permit). The specific construction equipment required is not known at this time, but would likely include a loader, dozer/tractor, scraper, excavator, backhoe, grader, pump, generator, and trucks (haul and passenger).

2.10.2 State Route 89 Bridge Replacement

Construction of a new SR 89 bridge and removal of the existing bridge spanning Meeks Creek would require diversion of creek flows and dewatering or water diversion for construction activities that would encounter groundwater, including installation of the bridge structure and/or footings, and utility replacement and protection. The type of equipment required for constructing the SR 89 Bridge Replacement would likely include a loader, cement truck, pile driver, excavator, backhoe, pump, generator, crane, and trucks (haul and passenger).

Water pumped from excavation activities would contain suspended sediments and other solids, which would not be discharged into Meeks Creek, Lake Tahoe, wetlands, or storm drains. Dewatering discharge or any accumulated storm water runoff that contains elevated levels of regulated constituents, including suspended sediment, would be disposed of within temporary infiltration basins or dispersed through sprinklers or similar methods or infiltrated into upland portions of the project area. Construction water would only be discharged into the creek or Lake Tahoe if it meets water quality requirements outlined in the project's NPDES permit. Construction BMPs would be installed, in accordance with all permits and Caltrans requirements. Construction work within Meeks Creek is anticipated to take several weeks and would be completed during one construction season, primarily during off peak times (i.e., weekdays after Labor Day or before Memorial Day weekends). Construction activities could occur for 24 hours per day in order to reduce the total construction period.

Replacement of the bridge over Meeks Creek could require periods of reduced lane widths, lane closures, full closure to traffic, and limited nighttime work on the existing bridge. Emergency vehicle access and emergency evacuation routes would be maintained during the construction period by either: 1) constructing the trail bridge downstream of the SR 89 bridge first and diverting emergency vehicles and evacuating vehicles across the trail bridge, 2) constructing the bridge in halves to maintain one operational lane at all times, or 3) constructing a temporary bridge on the upstream (west) or downstream (east) side of the existing bridge to provide continuous emergency vehicle access and an emergency evacuation route. Traffic control and safety measures would be required during replacement of the SR 89 bridge to minimize lane closures, provide emergency and evacuation access, and minimize travel delays and would include temporary signage, lane width reductions, and reduced speeds. The traffic management plan would specify how emergency services would continue to be provided during temporary lane closures. The traffic management plan would also require and identify public outreach efforts, such as notifying emergency service providers and other affected public agencies and members of the public of any planned lane or road closures and reduced lane widths. These traffic control and safety measures and strategies would be incorporated into the traffic management plan and implemented in conformance with Caltrans, county, and other applicable standards as they apply to each stage of construction. Agencies consulted during preparation and approval of a traffic management plan would include USDA Forest Service, Caltrans, and El Dorado County.

2.10.3 Multi-use Path Bridge

A new multi-use bridge would be constructed across Meeks Creek channel downstream of SR 89 and upstream of the restored lagoon. The bridge could be constructed at the same time as the creek restoration, or separately after restoration is complete. If constructed concurrent with the restoration, all in-channel work would occur while the creek is diverted, as described above. If constructed separately from the restoration, diversion of creek flows and dewatering or water diversion for construction activities may be required. As described above, water pumped from the active construction area would be disposed of within temporary infiltration basins or dispersed through sprinklers or other methods consistent with the project NPDES permit. The type of equipment required for constructing the trail bridge would likely include a loader, cement truck, pile driver, excavator, backhoe, pump, generator, crane, and trucks (haul and passenger).

2.10.4 Shoreline Stabilization

Existing rock gabion and concrete shoreline stabilization structures would be removed and replaced with shoreline protective structures comprised on boulders and native vegetation. Shoreline structure removal and construction would occur from onshore. Construction of these features would occur when lake levels are low enough to allow for the isolation of the construction area from Lake Tahoe. Specific construction BMPs would be identified in the Stormwater Pollution Prevention Plan and would be adhered to during construction to prevent sediment discharge into Lake Tahoe. Replacement of the shoreline stabilization structures would likely require use of a loader, excavator, backhoe, crane, and trucks (haul and passenger).

2.10.5 Construction of Upland Recreation Facilities and Other Features of the Action Alternatives

Construction of upland recreation facilities and other features common to each of the action alternatives, such as the multi-use path, parking, utility infrastructure, and any reconfiguration of campgrounds could require soil disturbing activities (e.g., grading), limited excavation (i.e., digging less than 6 feet deep), removal of existing paved areas, and paving. Installation of features such as bike storage, interpretive signage, paddlecraft storage, paddlecraft launch (Alternatives 3 and 4 only), and day-use facilities (e.g., picnic tables) would result in minimal ground disturbance.

2.10.6 Construction of Boating Pier or Pedestrian Pier (Alternatives 1 and 2)

For either of the piers proposed by Alternatives 1 and 2, the pier would be constructed by a floating or amphibious barge during the winter season (October to May). The barge would launch from one of the nearby boat launch locations. The type of barge to be used would depend on the water level in the lake at the time of construction. During high water, a floating barge can be used; however, during low water years, the amphibious barge would be needed to access the portions of the pier nearest to the beach. Both types of barges are currently docked on Lake Tahoe and available for commercial service. Amphibious barges can be driven out of the lake to refuel equipment. For floating barges, fuel must be transferred in containers for refueling on the lake. All barges would carry a an appropriately sized spill containment kit (Ragan, pers. comm., 2017).

Piles would be installed by either pile driving or drilling. If drilling were to be required for pile installation a caisson would be used to isolate the drilling site and protect water quality. A caisson is a watertight retaining structure used to isolate the work area during pier construction. With a caisson, the water can be pumped out to create a dry environment. Piles in Lake Tahoe are typically driven 6-8 feet into the lake bottom (Ragan, pers. comm., 2017). Turbidity curtains would only be used during pile installation if necessary to minimize water quality impacts from suspended sediment. A turbidity curtain is a floating barrier consisting of relatively impervious fabric, used to prevent fine and coarse suspended sediment transport away from areas of water-based construction activities, in this case the driving of the pier piles.

2.10.7 Construction Staging Areas

Construction staging areas for all action alternatives would be necessary to store project-related construction equipment and materials. A containment and spill contingency plan and BMPs for storage activities would be incorporated into the construction contracts and project specifications to ensure that there are no permanent environmental effects related to the storage of these materials and equipment. Construction staging areas would be located within the project area and would be located in paved areas or previously disturbed areas outside of the restoration areas, or in portions of the restoration area that would be disturbed during construction.

2.11 OPERATIONS

With implementation of each of the action alternatives, the north and south sides of Meeks Bay would continue to be managed by permittees under special use permit from the USDA Forest Service. Day-to-day operations at the campgrounds would be conducted by campground hosts and permittees.

For Alternative 1, the boating pier would be managed to limit the duration of passenger drop off and pick-up times to allow multiple motorized watercraft to access the pier throughout the day. Boating pier access would be managed through USDA Forest Service staff or permittee monitoring, signage and designated tie off locations. For Alternative 2, the pedestrian pier would be managed to prevent motorized watercraft access to the pier through USDA Forest Service or permittee monitoring and signage.

The USDA Forest Service would oversee resource management activities, including operating the fish management structure, adjusting TYC protective features, and maintaining wildlife habitat enhancement structures.

2.12 ALTERNATIVES CONSIDERED BUT NOT EVALUATED FURTHER

Several alternatives or components thereof were considered but eliminated from further study because of the potential for environmental impacts, the infeasibility of the proposals, the inability to achieve the project objectives, or input during the public engagement and stakeholder process. These alternatives or alternative elements include the following:

2.12.1 Small-scale Marina Alternative

An alternative was developed, considered, and discussed at public workshops that involved a smaller-scale marina adjacent to, and separated from, a partially restored creek and lagoon. This marina would include a boat ramp and up to 40 slips in the location of the existing Meeks Bay Marina. It would maintain the existing boat ramp and allow boaters to launch and moor motorized boats at the marina. The partial marina alternative would provide overnight campers and visitors a place to moor and launch their boats during their visit and would provide a small number of users with long-term moorings. The smaller marina would be maintained through regular dredging to a sufficient depth to allow boats to moor and access the facility during periods of low water levels in Lake Tahoe. The marina would be separated from the shallower restored lagoon by a sheet pile bulkhead. A new entrance to the marina would be dredged through the beach, which would be separated from the restored barrier beach by sheet pile. The area available for the restored lagoon would be reduced by approximately 50 percent to provide space for the marina.

The small-scale marina alternative was dismissed from further analysis because it would not adequately meet the purpose and need for the project. Specifically, the purpose of this project is to move the Meeks Creek ecosystem downstream of SR 89 to a more natural condition where geomorphic and hydrologic processes support a functioning ecosystem while continuing to support sustainable recreation opportunities. Retention of even a small marina would substantially reduce the area available for, and the benefits of, the restoration. Additionally, ongoing maintenance and operation of the marina would require ongoing dredging activities and long-term AIS control (manual methods only); both activities which would compromise restoration to a natural ecosystem condition. Consequently, the objectives for the project would not be met because the project would not be able to move toward the desired condition in the purpose statement.

In addition, the construction and operation of the marina would require a substantial expenditure of public funds. Because of the small size of the marina (no more than 40 slips), mooring rental fees and launch fees would not cover the cost of operating or constructing a marina. As a result, the alternative would not be economically feasible, and would require a substantial ongoing investment of public funds.

2.12.2 Boat Ramp Alternatives

At the beginning of the scoping period, the lead agencies proposed an alternative that included a publicly accessible boat ramp at the southern end of Meeks Bay. This location was dismissed from further review due to strong public opposition, as well as anticipated environmental effects related to tree removal, scenic degradation, displacement of popular beach and swimming opportunities, and traffic and circulation impacts that would result from introducing vehicles and boat trailers into the area.

Other locations were considered during the stakeholder and public alternative development process. A boat ramp near the center of Meeks Bay was proposed, but not evaluated further because it could not be permitted under the TRPA Code of ordinances, which prohibits new shoreline structures in Stream Mouth Protection Zones. A central ramp would also divide the beaches, introducing vehicles and boat traffic. A boat ramp on the northern end of Meeks Bay was also considered but dismissed because the existing resort buildings and topography would not provide sufficient space for boat trailer access and maneuvering, and it would result in many of the same environmental effects as the southern location. Maintaining the current location of the existing boat ramp in Meeks Creek was also considered. This location was dismissed from further review because it would require similar construction, dredging, and encroachment into the lagoon as the small-scale marina; and it would not meet the purpose and objectives for the project for the same reasons as the small-scale marina alternative.

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3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

APPROACH TO THE ENVIRONMENTAL ANALYSIS

This environmental impact statement/environmental impact statement/environmental impact report (Draft EIS/EIS/EIR) describes the existing physical and biological environment of the affected project area and evaluates the potential for direct, indirect, and cumulative effects on environmental resources associated with the proposed Meeks Bay Restoration Project alternatives, in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations including the California Environmental Quality Act (CEQA) (Public Resources Code [PRC] Section 21000, et seq.) and the State CEQA Guidelines (California Code of Regulation, Title 14, Chapter 3, Section 1500, et seq.), the Tahoe Planning Compact (Public Law 96-551) and TRPA Code of Ordinances. An EIS pursuant to NEPA must be prepared for a major federal undertaking that could have a significant effect on the environment. An EIS for the purposes of TRPA is required to be completed for issuance of a TRPA permit. An EIR for the purposes of CEQA is required to be completed for issuance of permits by Lahontan RWQCB. This EIS/EIS/EIR also presents the scientific and analytical basis to facilitate a comparison among the alternatives, including the action alternatives and the No Action Alternative.

Technical specialists conducted site visits, surveys, research, and prepared reports to inform the environmental analysis. The following specialist reports are included as a part of the project record:

- Aquatic Resources Delineation Report,
- Biological Assessment,
- Biological Evaluation,
- Hydrology and Geomorphology Report,
- Invasive Plant Risk Assessment,
- Cultural Resources Inventory, and
- Historic Resources Evaluation Report.

National Environmental Policy Act

NEPA requires federal agencies to integrate environmental values into their decision-making processes by considering the environmental impacts of their proposed actions and reasonable alternatives to those actions. The Meeks Bay Restoration Project is a proposed action subject to NEPA, because it is considered a major Federal action (40 CFR 1500.1[a], 40 CFR 1508.1[q]). When the significance of impacts of a project proposal is uncertain, an EA is prepared to assist in making this determination. If it is found that significant impacts would result, preparation of an EIS is necessary. Based on a preliminary review of potential effects and because this is a joint document with a TRPA EIS and CEQA EIR, USDA Forest Service has determined that an EIS will be prepared.

The technical sections have been prepared in accordance with the Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (40 CFR Section 1500 et seq.) issued by the Council on Environmental Quality. In addition, this EIS follows the USDA Forest Service regulations for implementing NEPA, including FSH 1909.15 – National Environmental Policy Act Handbook. The NEPA Handbook provides detailed information on the contents and processing of environmental documents.

Tahoe Regional Planning Agency

Article VII(a)(2) of the Bi-State Compact requires TRPA, when acting upon matters that may have a significant effect on the environment, to prepare and consider a detailed EIS before deciding to approve or carry out any project. The TRPA Code states that an EIS shall identify significant environmental impacts of the project, any significant adverse environmental effects that cannot be avoided if the project is implemented, and mitigation measures that must be implemented to meet threshold standards of the Lake Tahoe Basin (TRPA Code of Ordinances [Code] Section 3.7.2). In addition, an EIS must include a discussion of the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity and any significant irreversible and irretrievable commitments of resources that would be involved in the project should it be implemented. The EIS shall also evaluate growth-inducing impacts of the project (TRPA Code, Section 3.7.2).

TRPA has established Environmental Threshold Carrying Capacities (threshold standards) and indicators for nine resource areas: water quality, air quality, scenic resources, soil conservation, fish habitat, vegetation, wildlife habitat, noise, and recreation. TRPA threshold standards are minimum standards of environmental quality to be achieved in the Tahoe Region. Every four years, TRPA evaluates the attainment status of all TRPA threshold standards. The latest TRPA Threshold Evaluation was completed in 2019. Pursuant to TRPA Code Section 4.4, TRPA is required to find that the project would not cause the threshold standards to be exceeded. The EIS/EIS/EIR helps to inform TRPA in making the findings; however, the specific threshold analyses and findings will be contained in staff reports and written findings presented to the TRPA Governing Board during consideration of certification of this EIS/EIS/EIR and approval of a project alternative at the conclusion of the environmental review process.

California Environmental Quality Act

CEQA and the State CEQA Guidelines direct that an EIR evaluate and disclose the significant and potentially significant environmental impacts associated with a project. The significant and potentially significant environmental effects of all phases of the project and project alternatives, including construction and operation, are evaluated in the analysis (consistent with State CEQA Guidelines Section 15126.2). A significant effect is defined in CEQA as a substantial or potentially substantial adverse change to the physical environment resulting from implementation of the project. Where significant effects on the environment are identified, the document describes feasible mitigation measures and a reasonable range of alternatives to reduce the significant or potentially significant effects on the environment. Mitigation measures may avoid, minimize, or compensate for significant adverse impacts, and need to be fully enforceable through permit conditions, agreements, or other legally binding means (Guidelines Section 15126.4[a]). Mitigation measures are not required for effects that are found to be less than significant. An EIR must also identify growth-inducing impacts and any significant effects that are unavoidable.

Contents of Environmental Analysis Sections

Sections 3.1 through 3.13 of this EIR/EIS/EIS present a discussion of regulatory background, existing conditions, environmental impacts associated with construction and operation of the project, mitigation measures to reduce the level of impact, and residual level of significance (i.e., after application of mitigation, including impacts that would remain significant and unavoidable after application of all feasible mitigation measures). Issues evaluated in these sections consist of the environmental topics identified for review through environmental scoping and public participation.

Sections 3.1 through 3.13 of this EIR/EIS/EIS each include the following components.

Regulatory Setting: This subsection presents information on the laws, regulations, plans, and policies that relate to the issue area being discussed. Applicable regulations originating from the federal, regional, state, and local levels are each discussed as appropriate.

Environmental Setting: This subsection presents the existing environmental conditions in the project area and in the surrounding area as appropriate and serves as the description of the affected environment for purposes of NEPA and environmental setting in accordance with State CEQA Guidelines Section 15125. The discussions of the environmental setting focus on information relevant to the issue under evaluation. The extent of the environmental setting area evaluated (the project study area) differs among resources, depending on the locations where impacts would be expected.

Environmental Impacts and Mitigation Measures: This subsection presents thresholds of significance and discusses potentially significant effects of the Meeks Bay Restoration Project alternatives on the existing environment, including the environment beyond the project boundaries. The methodology for impact analysis is described, including technical studies upon which the analyses rely. In this subsection, thresholds of significance are defined and if the project would have no impact on a threshold, it is disclosed and dismissed from further evaluation.

Project impacts and mitigation measures are numbered sequentially in each subsection (Impact 3.2-1, Impact 3.2-2, Impact 3.2-3, etc.). A summary impact statement precedes a more detailed discussion of the environmental impact. The discussion includes the analysis, rationale, and substantial evidence upon which conclusions are drawn. A **bold** font impact statement precedes the discussion of each impact and provides a summary of each impact and its level of significance.

Under NEPA, preparation of an EIS is triggered if a federal action has the potential to "significantly affect the quality of the human environment," which is based on the context and intensity for each potential impact (40 CFR 1508.27). TRPA and CEQA require a determination of impact significance for each impact discussed in an EIS and EIR based on significance criteria.

The level of impact of the alternatives is determined by comparing estimated effects with baseline conditions. Under NEPA, the No Action Alternative (expected future conditions without the project) is the baseline against which the effects of alternatives are compared to determine the relative intensity of effects among the alternatives. NEPA also seeks identification of beneficial environmental effects, if they occur. For TRPA and CEQA purposes, the existing setting (as described in "Environmental Setting," above) normally constitutes the baseline point of comparison against which a significance determination is made.

Alternative-specific analyses are conducted to evaluate each potential impact on the existing environment consistent with the requirements of NEPA (40 CFR 1502.16). This assessment specifies why impacts are found to be significant, potentially significant, or less than significant, or why there would be no environmental impact or a beneficial effect. A "potentially significant" impact and "significant" impact are treated the same under NEPA, TRPA, and CEQA in terms of procedural requirements and the need to identify feasible mitigation. For the purposes of NEPA, all significant or potentially significant impacts are required to be identified and additional avoidance, minimization, and/or mitigation measures may be provided. A less-than-significant impact, for the purposes of CEQA and TRPA, and an impact that would not be adverse, for the purposes of NEPA, is one that would not result in a substantial adverse change in the physical environment.

Impact conclusions are made using the significance criteria described in each resource section (Sections 3.1 through 3.13) and include consideration of the "context" of the action and the "intensity" (severity) of its effects in accordance with NEPA guidance. To provide a concise impact conclusion for each impact, a single impact conclusion defined in bold text is provided that combines the impact conclusion for NEPA, TRPA, and CEQA purposes.

Mitigation measures are identified, as feasible, to avoid, minimize, rectify, reduce, or compensate for significant or potentially significant impacts. Unless otherwise noted, the mitigation measures presented are recommended in the EIS/EIS/EIR for consideration by the lead agencies to adopt as conditions of approval.

Where an existing law, regulation, or permit specifies mandatory and prescriptive actions about how to fulfill the regulatory requirement as part of the project definition and would avoid an impact or maintain it at a less-than-significant level, the environmental protection afforded by the regulation is considered before determining impact significance. Where existing laws or regulations specify a mandatory permit process for future projects, performance standards without prescriptive actions to accomplish them, or other discretionary requirements, or have a compensatory component, the level of significance is determined before considering the influence of those regulatory requirements. In this circumstance, the impact would be potentially significant or significant, and the regulatory requirements would be included as a mitigation measure.

This subsection also describes whether mitigation measures would reduce project impacts to less-than-significant levels. Significant and unavoidable impacts are identified as appropriate in accordance with State CEQA Guidelines Section 15126.2(b).

Cumulative Impacts: NEPA implementing regulations require consideration of cumulative effects (40 CFR 1508.25) during environmental review. Cumulative effects are defined as an "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7).

Although the TRPA Rules of Procedure and Code of Ordinances do not identify consideration of cumulative impacts as a specific requirement of an EIS, the TRPA Initial Environmental Checklist form poses the following question: "Does the project have impacts which are individually limited, but cumulatively considerable?" In practice, TRPA looks to NEPA and CEQA for guidance in the approach to assessing cumulative impacts, so analysis that complies with those environmental laws is also sufficient for TRPA purposes.

Section 15130(a) of the State CEQA Guidelines requires a discussion of the cumulative impacts of a project when the project's incremental effect is cumulatively considerable. Where a project's incremental effect is not cumulatively considerable, the effect need not be considered significant, but the basis for concluding the incremental effect is not cumulatively considerable must be briefly described. Cumulatively considerable, as defined in State CEQA Guidelines Section 15065(a)(3), means that the "incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects." State CEQA Guidelines Section 15355 defines a cumulative impact as two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

The goal of the cumulative impacts analysis is twofold: first, to determine whether the overall long-term impacts of all such past, present, and probable future projects are cumulatively significant; and second, to determine whether the proposed program's incremental contribution to any such cumulatively significant impacts would be "cumulatively considerable" (and therefore significant). (See State CEQA Guidelines Sections 15130[a]–[b], Section 15355[b], and Section 15064[h]; and Communities for a Better Environment v. California Resources Agency [2002] 103 Cal. App. 4th 98, 120.)

The spatial and temporal scale of cumulative effects varies by resource. In evaluating cumulative effects of the proposed action, a variety of potential actions and scales was considered and are described in each resource section of this chapter (Table 3-1).

The cumulative analysis must consider the overall long-term effect of past, present, and reasonably foreseeable future actions when the effects of those actions could combine with the effects of the proposed project. The combined effects of past projects are reflected in the existing environmental conditions. These existing conditions are described relative to each resource topic in the "Environmental Setting" subsection of Sections 3.1 through 3.13 of this EIS/EIS/EIR.

The effects of present and reasonably foreseeable future projects can be evaluated by generating a list of projects producing related effects within the geographic area of the cumulative analysis, and/or by evaluating projections based on adopted plans that address conditions related to the cumulative effects (see State CEQA Guidelines Section15130(b)). As shown in Table 3-1, the geographic scope of the cumulative analysis varies by resource area. For those resource areas where the geographic scope of the cumulative analysis is confined to the local project area and vicinity or Meeks Creek watershed, the project list approach is used. Cumulative projects include those within the Meeks Creek watershed or immediate project vicinity that have the potential to affect the same environmental resources affected by the proposed project. Temporally, cumulative projects were selected that would reasonably be assumed to combine with the Meeks Bay Restoration project and have recently been approved, are anticipated to receive approval during implementation of the project, already have funding, planning efforts are underway, or are currently being implemented or constructed. Related present and reasonably foreseeable future projects considered for the cumulative effects analysis are described in Table 3-2.

Table 3-1 Geographic Scope of Cumulative Impacts

Resource Topic	Geographic Area
Recreation	For land-based recreation and water-based recreation exclusive of motorized watercraft and sailing: west shore of Lake Tahoe For motorized watercraft and sailing: Lake Tahoe Basin
Scenic Resources	Localized (based on view shed and visibility) but may aggregate throughout view corridors and travel units
Cultural and Tribal Cultural Resources	Project area and adjacent areas
Terrestrial Biological Resources	Meeks Creek watershed with implications for the Lake Tahoe Basin
Aquatic Biological Resources	Meeks Creek watershed with implications for the Lake Tahoe Basin
Hydrology and Water Quality	Meeks Creek watershed with implications for Lake Tahoe
Geology, Soils, and Land Capability	Project area
Air Quality	Lake Tahoe Air Basin
Greenhouse Gas Emissions and Climate Change	Global
Public Safety and Hazards	For hazards and hazardous materials: project area, for wildfire and evacuation: west shore of Lake Tahoe
Noise	Localized (based on audibility and sensitive receptors)
Transportation	Project vicinity
Land Use	Lake Tahoe Basin

Source: Compiled by Ascent Environmental in 2021.

For resource areas where the geographic scope of the cumulative analysis is broad, such as the Lake Tahoe Basin or Lake Tahoe Air Basin, the cumulative analysis is informed by regional, state, and federal plans that include projections and guidance related to each resource area. The plans applicable to the cumulative analysis include, but are not limited to, the Tahoe Regional Plan, USDA Forest Service, Lake Tahoe Basin Management Unit Forest Plan, and the Lahontan RWQCB Basin Plan. The specific plans and projections related to the cumulative analysis of individual resource areas are described in the "Regulatory Setting" subsection of Sections 3.1 through 3.13 of this EIS/EIS/EIR.

Table 3-2 Cumulative Projects List

Project Name	Location	Description	Project Status
Tahoe Trail[1]	Meeks Bay	A component of the SR89 Corridor Management Plan, this segment of the Tahoe Trail is planned to connect Meeks Bay to Cascade Creek	Feasibility and planning
SR 89 Recreation Corridor Management Plan[1]	From West Way just outside of the City of South Lake Tahoe to the El Dorado County line at Tahoma.	A transportation management plan for the SR 89 corridor from immediately west of South Lake Tahoe to the El Dorado County line at Tahoma. It includes transportation and visitation management strategies to address the challenges of this area's extremely high transportation and recreation travel demand. The components common to all the strategies in the SR 89 Corridor Plan include completion of the Tahoe Trail in the corridor, increasing transit service, and eliminating parking along the highway.	The SR 89 Corridor Plan is completed. A trail feasibility study to examine the constructability of a segment of the West Shore Tahoe Trail (i.e., Cascade to Meeks trail) is underway.
Lake Tahoe Shoreline Plan[1]	Lake Tahoe shorezone	This plan expands and regulates the number of structures, including moorings and piers, permitted within the shorezone of Lake Tahoe. It also includes design and location standards for shorezone facilities, such as marinas.	Implementation
Mayala Wata Restoration at Meeks Creek[2]	Meeks Meadow	A restoration project to improve ecological function of 200 meadow acres and tribal cultural opportunities within the Meeks Creek watershed. It also involves treatment of 100 acres of dense fuels in upland forest surrounding the meadow.	Implementation
Lake Tahoe West Restoration Strategy[2]	Federal, state, local, and private lands on the California side of the Tahoe Basin, from Emerald Bay to Olympic Valley	A landscape restoration strategy to guide restoration activities on 60,000 acres. The goal of this program is to increase the resilience of this landscape and to protect against prolonged drought, climate change, and extreme fire.	Planning and environmental review stages
Fuels Reduction and Understory Burning, California State Parks[2]	Multiple areas on California State Park lands near the communities on the west shore and north shore of Lake Tahoe	California Department of Parks and Recreation to conduct fuels reduction activities on up to 2,012 acres in Burton Creek State Park, D.L. Bliss State Park, Ed Z'berg-Sugar Pine Point State Park, Emerald Bay State Park, Tahoe State Recreation Area, and Ward Creek Unit.	Project implementation is underway and is anticipated to be completed within the next few years.
West Shore Wildland Urban Interface (WUI) Hazardous Fuel Reduction[2]	Multiple areas on LTBMU lands in the west shore area of Lake Tahoe, within the WUI between Emerald Bay and Burton Creek State Park	Proposes vegetation and fuels treatments to reduce stand densities and reduce fuel loading and continuity.	Project implementation has begun, and treatments are planned to occur through 2024.
Tahoe Program Timberland EIR[2]	Approximately 17,490 acres of private, local jurisdiction, federal, and California Tahoe Conservancy (Conservancy) lands both in the WUI and select contiguous areas of general forest outside of the WUI throughout the California side of the Tahoe Basin.	The proposed program consists of a long-term, vegetation management program to reduce forest fuels that can contribute to large, high-severity wildfires.	Program implementation is expected to begin in 2022

1 Recreation Initiatives

2 Landscape Restoration/Wildfire Risk Reduction Initiatives

Source: Compiled by Ascent Environmental 2021.

3.1 RECREATION

This section describes existing recreation resources within and near the project area, applicable regulatory requirements, the methods used for assessment, and the potential direct, indirect, and cumulative impacts of project implementation related to recreation.

3.1.1 Regulatory Setting

This subsection presents information on the laws, regulations, plans, and policies that relate to the environmental resource being discussed and would guide or influence implementation of the project.

FEDERAL

USDA Forest Service, Lake Tahoe Basin Management Unit

The USDA Forest Service (USFS), Lake Tahoe Basin Management Unit (LTBMU) manages over 75 percent of lands within the Lake Tahoe Basin. Management of LTBMU lands near Meeks Bay is guided by the LTBMU Forest Plan (USFS 2016). The LTBMU Forest Plan identifies desired conditions for sustainable recreation including the following:

- DC89. Recreation projects are developed with the involvement of neighboring communities, partners, state and local agencies, tribes, and adjacent Forest Service units.
- DC91. The public has opportunities to access Lake Tahoe shorelines and NFS lands.
- DC94. Recreation development meets a wide range of social expectations while maintaining the quality of the setting and natural resources.

The Forest Plan also identifies strategies for achieving desired conditions. Relevant recreation strategies include:

- Consider changing user demands, trends, and preferences, including modifying existing sites and infrastructure to improve natural resource conditions and recreation settings.
- Undertake recreation expansion to address socioeconomic challenges, improve management of existing developed sites, and mitigate adverse effects to natural resources resulting from recreation activities.

Specific standards and guidelines for recreation resources are also described in the *Sierra Nevada Forest Plan Amendment* and Record of Decision (USFS 2004), which adopts an integrated strategy for vegetation management, aimed largely at reducing the risk of wildfire. As it pertains to recreation, the *Sierra Nevada Forest Plan Amendment* clarifies how several of the riparian standards apply to recreation activities, uses, and projects, and gives local managers the opportunity to develop mitigation measures for small and varied recreation projects on a project- and site-specific basis (Standards and Guidelines #103 and #116).

TAHOE REGIONAL PLANNING AGENCY

TRPA provides Basin-wide planning and policy direction related to recreation through its Regional Plan and related implementing ordinances and regulations.

Thresholds

TRPA has established two threshold standards for recreation, which represent minimum standards of environmental quality targets to be achieved in the region. The recreation thresholds are in the form of policy statements rather than numeric standards. The two recreation threshold standards are related to quality experience and additional access and fair share of recreation capacity.

The Quality Experience and Additional Access Threshold consists of two parts:

> (1) preservation and enhancement of a high-quality recreational experience and opportunities and (2) the provision of additional access to high-quality lands for recreation, including lake access. The quality of recreation experiences was evaluated for the 2019 Threshold Evaluation through Sustainable Recreation Working Group surveys. Over 92 percent of respondents to the Sustainable Recreation Working Group surveys rated their experiences spent outdoors at Lake Tahoe as "extremely enjoyable" or "very enjoyable" (Lake Tahoe Info 2021a). The evaluation criteria for the second part of the threshold standard relies on assessing the extent of public land acquired, and the availability of additional amenities that provide public access for low density recreational uses, such as trails and trailheads.

Public agency land acquisition programs and the Lake Tahoe Environmental Improvement Program (EIP) have contributed to improved access and visitor and resident satisfaction with the quality and spectrum of recreation opportunities. The percentage of the total land area held in public ownership and managed for public access has continued to increase in the region, and currently, approximately 90 percent of the region is public land. The amount of public land available for low-density recreational use, and the number of amenities that provide access to that land, have also increased.

The Fair Share of Recreation Capacity Threshold is intended to ensure a fair share of the region's total capacity for outdoor recreation is available to the general public. The attainment of this threshold standard is based on three indicators: (1) cumulative accounts of persons at one time (PAOT) allocations; (2) facility development for recreation projects that do not require PAOT assignments; and (3) land acquisition of new public lands that support recreation purposes. A large portion of the pool of PAOTs allocated by the Regional Plan remain available (see Table 3.1-1). The amount of public land available for low-density recreational use, and the number of amenities that provide access to that land, have also increased. As of 2019, 74 percent of summer day use PAOTs were available and approximately 94 percent of summer overnight PAOTs were available (Lake Tahoe Info 2022a).

Table 3.1-1 PAOT Allocations in the Tahoe Basin

Category	Regional Plan Allocation	Assigned as of 2015 Evaluation	Assigned 2015 to 2019	PAOTs Remaining
Summer Day Use	6,761	1,722	32	5,007 (74%)
Winter Day Use	12,400	5,267	168	6,965 (56%)
Summer Overnight	6,114	394	0	5,720 (94%)
Total	25,275	7,383	200	17,692 (70%)

Source: Lake Tahoe Info 2022a.

Based on the most recent Threshold Evaluation Report completed in 2021, the recreation thresholds are in attainment (Lake Tahoe Info 2021b).

No additional PAOTs have been assigned to Meeks Bay in the Meeks Bay Plan Area Statement (PAS 150) (TRPA 2002); however, that does not preclude a project at Meeks Bay from obtaining PAOTs from the reserve of summer day-use PAOTs and summer overnight PAOTs.

Tahoe Regional Plan

The Tahoe Regional Plan contains specific goals and policies to achieve and maintain thresholds. Policies in the Recreation Element address three broad categories of recreation in the Lake Tahoe Basin: dispersed recreation, developed recreation, and urban recreation. Dispersed recreation includes such activities as hiking, jogging, primitive camping, mountain biking, nature study, fishing, cross-country skiing, rafting/kayaking, and swimming. All these activities require a natural environment and some degree of solitude. Developed recreation includes marina and boat launch facilities, ski areas, campgrounds, and beaches. Urban recreation includes facilities located near urban areas, such as sports facilities, day-use areas, and recreation centers. Goals and policies for all types of recreation generally pertain to providing opportunities and sufficient capacity for high-quality recreation opportunities in a manner consistent with resource protection.

The Shorezone Subelement of the Conservation Element identifies special qualities, including physical, biological, and visual, that shall be considered when reviewing a project in the shorezone or lakezone. The Shorezone Subelement requires TRPA to regulate the placement of new piers, buoys, and other structures in the nearshore and foreshore to avoid degradation of fish habitats, creation of navigation hazards, interference with littoral drift, interference with the attainment of scenic thresholds and other relevant concerns. Applicable shorezone goals and policies that could influence the development of recreation-related uses and analysis of impacts on recreation are identified below.

Policies relevant to recreation include (TRPA 2012:4-17 through 4-20, 5-1 through 5-8):

GOAL SZ-1: Provide for the appropriate shorezone uses of Lake Tahoe, Cascade Lake, and Fallen Leaf Lake while preserving their natural and aesthetic qualities.

- Policy SZ-1.9: The agency shall regulate the placement of new piers, buoys, and other structures in the foreshore and nearshore to avoid degradation of fish habitats, creation of navigation hazards, interference with littoral drift, interference with the attainment of scenic thresholds, and other relevant concerns.
- Policy SZ-1.13: Allow public access to the shorezone where lawful and feasible on public lands.

GOAL R-1: Encourage opportunities for dispersed recreation when consistent with environmental values and protection of the natural resources.

GOAL R-2: Provide high-quality recreational opportunities.

GOAL R-5: Protect natural resources from overuse and rectify incompatibility among uses.

- Policy R-5.1: Recreation development in the Tahoe region shall be consistent with the special resources of the area.
- Policy R-5.2: Regulate intensity, timing, type, and location of use to protect resources and separate incompatible uses.

Code of Ordinances

The TRPA Code of Ordinances (Code) contains the requirements and standards intended to achieve recreation thresholds, goals, and policies. The Code addresses many subjects, including required permits for development, findings required for approval of projects, development standards, development allocations, resource management, water quality, air quality, and transportation. The Code sections applicable to recreation and development that may be related to recreation facilities associated with the project are summarized below in Table 3.1-2.

Table 3.1-2 Applicable TRPA Code Requirements Related to Recreation

Code Section	Summary of Requirements
Section 50.9	Describes how TRPA regulates the expansion of recreational use in the Lake Tahoe Region by identifying targets for recreational use and regulating development to maintain them. The TRPA Code addresses development in the shorezone of Lake Tahoe (TRPA Code Chapters 80–85).
Section 80.4.2	States that any special project conditions of approval shall be guided by the unique characteristics of the project area, and the nature of the backshore (utilizing Policies 1 and 2, Goal #1 of the Shorezone Subelement, Conservation Element of the Goals and Policies), as well as objectives related to the protection of significant vistas, preservation of the site and shorezone from environmental harm during and after construction, and protection of views of adjoining development.
Section 80.4.5	States that no projects shall be permitted if such project will create significant adverse impacts to topline fishing access that cannot be mitigated. TRPA shall make this determination in consultation with California Department of Fish and Wildlife and Nevada Division of Wildlife.
Section 80.4.7	States that developed recreation projects may require an operating plan or equivalent document demonstrating that spatial conflicts with other recreational uses will not be significant as a result of the project. TRPA shall ensure that shorezone recreational projects are designed to avoid overuse and to avoid conflicts between recreation users.
Section 81.4.1	Lists the permissible uses in the lakezone and establishes whether the uses are allowed or special in the lakezone.
Section 81.4.2	Lists the permissible uses in the shorezone, which includes beach recreation, boat launching facilities, and water-oriented outdoor recreation concessions.

Code Section	Summary of Requirements
Section 81.4.4	Lists the allowable accessory structures in the shorezone if they are accessory to an existing, allowed use located on the same littoral parcel, which includes boat ramps, buoys, piers, and storage racks for non-motorized watercraft.
Section 84.3	Identifies the requirements for the construction of additional mooring structures (e.g., boat slips, buoys) and the relocation and conversion of existing mooring structures.
Section 84.3.2.D.3.a	States that a legally existing boat slip within a marina or public facility may be converted to a buoy within the same facility, and vice-versa.
Section 84.4	Describes the provisions for the construction of additional piers and to the relocation, transfer, modification, or expansion of existing piers.
Section 84.4.2.B	Describes that a littoral parcel owned by a public entity shall be eligible for a new pier provided the requirements set forth in Section 84.4.2.A are met, with the exception that requirement set forth in Subsection 84.4.2.A.3 may be waived subject to environmental review.
Section 84.4.3	Provides the development standards for piers, which prohibits shorezone structures in Stream-mouth Protection Zones.
Section 84.5.3.E.1	Allows for a legally existing public boat ramp to be relocated on the same parcel or to a littoral parcel better suited to accommodate low lake levels.
Section 84.6	Describes the requirements applicable to the modification or expansion of existing marinas.
Section 84.10	Identifies the requirements applicable to other activities and uses in the shorezone, including operation of watercraft, no-wake zones (within 600 feet of the waterline of the lake, 200 feet of shorezone structures, and 100 feet of swimmers and non-motorized watercraft), and water-oriented outdoor recreation concessions.
Section 85.5	States that land coverage and land disturbance may be permitted in the backshore for public outdoor recreation facilities if TRPA makes findings, which include findings related to the project's relationship to a public agency's long-range plans for public outdoor recreation and consistency with the Recreation Element of the Goals and Policies.

Source: TRPA 2021a.

Regional Transportation Plan and Lake Tahoe Active Transportation Plan

TRPA developed the 2020 Regional Transportation Plan (2020 RTP) as Lake Tahoe's blueprint for a regional transportation system that enhances the quality of life in the Tahoe region, promotes sustainability, and offers improved mobility options for people and goods (TRPA 2021b). The RTP projects are intended to close connectivity gaps and increase safety on the existing active transportation network and provide all users more of the facilities they need to recreate and travel to their destinations. The 2020 RTP includes policies related to recreation that are applicable to the project that support projects and programs to enhance non-automobile travel modes; providing frequent transit service to recreational areas; ensuring that pedestrian and bicycle facilities are Americans With Disabilities Act (ADA) compliant and Universally Accessible; constructing and maintaining pedestrian and bicycle facilities consistent with the Active Transportation Plan; and designing projects to maximize visibility at vehicular, bicycle, and pedestrian conflict points (e.g., increased safety signage, site distance, etc.).

The Highway 89 Corridor Tahoe Trail Feasibility Study (SR 89 - West Shore Tahoe Trail Feasibility Study Meeks Bay to Spring Creek Road, EIP Project # 03.02.02.0088), is a project listed in the RTP and is identified as a Regionally significant project as a transportation project serving regional needs such as access to and from Tahoe from the SR 89 corridor, major activity centers in the region, high demand recreation facilities, transportation terminals, and major improvements on principle arterial highways.

The Linking Tahoe Active Transportation Plan (ATP) informs the approach for trails in the RTP (TRPA 2018a). Specifically, the ATP presents a guide for planning, constructing, and maintaining a regional bicycle and pedestrian network and support facilities and programs. The network includes on-street bicycle lanes and bicycle routes, and off-street paths and sidewalks. The ATP includes maps and prioritized project lists for the bicycle and pedestrian network and lays out policies for local governing bodies and transportation agencies. The ATP identifies the Tahoe Trail as a regional path that would provide users with a continuous multi-use path around Lake Tahoe. In addition, the ATP identifies potential funding sources and specifies recommended designs to encourage consistency and safety within the region. Goals of the ATP that are relevant to the project include increasing connectivity by completing the active transportation network and improving safety for bicyclists and pedestrians. Policies in the ATP that are relevant to the project include incorporating segments of the proposed active transportation network into new and redeveloped commercial, tourist, multi-family, public service, and recreation projects and implementing consistent regionwide wayfinding and path etiquette strategies.

Shoreline Plan

The Lake Tahoe Shoreline Plan regulations for shoreline structures including piers, buoys, boat ramps, and marinas to support water-dependent recreation at Lake Tahoe and ensure effective natural resource management for continued environmental threshold attainment. The Shoreline Plan includes development caps and guidelines for appropriate uses, such as marinas and piers, along the lake's 72 miles of shoreline. The Shoreline Plan will allow for a maximum of 10 new public piers and 128 new private piers.

The Shoreline Plan requires that all new and existing moorings on Lake Tahoe be permitted and registered. Moorings include buoys, boat lifts, and boat slips. There are currently an estimated 8,731 existing moorings on Lake Tahoe (TRPA 2018b). Over the 20-year life of the Shoreline Plan, up to 2,116 additional moorings could be distributed in phases to the following pools:

- 1,486 for private littoral parcels and homeowners' associations,
- 330 for marinas, and
- 300 for public agencies.

State Route 89 Corridor Management Plan

The SR 89 Recreation Corridor Management Plan (SR 89 Corridor Plan) consists of a series of corridor-wide strategies and recommendations along SR 89 on Tahoe's west shore that would help resolve corridor issues and address opportunities developed in coordination with plan partners, stakeholders, and public (TRPA et al. 2020). The SR 89 Corridor Plan summarizes recommended strategies to collaboratively manage the corridor, and includes a series of phased projects to achieve the vision of shifting the way people arrive to their recreation destinations from being auto-dominated to more transit and multi-modal focused. The components common to all the strategies in the SR 89 Corridor Plan include completion of the Tahoe Trail through the corridor, increasing transit service, and eliminating parking along the highway. Overall, the desired conditions for the SR 89 Recreation Corridor require an increase in operational capacity to effectively administer visitor management strategies, disperse visitation throughout the day, reduce impacts on natural and cultural resources, and eliminate the chaos caused from visitors parking and walking along the highway. The SR 89 Corridor Plan identifies strategies but does not include environmental review or permitting for any of them. Implementation of the recommended strategies would be at the discretion of the various agencies and subject to environmental review, as required.

The SR 89 Corridor Plan includes a number of goals and objectives that are relevant to the Meeks Bay Restoration Project. These goals and objectives are related to providing a quality travel experience by providing for a variety of travel methods for visitors and residents to visit the corridor; enhancing multi-modal transportation systems and roadway improvements to manage congestion, reduce VMT and greenhouse gas (GHG) emissions, and result in other improvements to the environment; and providing opportunities for active transportation, including completing the Tahoe Trail through the corridor.

The Meeks Bay Restoration Project is included in the SR 89 Corridor Plan, which also identifies the following projects within the Meeks Bay segment of SR 89:

- develop Tahoe Trail segment within Meeks Bay with grade-separated crossing, if needed; underground powerlines and co-locate technology infrastructure;
- develop bus stop at Meeks Bay;
- relocate roadside parking when alternative access is provided through transit and bike options;
- replace Caltrans bridge and incorporate capacity for wildlife crossing and multi-use path;

- formalize emergency turnouts;
- provide winter recreation access parking;
- increase technology infrastructure; and
- provide a water taxi stop at Meeks Bay.

STATE

California State Lands Commission

The California State Lands Commission (State Lands) is responsible for leasing sovereign lands on the California side of Lake Tahoe. On the California side of Lake Tahoe, a public trust easement allows for public access between the low- and high-water elevation of Lake Tahoe. The area in the public trust easement allows for commerce, navigation, fishing, recreation, and preservation. The high- and low-water marks for the California side of the lake have been established as elevations 6,228.75 feet and 6,223 feet Lake Tahoe datum, respectively. Any activities involving the State's sovereign lands in Lake Tahoe below 6,223 feet require a lease from State Lands.

3.1.2 Environmental Setting

As described above, over 75 percent of the land within the Tahoe Basin is National Forest System (NFS) land managed by LTBMU, which includes the majority of the project area. Totaling over 150,000 acres in the Tahoe Basin, NFS lands include beaches, hiking and biking trails, wilderness, and developed recreation areas such as campgrounds (USFS 2016). The Washoe Tribe operates Meeks Bay Resort Facilities and Tahoe Recreation operates the campground and day-use area on the south side of the project area, under concessionaire agreements with LTBMU. The project area and its vicinity support extensive year-round recreation use, both developed and dispersed. Recreation activities at Meeks Bay on the lake side of SR 89 include camping, swimming, sunbathing, picnicking, paddle boarding, and kayaking. Existing recreation facilities in the project area and their locations relative to the Meeks Bay Restoration Project are shown in Figures 3.1-1 and 3.1-2.

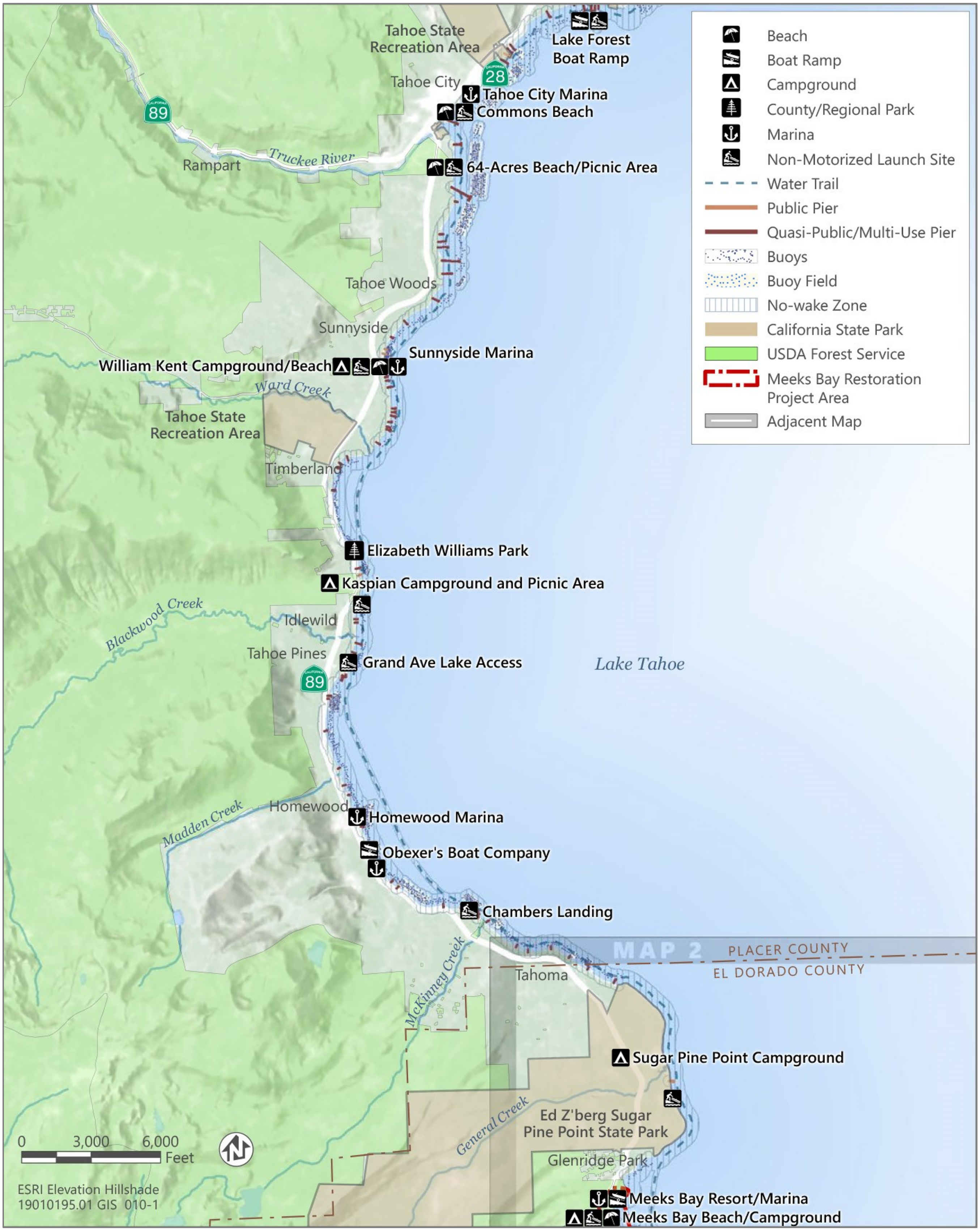
Meeks Bay trailhead is located adjacent to the project area on the west side of SR 89. The dirt parking area provides access to Lake Genevieve and Desolation Wilderness. It is a popular trailhead in the summer and winter for trail and recreation access.

PUBLIC BEACHES AND ACCESS POINTS

Over 20 public beaches and access points to the lake are located between Tahoe City and South Lake Tahoe (see Figures 3.1-1 and 3.1-2). Public beaches on the west shore are generally located on NFS lands or within California state parks. During peak summer months, Lake Tahoe's public beaches and access points are popular places for a variety of recreation activities: swimming, sunbathing, relaxing, barbecuing, paddle boarding, kayaking, jet skiing, and boating.

PIERS

The shorezone of Lake Tahoe is dotted by a total of 762 piers. There are 24 public piers and 191 multi-use piers (i.e., privately owned but serving a homeowner's association or two or more private littoral parcel owners). The remaining piers are private piers serving individual property owners. Piers provide opportunities for fishing, scenic viewing, and to otherwise experience the lake in a way that does not require getting in the water or using watercraft. When the water is high enough, piers can also serve as a place for swimmers to jump or dive in the lake.



Source: Adapted by Ascent Environmental in 2020.

Figure 3.1-1 Recreation Facilities near the Project Area: Tahoe City to Meeks Bay

Source: Adapted by Ascent Environmental in 2020.

Figure 3.1-2 Recreation Facilities near the Project Area: Meeks Bay to Tahoe Keys

The closest public piers to Meeks Bay include one pier at Sugar Pine Point State Park and two piers in Emerald Bay State Park. The pier at Sugar Pine Point State Park is used for pedestrians and could be used for docking State Parks boats. The piers in Emerald Bay are available for docking boats briefly for the purposes of loading and unloading passengers. The pier at Sugar Pine Point State Park is L-shaped, approximately 210 feet long, and ranges from 11 feet wide at the narrowest point to about 57 feet wide at the widest point. In Emerald Bay, an L-shaped pier is located near Vikingsholm. This pier is approximately 135 feet long and ranges from 14 feet wide at the narrowest point to 48 feet long at the widest point. The second pier is located near the Emerald Bay Boat Campground and is approximately 140 feet long and ranges from 20 feet wide at the end to 9 feet at the narrowest point.

MOTORIZED BOATING FACILITIES

Marinas and Public Mooring Locations

Lake Tahoe has 15 public marinas and public mooring locations located around the lake (see Figures 3.1-1 and 3.1-2 and Table 3.1-3). The public can gain access for boating through boat launching and marina/mooring facilities. Mooring facilities at marinas include boat slips and buoys. Marinas may also offer opportunities for the public to rent motorized and nonmotorized watercraft, including sailboats. These facilities are sensitive to changes in lake levels, significantly reducing their ability to meet public demand during low water conditions when many ramps and slips are left dry. Moorings are structures used for the long-term storage of boats and include buoys, slips, and boat lifts. These structures can store boats permanently, seasonally, or overnight. Marinas and moorings provide opportunities for motorized boating on Lake Tahoe. The discussion here focuses on public boating facilities since Meeks Bay Marina is a public boating facility. However, there are a number of private boat ramps and hundreds of private mooring facilities and slips throughout the lake and along the west shore.

Table 3.1-3 Publicly Accessible Motorized Boating Facilities

Marinas/Public Mooring Locations	Number of Buoys	Percent of Buoys on the Lake	Percent of Buoys on the West Shore[2]	Number of Slips	Percent of Slips on the Lake	Percent of Slips on the West Shore	Total Moorings	Percent of Moorings on the Lake	Percent of Moorings on the West Shore[2]
Meeks Bay Marina	0	0%	0.0%	119	10%	16%	119	6%	11%
Camp Richardson	110	15%	33%	12	1%	2%	122	6%	13%
Emerald Bay State Park	22	3%	7%	0	0%	0%	22	1%	2%
Homewood High and Dry Marina[1]	125	17%	37%	296	24%	40%	421	21%	39%
Obexer's Boat Company	16	2%	5%	39	3%	5%	55	3%	5%
Sunnyside Marina	24	3%	7%	24	2%	3%	48	2%	4%
Tahoe City Marina	41	6%	12%	241	20%	33%	282	14%	26%
Lakeside Marina	63	8%	NA	63	5%	NA	126	6%	NA
North Tahoe Marina	48	6%	NA	30	3%	NA	78	4%	NA
Round Hill Pines	70	9%	NA	0	0%	NA	70	4%	NA
Sierra Boat Company	15	2%	NA	120	10%	NA	135	7%	NA
Ski Run Marina	71	10%	NA	34	3%	NA	105	5%	NA
Tahoe Keys Marina	0	0%	NA	239	20%	NA	239	12%	18%
Timber Cove Marina	80	11%	NA	1	0.1%	NA	81	4%	NA
Zephyr Cove	65	9%	NA	0	0%	NA	65	3%	NA
West Shore Total[2]	338	45%	100%	731	60%	100%	1,069	54%	100%
Lake-wide Total	750	100%	NA	1,218	100%	NA	1,968	100%	NA

Note: NA = not applicable.

1 Homewood High and Dry Marina includes dry rack storage instead of boat slips.

2 Marinas in the west shore area include Camp Richardson, Homewood High and Dry Marina, Meeks Bay Marina, Obexer's Boat Company, Sunnyside Marina, and Tahoe City Marina. Other public mooring locations on the west shore include buoys for the Emerald Bay Boat Camp.

Source: TRPA 2016, compiled by Ascent Environmental in 2021.

The Meeks Bay Marina includes 119 slips (see Table 3.1-3), a concrete boat ramp, marina office, and unpaved parking area for boat trailer parking. The marina is only operational during navigable, normal and high lake levels, and the last time it was open was in 2015. The nearest marinas to Meeks Bay are Obexer's Boat Company and Homewood High and Dry Marina, approximately 4 miles and 4.5 miles, respectively, to the north. Camp Richardson, approximately 14 miles south of Meeks Bay, is the closest marina to the south.

In addition to slips, buoys are another method used on the lake for mooring boats. On Lake Tahoe, buoys are generally used seasonally for overnight or longer-term mooring. A semi-permanent anchor block is placed on the lakebed and is attached with a tether to a removable float. Although the anchors remain in place year-round, buoy floats are usually removed during winter, when the buoy moorings are not used. Navigational buoys, such as buoys demarcating swim areas or navigational hazards, are not regulated as buoys under the Shoreline Plan. There are an estimated 750 buoys available for public use (i.e., available for rent) on Lake Tahoe, 338 of those buoys are located within the west shore area between Tahoe City and the Tahoe Keys Marina. The nearest public buoy fields to Meeks Bay are located at Obexer's Boat Company and Homewood High and Dry Marina, approximately 4 miles to the north.

Motorized Boat Launches

Boat ramps serve as the primary means of public boating access to Lake Tahoe. The ramps are used by day users, who launch boats and remove them from the lake each day, and by seasonal users, who launch boats once each boating season and store them on moorings throughout the boating season. Boat ramps are often located adjacent to or as a component of related upland facilities, such as marinas, beaches, and parks. Boat ramps can be susceptible to low lake conditions because they are fixed structures and close to shore. Some marinas and other boat launching facilities provide alternative launching services to a traditional boat ramp (e.g., forklift, gantry).

The west shore from Tahoe City to Camp Richardson in South Lake Tahoe contains five marinas and boat launching facilities (Table 3.1-4). From 2010 through 2015, the annual average number of boats launched at the Meeks Bay Marina boat ramp was 1,971, which represents 38 percent of total annual average number of launces from facilities in the west shore area during periods of normal and high lake levels (TRPA 2017; see Table 3.1-4). The number of boat trailer parking spaces at Meeks Bay is limited, which in turn limits the number of daily boat launches that could occur at Meeks Bay. Meeks Bay Marina and the boat ramp are only open during normal and high lake levels, so the annual average number of launches at Meeks Bay only reflects the periods during which it has been open. The nearest public boat launching facilities are at Obexer's Boat Company and Homewood High and Dry Marina, both located just over 4 miles to the north. To the south, the closest boat ramp is located at Tahoe Keys Marina outside of the west shore area, approximately 17 miles away. From 2010-2015, the annual average number of boats launched at the Obexer's Boat Company boat ramp was 2,352 boats. From 2011-2015, the annual average number of boats launched at Tahoe Keys Marina was 3,509 boats (TRPA 2018c: Appendix A Part 2 Table 1, Kasman, pers. comm., 2021).

Table 3.1-4 Annual Average Boat Launches on Lake Tahoe

Motorized Boat Launch Facilities	Annual Average Motorized Boat Launches/Year[1]	Percent of Lakewide Motorized Boat Launches/Year	Percent of West Shore Motorized Boat Launches/Year[4]
Meeks Bay Marina[2]	1,971	6%	38%
Homewood High and Dry Marina	323	1%	6%
Obexer's Boat Company	2,352	8%	45%
Sunnyside Marina	194	1%	4%
Tahoe City Marina	396	1%	8%
Lakeside Marina	772	3%	NA
North Tahoe Marina	368	1%	NA
Sierra Boat Company	371	1%	NA
Cave Rock	4,752	15%	NA
Coon Street (Kings Beach State Recreation Area) [2]	526	2%	NA
El Dorado Boat Ramp[2]	359	1%	NA
Lake Forest Boat Ramp	5,469	18%	NA
Sand Harbor[2]	4,189	14%	NA
Ski Beach (Incline Village General Improvement District) [3]	3,266	11%	NA
Tahoe Keys Marina	3,509	11%	NA
Tahoe Vista Recreation Area[2]	1,767	6%	NA
Elks Point[3]	60	0.2%	NA
Debra Lane Homeowner's Association[3]	40	0.1%	NA
West Shore Total	4,717	16%	100%
Lakewide Total	30,165	100%	NA

Notes: NA = not applicable.

1 Launch data was collected for 2010 through 2016; however, not every launch location had information for each of these years. Also, for some facilities, no launch information is available because the location was closed due to low lake levels.

2 These boat ramps are closed during low lake levels.

3 These boat ramps are not open to the general public.

4 West shore, as defined in this table, refers to the area between Tahoe City and Camp Richardson. Boat launch facilities on the west shore include Meeks Bay marina, Homewood High and Dry Marina, Obexer's Boat Company, Sunnyside Marina, and Tahoe City Marina.

Source: TRPA 2017.

BICYCLE AND PEDESTRIAN ACCESS

Access to Meeks Bay includes an approximately 4-mile-long multi-use path that extends from Tahoma, with the segment from Sugar Pine Point to Meeks Bay completed in 2018. This multi-use path is a component of the planned Tahoe Trail, a paved multi-use path that would circle the lake. Based on trail counter data collected on the path at the south end of Sugar Pine Point State Park, the average number of daily trail users during July 2020 (the month that showed the most trail use) was 113 trail users and on the day that received the highest number of trail users, there were 161 trail users (Lake Tahoe Info 2022b). At this time, the Tahoma to Meeks Bay segment is one of several major sections of the Tahoe Trail that have been constructed, which includes the El Dorado Beach to Ski Run Boulevard segment, U.S. 50/Kahle Drive Intersection to Round Hill Pines segment, the Incline Village to Sand Harbor segment, the Dollar Creek segment, and the 15th Street to Spring Creek Road segment. Other sections of the Tahoe Trail are undergoing planning and design, including the Sand Harbor to Spooner Summit segment, the North Tahoe Regional Trail, and the proposed path around Emerald Bay connecting Meeks Bay to Cascade. Completion of the Tahoe Trail segment from Meeks Bay to Cascade Creek is identified as a cumulative project at the beginning of Chapter 3 of this document. The purpose of completing the Tahoe Trail is to provide multi-modal access to popular west shore recreation sites, reduce vehicle and parking impacts, improve transportation options available for residents and visitors, improve safety, enhance recreation access, reduce water and air pollution, and enhance stormwater management and water quality.

CAMPGROUNDS

The project area includes two campgrounds, a 36-site campground at the resort and a 40-site campground south of Meeks Creek. Campsites at each of the campgrounds are available for tent or RV camping. Amenities include restrooms and showers. Including the campgrounds at Meeks Bay, there are 11 campgrounds on the west shore of Lake Tahoe with over 1,000 campsites (see Table 3.1-5). The nearest campgrounds to the project area are Sugar Pine Point State Park and D.L. Bliss State Park.

Table 3.1-5 Campgrounds on the West Shore of Lake Tahoe

Campground	Number of Campsites	Approximate Distance from the Project Area (miles)
Meeks Bay Resort	36 campsites	0
Meeks Bay Campground	40 campsites	0
Sugar Pine Point State Park	185 campsites (includes 10 group sites)	1.5
D.L. Bliss State Park	151 campsites (includes 1 group site)	6
Kaspian Campground	9 campsites	7
Emerald Bay Boat Campground	22 campsites	8
William Kent Campground	78 campsites 3 yurts	9
Eagle Point Campground	100 campsites	11
Camp Shelley	25 campsites	13
Fallen Leaf Campground	201 campsites 6 yurts	13.5
Camp Richardson Campgrounds (Eagle's Nest and Badger's Den)	211 campsites	14
Total	1,058 campsites 9 yurts	NA

Note: NA = not applicable.

Source: compiled by Ascent Environmental in 2021.

VISITOR CAPACITY AT MEEKS BAY

Day use and overnight visitor capacity at the Meeks Bay Resort and the area south of Meeks Creek is limited by day-use and lodging parking within the project area, parking along SR 89, parking at the Meeks Bay trailhead west of the project area, and the number of campsites in the project area. Approximately 470 parking spaces are available within and near the project area, which are primarily for day use, but parking spaces are also used by overnight guests that stay in the 22-unit resort lodging (see Table 3.1-6). Capacity of the lodging units varies from two to 12 people per unit with a total capacity of 122 guests. As described above under "Bicycle and Pedestrian Access," the Tahoe Trail segment from Tahoma to Meeks Bay provides access to the project area for pedestrians and bicyclists (i.e., non-automobile users). On an average day in July, the Tahoe Trail at Sugar Pine Point State Park is used by over 100 trail users with up to approximately 160 trail users on a peak day. It is reasonable to assume that some portion of those riders travel to Meeks Bay. Although Meeks Bay does not see the high visitation numbers experienced by nearby recreation sites (e.g., Emerald Bay, Sugar Pine Point State Park) (TRPA et al. 2019), the Meeks Bay project area reaches parking, campground, and lodging capacity during peak periods (i.e., summer weekends and summer holidays). However, there is no capacity related to visitors that enter via bicycle or walking on the Tahoe Trail.

Visitation data for day use and overnight visitors to the project area is limited, in particular for Meeks Bay Resort. Additionally, available information only exists for the months the campground is open. Based on visitor counts conducted by the USDA Forest Service, 2018 saw 27,684 visitors to the portion of the project area south of Meeks Creek, and the annual average number of people staying at the Meeks Bay Campground from 2015-2017 was 13,133 (TRPA et al. 2019). More recent visitation information for the 2020 season (May to October) was provided by the concessionaire at the Meeks Bay south area, which indicates that there were over an estimated 95,000 day-use visitors and 20,000 campers at the Meeks Bay Campground. Those estimates were used to provide assumptions about average daily visitation at the Meeks Bay Resort, which received an estimated 328,000 day-use visitors (counted as walk-in visitors and cars in Table 3.1-7) and 18,000 campers in 2020 (see Table 3.1-7). Visitation data for Meeks Bay Resort was limited; thus, visitation estimates were based on the data provided for the area south of Meeks Creek. It is important to note that the visitation numbers in Table 3.1-7 are estimates and actual visitation numbers could be higher or lower than presented. Also, the visitation numbers are presented as average days; however, the actual number of visitors would be higher during the weekend and holidays and lower during the week and non-holiday periods. Although the availability of documented visitation numbers is limited, it is worth noting that, anecdotally, the project area reaches capacity during peak periods (i.e., summer weekends and summer holidays). Figure 3.1-3 shows what typical conditions look like in the project area on busy days in the summer.

Table 3.1-6 Parking Capacity in the Meeks Bay Area

Location	Number of Parking Spaces
Meeks Bay Resort[1]	300
Meeks Bay South of Meeks Creek[2]	76
Meeks Bay Trailhead[3]	11
SR 89 On-highway Parking[3]	84
Total Parking Spaces	471

[1] Parking at Meeks Bay Resort includes day use parking and parking for overnight guests staying in the resort lodging.

[2] Parking at Meeks Bay south of Meeks Creek is for day use visitors.

[3] Parking at the Meeks Bay trailhead and on the highway may be used by people visiting Meeks Bay or could be used by hikers accessing the trailhead.

Source: TRPA et al. 2019, compiled by Ascent Environmental in 2021.

Table 3.1-7 Estimated Visitation to the Meeks Bay Campground and Meeks Bay Resort in 2020

Month	Meeks Bay South of Meeks Creek					Meeks Bay Resort[1]				
	Campground Overnight Visitors[2]	Visitors in Day Use Vehicles[3]	Walk-in Day Use Visitors[4]	Total Visitors	Average Visitors/ Day	Campground Overnight Visitors[2]	Visitors in Day Use Vehicles[3]	Walk-in Day Use Visitors[4]	Total Visitors	Average Visitors/Day[6]
May[7]	2,000	6,370	240	8,600	480	1,800	14,590	240	16,630	920
June	3,700	13,860	770	18,330	610	3,330	32,820	770	36,920	1,230
July	4,770	32,340	1,630	38,740	1,250	4,300	127,640	1,630	133,570	4,310
August	4,680	29,690	1,940	36,310	1,170	4,200	117,200	1,940	123,340	3,980
September	3,330	8,190	770	12,290	410	2,990	32,330	770	36,090	1,200
October[8]	1,730	6,370	240	8,340	520	1,550	12,970	240	14,760	920
Total	20,210	90,450	5,350	116,010	740	18,170	322,960	5,350	346,480	2,220

Notes: NA = not available. All numbers in the table are rounded as they represent approximate estimates of visitation.

[1] Information about visitation at Meeks Bay Resort is not available; thus, the assumptions for campground visitation, visitors in day use vehicles, and walk-in visitors are extrapolated from the visitation information available for the area south of Meeks Creek. The number of visitors staying in lodging at the resort is unavailable, but it is assumed that the resort lodging is booked to capacity during peak periods (i.e., summer weekends and summer holidays).

[2] Campground visitation for Meeks Bay Campground was provided by the Meeks Bay Campground concessionaire (Totterdale, pers. comm., 2021). This information was used to develop the estimated average number of people per campsite (3.85 people/site) and proportion of the campsites that are booked each month. Note the vehicle miles traveled (VMT) analysis in Section 3.12, "Transportation and Circulation," uses the TRPA Project Impact Assessment (PIA) tool, which determines project-generated VMT calculations based on the land use type, size, and location of the project using location-based data from the Tahoe Activity-Based model.

[3] The estimate of visitors in day use vehicles is based on the average number of people per car developed from June 2021 visitor numbers, 2,181 cars with a total of 7,562 people, provided by the Meeks Bay Campground concessionaire (Totterdale, pers. comm., 2021). This calculation also considers the average number of cars parked in each space per day, which varies by month. The vehicle trips and vehicle miles traveled analysis in Section 3.12, "Transportation and Circulation," uses the TRPA PIA tool, as described above.

[4] The walk-in visitor estimates likely underestimate visitation as it is nearly impossible to count every person walking in during busy kiosk times. Information about walk-in day use visitors at the resort is unavailable, so these numbers assume there would be at least as many walk-in visitors as those in the south area. It is possible that the walk-in visitor estimates capture some of the pedestrians and bicyclists using the Tahoe Trail to access the project area.

[5] Because the number of lodge visitors is unavailable, the average visitors/day estimate for Meeks Bay Resort is likely higher than what is presented here. However, parking for lodge visitors is incorporated into the total available parking for the resort used in estimating visitors arriving in day use vehicles.

[6] Visitation data for May assumes that the Meeks Bay Resort and area south of Meeks Creek are open beginning May 14. Parking and walk-in visitation numbers were not provided for May; thus, the May visitation estimate was developed using assumptions from estimated visitation in October (i.e., average visitors per day for May was assumed to be similar to the average visitors per day based on data provided for October (Totterdale, pers. comm., 2021).

[7] Visitation data for October assumes that the Meeks Bay Resort and the area south of Meeks Creek close October 16.

Source: Compiled by Ascent Environmental in 2021.

Source: Provided by TRPA in 2022.

View of the Beaches in the Project Area Looking South on a Busy Summer Day.

Source: Provided by TRPA in 2022.

Beach at Meeks Bay Resort on a Busy Summer Day.

Figure 3.1-3 Representative Photographs of Visitation at Meeks Bay during Peak Summer Periods

3.1.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

The following analysis assesses the environmental effects of each alternative with respect to the existing recreation uses and facilities in the project area and changes in public access to these recreation resources and Lake Tahoe. This analysis is based on review of existing documents, policies, ordinances, and other regulations pertinent to recreation.

THRESHOLDS OF SIGNIFICANCE

The thresholds of significance were developed in consideration of the State CEQA Guidelines, TRPA Thresholds, TRPA Initial Environmental Checklist, LTBMU Forest Plan, and other applicable policies and regulations. Under NEPA the significance of an effect must consider the context and intensity of the environmental effect. The factors considered under NEPA to determine the context and intensity of its effects are encompassed by the thresholds of significance. An alternative would have a significant effect on recreation if it would:

- result in a decrease in the quality of recreation experience or the availability of recreation opportunities;
- have the potential to significantly alter the character of recreational experiences or significantly increase conflicts between recreation uses, either existing or proposed; or
- result in a change in access to or along the shoreline that would cause a loss of public access to any lake, waterway, or public lands.

ISSUES NOT DISCUSSED FURTHER

The project would include the construction of public recreation facilities, the potential environmental effects of which are analyzed in Sections 3.2 through 3.13 of this EIS/EIS/EIR. The environmental effects of constructing recreation facilities are not discussed further in this section.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.1-1: Affect the Quality of Recreational Opportunities

Alternatives 1, 2, 3, and 4 would provide new or improved recreation amenities, campground improvements, and multi-use paths throughout the project area. Each of these alternatives would remove the marina and boat ramp and restore Meeks Creek. Alternatives 1 and 2 would provide universally accessible piers that would improve access for recreation users on the lake, with the Alternative 1 pier providing opportunities for motorized boaters to dock at the pier for loading and unloading passengers that would enhance the quality of boating opportunities. Alternatives 3 and 4 would include a moveable, universally accessible paddlecraft launch that would enhance the quality of recreational opportunities for nonmotorized watercraft (e.g., kayaks, paddleboards). These improvements would enhance the quality of recreational opportunities in the project area. The potential reduction in quality of recreation opportunities for motorized boaters related to the loss of the marina and boat ramp would not be substantial because boaters could still travel to the project area for recreation enjoyment. Because the action alternatives would enhance public recreation opportunities in the project area and obtain PAOTs, as required by TRPA, there would be no impact related to the fair share of the total Tahoe Basin capacity for outdoor recreation available to the public. Although the action alternatives would increase visitation to varying degrees, expansion of the day-use and beach areas would offset any increase in crowding in the project area. For these reasons, Alternatives 1, 2, 3, and 4 would result in a less-than-significant impact on the quality of recreational opportunities in the project area.

With the No Action Alternative, the quality of the marina recreation experience would degrade over time as the marina continues to be in disrepair without an adequate reinvestment mechanism; however, because the marina would remain in operation during normal and high water years the reduction in quality would not be considered significant. Opportunities for swimming, beachgoing, kayaking and paddle boarding, bicycling, day use, and camping would remain with the No Action Alternative. Thus, this alternative would have a less-than-significant impact on the quality of recreational opportunities.

As described above under the "Thresholds" section in Section 3.1.1, "Regulatory Setting," the TRPA threshold related to quality experience and additional access for recreation is in attainment. The quality of recreation experiences was evaluated for the 2019 Threshold Evaluation through Sustainable Recreation Working Group surveys. The majority of respondents to the surveys rated their experiences spent outdoors at Lake Tahoe as "extremely enjoyable" or "very enjoyable" (Lake Tahoe Info 2021a). This impact considers whether the project alternatives would degrade the quality of recreation user experience for day users, campers, pedestrians and bicyclists, swimmers, non-motorized watercraft users (e.g., kayakers, paddleboarders), and motorized boaters. The quality of recreation user experience could be influenced by a number of factors, including availability of recreation opportunities, temporary effects of construction activity, conflicts between different user groups, and the degree of crowding experienced by visitors.

No Action Alternative

Under the No Action Alternative, there would be no restoration of Meeks Creek and the marina would remain in place, with a boat ramp and approximately 120 slips placed in the lagoon. The marina would be operational during navigable, normal and high lake levels and would not be operational during periods of low lake levels. Additionally, there would be only minor changes to the marina for health and safety (e.g., if sheet piling is unsafe) and typical maintenance. Development of a multi-use path through or adjacent to the project area may still occur as part of the Tahoe Trail project. With this alternative, opportunities for swimming, beachgoing, kayaking and paddle boarding, cycling, day use, and camping would remain as they are under existing conditions.

During normal and high-water periods when the marina would be operational, the effects on the quality of recreation experiences for swimmers and non-motorized watercraft users from motorized boaters traveling through the bay as they leave or return to the marina would be the same as under existing conditions. Motorized boats would be required to follow the no-wake zone requirements of TRPA Code Section 84.10, traveling no faster than 5 miles per hour (mph) within 600 feet from the waterline along the beach (i.e., roughly the distance from the marina to the edge of the bay) and within 100 feet from swimmers and non-motorized watercraft. Boats leaving and entering the marina would also navigate around delineated swim areas. This would minimize the sounds from the boats and generation of wake that could disrupt swimmers and non-motorized watercraft. Because there would be no change to opportunities for beachgoing, cycling, day use, and camping, there would be no change in the quality of recreation experience for these users compared to existing conditions. Retaining the existing recreation facilities (e.g., marina, boat ramp, campground, and day-use areas) would result in no change to PAOTs in the project area.

One factor that contributes to the quality of recreation experience is crowding, or how much average space each visitor has between them and other visitors. The amount of crowding is determined by the amount of people per square feet of the portions of the project area where visitors would likely spend most of their time while at Meeks Bay (beach and day-use areas). As shown in Table 3.1-8, the average amount of space per visitor would vary throughout the season that Meeks Bay is open, with a density of 107 – 140 square feet (sq. ft.) per person (sq. ft./person) in May, June, September, and October. The average density on the beach and day-use areas in July and August would be an estimated 35 – 38 sq. ft./person, which reflects existing crowded conditions associated with those peak periods. Under the No Action Alternative, there would be no changes in the project area that would result in an increase in the number of visitors to Meeks Bay and there would be no changes to expand areas where day users spend their time (i.e., beach and day-use areas).

The quality of the marina recreation experience would degrade over time as the marina continues to be in disrepair without an adequate reinvestment mechanism; however, because some use of the marina could continue this would not be a substantial reduction in the quality of the marina recreation experience. Implementation of the No Action Alternative would result in no changes to the upland facilities in the project area. There would be no substantial change to the quality of recreation opportunities; thus, this impact would be less than significant.

Table 3.1-8 Visitor Density in the Beach and Day-Use Areas (sq. ft./person)

Alternatives	May	June	July	August	September	October
No Action Alternative	140	107	35	38	122	136
Alternative 1	167	127	42	46	146	163
Alternative 2	167	127	42	46	146	163
Alternative 3	157	118	40	43	137	153
Alternative 4	163	122	41	44	141	158

Notes: The density of visitors (sq. ft./person) was calculated using an estimate of the sizes of the beach and day-use areas divided by the average number of daily visitors estimated for each alternative. Because the final design of the action alternatives is not yet complete, actual sizes of the beach and expanded day-use areas are not yet known, but these calculations assume the beach and day-use areas would roughly be the same size under each action alternative. These estimates are conservative because they assume that all visitors (day use, camping, and lodging visitors) would be in the day-use areas. It is likely that overnight visitors could be spending time in their campsites or lodging units, could be on the lake (swimming, paddleboarding, kayaking, floating, etc.), or could be recreating outside of the project area. Thus, these estimates provide an order of magnitude for changes in visitor density throughout the season and compared to other alternatives.

Alternatives 1 and 2 are not anticipated to substantially change the number of visitors because there would be no additional parking constructed and the overall change in campsites could be reduced by up to four campsites or increased by up to two campsites. Thus, to provide a conservative estimate of change in density under these alternatives, the density calculated here assumes that Alternatives 1 and 2 would increase the number of campsites by two.

Source: Compiled by Ascent Environmental in 2022.

Alternative 1: Restoration with Boating Pier

Implementation of Alternative 1 would reconfigure many of the features in the project area, including removal of the marina and restoration of Meeks Creek. Implementation of this alternative would continue to provide the same recreation opportunities that currently exist in the project area (e.g., camping, day use, beachgoing, swimming, and nonmotorized watercraft use) but removal of the marina and boat ramp would remove opportunities for mooring motorized boats overnight and seasonally, as well as for daily launches of boats and personal watercraft (such as jet skis). There would be no changes to parking capacity and improvements to the campgrounds may only result in the increase or decrease of one to two campsites. Other components of this alternative, such as a multi-use path providing pedestrian and bicycle connections throughout the project area, bike storage, paddlecraft storage, improvements to the day-use areas, and interpretive opportunities, would be new or improved amenities for visitors that would enhance their recreational experience in the project area.

Construction of features of Alternative 1 would result in temporary disruption of recreation uses in the project area, including temporary closures of limited portions of the beach and lake during active periods of construction. While visitors are likely to continue to access portions of the project area during construction, the daytime construction noise could temporarily degrade the quality of recreational opportunities. Construction noise impacts are discussed in Impact 3.11-1 in Section 3.11, "Noise." With implementation of the project, notification of planned construction would be provided on websites associated with the project area and signage would be posted at the project area consistent with RPM REC-1.

Construction of a boating pier in the project area would introduce a new structure in a bay that does not contain any human-made structures aside from navigational and safety buoys, which would modify the scenic views of the lake from the beach and views towards the shoreline and could be a factor in potentially degrading the quality of recreational opportunities. Scenic impacts related to introduction of the boating pier to the project area are further discussed in Impacts 3.2-1, 3.2-2, and 3.2-4 in Section 3.2, "Scenic Resources."

Other factors that may affect the quality of recreation experiences related to crowding, camping, and motorized boating are further discussed below.

Motorized Boating

Conflicts may arise between non-motorized recreation users (e.g., swimmers, kayakers, paddleboarders) and motorized boats and personal watercraft that generate noise, odor from fuel emissions, and wakes that can affect the quality of recreational experience and potentially safety of non-motorized recreation users. Recreation user conflicts are further discussed in Impact 3.1-2, below.

Implementation of Alternative 1 would develop a fixed design, 300-foot-long boating pier located north of Meeks Creek with a universally accessible walkway connecting the pier to nearby day use and parking areas. The pier would include a pierhead with one boatlift capable of supporting a 29-foot-long boat that could be used for fire protection. During peak periods of use, the pier would be accessible to an estimated maximum of 11 boats for short periods to load and unload passengers. This estimate assumes an average boat length of 20 feet, with approximately 2 feet of space between boats and that 150 feet on one side of the pier and 120 feet on the side of the pier with the emergency services boat would be accessible for motorized boats to temporarily dock. A water taxi is not proposed as part of the project, but the project does not preclude the use of a water taxi that temporarily docks at the pier. Motorized boaters desiring to stay at Meeks Bay for long periods during the day would need to anchor away from the pier and outside of the swim buoy area, which is the same as existing conditions.

A boating pier in the project area would likely attract motorized boaters to Meeks Bay to take advantage of the ability to load and unload passengers. Motorized boats could also temporarily anchor in the bay outside of the designated swim areas. However, Alternative 1 would result in removal of the marina and boat ramp, thereby removing the potential for up to 119 motorized boats and other motorized boats or personal watercraft that are launched from the boat ramp from traveling to and from the marina. This analysis assumes that the increase in motorized boating associated with the boating pier would generally be offset by a reduction in motorized boats and personal watercraft devices arising from removal of the marina and boat ramp; thus, with implementation of Alternative 1 there would be no substantial change in the quality of recreation opportunities for non-motorized recreation users compared to existing conditions.

Removal of the marina and boat ramp would reduce the opportunities for people to moor motorized boats on the west shore by 11 percent and by 6 percent on the lake (see Table 3.1-3). Additionally, day use visitors that may want to launch their boat from this boat ramp would no longer have that option at Meeks Bay, where previously an average of approximately 30 percent of motorized boat launches on the west shore occurred and 5 percent of the launches throughout the whole lake occurred (see Table 3.1-4). Loss of this mooring location may reduce the quality of motorized boating opportunities, in particular for residents/visitors in the nearby the project area, because they would have to travel farther to launch and reach their boat once it is moored. However, opportunities for mooring and launching boats elsewhere are available and motorized boats could travel to Meeks Bay with Homewood High and Dry Marina located approximately 4 miles to the north, Camp Richardson (mooring only) approximately 14 miles to the south, and Tahoe Keys approximately 16 miles to the south. The potential impacts from Alternative 1 on regional and local access or opportunities for motorized watercraft are specifically addressed under Impacts 3.1-3 and 3.1-4.

Camping

The Meeks Bay Resort Campground would remain similar to its current configuration and would continue to provide tent and RV camping. The Meeks Bay Campground would be reconfigured with minor adjustments to increase the privacy of the campsites that may change the number of sites from the existing 40 campsites to an estimated 36-42 campsites. The potential for up to 50 percent of sites in both campgrounds to be converted to alternative camping, such as yurts or camping cabins, could increase opportunities for visitors with limited camping equipment and could expand the visitation season, depending on snow levels, in the project area. Additionally, the Meeks Bay Campground would be reconfigured to provide additional privacy between campsites, which would improve the quality of the camping experience. Under Alternative 1, there would be no substantial change in the number of campsites, RV use would continue to be supported in the project area, and the conversion of some campsites to alternative camping would increase opportunities for a greater variety of recreation users. Thus, there would not be a substantial change in camping opportunities at Meeks Bay, thereby expanding the opportunities for quality recreation in the project area.

Crowding

As described in the "Visitor Capacity at Meeks Bay" section in Section 3.1.2, "Environmental Setting," the project area generally reaches capacity during peak periods (i.e., summer weekends and summer holidays). The project area is estimated to receive an estimated 160,000-172,000 total visitors during each of the busiest months of July and August (see Table 3.1-7), with an estimated average of 5,150-5,560 visitors per day. On peak days, portions of the project area, such as the beach and day-use areas, have a higher density of people compared to other times during the season (see Table 3.1-8). Crowding of people could adversely affect the quality of recreation opportunities for individuals seeking a quieter recreation experience.

As described above under "Visitor Capacity at Meeks Bay," visitor capacity is primarily limited by the number of parking spaces and campsites, although visitors could bike or walk to the project area on the Tahoe Trail. Implementation of Alternative 1 would not result in a substantial change in capacity because there would be no change in parking supply and the number of campsites could only decrease by up to four campsites or increase by up to two campsites. The new multi-use path along the highway would not provide a new connection to the south such that it would be a new access point for additional residents or other visitors but would instead formalize access points to the project area for bicyclists and pedestrians. Note that connections to future planned expansion of the Tahoe Trail between the project area and Cascade south of Emerald Bay are addressed in Section 3.1.4, "Cumulative Impacts," below.

If the changes at the campground result in a reduction of up to four campsites, then there would be a reduction of 32 visitors per day on a peak day. If the changes at the campground result in an increase of up to two campsites, then there would be an increase of up to eight visitors per day on a peak day. Alternative 1 would relocate the resort cabins closest to the shoreline, which would expand the useable beach area by an estimated 130 to 175 linear feet. The day-use areas would also be expanded. The increases in these areas would provide more space for visitors. Using the conservative assumption that the number of campsites would increase resulting in an additional estimated eight visitors and the beach and day-use areas expand, the density of visitors would decrease compared to existing conditions and the No Action Alternative (see Table 3.1-8). Thus, there would not be a change in the quality of recreation opportunities related to crowding because implementation of this alternative would not result in an increase in visitor capacity.

PAOTs

The 2019 Threshold Evaluation found the recreation threshold for fair share distribution of recreation capacity to be in attainment (TRPA 2021b). Facilities in the project area that have been assigned PAOTs include the marina, boat ramp, beach, day-use areas, and campgrounds.

With implementation of Alternative 1, removal of the marina and boat ramp would result in a reduction in PAOTs with the PAOTs being added back to the PAOT pool. Reconfiguration of the Meeks Bay Campground could result in either a reduction of up to four campsites, resulting in a reduction of PAOTs, or expansion of up to two campsites that would require allocation of additional summer overnight PAOTs. As described above under the "Tahoe Regional Plan" section of Section 3.1.1, "Regulatory Setting," over 5,700 summer overnight PAOTs are available (see Table 3.1-1); thus, there would be enough PAOTs available if the campground is expanded. Alternative 1 would result in expansion of the day-use areas, which would require additional summer day use PAOTs. As shown in Table 3.1-1, there are over 5,000 summer day use PAOTs; thus, there would be enough PAOTs available for the expanded day-use areas. Additional summer overnight PAOTs and additional summer day use PAOTs would be requested as part of the TRPA permit application for the project and must be obtained prior to constructing and operating the proposed improvements. Allocation of additional PAOTs for the project would contribute to implementation of TRPA's Fair Share of Recreation Capacity Threshold that aims to provide outdoor recreation capacity to the public.

Conclusion

A range of factors resulting from implementation of the Alternative 1 would influence the quality of recreational opportunities. As described above, Alternative 1 would: 1) provide new or improved recreation amenities; 2) not result in an increase in visitation such that crowding would increase compared to baseline conditions 3) reconfigure the Meeks Bay Campground to improve privacy for campers; and 4) result in an increase in motorized boating associated with the boating pier that would be offset by a reduction in boat launch activity from removal of the marina and boat ramp. Because Alternative 1 would enhance public recreation opportunities in the project area and obtain PAOTs, as required by TRPA, there would be no impact related to the fair share of the total Tahoe Basin capacity for outdoor recreation available to the public. As described above, these effects of Alternative 1 would in some cases enhance the quality of recreational opportunities and in other cases would result in no change in the quality of recreation opportunities over existing conditions.

For these reasons, implementation of Alternative 1 would result in a less-than-significant impact related to the quality of recreational opportunities.

Alternative 2: Restoration with Pedestrian Pier

Implementation of Alternative 2 would remove the marina and boat ramp and result in similar recreation features as described above for Alternative 1 but would include a pedestrian pier instead of a boating pier.

Alternative 2 would have similar temporary reduction in the quality of recreational opportunities during construction of project components as those described above for Alternative 1. The pedestrian pier would have similar impacts on the quality of recreational opportunities related to the scenic impacts of the pedestrian pier as those described above for Alternative 1, although to a lesser degree because the pedestrian pier would be 200 feet shorter than that included in Alternative 1. Scenic impacts related to introduction of the pedestrian pier to the project area are further discussed in Impacts 3.2-1, 3.2-2, and 3.2-4 in Section 3.2, "Scenic Resources."

As described above for Alternative 1, the increased privacy in the campground, multi-use path providing pedestrian and bicycle connections throughout the project area, bike storage, paddlecraft storage, improvements to the day use and beach areas, and interpretive opportunities would be new or improved amenities that would enhance the recreational experience of visitors under Alternative 2. The changes in parking, campsites, and day-use areas and associated changes in the number of visitors would be similar to those described above for Alternative 1. Thus, like Alternative 1, there would not be a change in the quality of recreation opportunities from crowding.

Motorized Boating

Implementation of Alternative 2 would develop a 100-foot-long floating pedestrian pier to provide recreational access for swimming, paddlecraft, fishing, and sightseeing during normal lake levels. The pier would be accessed from the nearby day use and parking areas by a universally accessible walkway. Motorized boats or personal watercraft would not be allowed to moor at the pedestrian pier, although they could anchor away from the pier and outside of the swim buoy area, like under existing conditions. Thus, the pedestrian pier under Alternative 2 would not attract motorized boats, including a water taxi, to Meeks Bay. The impacts on motorized boating related to loss of mooring at Meeks Bay would be the same as those described above for Alternative 1. Because the pedestrian pier under Alternative 2 would not attract motorized watercraft, the reduction in the potential for motorized boats and personal watercrafts in Meeks Bay would improve the recreation experience for swimmers and non-motorized watercraft users (e.g., kayakers, paddleboarders) because there would be less noise from engines, less odor from fuel emissions, and less wake.

PAOTs

Implementation of Alternative 2 would result in the same reduction in PAOTs associated with removal of the marina and boat ramp as identified for Alternative 1. Alternative 2 would also result in the same potential increase in PAOTs associated with the Meeks Bay Campground (if the campground is expanded) and expanded day-use areas as Alternative 1. As described above for Alternative 1, there would be enough PAOTs for the campground and expanded day-use areas. Additional summer overnight PAOTs and additional summer day use PAOTs would be requested as part of the TRPA permit application for the project and must be obtained prior to constructing and operating the proposed improvements.

Conclusion

A range of factors resulting from implementation of the Alternative 2 would influence the quality of recreational opportunities. As described above, Alternative 2 would: 1) provide new or improved recreation amenities, including a pedestrian pier; 2) not result in an increase in visitation such that crowding would increase over existing conditions; 3) reconfigure the Meeks Bay Campground to improve privacy for campers; and 4) result in a decrease in motorized boating associated with the marina and boat ramp. These effects of Alternative 2 would enhance the quality of recreational opportunities for most visitors over existing conditions. Because Alternative 2 would enhance public recreation opportunities in the project area and obtain PAOTs, as required by TRPA, there would be no impact related to the fair share of the total Tahoe Basin capacity for outdoor recreation available to the public.

For these reasons, implementation of Alternative 2 would result in a less-than-significant impact related to the quality of recreational opportunities.

Alternative 3: Restoration with No Pier

Implementation of Alternative 3 would result in similar recreation features as described above for Alternatives 1 and 2 but would include a moveable, universally accessible paddlecraft launch instead of a pier. This alternative would also expand the campgrounds and parking.

Alternative 3 would have similar temporary reduction in the quality of recreational opportunities during construction of project components as those described above for Alternative 1. The paddlecraft launch would have similar impacts on the quality of recreational opportunities related to scenic impacts as those described above for Alternative 1, although to a lesser degree because the paddlecraft launch would be located towards the south end of the project area and would be at least 270 feet shorter than the pier included in Alternative 1. Scenic impacts related to introduction of the paddlecraft launch to the project area are further discussed in Impacts 3.2-1, 3.2-2, and 3.2-4 in Section 3.2, "Scenic Resources."

As described above for Alternative 1, the increased privacy in the campground, multi-use path providing pedestrian and bicycle connections throughout the project area, bike storage, paddlecraft storage, improvements to the day-use areas, and interpretive opportunities, would be new or improved amenities for visitors that would enhance their recreational experience in the project area under Alternative 3. The paddlecraft launch would offer a quality travel experience for all with access to the launch provided by a universally accessible path. With implementation of Alternative 3, there would be an addition of 14 parking spaces in the portion of the project area south of Meeks Creek and an additional 7-22 campsites. The potential for these changes to affect crowding is discussed below.

Motorized Boating

Implementation of Alternative 3 would include a moveable, universally accessible paddlecraft launch in the southern portion of the project area and would allow for universally accessible paddlecraft launching. Motorized boats or personal watercraft (e.g., jet skis) would not be allowed to use the structure, although they could anchor in the bay away outside of the swim buoy area, like under existing conditions. The paddlecraft launch under Alternative 3 would not be anticipated to attract motorized boats to Meeks Bay. Like Alternative 2, implementation of Alternative 3 would have similar effects related to quality of recreation opportunities for motorized boating because this alternative would remove the marina and boat ramp and there would be no other infrastructure that would support these types of recreation uses. Overall, the impacts on motorized boating related to loss of mooring at Meeks Bay would be the same as those described above for Alternative 1. The increase in quality of recreation experience for other recreation users would be the same as those described above for Alternative 1. In particular, the paddlecraft launch facility would improve lake access for people with mobility impairments.

Camping

Implementation of Alternative 3 would result in expansion and reconfiguration of the Meeks Bay Resort and Meeks Bay campgrounds for a total increase of 7-22 campsites in the project area. The Meeks Bay campground would be partially relocated away from SR 89 in the southwest corner of the project area to reduce noise in the campground. The campgrounds would be reconfigured to increase privacy for campers. The Meeks Bay Resort campground would continue to support RV camping while the Meeks Bay Campground would include vehicle length limitations, short spur lengths, and/or a short turn radius that would not accommodate large RVs. Additionally, up to 50 percent of the sites could be converted into alternative camping facilities. These changes would improve the quality of the camping experience by expanding the number and type of camping opportunities while also providing privacy and reducing exposure to noise from the highway.

Crowding

The addition of 7-22 campsites under Alternative 3 would result in an increase of up to an estimated 90 campers during peak periods (i.e., July) (see Table 3.1-9). The addition of 14 parking spaces would result in the addition of up to an estimated 190-day use visitors during peak periods. Addition of an estimated total of approximately 280 visitors per day to the project area during the peak periods would be an increase of 5 percent over the existing average number of visitors per day based on visitation estimates on an average peak day during July and August (see Tables 3.1-7 and 3.1-9). As discussed for Alternative 1, above, the new multi-use path along the highway would not be a new access point for additional residents or other visitors but would instead formalize access points to the project area for bicyclists and pedestrians. The day-use areas would be expanded. These expanded areas would provide more space for additional visitors that would alleviate an increase in crowding on peak days. As shown in Table 3.1-8, under Alternative 3, the density of visitors in the day-use and beach areas would reduce compared to existing conditions and the No Action Alternative. Thus, there would not be an adverse impact on the quality of recreation experience in the project area associated with crowding.

As discussed under the "Visitor Capacity at Meeks Bay" section, above, it is likely that there are a higher average number of visitors per day on the weekends compared to during the week. Additionally, because it is not feasible to count every person walking in during busy times and the number of visitors staying at Meeks Bay Resort lodging is unavailable, it is probable that the existing average number of daily visitors is higher than the estimates in Table 3.1-7. For these reasons, it is likely that the increase in visitation on a peak day from additional parking and campsites would be less than 5 percent during peak periods of use (see Table 3.1-9) and would not contribute to a noticeable increase in crowding for people on the beach or in the day-use areas.

Table 3.1-9 Estimate of Additional Visitors from Alternative 3

	May[1]	June	July	August	September	October
Estimated Existing Average Visitors/Day[2]	1,400	1,840	5,560	5,150	1,610	1,440
Additional Daily Campers[3]	61	68	85	83	61	59
Additional Visitors in Day Use Vehicles[4]	39	85	192	176	50	38
Total Additional Visitors/Day	100	153	277	259	111	97
Percent Increase over Existing Average Visitors/Day	7%	8%	5%	5%	7%	7%

1 Parking and walk-in visitation numbers were not provided for May; thus, the May visitation was developed using assumptions from visitation in October.

2 The total average visitors per day for the project area is the sum of the average visitors per day for the Meeks Bay South and Meeks Bay Resort areas included in Table 3.1-6.

3 The estimated average number of people per campsite (3.85 people/site) and proportion of the campsites that are booked each month were multiplied by 22, the maximum number of new campsites.

4 The estimate of visitors in day use vehicles is based on the average number of people per car (3.5 people/car) developed from June 2021 visitor numbers and the average number of cars per space per day, which ranges from 0.8 in October to 3.9 in July.

Source: Compiled by Ascent Environmental in 2021.

The highest relative increase in visitation over existing conditions would occur during the month of June, with an estimated 8 percent increase in daily visitation. However, under existing conditions during June, the project area is not at capacity for visitation because existing visitation during July and August is much greater. Thus, there would be sufficient capacity in the project area to accommodate an estimated 8 percent increase in visitation without noticeably increasing crowding or adversely affecting the quality of recreational opportunities.

PAOTs

Implementation of Alternative 3 would result in the same reduction in PAOTs associated with removal of the marina and boat ramp as identified for Alternative 1. Alternative 3 would also result in the same potential increase in PAOTs associated with the expanded day-use areas as Alternative 1. With Alternative 3, reconfiguration of both campgrounds could result in expansion of 7-22 campsites that would require allocation of additional summer overnight PAOTs, which would be greater than Alternatives 1, 2, and 4. Like Alternative 1, there would be enough PAOTs for the campground and expanded day-use areas. Additional summer overnight PAOTs and additional summer day use PAOTs would be requested as part of the TRPA permit application for the project and must be obtained prior to constructing and operating the proposed improvements.

Conclusion

A range of factors resulting from implementation of the Alternative 3 would influence the quality of recreational opportunities. As described above, Alternative 3 would: 1) provide new or improved recreation amenities, including a paddlecraft launch facility that could improve accessibility to the lake for people with mobility impairments; 2) increase parking and the number of campsites and expand the day-use areas; 3) reconfigure both campgrounds to improve privacy for campers; and 4) result in a decrease in motorized boating associated with the marina and boat ramp that would increase the quality of recreation experience for swimmers and nonmotorized watercraft users. These effects of Alternative 3 would enhance the quality of recreational opportunities over existing conditions. The increase in parking spaces and campsites would increase capacity for visitors that would be offset by the expanded day-use areas. This would help reduce the density of visitors in the beach and day-use areas compared to existing conditions and the No Action Alternative (see Table 3.1-8). Because Alternative 3 would enhance public recreation opportunities in the project area and obtain PAOTs, as required by TRPA, there would be no impact related to the fair share of the total Tahoe Basin capacity for outdoor recreation available to the public.

For these reasons, implementation of Alternative 3 would result in a less-than-significant impact related to the quality of recreational opportunities.

Alternative 4: Preferred Alternative

Implementation of Alternative 4 would remove the marina and boat ramp and result in similar recreation features as described above for Alternatives 1 and 2. Alternative 4 would have similar temporary reduction in the quality of recreational opportunities during construction of project components like that described above for Alternative 3, which includes noise and scenic impacts.

As described above for Alternative 1, the increased privacy in the campground, multi-use path providing pedestrian and bicycle connections throughout the project area, bike storage, paddlecraft storage, non-motorized launch, improvements to the day-use areas, and interpretive opportunities, would be new or improved amenities for visitors that would enhance their recreational experience in the project area under Alternative 4. With implementation of Alternative 4, there would be an addition of 14 parking spaces in the portion of the project area south of Meeks Creek. The potential for this change to affect crowding is discussed below.

Motorized Boating

Implementation of Alternative 4 would include a moveable, universally accessible paddlecraft launch in the southern portion of the project area, similar to that proposed for Alternative 3 described above. The moveable, universally accessible paddlecraft launch under Alternative 4 would not be anticipated to attract motorized boats to Meeks Bay.

Similar to Alternative 2, implementation of Alternative 4 would have similar effects related to quality of recreation opportunities for motorized boating because this alternative would remove the marina and boat ramp and there would be no other infrastructure that would support these types of recreation uses. Thus, the loss of the potential to moor boats at this location would reduce the quality of motorized boating opportunities, as described above for Alternatives 2 and 3. However, overall, the reduction in the potential for motorized boats and personal watercraft in Meeks Bay and increase in a launch facility that would support non-motorized watercraft would improve the quality of recreation experiences for swimmers and non-motorized watercraft users (e.g., kayakers, paddleboarders) for similar reasons as those described above for Alternative 2. Like Alternative 3, the paddlecraft launch under Alternative 4 would improve lake access for people with mobility impairments.

Crowding

Alternative 4 would include an additional 14 parking spaces like that proposed for Alternative 3, which would result in up to an estimated 190 additional day use visitors during peak periods (see Table 3.1-10). Under Alternative 4, the Meeks Bay Campground could be reduced by up to four campsites or could result in up to an additional two campsites, which would result in up to eight more visitors on a peak day. The addition of an estimated 198 people in the project area during the peak periods would be an increase of 4 percent over the existing average number of visitors per day on an average peak day during July (see Table 3.1-9). Similar increases in visitation would occur in August. With relocation of the lodging units away from the beach, the beach area would be slightly expanded (see discussion for Alternative 1 above). The relocation of lodging units away from the beach and changes in the day-use areas would result in the same increase in space for visitors as described for Alternative 1. As shown in Table 3.1-8, the density of visitors in the day-use and beach areas would be reduced compared to existing conditions and the No Action Alternative. Thus, there would not be an adverse impact on the quality of recreation experience in the project area associated with crowding.

Table 3.1-10 Estimate of Additional Visitors from Alternative 4

	May[1]	June	July	August	September	October
Estimated Existing Average Visitors/Day[2]	1,400	1,840	5,560	5,150	1,610	1,440
Additional Daily Campers[3]	6	6	8	8	6	5
Additional Visitors in Day Use Vehicles[4]	40	85	190	180	50	40
Total Additional Visitors/Day	46	91	198	188	56	45
Percent Increase over Existing Average Visitors/Day	3%	5%	4%	4%	3%	3%

[1] Parking and walk-in visitation numbers were not provided for May; thus, the May visitation was developed using assumptions from visitation in October.

[2] The total average visitors per day for the project area is the sum of the average visitors per day for the Meeks Bay South and Meeks Bay Resort areas included in Table 3.1-6.

[3] The estimated average number of people per campsite (3.85 people/site) and proportion of the campsites that are booked each month were multiplied by 22, the maximum number of new campsites.

[4] The estimate of visitors in day use vehicles is based on the average number of people per car (3.5 people/car) developed from June 2021 visitor numbers and the average number of cars per space per day, which ranges from 0.8 in October to 3.9 in July.

Source: Compiled by Ascent Environmental in 2021.

The highest relative increase would occur during the month of June, with an estimated 5 percent increase in daily visitation compared to existing conditions. However, under existing conditions during June, the project area is not at capacity for visitation because existing visitation during July and August is much greater (see Table 3.1-10). Thus, it is assumed that there would be sufficient capacity in the project area to accommodate the highest estimated percent increase in visitation without noticeably increasing crowding or adversely affecting the quality of recreational opportunities.

PAOTs

Implementation of Alternative 4 would result in the same reduction in PAOTs associated with removal of the marina and boat ramp as identified for Alternative 1. Alternative 4 would also result in the same potential increase in PAOTs associated with the Meeks Bay Campground (if the campground is expanded) and expanded day-use areas as Alternative 1. As described above for Alternative 1, there would be enough PAOTs for the campground and expanded day-use areas. Additional summer overnight PAOTs and additional summer day use PAOTs would be requested as part of the TRPA permit application for the project and must be obtained prior to constructing and operating the proposed improvements.

Conclusion

A range of factors resulting from implementation of the Alternative 4 would influence the quality of recreational opportunities. As described above, Alternative 4 would: 1) provide new or improved recreation amenities, including a paddlecraft launch facility that could improve accessibility to the lake for people with mobility impairments; 2) increase parking; 3) reconfigure both campgrounds to improve privacy for campers; and 4) result in a decrease in motorized boating associated with the marina and boat ramp that would increase the quality of recreation experience for swimmers and nonmotorized watercraft users. These effects of Alternative 4 would enhance the quality of recreational opportunities over existing conditions. The increase in parking spaces would increase capacity for visitors that would be offset by the expanded day-use areas. This would help reduce the density of visitors in the beach and day-use areas compared to existing conditions and the No Action Alternative (see Table 3.1-8). Because Alternative 4 would enhance public recreation opportunities in the project area and obtain PAOTs, as required by TRPA, there would be no impact related to the fair share of the total Tahoe Basin capacity for outdoor recreation available to the public.

For these reasons, implementation of Alternative 4 would result in a less-than-significant impact related to the quality of recreational opportunities.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.1-2: Create Recreational User Conflicts

Because of the no-wake zone in the bay and because the removal of the marina and boat ramp would offset some of the boating conflicts, Alternatives 1, 2, 3, and 4 would not result in a substantial change in conflicts between these recreation users. With implementation of Alternatives 1, 2, 3, and 4, the potential for conflicts between pedestrians and bicyclists on the new multi-use path in the project area would be minimized because the path would be managed for low-speed use, with through bicyclists being directed to the path along the highway. Campground improvements included in these alternatives would reduce conflicts between tent campers and RV campers by reducing the potential for campers with large RVs to stay at the Meeks Bay Campground. Potential recreational user conflicts associated with Alternatives 1, 2, 3, and 4 would be a less-than-significant impact.

Because the No Action Alternative would not change the facilities or operations in the project area, there would not be a change in recreation user conflict in the project area and there would be no impact.

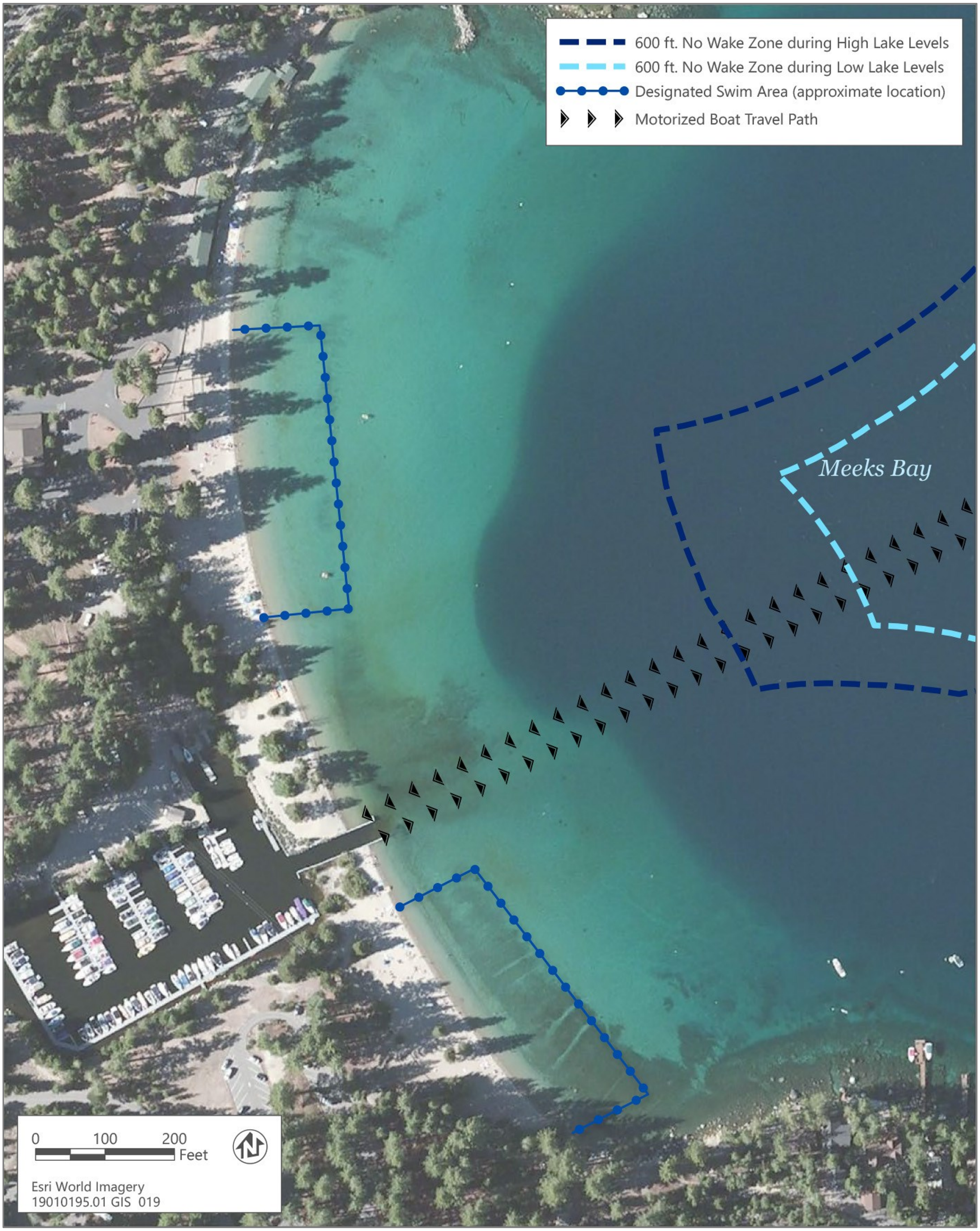
<u>No Action Alternative</u>

Under the No Action Alternative, the marina, boat ramp, and other amenities in the project area would remain in the current configuration. The marina has the capacity to moor up to 119 boats and from 2010-2013, an annual average of 1,746 boats were launched (see Table 3.1-4). Aside from boats traveling to and from the marina and boat ramp and because there is no other infrastructure (e.g., boating pier) that motorized boats could use, Meeks Bay does not typically attract a lot of boating traffic. There may be some existing conflicts between motorized boats and swimmers and nonmotorized recreationists (e.g., kayakers and paddleboarders) in the bay; however, motorized boats are required to travel at 5 mph within the bay as it is a no-wake zone per TRPA Code (Section 84.10 states that the area 600 feet from the waterline of the lake is a no-wake zone) (see Figure 3.1-4). Additionally, there is a designated swim area demarcated by buoys and there are no-wake zones within 100 feet of swimmers and nonmotorized watercraft, which help to minimize conflicts between swimmers and motorized and nonmotorized boaters. With the No Action Alternative, there would be no change to existing conflicts between motorized watercraft and swimmers and nonmotorized recreationists.

There would be no changes to capacity, operability, and upland facilities associated with recreation (e.g., day-use area, beach, and pedestrian and bicycle circulation). There is currently the potential for conflicts between pedestrians, bicyclists, and motorized vehicles in the project area because bicycles, pedestrians, and vehicles typically share roadways as they travel to or from the beach and day-use areas with their day use equipment (e.g., ice chests, umbrellas, kayaks, paddleboards, beach toys). Similarly, for any bicyclists that travel to the project area on the Tahoe Trail that extends from Tahoma, there are no dedicated multi-use paths in the project area, and so there is the potential for conflicts between bicyclists, vehicles, and pedestrians on the internal roads in the project area. However, vehicles travel at slow speeds in the project area and the distances vehicles drive from the entrances to the parking areas are short; thus, the potential for conflicts are not anticipated to create substantial safety conflicts and there is not an existing significant impact. Because the No Action Alternative would not change the facilities or operations in the project area, there would not be a change in recreation user conflict in the project area and there would be no impact.

<u>Alternative 1: Restoration with Boating Pier</u>

Implementation of Alternative 1 would result in a 300-foot-long boating pier on the lake near the resort, which would allow for motorized boat access during typical high- and low-water conditions. Motorized boats could temporarily dock at the pier to allow for loading and unloading passengers that may want to access the beach and day-use areas or pick up passengers that park in the project area. In addition to the emergency services boat that would be permanently staged at the pier, up to 11 boats could also temporarily dock on the pier at any one time. The presence of a pier at Meeks Bay that could accommodate motorized boats would attract more day user boating activity within the bay, which could lead to conflicts between swimmers and non-motorized watercraft and boats. Typically, the marina is used as a mooring area and therefore boaters enter and exit only; they do not linger in Meeks Bay as it



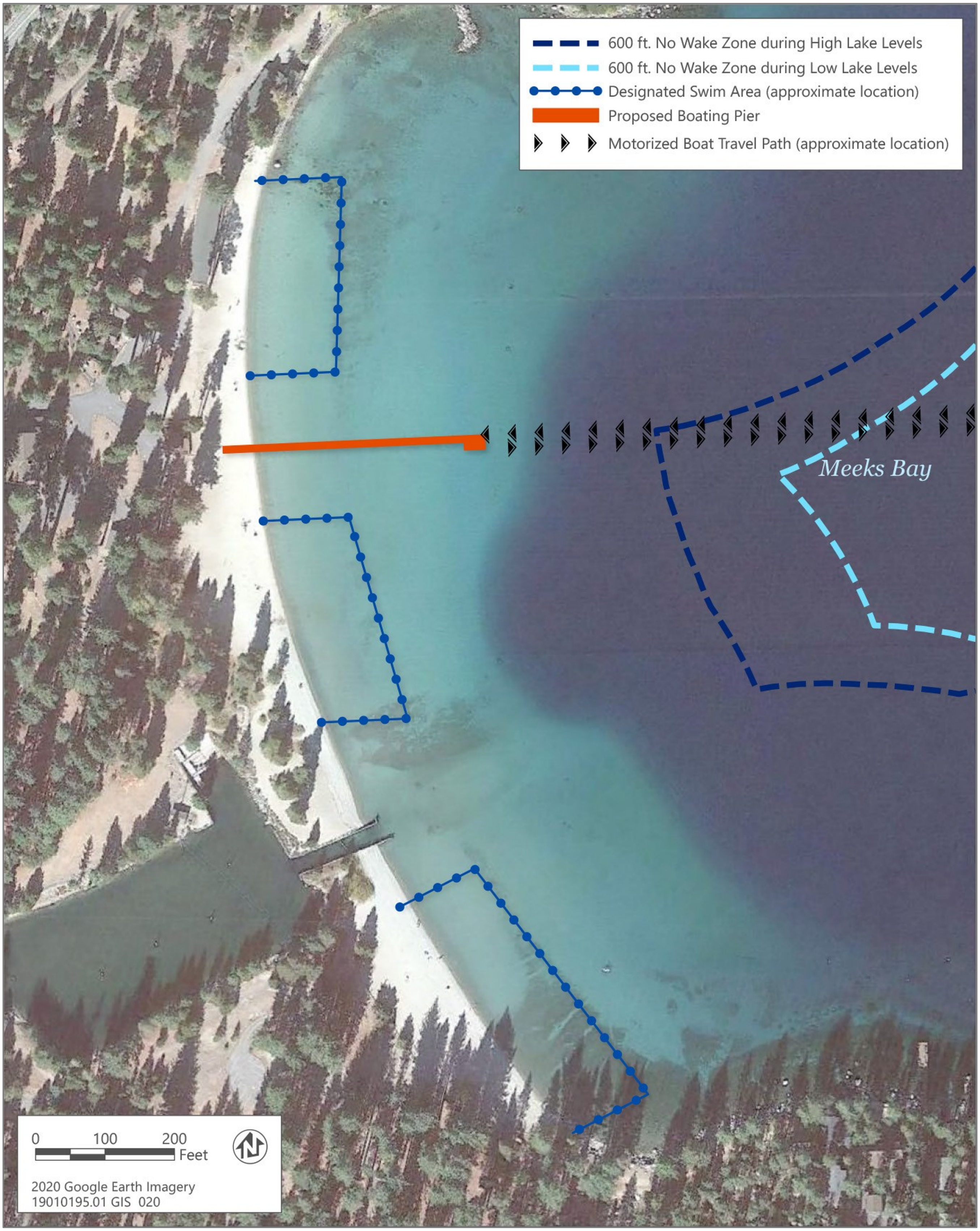
Source: Prepared by Ascent Environmental in 2021.

Figure 3.1-4 Swim Area, No-Wake Zone, and Boat Traffic Under Existing Conditions currently lacks amenities for boating. Thus, with implementation of Alternative 1, there would be no boats traveling to and from the marina and boat ramp on a daily basis, but there would likely still be motorized boats traveling in the bay. Motorized boats would be required to travel at 5 mph within the no-wake zone that essentially encompasses the entire bay. Slow travel speeds would help to maintain the safety of swimmers and nonmotorized watercraft users (e.g., kayakers and paddleboarders) by reducing wake and allowing motorized boaters to more easily see and travel around swimmers and nonmotorized watercraft users. In addition, designated swim areas would be demarcated by buoys and motorized boats would not be allowed to access the swim area. Because of the designated swim area, requirements of the no-wake zone, and because the removal of the marina and boat ramp would offset some of the increase in boating associated with the pier, this alternative would not result in a substantial change in conflicts between these recreation users.

This alternative would introduce a 300-foot-long pier into a bay that has no existing obstructions for recreation users in the water (see Figure 3.1-5). Because of its length, the pier could be a navigational obstruction for swimmers and nonmotorized watercraft and could concentrate these recreational users near the end of the pier if swimmers or nonmotorized watercraft users wanted to travel around the pier between the north and south ends of the project area, creating additional conflict. The pier itself could be a location of user conflict when boaters are entering or exiting, and the pier is congested with pedestrians during busy summer days. Although swimmers and nonmotorized watercraft travelling around the pier may encounter more motorized boats, they would still be within the no-wake zone which would reduce conflicts. The potential for this alternative to result in navigational hazards to motorized and non-motorized recreation users is further discussed in Impact 3.10-4.

Implementation of this alternative would improve pedestrian and bicyclist circulation in the project area by constructing a two-way multi-use path along SR 89 along the edge of the project area and a spur loop through the project area (including across Meeks Creek), that would be similar in size and design to the existing path that extends from Tahoma to Meeks Bay. This path would be anticipated to be used by pedestrians and bicyclists. There is the potential for conflicts between bicyclists and pedestrians and vehicles on the path along the roadway. However, Alternative 1 would result in fewer potential conflicts between bicyclists and pedestrians and vehicles compared to existing conditions or the No Action Alternative because this section of SR 28 does not have a continuous sidewalk or bike lane and this alternative would construct a dedicated multi-use path along the roadway. With implementation of this recreation feature, there is the potential for conflicts between pedestrians and bicyclists intending to travel through the project area traveling at higher speeds. As described under “Multi-Use Path and Bike Storage,” in Section 2.6.3, “Alternative 1 Parking and Circulation,” in Chapter 2, the spur loop would be managed for low-speed use and through traffic would be directed to the primary route along SR 89. Managing the spur loop for low-speed use could be accomplished by including signage directing bicyclists to reduce their speed, requiring bicyclists to walk their bikes, or installing speed bumps or other features that would require bicyclists to travel at slower speeds. With management of the path through the project area for slow speed travel, potential conflicts between pedestrians and bicyclists would be minimized. Although the path could become congested during peak periods, in particular the spur path, pedestrians and bicyclists would still be able to use the path and bicyclists that would prefer to travel through the project area at higher speeds could use the path along the highway or in the road. Bike racks would be added in several locations in the project area so bicyclists could securely park their bicycles while they visit the project area. Potential conflicts could occur between bicyclists, pedestrians, and vehicles where the multi-use paths cross roadways in the project area, such as north of the day-use area at Meeks Bay Resort and where the path on SR 89 crosses both entrances to the project area. Because Alternative 1 would have dedicated multi-use paths compared to the No Action Alternative that does not have any, this alternative would reduce pedestrian, bicyclist, and vehicle conflicts compared to the No Action Alternative and existing conditions. As listed in Appendix A, the project includes resource protection measures for the multi-use path that requires installation of a yield sign or stop sign on the path near intersections with roadways, which would minimize or avoid conflicts between these users.

For the reasons described above related to conflicts between swimmers, nonmotorized recreation users, and motorized boaters; between pedestrians and bicyclists; and between tent campers and RV campers, Alternative 1 would result in a less-than-significant impact on recreation user conflicts.



Source: Prepared by Ascent Environmental in 2021.

Figure 3.1-5 Alternative 1 Boating Pier, Designated Swim Areas, and No-Wake Zone

<u>Alternative 2: Restoration with Pedestrian Pier</u>

Implementation of Alternative 2 would remove the marina and boat ramp and would include a 100-foot-long, floating pedestrian pier north of the creek. Like Alternative 1, removal of the marina and boat ramp under this alternative would reduce existing conflicts between motorized boaters and swimmers and nonmotorized watercraft during times when the marina and boat ramp are operational. The pedestrian pier could not be used by motorized boats and, thus, would not serve as an attraction in Meeks Bay for motorized boaters. Motorized boaters could still choose to travel to Meeks Bay, as under existing conditions, but would not have any facilities to support loading or unloading and would still be required to comply with the swim area and no-wake zone rules in the bay (see Figure 3.1-6). For these reasons, implementation of Alternative 2 would result in a beneficial effect related to conflicts between motorized boats and other types of recreationists compared to existing conditions and the No Action Alternative.

With implementation of Alternative 2, the multi-use paths in the project area would result in similar conflicts between pedestrians and bicyclists as described above for Alternative 1. Because the multi-use path along SR 28 would be separate from the roadway, Alternative 2 would result in less potential conflicts between pedestrians and bicyclists and vehicles compared to Alternative 1 because the multi-use path would be separated from the roadway. Alternative 2 would manage the multi-use paths for slow speeds and include bike storage the same as for Alternative 1. Potential conflicts could also occur between bicyclists, pedestrians, and vehicles where multi-use paths cross roadways in the project area, including those areas mentioned above for Alternative 1 and between the campground and parking lot in the area south of Meeks Creek. Thus, Alternative 2 would result in greater potential for conflicts compared to Alternative 1, but fewer conflicts than the No Action Alternative and existing conditions because this alternative includes dedicated multi-use paths. As described above for Alternative 1, the project includes design criteria for the multi-use paths that would minimize or avoid conflicts between these users throughout the project area.

Although some conflicts between motorized boaters and other recreation users could still occur with this alternative, those conflicts would be less than could occur under existing conditions and the No Action Alternative because the marina and boat ramp would be removed and no other amenities to support motorized boating would be added. This alternative would result in minimal conflicts between pedestrians and, relative to existing conditions and the No Action Alternative, bicyclists on the multi-use path and reduced conflicts between tent campers and RV campers. This impact would be less than significant.

<u>Alternative 3: Restoration with No Pier</u>

Implementation of Alternative 3 would remove the marina and boat ramp and would include a moveable, universally accessible paddlecraft launch in the southern portion of the project area. The facility would include a floating platform or dock of up to 30 feet in length that could move with lake level fluctuations. Removal of the marina and boat ramp would eliminate motorized boats from leaving and returning to the marina, which would reduce existing conflicts between boaters and swimmers and nonmotorized watercraft during times when the marina and boat ramp are operational. The moveable, universally accessible paddlecraft launch could not be used by motorized boats and, thus, would not serve as an attraction in Meeks Bay for motorized boaters. Motorized boaters could still choose to travel to Meeks Bay, as under existing conditions, but would not have any facilities to support loading or unloading and would still be required to comply with the swim area and no-wake zone rules in the bay (see Figure 3.1-7). For these reasons, implementation of Alternative 3 would result in a beneficial effect related to conflicts between motorized boats and other types of recreationists compared to existing conditions and the No Action Alternative.

With implementation Alternative 3, the multi-use paths in the project area would result in the same potential for conflicts between pedestrians and bicyclists as described above for Alternative 2 in Meeks Bay Resort. Potential conflicts could also occur between bicyclists, pedestrians, and vehicles where the multi-use paths cross roadways in the project area, including those mentioned above for Alternative 1 and where the multi-use path crosses the roads in the Meeks Bay Campground and between the parking lots in the area south of Meeks Creek. Thus, Alternative 3 would result in greater potential for bicycle, pedestrian, and vehicle conflicts compared to Alternatives 1 and 2, but fewer than the No Action Alternative and existing conditions because this alternative includes dedicated multi-use paths. As described above for Alternative 1, the project includes design criteria for the multi-use paths that would minimize or avoid conflicts between these users throughout the project area. Alternative 3 would manage the multi-use paths for slow speeds and include bike storage the same as for Alternative 1.

Alternative 3 would include some of the same types of changes to the campgrounds as discussed above for Alternative 1 related to RV use and privacy. However, Alternative 3 would also increase the capacity of both campgrounds and the Meeks Bay Campground would be shifted further away from the highway. The nature of these changes would not introduce new uses that would result in recreation conflicts.

Although some conflicts between motorized boaters and other recreation users could still occur with this alternative, those conflicts would be less than could occur under existing conditions and the No Action Alternative because the marina and boat ramp would be removed and no other amenities to support motorized boating would be added. This alternative would result in minimal conflicts between pedestrians and bicyclists on the multi-use path and reduced conflicts between tent campers and RV campers relative to existing conditions and the No Action Alternative. This impact would be less than significant.

<u>Alternative 4: Preferred Alternative</u>

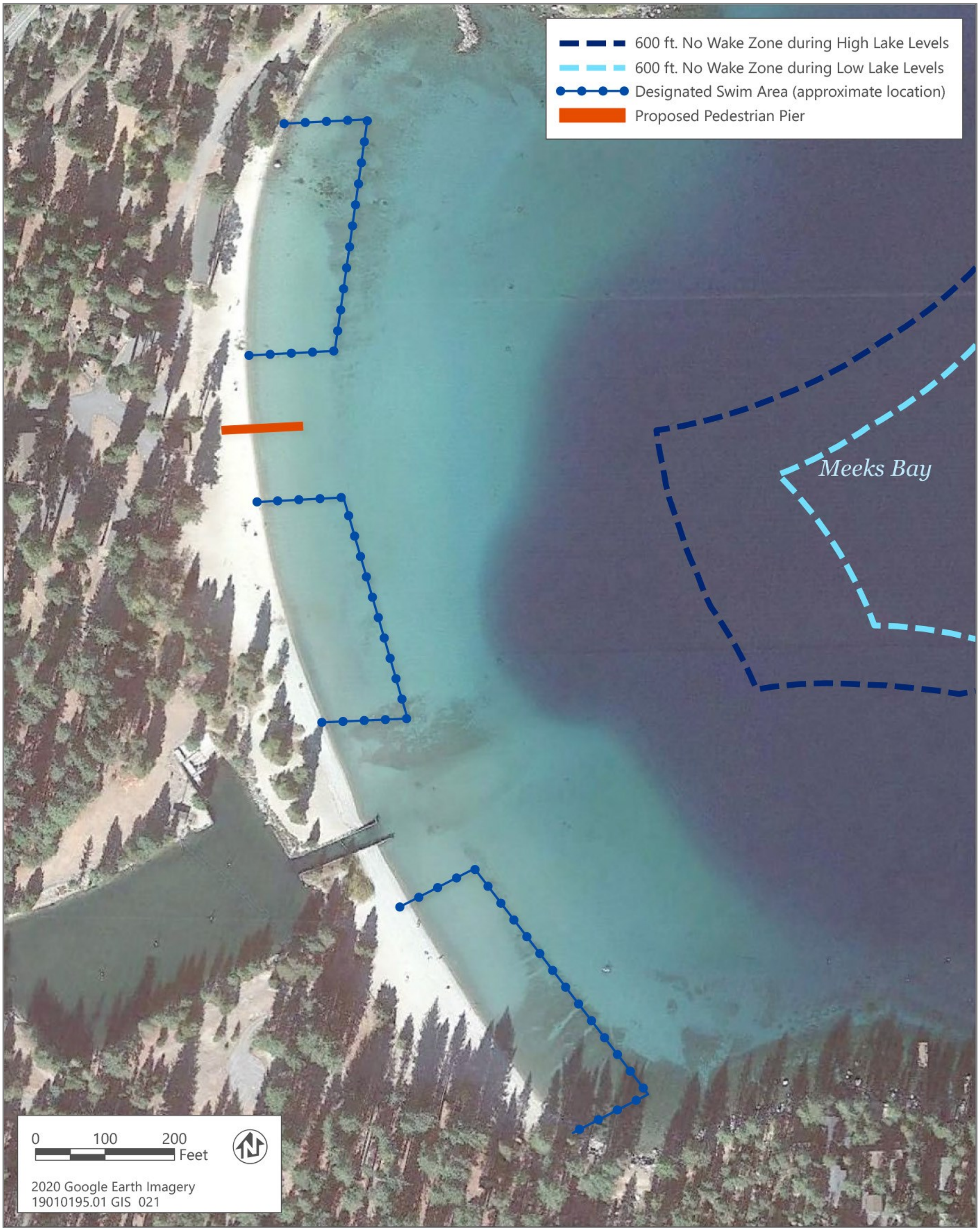
Implementation of Alternative 4 would result in the same change in motorized boat access at the project area as described above for Alternative 3. This alternative would include a moveable, universally accessible paddlecraft launch in the southern portion of the project area, which would be the same as the non-motorized launch facility proposed for Alternative 3. Similar to the reasons described above for Alternative 3, implementation of Alternative 4 would result in a beneficial effect related to conflicts between motorized boats and other types of recreationists compared to existing conditions and the No Action Alternative.

With implementation of Alternative 4, the multi-use paths in the project area would result in similar potential for conflicts between pedestrians and bicyclists as described above for Alternative 1, including potential for conflicts between bicyclists, pedestrians, and vehicles on the path along the roadway. Alternative 4 would manage the multi-use paths for slow speeds and include bike storage the same as for Alternative 1. Potential conflicts could also occur between bicyclists, pedestrians, and vehicles where multi-use paths cross roadways in the project area, including those mentioned above for Alternative 1 and near the parking lot in the area south of Meeks Creek Thus, this alternative would result in one more potential conflict than could occur under Alternative 1, but fewer conflicts than the No Action Alternative and existing conditions because this alternative includes dedicated multi-use paths. As described above for Alternative 1, the project includes design criteria for the multi-use paths that would minimize or avoid conflicts between these users throughout the project area. Alternative 4 would include the same changes to the campgrounds as discussed above for Alternative 1.

Although some conflicts between motorized boaters and other recreation users could still occur with this alternative, those conflicts would be less than could occur under existing conditions and the No Action Alternative because the marina and boat ramp would be removed and no other amenities to support motorized boating would be added. This alternative would result in minimal conflicts between pedestrians and, relative to existing conditions and the No Action Alternative, bicyclists on the multi-use path and reduced conflicts between tent campers and RV campers. This impact would be less than significant.

Mitigation Measures

No mitigation is required for this impact.



Source: Prepared by Ascent Environmental in 2021.

Figure 3.1-6 Alternative 2 Pedestrian Pier, Designated Swim Areas, and No-Wake Zone

Source: Prepared by Ascent Environmental in 2021.

Figure 3.1-7 Alternative 3 and Alternative 4 Moveable, Universally Accessible Paddlecraft Launch, Designated Swim Areas, and No-Wake Zone

Impact 3.1-3: Affect Regional Access or Opportunities for Motorized Watercraft

Implementation of Alternatives 1, 2, 3, and 4 would include removal of the marina and boat ramp resulting in a reduction of approximately 6 percent of the mooring capacity on the lake during normal and high lake levels and displacing an estimated average of 6 percent of boat launches on the lake. Alternative 1 would include a boating pier; however, it would not offset the loss of public motorized boating capacity on the lake. Because of the limited capacity for motorized boating on the lake available to the public, the loss of the marina and boat ramp would result in a potentially significant impact on regional access or opportunities for motorized watercraft. Implementation of Mitigation Measure 3.1-3 would maintain capacity for marina moorings by allowing these moorings to be returned to the marina mooring pool. These removed moorings would be available to other marinas, which would reduce the impact to a less-than-significant level for Alternatives 1, 2, 3, and 4.

With the No Action Alternative, because there would be no change to motorized boating facilities in the project area, there would be no impact on regional access or opportunities for motorized watercraft.

<u>No Action Alternative</u>

The No Action Alternative would retain the marina in its current configuration. Additionally, the boat ramp would be retained. Continued operation of the marina would be limited during periods of time when the lake level is too low to accommodate motorized boats in the marina and launch of boats at the boat ramp. Because there would be no change to motorized boating facilities in the project area with implementation of this alternative, there would be no impact on regional access or opportunities for motorized watercraft.

<u>Alternative 1: Restoration with Boating Pier</u>

Implementation of Alternative 1 would remove the Meeks Bay Marina and boat ramp resulting in the loss of opportunity for the specific type of motorized boating recreation offered in the project area. When the Meeks Bay Marina and boat ramp are open during normal and high lake levels, it provides moorings for up to 119 boats and has an average of 1,971 annual boat launches per year. Removal of the marina would remove approximately 6 percent of the total mooring capacity on the lake and would displace an estimated average of 6 percent of boat launches during normal and high lake levels (see Tables 3.1-2 and 3.1-3). Alternative 1 would include a boating pier that would provide an amenity for motorized boaters to temporarily dock at the project area, but piers are not considered to provide capacity on the lake because boats could not moor at them overnight.

Displaced motorized boaters could launch at other nearby launching facilities, like Obexer's Boat Company and Homewood High and Dry Marina located approximately 4 miles to the north. These locations also offer overnight, weekly, or seasonal mooring opportunities. Additionally, there are five other facilities along the west shore providing mooring opportunities (e.g., Camp Richardson, Emerald Bay State Park, Sunnyside Marina, and Tahoe City Marina) and seven facilities throughout the north shore, south shore, and east shore that provide public mooring opportunities.

The Shoreline Plan regulates the total number of public and private moorings on Lake Tahoe. The public marinas and other public mooring facilities, including the Meeks Bay Marina, contain 1,968 existing moorings, with approximately 1,200 moorings at marinas (see Table 3.1-3). The Shoreline Plan would permit up to 330 additional moorings in marinas and 300 for public agencies. Thus, the loss of approximately 6 percent of the total existing moorings on the lake would be considered significant because it would substantially reduce motorized boating on Lake Tahoe.

The TRPA Code allows conversion of moorings in certain instances, but does not address removal of moorings or returning moorings to the lakewide mooring pool. The Code allows marina slips to be converted to a buoy within the same facility (Code Section 84.3.2.D.3.a). However, Alternative 1 does not propose placement of mooring buoys in the project area. Furthermore, replacing the loss of 119 slips with 119 buoys would not be feasible because based on the buoy location standards in TRPA Code Section 84.3.3.E (e.g., 50-foot spacing between buoys), the buoys would exceed the capacity of Meeks Bay and would constitute a new buoy field, which is prohibited by TRPA Code (Section 84.3.3.E.1.a). Therefore, the loss of the moorings associated with the marina would not be replaced on site, and the public mooring capacity could be reduced below levels envisioned in the Shoreline Plan.

For the reasons described above, the loss of a boat ramp that serves approximately 1,700 boat launches per year and the loss of 6 percent of the public mooring capacity would be a potentially significant impact on regional access or opportunities for motorized watercraft.

Alternative 2: Restoration with Pedestrian Pier

Implementation of Alternative 2 would result in the same change in motorized boat access at the project area during normal and high lake levels as described above for Alternative 1. Although Alternative 2 would construct a pedestrian pier that would not be accessible to motorized boats; thus, there would be no motorized boating amenities provided at the project area. For the reasons described above for Alternative 1, the impact to regional access or opportunities for motorized watercraft from implementation of Alternative 2 would be a potentially significant impact.

Alternative 3: Restoration with No Pier

Implementation of Alternative 3 would result in the same change in motorized boat access at the project area during normal and high lake levels as described above for Alternative 1. Although Alternative 3 would construct a moveable, universally accessible paddlecraft launch facility that would not be accessible to motorized boats; thus, there would be no motorized boating amenities provided at the project area. For the reasons described above for Alternative 1, the impact to regional access or opportunities for motorized watercraft from implementation of Alternative 3 would be a potentially significant impact.

Alternative 4: Preferred Alternative

Implementation of Alternative 4 would result in the same change in motorized boat access at the project area during normal and high lake levels as described above for Alternative 1. Although Alternative 4 would construct a moveable, universally accessible paddlecraft launch facility that would not be accessible to motorized boats; thus, there would be no motorized boating amenities provided at the project area. For the reasons described above for Alternative 1, the impact to regional access or opportunities for motorized watercraft from implementation of Alternative 4 would be a potentially significant impact.

Mitigation Measures

Mitigation Measure 3.1-3: Maintain Capacity for Public Moorings

This mitigation measure will apply to Alternatives 1, 2, 3, and 4.

TRPA will add the number of boat slips removed from the Meeks Bay Marina (119 boat slips) into the pool of moorings available for marinas.

Significance after Mitigation

Implementation of Mitigation Measure 3.1-3 would result in adding the number of boat slips removed by Alternatives 1, 2, 3, and 4 as part of the restoration project back into the pool of available marina moorings for Lake Tahoe so that they are available for other entities to provide moorings elsewhere on the lake. As a result, the total marina mooring capacity of Lake Tahoe and the share of total moorings available for public use would be consistent with mooring capacities envisioned by the Shoreline Plan. This would reduce the impact related to loss of regional access or opportunities for motorized watercraft from these alternatives to a less-than-significant level by allowing the capacity for motorized boats to moor on the lake to be retained.

Impact 3.1-4: Affect Local Access or Opportunities for Motorized Watercraft

Implementation of Alternatives 1, 2, 3, and 4 would include removal of the marina and boat ramp resulting in a reduction of approximately 11 percent of the mooring capacity in the west shore area and displacing an estimated average of 38 percent of boat launches in the west shore area. Alternative 1 would include a boating pier; however, it would not offset the loss of motorized boating capacity in the west shore area. Because of the limited capacity for motorized boating in the west shore area, the loss of the marina and boat ramp would result in a potentially significant impact on local access or opportunities for motorized watercraft. Implementation of Mitigation Measure 3.1-3 would maintain capacity for public moorings by allowing the removed public moorings to be replaced with new public moorings elsewhere on the lake, thereby reducing the impact related to loss of local access or opportunities for motorized watercraft from Alternatives 1, 2, 3, and 4. However, even with implementation of Mitigation Measure 3.1-3, public mooring capacity locally near the west shore could be permanently reduced, which would be a potentially significant and unavoidable impact on local access for motorized watercraft.

With the No Action Alternative, because there would be no change to motorized boating facilities in the project area, there would be no impact on local access or opportunities for motorized watercraft.

No Action Alternative

The No Action Alternative would retain the marina in its current configuration. Additionally, the boat ramp would be retained. Continued operation of the marina would be limited during periods of time when the lake level is too low to accommodate motorized boats in the marina and launch of boats at the boat ramp. Because there would be no change to motorized boating facilities in the project area with implementation of this alternative, there would be no impact on local access or opportunities for motorized watercraft.

Alternative 1: Restoration with Boating Pier

Implementation of Alternative 1 would remove the Meeks Bay Marina and boat ramp resulting in the loss of opportunity for the specific type of motorized boating recreation offered in the project area.

As described above for Impact 3.1-3, Alternative 1 does not include replacement of mooring buoys in the project area. Removal of the marina would remove approximately 11 percent of the mooring capacity in the west shore area and would displace an estimated average of 38 percent of boat launches on the west shore (see Tables 3.1-2 and 3.1-3). The boating pier proposed as part of Alternative 1 would not provide motorized boating capacity in the west shore area because boats could not moor there overnight. For this reason and because of the limited capacity for motorized boating the west shore the loss of a boat ramp that serves approximately 1,900 boat launches per year and the loss of 11 percent of the mooring capacity would be a potentially significant impact on local access or opportunities for motorized watercraft.

Alternative 2: Restoration with Pedestrian Pier

Implementation of Alternative 2 would result in the same change in motorized boat access at the project area as described above for Alternative 1. Although Alternative 2 would construct a pedestrian pier that would not be accessible to boats; thus, there would be no motorized boating amenities provided at the project area. For the reasons described above for Alternative 1, the impact to local access or opportunities for motorized watercraft from implementation of Alternative 2 would be a potentially significant impact.

Alternative 3: Restoration with No Pier

Implementation of Alternative 3 would result in the same change in motorized boat access at the project area as described above for Alternative 1. Although Alternative 3 would construct a moveable, universally accessible paddlecraft launch facility that would not be accessible to boats; thus, there would be no motorized boating amenities provided at the project area. For the reasons described above for Alternative 1, the impact to local access or opportunities for motorized watercraft from implementation of Alternative 3 would be a potentially significant impact.

Alternative 4: Preferred Alternative

Implementation of Alternative 4 would result in the same change in motorized boat access at the project area as described above for Alternative 1. Although Alternative 4 would construct a moveable, universally accessible paddlecraft launch facility that would not be accessible to boats; thus, there would be no motorized boating amenities provided at the project area. For the reasons described above for Alternative 1, the impact to local access or opportunities for motorized watercraft from implementation of Alternative 4 would be a potentially significant impact.

Mitigation Measures

Mitigation Measure 3.1-4: Maintain Capacity for Public Moorings

This mitigation measure will apply to Alternatives 1, 2, 3, and 4.

Implement Mitigation Measure 3.1-3.

Significance after Mitigation

Implementation of Mitigation Measure 3.1-3 would result in adding the number of boat slips removed by Alternatives 1, 2, 3, and 4 as part of the restoration project back into the pool of moorings for the lake so that they are available for other public agencies to provide moorings elsewhere on the lake. This would reduce the impact related to loss of local access or opportunities for motorized watercraft from these alternatives. However, because the location of future public moorings would depend on a variety of factors, including capacity for new moorings at other public access points, it would not be feasible to ensure additional access to the lake near the project area. Consequently, public mooring capacity near the west shore could be permanently reduced. Thus, the impact on local access or opportunities for motorized watercraft would remain potentially significant and unavoidable.

Impact 3.1-5: Affect Recreational User Access to Lake Tahoe and the Project Area

With implementation of Alternatives 1, 2, 3, or 4, the types of recreation uses would be shifted (e.g., marina and boat ramp to the restored creek, providing alternative camping sites at the campgrounds), the creek area would still be accessible, and other aspects of the project area would be expanded (e.g., new boating pier associated with Alternative 1, new pedestrian pier with Alternative 2, new moveable, universally accessible paddlecraft launch with Alternatives 3 and 4, expanded day-use areas, new multi-use path). Thus, the impact on recreational user access to the project area and Lake Tahoe from these alternatives would be beneficial.

With the No Action Alternative, because there would be no change in any of the infrastructure or recreational access within the project area, there would be no impact related to recreational user access to Lake Tahoe and the project area for this alternative.

No Action Alternative

With the No Action Alternative, the existing marina, boat ramp, campgrounds, day-use areas, and beach areas would be retained. Because there would be no change in any of the infrastructure or recreational access within the project area, there would be no impact related to recreational user access to Lake Tahoe and the project area.

Alternative 1: Restoration with Boating Pier

Implementation of Alternative 1 would remove the marina and boat ramp and restore Meeks Creek, construct a boating pier, expand the day-use areas, construct multi-use paths through the project area, and include improvements to the campgrounds. Although the marina and boat ramp would be removed, Meeks Creek would be restored in this area and would allow for continued access to this area where visitors to the project area could engage in water play, fishing, or exploration. The boating pier would provide another opportunity for visitors to the project area to access and experience the lake. The pier would be accessed from the beach by a universally accessible walkway, which would provide access to the pier for people with mobility impairments. Although the marina and boat ramp would be removed, limiting access for motorized boaters, operation of the marina and boat ramp are greatly affected by lake levels and is often closed more than other nearby marinas and boat ramps or launch locations during periods of low lake levels. The pier provides an opportunity for motorized boaters to access the landward facilities. The multi-use path along the highway and the multi-use path spur through the project area would provide access across Meeks Creek for recreation users, thereby enhancing pedestrian and bicyclist circulation throughout the project area. Although changes to the Meeks Bay Campground would discourage large RVs from use of this campground, the Meeks Bay Resort Campground would continue to accommodate RVs and both campgrounds could include replacing some of the campsites with alternative camping facilities (e.g., yurts, camping cabins) that would expand recreation opportunities for visitors that lack camping equipment. Although the types of recreation uses would be shifted (e.g., marina and boat ramp to the restored creek, providing alternative camping sites), the creek area would still be accessible and other aspects of the project area would be expanded (e.g., new boating pier, expanded day-use areas, new multi-use path). Thus, the impact on recreational user access to the project area and Lake Tahoe from Alternative 1 would be beneficial.

Alternative 2: Restoration with Pedestrian Pier

Implementation of Alternative 2 would remove the marina and boat ramp and restore Meeks Creek, construct a pedestrian pier, expand the day-use areas, construct multi-use paths through the project area, and include improvements to the campgrounds. These changes would result in similar improvements in recreational user access to the project area and Lake Tahoe as described above for Alternative 1. Alternative 2 would not enhance access for motorized boaters because the marina and boat ramp would be removed and boats could not dock at the pier. However, motorized boaters could still visit the project area but would need to use other means to access the landward facilities.

Removal of the marina and boat ramp and restoration of Meeks Creek would result in similar improvements in access to the project area for water play, fishing, or exploration like that described above for Alternative 1. The pedestrian pier would provide another opportunity for visitors to the project area to access and experience the lake. The pier would be accessed from the beach by a universally accessible walkway, which would provide access to the pier for people with mobility impairments. Implementation of the multi-use path and camping improvements associated with Alternative 2 would result in the same recreational user access to the project area as described above for Alternative 1.

Although the types of recreation uses would be shifted (e.g., marina and boat ramp to restored creek, providing alternative camping sites) and expanded (e.g., new pedestrian pier, expanded day-use areas, multi-use path), the impact on recreational user access to the project area and Lake Tahoe from Alternative 2 would be beneficial.

Alternative 3: Restoration with No Pier

Implementation of Alternative 3 would remove the marina and boat ramp and restore Meeks Creek, construct a moveable, universally accessible paddlecraft launch, expand the day-use areas, construct multi-use paths through the project area, add up to 14 new parking spaces, and complete improvements to the campgrounds, including increasing the overall number of campsites by up to 22 sites. The use of the campgrounds by RV users would be the same as what is described above for Alternative 1. These changes would result in similar improvements in recreational user access to the project area and Lake Tahoe as described above for Alternative 1. Alternative 3 would not enhance access for motorized boaters because the marina and boat ramp would be removed and motorized boats could not dock at or launch from the paddlecraft launch. However, motorized boaters could still visit the project area, but would need to use other means to access the landward facilities.

Removal of the marina and boat ramp and restoration of Meeks Creek would result in similar improvements in access to the project area for water play, fishing, or exploration like that described above for Alternative 1. The moveable, universally accessible paddlecraft launch would be accessed by a universally accessible walkway, which would provide access to the lake for people with mobility impairments. Implementation of the multi-use path and camping improvements associated with Alternative 3 would result in the same recreational user access to the project area as described above for Alternative 1. Increasing the number of parking spaces and campsites increases visitor capacity, which increases access to the project area and the lake for recreational users.

Although the types of recreation uses would be shifted (e.g., marina and boat ramp to restored creek, providing alternative camping sites) and expanded (e.g., additional parking and campsites, paddlecraft launch, expanded day-use areas, multi-use path), the impact on recreational user access to the project area and Lake Tahoe from Alternative 3 would be beneficial.

Alternative 4: Preferred Alternative

Implementation of Alternative 4 would remove the marina and boat ramp and restore Meeks Creek, construct a moveable, universally accessible paddlecraft launch, expand the day-use areas, construct multi-use paths through the project area, add up to 14 new parking spaces, and complete improvements to the campgrounds. These changes would result in similar improvements in recreational user access to the project area and Lake Tahoe as described above for Alternative 1. Because this alternative would remove the marina and boat ramp and motorized boats could not dock at or launch from the paddlecraft launch, this alternative would not enhance access for motorized boaters. However, motorized boaters could still visit the project area but would need to use other means to access the landward facilities.

Removal of the marina and boat ramp and restoration of Meeks Creek would result in similar improvements in access to the project area for water play, fishing, or exploration like that described above for Alternative 1. Like Alternative 3, with construction of the small moveable, universally accessible paddlecraft launch structure, this alternative would enhance access to the lake for people with mobility impairments. Additionally, because this alternative would add 14 parking spaces to the project area, Alternative 4 would increase visitor capacity and increase access to the project area and lake for recreational users.

Although the types of recreation uses would be shifted (e.g., marina and boat ramp to restored creek, providing alternative camping sites) and expanded (e.g., additional parking, paddlecraft launch, expanded day-use areas and beach, multi-use path), the impact recreational user access to the project area and Lake Tahoe from Alternative 4 would be beneficial.

Mitigation Measures

No mitigation is required for this impact.

3.1.4 Cumulative Impacts

The geographic scope for the cumulative settings as they relate to land- and water-based recreation are the west shore of Lake Tahoe and the Tahoe Basin, respectively. The Tahoe Basin is and has long been a tourist destination with numerous recreational opportunities. Recreation services and facilities are located throughout the basin, within urban centers, forested land, along the shoreline, and on waterways. The two TRPA recreation thresholds, Quality of Recreation Experience and Access to Recreational Opportunities, are in attainment. The quality of recreation experiences was evaluated for the 2019 Threshold Evaluation through Sustainable Recreation Working Group surveys, and most respondents to the surveys rated their experiences spent outdoors at Lake Tahoe as "extremely enjoyable" or "very enjoyable" (Lake Tahoe Info 2021a). The region has seen a consistent increase in the amount of public land available for low-density recreational use and the number of amenities that provide access to that land. In addition, evaluation of the Fair Share of Recreation Capacity standard indicates an increase in recreational development that is consistent with the policy statement's direction that a "fair share" of resource capacity be available for public recreation, and the region has experienced an increase in the amount of public land available to support recreational purposes. Based on the most recent Threshold Evaluation Report completed in 2021, the recreation thresholds are in attainment (Lake Tahoe Info 2021b). Because the threshold indicators demonstrate a reasonable level of recreational opportunities, experiences, and capacity, there is no existing adverse cumulative condition related to quality of recreation experience and availability of outdoor recreation capacity. Meeks Bay does not experience the high visitation numbers that other nearby recreation area experience. Under existing conditions, higher densities of visitors occur during July and August relative to the other months that the project area is open to visitors (see Table 3.1-8). Crowding in the project area is typical at areas with beaches (areas that attract tourists and local residents) along the lake in the summer, like at other beach areas in Tahoe.

The fuels reduction and restoration cumulative projects (i.e., Meeks Meadow Restoration, Lake Tahoe West Restoration Project, Tahoe Program Timberland EIR, Fuels Reduction and Understory Burning [California State Parks], and West Shore Wildland Urban Interface Hazardous Fuel Reduction) would result in temporary impacts associated with quality of recreation experience because these projects may temporarily limit access to areas that provide recreation opportunities or result in short-term scenic impacts associated with forest thinning. However, these impacts would be short term and these cumulative projects would be required to implement standard project requirements, resource protection measures, or other standard operating procedures that reduce adverse impacts, such as noise and scenic resources impacts, on the quality of recreation user experiences.

Buildout of the Shoreline Plan would enhance the recreational experience at Lake Tahoe while protecting the environment. The Shoreline Plan would allow for up to 2,116 new moorings (buoys, lifts, or public slips), 128 new private piers, 10 new public piers, and two new public boat ramps. Some new and existing buoys could be converted to slips, and vice versa, at facilities open to the public (e.g., marinas). Because the Shoreline Plan allows for the development of up to 2,116 moorings, 10 public and two private piers, and two new public boat ramps and includes regulations that address recreation user conflicts (e.g., no-wake zones) and design and placement of shorezone structures, the plan would result in less-than-significant impacts on quality of recreation experience, recreation user conflicts, opportunities for motorized boating, and access to Lake Tahoe.

Implementation of the SR 89 Corridor Plan would include completion of the Tahoe Trail through the corridor, providing a trail from Meeks Bay to Cascade, and expanding transit service throughout the corridor. On-highway parking would be eliminated along the corridor simultaneously with construction of the Tahoe Trail and expanding transit to the corridor. The purpose is to expand how visitors arrive to the corridor and timing transit to time when visitors arrive throughout the day. These changes that would occur as part of the SR 89 Corridor Plan would cause a portion of visitors to shift which mode of transportation they use to access the various recreation opportunities in this area. The Tahoe Trail from Meeks Bay to Emerald Bay would also increase access to and around Lake Tahoe for public recreation. The Tahoe Trail from Meeks Bay to Cascade could provide additional capacity for visitors that do not rely on automobiles along this portion of the lake.

As described in Impacts 3.1-1, 3.1-2, and 3.1-5, Alternatives 1, 2, 3, and 4 would result in less-than-significant impacts on quality of recreation experiences, recreational user conflicts, and recreational user access to Lake Tahoe and the project area. These alternatives would enhance existing recreation opportunities and access in the project area and along the lake, such as improving the campgrounds (including providing additional capacity for parking with Alternatives 3 and 4 and providing additional capacity for camping with Alternative 3), improving pedestrian and bicycle circulation and connectivity with the multi-use path and spur, expanding day-use areas, and restoring Meeks Creek. As discussed under Impact 3.1-1, under all action alternatives, the beach and day-use areas would be expanded, resulting in a decrease in crowding for all action alternatives. The project and implementation of the Tahoe Trail expansion and transit expansion under the SR 89 Corridor Plan could cumulatively combine to increase the number of visitors at Meeks Bay. However, because implementation of the SR 89 Corridor Plan would remove on-highway parking and would time transit so that visitor arrival is staggered throughout the day, some visitors would shift their mode of transportation from automobiles to using the trail and transit. Thus, there would be a reduction in visitor capacity that is controlled by parking supply and transit schedules. Visitation numbers would be managed such that there would not be a substantial increase in visitors that would combine with those of the action alternatives and would not result in a significant change to crowding at Meeks Bay.

For the purposes of the analysis of cumulative impacts on access or opportunities for motorized watercraft (which includes sailboats), this analysis focuses on the project alternatives' regional impact because there are no cumulative projects that would reduce local access or opportunities for motorized watercraft. Because the Shoreline Plan enhances recreation opportunities for motorized boating by providing additional opportunities for access, there is not an existing or reasonably foreseeable adverse cumulative condition. The potential impact from implementation of Alternatives 1, 2, 3, and 4 on regional access or opportunities for motorized watercraft during normal and high lake levels is addressed in Impact 3.1-3 and was identified to be a potentially significant impact that would be reduced to a less-than-significant level with implementation of Mitigation Measure 3.1-3 that would allow for the moorings removed from the marina to be reallocated to the Shoreline Plan pool of marina moorings on the lake. Thus, none of the alternatives would result in a significant impact to access and opportunities for motorized watercraft.

For these reasons, the alternatives would have a less than cumulatively considerable impact on recreation.

3.2 SCENIC RESOURCES

This section includes a discussion of existing visual conditions, a summary of applicable visual quality regulations, and an analysis of potential visual impacts that could result from implementation of the Meeks Bay Restoration Project alternatives.

The methods of analyzing project-related impacts on visual resources/aesthetics in this section are consistent with the TRPA scenic threshold monitoring system and impacts are evaluated according to NEPA, CEQA, and the TRPA Regional Plan, Code of Ordinances, and Environmental Thresholds. The evaluation of the project alternatives includes a site-specific assessment of the current visual conditions and visual effects of each alternative, supported by visual simulations.

3.2.1 Regulatory Setting

FEDERAL

USDA Forest Service, Lake Tahoe Basin Management Unit, Land Management Plan

Management of National Forest lands within the Lake Tahoe Basin Management Unit, including the project area, are guided by the USDA Forest Service (USFS), Lake Tahoe Basin Management Unit (LTBMU), Land Management Plan (Forest Plan). The Forest Plan identifies the following desired conditions related to scenic quality (USFS 2016):

- **DC102.** Scenery viewed from Lake Tahoe and the Basin's major roadways, public recreation areas, trails and urban centers predominantly displays natural-appearing forest, meadows, mountains, and the shoreline of Lake Tahoe. Development, where visible, appears subordinate to and harmonious with the surrounding setting. (Pathway)
- **DC103.** Views of the night sky from the naturally-appearing areas of the Basin are conducive to star gazing. Light emanating from the built environment is carefully controlled to ensure safety and security and does not encroach upon the regional dark sky.
- **DC104.** Management activities promote scenic stability and increase resistance to visual disruption resulting from disturbance events. Landscape alterations complement and blend with the characteristic landscape of the Lake Tahoe Basin. Vegetation treatments produce natural-appearing diverse forest structure.

The Forest Plan also prescribes the following scenic quality strategies to achieve the desired conditions:

- Manage scenery to perpetuate the overall natural-appearing setting, protect significant scenic features, and ensure that development is appropriate for the area in which it is located in terms of size, mass, architectural style, and density.
- Consider the type, intensity, location, and visual characteristics of land use, visual dominance competition between the natural and built environments, and resource management actions, particularly in sensitive, undeveloped areas.
- Manage for scenic stability through actions that will enhance and protect desired scenic attributes through vegetation treatments to achieve High Minimum Scenic Stability (MSS), on a project-by-project basis over the Plan Period. Examples include aspen stand enhancements and riparian area restorations.
- Restore damaged landscape scenes (currently meeting Low or No Scenic Integrity Levels), to achieve the established scenery objectives shown in the Minimum Scenic Integrity (MSI) map.
- Mitigate the establishment of visible lines in landscape areas where vegetation is removed for management objectives; cleared areas will include edges that reflect the visual character of naturally occurring vegetation openings.

USDA Forest Service Visual Management System

The USFS LTBMU manages approximately 27 percent of Lake Tahoe's shoreline. The USFS employs the Scenery Management System (SMS) to analyze effects of management activities on the scenery of a given area. The SMS is structured to primarily emphasize "natural appearing" scenery, and SMS recognizes the positive scenic values associated with some human modified (cultural) features and settings that are valued for their scenic influence. The SMS allows for analysis and conservation beyond national forest lands into adjacent communities and other jurisdictions. The SMS provides a systematic approach for determining the relative value and importance of scenery in National Forest lands (USFS 1995). The Forest Plan for the Lake Tahoe Basin Management Unit (Forest Plan) establishes Minimum Scenic Integrity ratings for National Forest System lands within the Tahoe Basin. These ratings are categorized as either moderate, high, or very high.

The project area is rated as a high MSI. The forest Plan includes Standard SG 116, which requires that " [a]ll resource management and permitted activities shall meet or exceed the established scenery objectives shown on the Minimum Scenic Objective map" (USFS 2016).

TAHOE REGIONAL PLANNING AGENCY

Thresholds

TRPA adopted environmental threshold carrying capacities in August 1982 for the purpose of maintaining and improving the various resources of the Tahoe Basin. Scenic quality is an exceptional attribute of the Tahoe Basin, and specific threshold carrying capacities were developed to protect and improve the scenic resources of the area. TRPA threshold standards require maintenance of numeric threshold rating values for roadway and shoreline travel routes, individually mapped scenic resources, and recreation area scenic resources. The scenic thresholds also include a policy statement that address the community design. Additional detail on the scenic thresholds is available in Chapter 9, "Scenic Resources," of the 2015 Threshold Evaluation Report (TRPA 2016).

Shoreline Travel Route Ratings

The shoreline travel route ratings evaluate long-term cumulative scenic conditions looking toward the shore from the surface of Lake Tahoe. The lake's 72-mile shoreline is separated into 33 individual units, each representing a portion of the shoreline (of varying length) that exhibits similar visual character. Updated travel route ratings that reflect current conditions are generated every 4 years during shoreline scenic threshold monitoring. The most recent ratings and threshold updates were completed in 2019 (TRPA 2021a). Travel route ratings consist of a numeric composite score that represents the relative scenic quality throughout the entire travel unit. The following components are considered and rated for each shoreline travel unit:

- man-made features along shoreline,
- general landscape views within the shoreline unit, and
- variety of scenery within the shoreline unit.

Each component is rated from one (low or absent) to five (high). A composite rating is obtained by summing the ratings of the three aspects. Therefore, the composite rating for an individual shoreline travel unit can range from three to 15. To be in attainment of the threshold standard, the current composite rating of any shoreline travel unit must be at least 7.5 and must also be at least equal to the rating originally assigned in 1982. Therefore, if the current rating for a shoreline travel unit is below the standard of 7.5, the unit is out of attainment. However, if the current rating is below its original 1982 rating, even if the current rating is above 7.5, the unit is out of attainment. Of the 33 shoreline units, 22 shoreline units are in attainment and 11 are not (TRPA 2021b).

Scenic Quality Ratings for Shoreline Scenic Resources

In contrast to travel route ratings that reflect the positive or negative effects of the landscape on scenic quality throughout an entire travel unit, the quality rating for scenic resources in shoreline travel units reflect the scenic quality of individual views or features of the shoreline that are visible from the lake. The scenic resources in the region include certain views of the natural landscape and distinctive natural features that were identified, mapped, described, and evaluated as part of a 1982 scenic resource inventory conducted by TRPA.

Scenic quality for shoreline scenic resources is measured by rating each of four subcomponents and summing the values to produce a composite score. The following visual characteristics, which comprise the subcomponents, are well documented in academic and professional literature as useful and objective measures of relative scenic value (Iverson et. al. 1993; TRPA 2016):

- Unity - A unified landscape is one where the visual resources join together to form a single, coherent, harmonious visual unit.
- Vividness - Also described as distinctiveness, can be expressed by contrasting elements such as color, line, and shape, or marked differences in elements seen as related, or repetition of similarities.
- Variety - Variety or richness usually consists of numerous different parts seen together that add visual interest.
- Intactness - Intactness describes the degree to which modifications emphasize or enhance the natural condition of the landscape.

Each characteristic is rated from zero (absent) to three (high). A composite rating is obtained by summing the ratings of the four characteristics; therefore, the composite rating for an individual shoreline scenic resource can range from zero to 12. The adopted numerical standard for shoreline travel units is a non-degradation standard, which requires that scenic scores be equal to or better than the score when the scenic resources evaluation system was adopted. There are 184 inventoried shoreline scenic resources and 170 (92 percent) were in attainment of the threshold standard as of 2019 (TRPA 2021b).

Roadway Travel Units

Similar to the shoreline travel units, roadway travel units are used to evaluate long-term cumulative scenic conditions of traveling the region's major roads, including all state and federal highways. These roadways are separated into 54 travel units, each of which represents a continuous, two-directional viewshed of similar visual character. As with shoreline travel units, updated travel route ratings that reflect current conditions are generated every four years during scenic threshold monitoring. Travel route ratings consist of a numeric composite score that represents the relative scenic quality throughout the entire travel unit. Scenic roadway travel units are divided into three visual environments: urban, transition, and natural based on the level of human alterations that are visible within the unit. Section 66.2.2 of the TRPA Code provides definitions for each of these visual environments. The following components are identified and rated according to their effect on scenic quality within each roadway travel unit (TRPA 2016):

- man-made features along the roadway;
- physical distractions to driving along the roadways;
- roadway characteristics;
- view of the lake from the roadways;
- general landscape views from the roadways; and
- variety of scenery from the roadways.

Roadway travel unit ratings reflect all six of these components. Each component is rated from one, a strong negative effect on scenic quality, to five, a strong positive effect on scenic quality. A composite rating is calculated by summing the ratings of the six components. Therefore, the composite rating for a roadway travel unit can range from six to 30. To be in attainment with the threshold standard, the composite rating of each roadway travel unit must be at least 15.5 and equal or exceed the rating originally assigned in 1982. As of the 2019 evaluation, 34 out of the 54 (63 percent) roadway travel units are in attainment (TRPA 2021c).

Scenic Quality Ratings for Roadway Scenic Resources

Similar to the scenic quality rating for shoreline travel units, the scenic quality ratings for roadway travel units reflect the scenic quality of individual views or scenic resources that are visible from the region's major roadways that were identified, mapped, described, and evaluated as part of a 1982 scenic resource inventory. Scenic resources visible from roadways include:

- foreground, middleground, and background views of the natural landscape;
- views to the lake from roadways;
- views of the lake and natural landscape from roadway entry point into the basin; and
- unique regional landscape features such as streams, beaches, and rock formations that add interest and variety.

The quality of scenic resources in roadway travel units is measured by rating each of the four characteristics described above: unity, vividness, variety, and intactness. Each characteristic is rated from zero (absent) to three (high). A composite rating is obtained by summing the ratings of the four characteristics; therefore, the composite rating for an individual roadway scenic resource can range from zero to 12. There are 208 inventoried roadway scenic resources and, 203 (98 percent) are in attainment of the threshold standard (TRPA 2021b).

Public Recreation Areas and Bike Trails Scenic Quality Rating

The TRPA public recreation area scenic quality threshold applies to specific public recreation areas, including beaches, campgrounds, ski areas, and segments of Class I and Class II bicycle trails. Public recreation areas with views of scenic resources are valuable because they are major public gathering places, hold high scenic values, and are places where people are static (compared to people on the travel routes) and, therefore, have more time to focus their attention on the views and scenic resources. Scenic resources seen from public recreation areas include views of the lake and the surrounding natural landscape from within the recreation area; views of distinctive natural features that are within the recreation area; and views of human-made features such as cabins, the marina, or other shoreline structures in or adjacent to recreational areas that influence the viewing experience.

The scenic quality of views of natural features and the lake from public recreation areas and bike trails is measured by rating each of the four characteristics described above: unity, vividness, variety, and intactness. In addition, human-made features are rated for their coherence, condition, and compatibility. A composite score is generated for each inventoried public recreation area or bicycle trail by summing the scores of the applicable characteristics. There are 390 inventoried scenic resources associated with public recreation areas and bicycle trails and, as of 2019, 381 (approximately 98 percent) are in attainment of the threshold standard (TRPA 2021d).

Community Design

The TRPA community design threshold is a policy statement that applies to the built environment and is intended to ensure that design elements of buildings are compatible with the natural, scenic, and recreational values of the region. The policy states:

> It shall be the policy of the TRPA Governing Body in development of the Regional Plan, in cooperation with local jurisdictions, to ensure the height, bulk, texture, form, materials, colors, lighting, signing and other design elements of new, remodeled and redeveloped buildings be compatible with the natural, scenic, and recreational values of the region.

The community design threshold is implemented in two ways. First, the area plan and community plan process has been used to develop design standards and guidelines that are tailored to the needs and desires of individual communities. These standards and guidelines are considered "substitute" standards because they replace all or portions of the TRPA Code that would otherwise regulate the same subject. Secondly, the site planning and design principles contained in the TRPA Code are implemented as part of individual development projects, and are reviewed and approved by TRPA and local governments. The 2019 Threshold Evaluation Report determined that the community design policy statement was being implemented (TRPA 2021e).

Tahoe Regional Plan

The Goals and Policies of the 2012 Threshold Standards and Regional Plan (Regional Plan) establish an overall framework for development and environmental conservation in the Lake Tahoe region (TRPA 2012). The goals and policies present the overall approach to meeting TRPA's environmental threshold carrying capacities and establish guiding policy for each resource element. The Conservation Element (Chapter 4) of the Goals and Policies includes a Scenic Subelement. In addition, the Shorezone Subelement includes goals and policies that address the scenic quality of the shoreline. Applicable goals and policies are listed below:

GOAL SR-1 Maintain and restore the scenic qualities of the natural appearing landscape.

- Policy SR-1.1: All proposed development shall examine impacts to the identified landscape views from roadways, bike paths, public recreation areas, and Lake Tahoe.
- Policy SR-1.2: Any development proposed in areas targeted for scenic restoration or within a unit highly sensitive to change shall demonstrate the effect of the project on the 1982 travel route ratings of the scenic thresholds
- Policy SR-1.3: The factors or conditions that contribute to scenic degradation, as specified in the scenic quality improvement program (SQIP), need to be recognized and appropriately considered in restoration programs, plan development, and during project review to improve scenic quality.

GOAL SZ-1 Provide for the appropriate shorezone uses of Lake Tahoe, Cascade Lake, and Fallen Leaf Lake while preserving their natural and aesthetic qualities.

- Policy SZ-1.1: All vegetation at the interface between the backshore and foreshore zones shall remain undisturbed unless allowed by permit for uses otherwise consistent with the shorezone policies.
- Policy SZ-1.9: The agency shall regulate the placement of new piers, buoys, and other structures in the foreshore and nearshore to avoid degradation of fish habitats, creation of navigation hazards, interference with littoral drift, interference with the attainment of scenic thresholds, and other relevant concerns.

Code of Ordinances

The TRPA Code of Ordinances implements the policies of the Regional Plan. Chapter 36, "Design Standards," Chapter 84, "Development Standards Lakeward of High Water in the Shorezone and Lakezone," and Chapter 85, "Development Standards in the Backshore" establish mandatory design standard for structures on land and within the shorezone. Chapter 66, "Scenic Quality," of the TRPA Code contains regulations to protect scenic quality. It establishes a process for analyzing projects for scenic effects and defines those circumstances that require preparation of scenic assessments and/or other documents. Sections 66.1.3, 66.1.4, 66.1.5, and 66.2.4 describe scenic quality standards for roadway and shoreline travel units, and for public recreation areas and bicycle trails.

Visual Magnitude System

TRPA Code Section 66.3 includes requirements for the scenic quality review of projects in the shoreland (i.e., projects along the shoreline but landward of the shorezone). For all projects in the shoreland, except for some exact in-kind replacements of existing structures, a scenic assessment is required, and the visual magnitude of existing and proposed structures is regulated. Visual magnitude is a measure of the size and visual contrast of human-made structures that could detract from scenic views. Appendix H of the TRPA Design Review Guidelines (TRPA 1989) provides a detailed methodology for calculating the visual magnitude of a proposed project. For each element of a structure visible from the lake, this methodology calculates a score for the color, reflectivity of glass, surface texture, and percentage of the structure's perimeter that is visible. These factors are combined to generate a numeric contrast rating ranging from 3 to 35. TRPA Code Section 66.3 regulates the allowable visible mass of shoreland structures based on this contrast rating.

Visible Mass

To attain and maintain the scenic threshold standards, TRPA evaluates and regulates the visible mass of shoreline structures. Visible mass is defined by TRPA as the total visible area of a shoreline structure, including all elements of the structure. Visible mass is calculated by summing the area (in square feet) of visible elements of the structure when viewed in profile (i.e., parallel to the shore), and the area of visible elements of the structure when viewed from the end (i.e., perpendicular to the shore). Additional visible mass must be mitigated at a ratio ranging from 1:1.5 to 1:3 depending on the scenic character type. The portion of the project area south of Meeks Creek is designated as visually sensitive, which would require mitigation of new visible mass in that area at a 1:3 ratio. The north side of the project area is designated as visually modified, which requires mitigation of new visible mass at a 1:2 ratio. The location of additional visible mass must be consistent with the priorities identified in TRPA Code Section 84.4.3.6.d, which generally require mitigation as close to the location of new visible mass as possible.

Scenic Quality Improvement Plan and Environmental Improvement Program

The Scenic Quality Improvement Plan (SQIP) was adopted by TRPA to provide a program for implementing physical improvements to the built environment. The SQIP is intended to contribute to the attainment of the scenic thresholds and serves as an implementation guide for the Regional Plan. The Environmental Improvement Program (EIP), adopted in 1998 and updated in 2018, incorporates elements of the SQIP and includes a list of specific projects throughout the Basin that are needed to attain and maintain the thresholds. The EIP includes program elements to improve the scenic quality of roadways and shorelines. The project is included in the EIP project list and map, in which it is referred to as the Meeks Bay Ecosystem Restoration (Planning and Design) Project (TRPA 2021f).

STATE

California State Scenic Highway Program

California's Scenic Highway Program was created by the California Legislature in 1963 and is managed by the California Department of Transportation (Caltrans). The goal of this program is to preserve and protect scenic highway corridors from changes that would affect the aesthetic value of the land adjacent to highways. A highway may be designated "scenic" depending on how much of the natural landscape travelers can see, the scenic quality of the landscape, and the extent to which development intrudes on travelers' enjoyment of the view (Caltrans 2021). The program includes a list of highways designated as, or eligible to become, official scenic highways, and includes a process for the designation of official state and county scenic highways.

Approximately 27 miles of SR 89 is officially designated as a scenic highway through the State Scenic Highway Program. The portions of SR 89 in proximity to and within the project area are within the scenic designation (Caltrans 2019). All roadways that are eligible or officially designated under the program are also within TRPA-designated scenic roadway travel units.

3.2.2 Environmental Setting

VISUAL CHARACTER OF THE PROJECT AREA

The Meeks Bay Restoration Project area contains developed and natural elements that contribute to its overall visual character. Prominent built features within the project area include internal roadways and campground spurs, picnic tables, parking lots, and structures such as cabins and restaurants associated with Meeks Bay Resort, restrooms, and the Meeks Bay Marina. Fences surrounding structures and the campground are constructed of wood, brick, or stone, and are generally consistent in color with the surrounding environment. Structures within the project area generally blend with the natural environment. Meeks Bay Resort structures are made of dark wood with forest green trim, which match the prominent colors of the surrounding forested areas. Structures observable from publicly accessible areas appear to be aged, but are not in disrepair. Residential structures adjacent to the project area are generally not visible from publicly accessible viewpoints such at the beach and roadways, and may be obscured by trees and landscaping, but those that are visible are generally consistent in color with the surrounding natural features. See Figure 3.2-1 for views of structures and development within the project area.

Natural features within the project area include mixed-conifer forest, shrubs, Meeks Creek, the Lake Tahoe shoreline and beaches, and topography that is varied in elevation and embedded with rocks and boulders of different sizes. Most of the project area is forested with minimal development providing a high degree of unity and intactness. The sheet pile at the marina entrance/creek mouth and the motel-style cabins are prominent features that reduce the intactness of beach views. The presence of the beach and aquatic features, such as the creek and Lake Tahoe, add variety and vividness to views within the project area. Prominent natural features that are visible from the project area include high quality views across Lake Tahoe and of distinctive mountain peaks and ridges surrounding the Lake Tahoe basin (refer to Figures 3.2-2 and 3.2-3).

Source: Ascent Environmental 2020

Cabins at Meeks Bay Resort

Source: Ascent Environmental 2020.

Informational signs at Meeks Bay Campground

Source: Design Workshop 2020.

Day-use area in Meeks Bay Resort

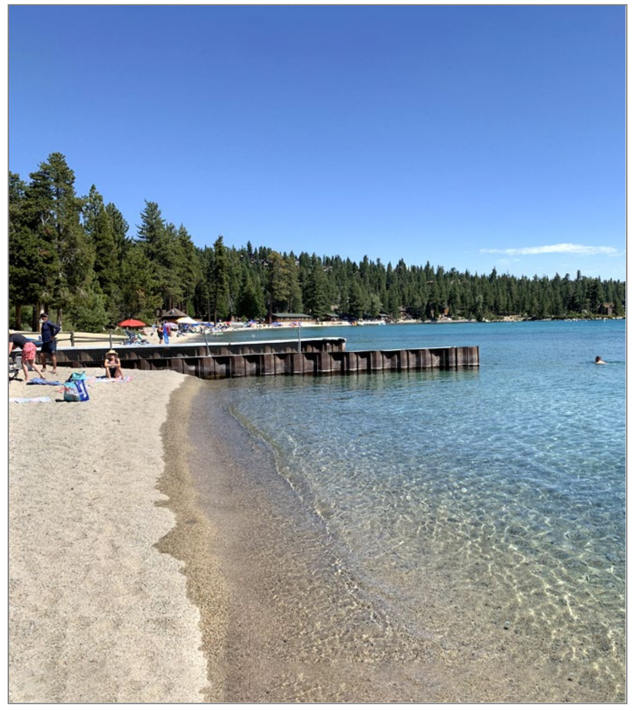
Source: Ascent Environmental 2020.

Campground entrance and restroom at Meeks Bay Resort

Figure 3.2-1 Existing Development and Structures

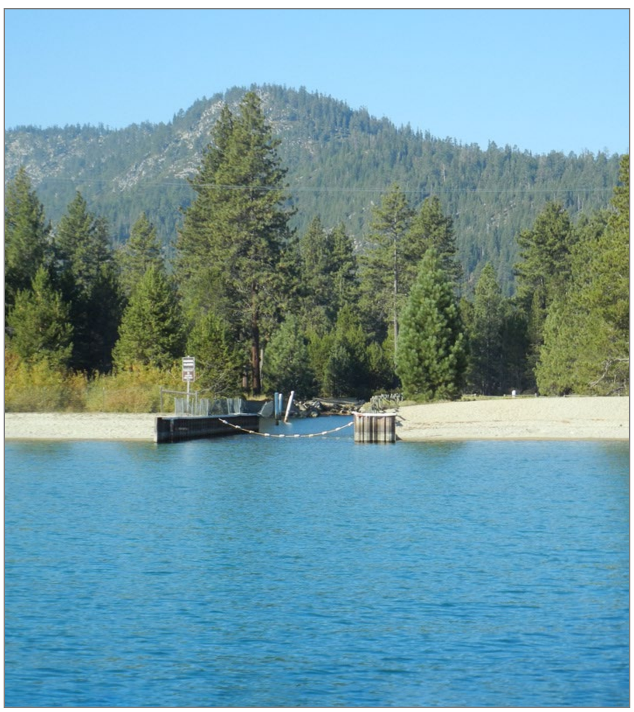
Source: Ascent Environmental 2020.

Marina and lagoon, facing east



Source: Ascent Environmental 2020.

Meeks Bay shoreline and marina entrance, facing north



Source: Ascent Environmental 2020.

Marina entrance/creek mouth from Lake Tahoe

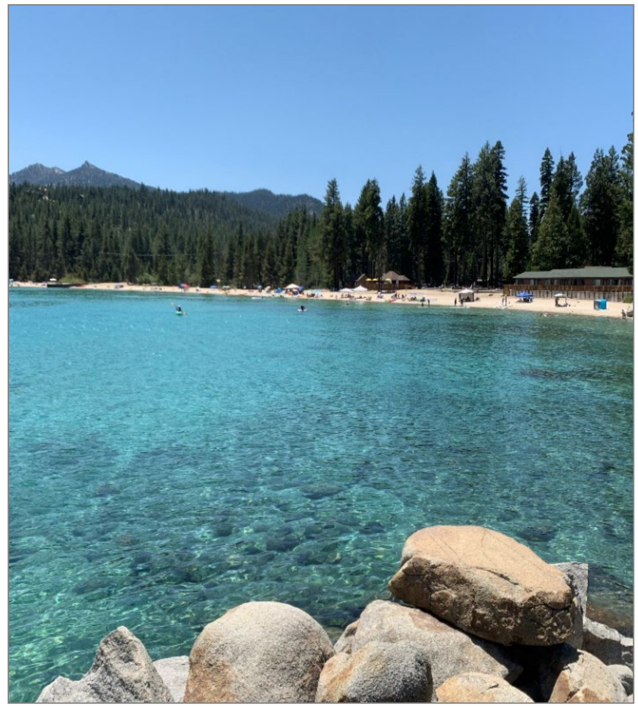
Source: Ascent Environmental 2020.

Meeks Creek, facing southeast upstream of the marina

Figure 3.2-2 Natural Project Area Views

Source: Ascent Environmental 2020.

Lake and Kehlet mansion, facing northeast

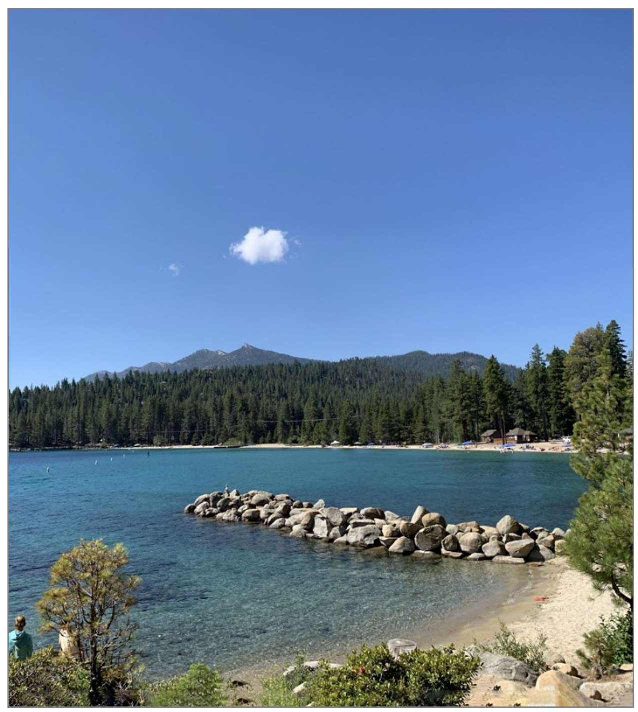


Source: Ascent Environmental 2020.

Lake and motel-style cabin, facing southwest

Source: Ascent Environmental 2020.

Marina lagoon, facing east



Source: Ascent Environmental 2020.

Meeks Bay, facing southwest

Figure 3.2-3 Lake Tahoe Views

LIGHT AND GLARE CONDITIONS

Natural and artificial light reflect off various surfaces and can create localized occurrences of daytime and nighttime glare. Sources of light within the project area include occupied campsites and cabins, passing vehicles, and roadway lighting. Other light sources include residences adjacent to the project area. Sources of daytime glare within the project area include parked vehicles and windows on structures within the project area. Generally, buildings within the project area, such as cabins are constructed of materials that are not reflective and do not result in glare. Overall, sources of light and/or glare within the project area are minimal, and there is not excessive daytime or nighttime glare within or in the vicinity of the project area.

SHORELINE TRAVEL ROUTE RATINGS

The project area is within the Shoreline Travel Unit 10, Meeks Bay, which extends from Meeks Creek northward to the border of Ed Z'Berg Sugar Pine Point State Park. To be in attainment of the TRPA Shoreline Travel Route Scenic Threshold, the unit must have a rating of 7.5 or greater. The composite score for Shoreline Travel Unit 10 was determined to be 9 during the 2019 evaluation; the composite score for the unit has remained the same since the initial evaluation in 1982; therefore, the unit is in attainment. Observations recorded during the evaluation indicate that pier modifications were implemented within the unit since 2015, and that pier design is consistent with design standards. In addition, new rock riprap along a bike path was determined to be well screened but light in color; staining the rock a lighter color was recommended to reduce visual distraction from the riprap. The pier modifications and rock riprap are outside of the project area.

SHORELINE CHARACTER TYPES

In addition to the scenic shoreline travel units, each portion of the shoreline is classified as one of four shoreline character types based on the level of human development that is visible: visually dominated shoreline, visually modified shoreline, visually sensitive shoreline, and natural dominated shoreline. The sandy beach that encompasses the majority of the shoreline in the project area is designated as visually sensitive shoreline. Visually sensitive shoreline areas are highly scenic or vulnerable landscapes exhibiting the influence of human-made modifications within an otherwise natural setting. Visually sensitive areas include long expansive, sandy beaches where shoreline structures are highly visible and difficult to screen from view.

ROADWAY TRAVEL UNITS

The project is located within Roadway Travel Unit 7 (Meeks Bay). To be in attainment with the threshold standard, the composite rating of each roadway travel unit must be at least 15.5 and equal or exceed the rating originally assigned in 1982. From 1982 to 1996, Unit 7 received a composite score of 13. In 2001, the composite score improved to 14, and has remained at that level for every evaluation since. In the 2019 Threshold Evaluation, Roadway Travel Unit 7 received a composite score of 14 and therefore, was still in non-attainment. Observations from 2001 indicate that roadside parking posed a distraction to the quality of the Unit. In 2015, observations noted that the sound wall constructed near the Meeks Bay Campground resulted in visual distractions and was "unattractive" in design, however, noted that the sound wall was not sufficient enough to lower the unit's score. Observations from the 2019 evaluation indicate that a new bike trail and associated fencing was noticeable but did not detract substantially from the scenic quality (TRPA 2019).

SCENIC RESOURCES

The scenic quality rating for a roadway or shoreline travel unit is a distinct score for individual views or specific features of the landscape. "Scenic resources" are seen from a specific location within a roadway or travel unit or within a shoreline travel unit looking back to the shoreline. Tracking these changes is important because it provides a measure of how changes in land use and development over time affect these resources. The primary drivers affecting scenic quality of roadway travel units in the Tahoe region are land use, land and resource management activities, and the visual/aesthetic characteristics of human-made development. The primary drivers affecting scenic quality of shoreline travel units are land use and the visual exposure and visual/aesthetic characteristics of development visible from Lake Tahoe. There are two scenic viewpoints along SR 89 in the vicinity of Meeks Bay in Roadway Travel Unit 7 and four designated scenic viewpoints in the vicinity of Meeks Bay in Shoreline Travel Unit 10.

Roadway Scenic Resource 7.3 is north of Meeks Bay facing south/southwest. This viewpoint includes views of Rubicon peak with glimpses of Lake Tahoe to the left side of the view (Wagstaff and Brady 1982). The project area is not visible form this viewpoint. Roadway Scenic Resource 7.4 is located on the SR 89 bridge over Meeks Creek. It includes views into the project area facing downstream (east) along the creek corridor (Figure 3.2-4).

Source: TRPA 2019.

Figure 3.2-4 View of the Project Area from Roadway Scenic Resource 7.4

Shoreline Scenic Resource 10.1 is located on the southern end of Meeks Bay facing south toward the private land south of the project area. A portion of the project area is visible on the right side of this view, although from the location of the viewpoint, the project area would be in the background view and project features would be less visible than when viewed from Shoreline Scenic Resource 10.3. (Figure 3.2-7). Shoreline Scenic Resource 10.3 includes panoramic views of the project area as viewed from Lake Tahoe directly offshore of the Meeks Bay Resort (Figure 3.2-5). Project features along the shoreline would be readily visible from Scenic Resource 10.3. Shoreline Scenic Resource 10.4 includes views of the Kehlet mansion on the north end of the project area. Most of the project area is not visible from this viewpoint; however, the rock gabion and concrete shoreline protective structures are visible on the far-left side of the view (Figure 3.2-6).

Source: TRPA 2019.

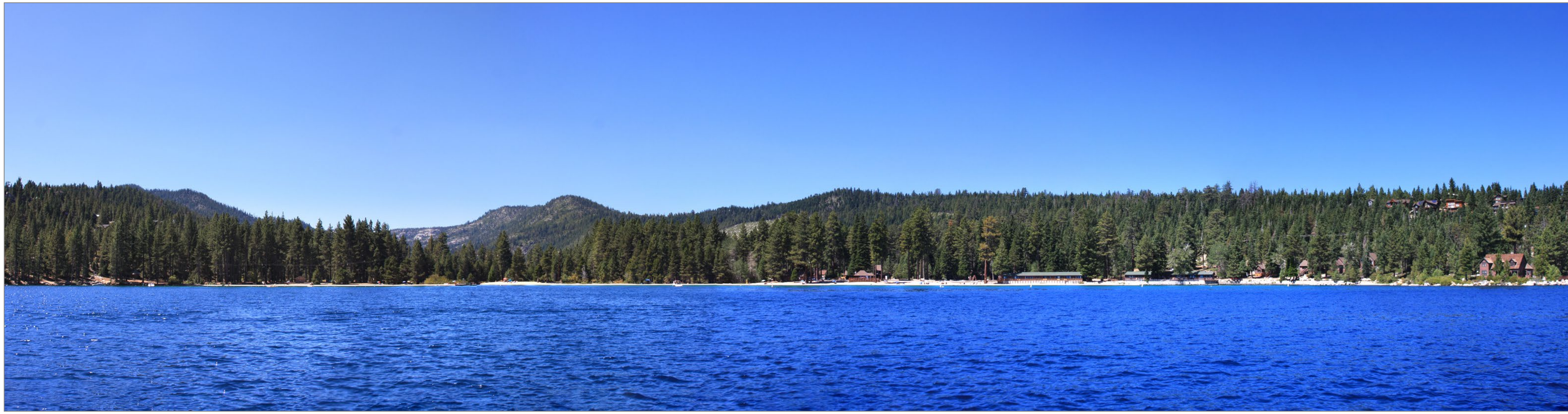
Figure 3.2-6 View from Shoreline Scenic Resource 10.4

SCENIC RECREATION AREAS

TRPA has designated scenic recreation areas with thresholds to protect the viewshed as seen from public recreation areas. The threshold applies to 37 public recreation areas including beaches, campgrounds, and ski areas. Views and scenic resources visible from these areas are considered of high value because they are major public gathering places, generally valued for their scenic quality, and they are places where people are static (compared to the travel routes), having more time to linger and focus attention on the views and resources. Meeks Bay Resort and Meeks Bay Campground are TRPA-designated scenic recreation areas and are described in more detail below.

Meeks Bay Resort

The Meeks Bay Resort occupies more than half of the shoreline within Meeks Bay. The beach is the central focus with the marina and campgrounds occupying the southern end of the resort, and the visitors' cabins occupying the northern end. Views from the area focus out toward the openness of the lake. Behind the beach, the forest and various structures restrict views. The strong definition of the bay makes the character of the area distinctive. Development on the southern peninsula has not been entirely sensitive to the natural character of the bay and additional development could alter it further. Although development for recreation uses at the resort itself has been intensive, the natural environment continues to dominate. Exceptions to this include the motel-style cabins and associated retaining wall sited close to the lake's edge.



Source: TRPA 2019.

Figure 3.2-5 View of Project Area from Shoreline Scenic Resource 10.3

Source: TRPA 2019.

Figure 3.2-7 View from Shoreline Scenic Resource 10.1

Recommendations from the Lake Tahoe Basin Scenic Resource Evaluation (TRPA 1993) for preserving the scenic quality of Meeks Bay Resort include preserving existing trees to visually screen areas between structures and public use areas, discouraging new structures from extending above the ridgeline and forest canopy, use of materials that blend into the surrounding landscape should be encouraged, exposed cut-banks along roadways should be revegetated, and redesign of the parking areas and pedestrian circulation should be considered to eliminate existing visual clutter and landscaping be added between the visitors center and the beach. In addition, recommendations for mitigation of the visual impact of the Meeks Bay Resort multi-unit structures at the north end of the beach assumed that major remodeling or restructuring of the facilities would be too costly to be feasible. Alternatively, extensive landscaping is recommended to help screen the structures from view and the entries should be redesigned to include architectural additions such as screens and porches.

Meeks Bay Campground

Meeks Bay Campground contains campsites and a beach within the recreation area. The camping area occupies most of the recreation area. Since the campsites are located in the forested portion of the area, viewing distances are short and no significant viewsheds are visible. The camping area is separated from the beach by an open field and a mature stand of conifers. Two parking areas are located in this space, once sited in the trees and the other j outside the stand of trees in the open space. The beach itself is a wide, deep, and flat area covered with white sand. The facilities and natural features of the Meeks Bay Campground are somewhat limited. The beach, though visually appealing, is not distinctive. Views are of good scenic quality and the sheltered enclosure of the bay adds to the uniqueness of the viewshed. Care must be taken in development of the two peninsulas to retain the dominant natural setting. The campground was replanted with diverse species to reestablish the previously existing conifer forest that was devasted by insect infestation. The scenic quality rating is expected to increase as the forest recovers over time

Recommendations from the Lake Tahoe Basin Scenic Resource Evaluation (TRPA 1993) for preserving the scenic quality of Meeks Bay Campground include establishing a landscaped edge along the northern edge of the campground to help screen views of the marina and other activities in the adjoining resort, landscaping the parking area to integrate it more fully with the existing tree stand that screens the rest of the parking, introducing landscaping around the base of the restroom facility to integrate it with the surrounding forest and decrease the starkness of its appearance, and removal of the small snack bar structure if it is not used. The following recommendations are also provided specific to the peninsula along the northern and southern edges of Meeks Bay:

- structures should not extend above the ridgeline,
- tree removal for structures should not create gaps in the vegetation along the ridgetop,
- existing trees should be preserved as a visual screen between structures and major public use areas,
- structures should not be allowed to rise above the forest canopy,
- any new development should be set back from the lake's edge to preserve its natural appearance,
- no new piers or shoreline structures should be permitted between the beach and the existing pier near the end of the southern peninsula,
- use of reflective building materials should be restricted and use of materials that blend into the surrounding environment should be encouraged,
- exposed cut-banks along the existing roadways should be revegetation, and
- policies should be established to require any new development to revegetate all slopes exposed by grading.

3.2.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

The methods of analyzing impacts on scenic resources are consistent with the TRPA scenic threshold monitoring system and Code of Ordinances, as described in Section 3.2.1, "Regulatory Setting," above. The methods are based on visual characteristics of the landscape, the condition of which, when considered as a group and expressed as a numerical rating, represents the relative level of excellence in scenic quality (TRPA 2016). Assessing the characteristics under pre- and post-project scenarios provides an understanding of the status of scenic quality and the visual effect of a proposed action, and can be used to determine if the project would alter the scenic rating under the Forest Service scenery management system or TRPA scenic thresholds. The existing scenic conditions of the project area are reflected in scenic threshold monitoring data collected by TRPA in 2019. Environmental review of the project is achieved through evaluation of the short- and long-term visual effects of the project alternatives. This evaluation is supported by visual simulations and a quantitative assessment of the net change in visible mass of structures visible from Lake Tahoe. Visual simulations are provided for the view from Lake Tahoe looking west toward the Meeks Bay shoreline and for the view from the north end of Meeks beach looking south. See Figure 3.2-8 for the locations of the visual simulations for the project.

THRESHOLDS OF SIGNIFICANCE

The thresholds of significance were developed in consideration of the State CEQA Guidelines, TRPA Thresholds, TRPA Initial Environmental Checklist, LTBMU Forest Plan, and other applicable policies and regulations. Under NEPA the significance of an effect must consider the context and intensity of the environmental effect. The factors that are considered under NEPA to determine the context and intensity of its effects are encompassed by the thresholds of significance. An alternative would have a significant effect on scenic resources if it would:

- reduce the scenic rating under the Forest Service scenery management system;
- have a substantial adverse effect on a scenic vista;
- damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- substantially degrade the existing visual character or quality of public views of the site and its surroundings;
- conflict with applicable zoning and other regulations governing scenic quality;
- create a new source of substantial light or glare which would adversely affect day or nighttime views in the area;
- block or cause substantial degradation of an existing view of Lake Tahoe or other scenic vistas seen from a public area;
- decrease the TRPA Travel Route or Scenic Quality rating for roadway or shoreline travel units, scenic resources, or bicycle trails and recreation areas;
- be inconsistent with the TRPA Scenic Quality Improvement Program (SQIP), TRPA Design Review Guidelines, or applicable height and design standards; or
- create new sources of light or glare that are more substantial than other light or glare in the area or cause exterior light to be cast offsite.

ISSUES NOT DISCUSSED FURTHER

New sources of light can result from exterior lighting of new development while glare results from high-shine surfaces, such as building windows (glass) and high-gloss painted surfaces. None of the alternatives propose new sources of light or reflective materials that would result in glare. Therefore, there would be no impacts related to light and glare and the issue is not discussed further.

Source: Prepared by Ascent Environmental in 2021.

Figure 3.2-8 Viewpoint Locations

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.2-1: Substantially Degrade Views of Meeks Bay from Lake Tahoe

The No Action Alternative would result in **no impact** on views of Meeks Bay from Lake Tahoe because it would not result in any changes to existing conditions.

Alternatives 1 through 4 would alter human-made features visible from Lake Tahoe, but these visual changes would not reduce the quality of views from Lake Tahoe, reduce the Forest Service MSI rating, or degrade the TRPA scenic quality ratings for the applicable shoreline travel units and shoreline scenic resources and the impact would be **less than significant**.

<u>No Action Alternative</u>

The No Action Alternative represents the future conditions if the project is not implemented (see Figure 2-3). Under this alternative, there would be no restoration and the existing marina would remain in place. Upland features would remain in their current configuration, which includes 76 campsites in two campgrounds and two day-use areas. Views of Meeks Bay from Lake Tahoe would therefore be the same as under existing conditions and there would be no change to visual character of quality of the project area. For these reasons, there would be **no impact** under the No Action Alternative.

<u>Alternative 1: Restoration with Boating Pier</u>

Implementation of Alternative 1 would result in several changes that could affect views toward Meeks Bay from Lake Tahoe. In addition to the new pier, discussed below, the alternative would include restoration of Meeks Creek and removal and replacement of shoreline erosion control structures. These changes could affect the scenic quality and visual prominence of human-made features visible from Lake Tahoe, which could affect TRPA scenic threshold standards for Shoreline Travel Unit 10 (Meeks Bay) and associated shoreline scenic resources.

Because of the density of the stand of trees along the shoreline in Meeks Bay and the location of upland improvements, proposed upland features (e.g., changes to the campground, bike and pedestrian circulation, multi-use path bridge, parking lot configurations) would not be visible from Lake Tahoe under any of the alternatives.

All of the action alternatives, including Alternative 1, would result in changes that would benefit views toward Meeks Bay from Lake Tahoe. These changes include removal of the sheet pile bulkheads near the Meeks Creek outlet and restoration of Meeks Creek, and removal of the rock gabion wall and concrete structures along the shoreline (see Figure 2-4 and Figure 2-5 in Chapter 2) and replacement with natural-appearing erosion prevention features such as boulders and native vegetation.

Alternative 1 also includes a new 300-foot-long boating pier (see Figures 2-9 and 2-10 in Chapter 2). The new pier would include a 20-foot-wide pierhead along the most lakeward 30 feet of the pier. The pierhead would include one boatlift capable of supporting a 29-foot-long emergency services boat to support emergency services in the area. Alternative 1 also includes the removal of the two motel style cabin units that are along the shoreline in the Meeks Bay Resort. Three smaller cabin units would be constructed farther inland to maintain cabin capacity, while reducing the visibility of structures along the shoreline. The potential visual effect of each of these project features visible from Lake Tahoe are described in more detail below.

Figure 3.2-9 shows the existing and future views (under Alternative 1) from Viewpoint 1 on Lake Tahoe approximately 0.25 mile offshore facing toward Meeks Bay. This reflects the view from TRPA-designated Shoreline Scenic Resource 10.3 and it is 0.25 miles offshore consistent with the standard distance for scenic evaluation in TRPA Code Section 66.3. This is the view from Lake Tahoe that has the greatest chance of being degraded by Alternative 1 because it provides direct views of the changes that would be the most visible from the lake and have the greatest potential to detract from scenic quality, including the new pier and cabin relocations. In the existing view, the shoreline and background are dominated by conifer trees with patches of aspens. The motel-style cabin units in the Meeks Bay Resort are visible as brown and green horizontal structures near the center of the view, and additional structures are visible on either side of the motel-style cabins, partially obscured by trees. All other features in the project area are not visible because of the dense tree cover. Although the existing motel-style cabins and other structures detract from the quality of the view, overall, the quality of the existing view is good because of the predominance of trees along the shoreline, which screens most visible signs of development.

Source: Figure produced by Ascent Environmental in 2021.

Figure 3.2-9 View of Meeks Bay from Viewpoint 1 under Existing Conditions/No Action Alternative and Alternative 1

In the simulation of Alternative 1, the relocated cabins are visible near the center and right side of the view. The relocated cabins are farther inland than under existing conditions and blend visually with the dense forested areas along the shoreline. They are darker brown in color and their form has vertical elements, consistent with the surrounding trees. The light-colored concrete retaining wall in front of the motel-style cabins has been removed and is replaced with natural boulder shoreline protection. Overall, this element of Alternative 1 increases the unity and intactness of the view from Lake Tahoe and benefits overall visual quality of views from the lake.

The new pier and fireboat visible on the left side of the simulation are the most prominent new visible features of Alternative 1. These features are noticeable; however, they do not dominate the view from the lake at 0.25 mile offshore. Their mass and brown and red coloring block views of, and contrasts with the light sandy shoreline. These features reduce the intactness and unity of views from Lake Tahoe and degrade the overall visual quality of the area.

In addition, Alternative 1 would modify other human-made features along the shoreline, which is one of the three criteria assessed to develop shoreline travel unit scenic ratings. Existing visible human-made features would be removed including the existing concrete and gabion shoreline stabilization features, which would be replaced with boulder and native vegetation shoreline stabilization (shown in the center-right of Figure 3.2-9). Although not shown in Figure 3.2-9, the sheetpile bulk head long the channel leading to the marina (see photographs in Figure 3.2-2, above) would be removed and the creek mouth would be restored to a more natural condition. The removal of the sheet pile bulkheads, restoration of Meeks Creek, and replacement of rock gabion and concrete shoreline stabilization structures with natural-appearing stabilization features would improve views of Meeks Bay from Lake Tahoe by removing human-made visual intrusions along the shoreline and replacing them with natural-appearing features and contours. Accordingly, the visual prominence of these human-made features would be reduced under Alternative 1, which would benefit the TRPA scenic quality ratings for the shoreline travel unit.

TRPA has developed a quantitative method to evaluate and regulate the visible mass of piers and other shoreline structures. The visible mass of a pier is defined by TRPA as the total visible area of a pier, including all elements of the pier (e.g., pilings, deck, railings). Visible mass is calculated by summing the area (in square feet) of visible elements of the pier when viewed in profile (i.e., parallel to the shore), and the area of visible elements of the pier when viewed from the end (i.e., perpendicular to the shore). For purposes of evaluating and mitigating visible mass of new piers, the visible mass of boat lifts and associated boats are also included (TRPA Code Section 84.4.3.10.d). Tables 3.2-1 and 3.2-2 below summarize the visible mass of the new pier under Alternative 1 at a lake elevation of 6,226 Lake Tahoe Datum (LTD). As shown in the table, the new pier would result in the addition of 975.85 sq. ft. of visible mass.

Table 3.2-1 Visible Mass of the Boating Pier under Alternative 1

Description	Length (ft.)	Width (ft.)	Quantity	Area (sq. ft.)	Total (sq. ft.)
Profile View					
Pier deck	300	1	1	300	300
Piling	4.66	1.33	30	6	180
Boat Lift	30	1	1	30	30
Fireboat on Boat Lift	29	9.5	1	275.5	275.5
Fencing	10	5	1	50	50
End View					
Pier deck	20	1	1	20	20
Piling	4.66	1.33	3	6.2	18.6
Boat Lift	10	1	1	10	10
Fireboat on Boat Lift	9.5	9.5	1	90.25	90.25
Fencing	6	0.25	1	1.5	1.5
Total					**975.85**

Source: Compiled by Ascent Environmental in 2021.

Alternative 1 would also involve the removal of existing visible mass from the shoreline, including removal and relocation of the motel-style cabins, existing rock gabion and concrete shoreline protection, and sheet pile bulkheads at the Meeks Creek outlet. Alternative 1 would replace the motel-style cabins with three separate smaller cabins located farther from the shore. The visible mass of each of the features that would be removed under Alternative 1, and the additional visible mass from the new cabins is summarized in Table 3.2-2. Unlike the visible mass of the proposed pier, the visible mass of these on shore structures is calculated only as viewed from the lake (i.e., perpendicular to the shore). As shown in Table 3.2-2, approximately 2,928 sq. ft. of visible mass would be removed from the shoreline. When the additional visible mass from the proposed pier is considered, there would be a net decrease of 1,952.15 sq. ft. of visible mass under Alternative 1.

Table 3.2-2 Visible Mass of Other Shoreline Structures under Alternative 1

Description	Visible Mass Removed (sq. ft.)	Visible Mass Added (sq. ft.)	Total Change in Visible Mass (sq. ft.)
Motel-style cabin north building	3,443	0	-3,443
Motel-style cabin south building	2,470	0	-2,470
Three additional cabins	0	4,800	4,800
Rock Gabion/Shoreline Protection Features	1,603	0	-1,603
Sheet Pile Bulkheads at Meeks Creek Outlet	212	0	-212
Total			**-2,928**

Source: Compiled by Ascent Environmental in 2021.

Because the proposed pier would be located in a portion of the shoreline that is designated as visually sensitive, the additional visible mass of the pier is required to be mitigated at a ratio of 1:3 (i.e., three times the visible mass of the pier must be removed; TRPA Code Section 84.4.3.A.6). Thus, the proposed pier would require the removal of at least 2,927.55 sq. ft. of visible mass. Because Alternative 1 would remove 2,928 sq. ft. of visible mass, it would meet the visible mass mitigation requirements of the TRPA Code.

TRPA Code Section 84.4.3.A.4 also requires that a project area for a new pier must be evaluated under the contrast rating system for visual magnitude described in Chapter 66 of the TRPA Code. This system produces a numeric score to quantify the visual magnitude of shoreland structures based on an evaluation of building materials, color, texture, articulation, and reflectivity. A higher score indicates less contrast with the natural environment. A project area for a new pier must meet an initial score of 21, then attain a score of 25 within 6 months of permit application submission. If Alternative 1 is approved, additional design detail work would occur, which would identify the specific materials, colors, and architectural details of proposed facilities, and the site would be required to achieve contrast rating scores required by TRPA Code Section 84.4.3.A.4. Compliance with these requirements could result in additional improvements to scenic quality in the project area.

As described above, Alternative 1 would alter human-made features visible from Lake Tahoe, which is one of the three criteria used to determine shoreline travel unit threshold scores. The Alternative would result in a net reduction in visible mass along the shoreline meeting TRPA Code requirements, which were developed to attain and maintain scenic threshold standards. As shown in the simulation in Figure 3.2-9, these visual changes would not reduce the quality of views from Lake Tahoe or degrade the Forest Service MSI rating, TRPA scenic quality ratings for the applicable shoreline travel unit and shoreline scenic resources, including Scenic Shoreline Resource 10.3. Thus, the impact would be **less than significant**.

<u>Alternative 2: Restoration with Pedestrian Pier</u>

Some of the features of Alternative 2 that would be visible from the lake are similar to those in Alternative 1. As with Alternative 1, Alternative 2 would involve removal of the marina and full restoration of the creek, lagoon, and barrier beach, as well as the removal of rock gabion and replacement with natural-appearing shoreline erosion protection features. Alternative 2 does not include the development of a new 300-foot-long boating pier and instead, would include a 100-foot-long pedestrian pier in the same location. The pedestrian pier would be a floating design, with the pier deck floating directly on the surface of the water with pilings extending above the elevation of the pier deck under most lake levels. In addition, the motel style cabins would remain in place under Alternative 2. Figure 3.2-10 shows the existing and future views under Alternative 2 from Viewpoint 1 approximately 0.25 mile offshore on Lake Tahoe facing toward Meeks Bay.

Source: Figure produced by Ascent Environmental in 2021.

Figure 3.2-10 View of Meeks Bay from Viewpoint 1 under Existing Conditions/No Action Alternative and Alternative 2

In the simulation of Alternative 2, the proposed pedestrian pier is visible, as well as the natural-appearing shoreline protection features on the north end of the beach. The new pier is the largest new visible features of Alternative 2; however, its mass is relatively small, and it does not dominate the view due to its relatively small size, floating design, and coloring. Overall, the view from Lake Tahoe under Alternative 2 is not substantially different than under existing conditions. The new pier provides an additional human-made structure that detracts from the view, but the replacement of the concrete and rock gabion shoreline protection would remove a human-made structure that detracts from the view under existing conditions.

Table 3.2-3 below summarizes the visible mass of the new pier under Alternative 2, at a lake elevation of 6,226 Lake Tahoe Datum (LTD). As shown in the table, the new pier would result in the addition of 288.2 sq. ft. of visible mass.

Table 3.2-3 Visible Mass of the Pedestrian Pier under Alternative 2

Description	Length (ft)	Width (ft)	Quantity	Area (sq. ft.)	Total (sq. ft.)
Profile View					
Pier deck	100	2	1	200	200
Pilings	4.66	1.33	10	6.2	62
End View					
Pier deck	10	2	1	20	20
Pilings	4.66	1.33	1	6.2	6.2
Total					**288.2**

Source: Compiled by Ascent Environmental in 2021.

Similar to Alternative 1, the removal of the sheet pile bulkheads, restoration of Meeks Creek, and replacement of rock gabion with natural-appearing erosion prevention features would benefit the scenic quality of Meeks Bay as viewed from Lake Tahoe by removing human-made visual intrusions along the shoreline and replacing them with natural-appearing features and contours. Accordingly, the visible mass of shoreline features would be reduced under Alternative 2 as shown in Table 3.2-4. With implementation of Alternative 2, there would be a net decrease of 1,526.8 sq. ft. of visible mass along the shoreline.

Table 3.2-4 Visible Mass Removed under Alternative 2

Description	Visible Mass Removed (sq. ft.)	Visible Mass Added (sq. ft.)	Total Change in Visible Mass (sq. ft.)
Rock Gabion/Shoreline Protection Features	1,603	0	-1,603
Sheet Pile Bulkheads at Meeks Creek Outlet	212	0	-212
Total			**-1,815**

Source: Compiled by Ascent Environmental in 2021.

As described above, the additional visible mass of proposed pedestrian pier is required to be mitigated at a ratio of 1:3. Thus, the proposed pier would require the removal of at least 864.6 sq. ft. of visible mass. Because Alternative 2 would remove 1,815 sq. ft. of visible mass, it would exceed the visible mass mitigation requirements of the TRPA Code.

If Alternative 2 is approved, additional design detail work would occur, which would identify the specific materials, colors, and architectural details of proposed facilities, and the site would be required to achieve contrast rating scores required by TRPA Code Section 84.4.3.A.4. Compliance with these requirements could result in additional improvements to scenic quality in the project area.

As described above, Alternative 2 would alter human-made features visible from Lake Tahoe, which is one of the three criteria used to determine shoreline travel unit threshold scores. The alternative would result in a net reduction is visible mass along the shoreline exceeding TRPA Code requirements, which were developed to attain and maintain scenic threshold standards. As shown in the simulation in Figure 3.2-10, these visual changes would not reduce the quality of views from Lake Tahoe or degrade the Forest Service MSI rating, TRPA scenic quality ratings for the applicable shoreline travel unit and shoreline scenic resources, including Shoreline Scenic Resource 10.3. Thus, the impact would be **less than significant**.

Alternative 3: Restoration with No Pier

As with Alternatives 1 and 2, this alternative would involve removal of the marina and full restoration of the creek, lagoon, and barrier beach, as well as the removal of rock gabion and replacement with natural-appearing shoreline erosion protection features. As described above for Alternative 1, these shoreline changes would benefit views of Meeks Bay from Lake Tahoe and reduce overall visible mass. When viewed from Viewpoint 1 on Lake Tahoe, Alternative 3 would appear the same as Alternative 2 (see Figure 3.2-10), except it would not include the floating pedestrian pier.

Alternative 3 would not include a pier but would include a small moveable, universally accessible paddlecraft launch structure on the south end of the bay (see Figure 2-14 in Chapter 2). The facility would include a floating platform or dock up to 30 feet long and 20 feet wide that could move with lake level fluctuations. It would include a ramp for paddlecraft launching. It could include handrails along the launch ramp, but otherwise would not include features extending above the floating platform/dock. While the exact design of the paddlecraft launch has not been determined, it is conservatively estimated to result in up to 100 sq. ft. of visible mass when calculated consistent with the visible mass calculations for piers (i.e., when summing the visible mass when viewed perpendicular and parallel to the shoreline). The launch facility would be medium tan color, or other earth tone color that blends into the surroundings, as approved by TRPA. Table 3.2-5 shows the estimated visible mass of shoreline structures under Alternative 3.

Table 3.2-5 Visible Mass of Shoreline Structures under Alternative 3

Description	Visible Mass Removed (sq. ft.)	Visible Mass Added (sq. ft.)	Total Change in Visible Mass (sq. ft.)
Paddlecraft Launch	0	100	100
Rock Gabion/Shoreline Protection Features	1,603	0	-1,603
Sheet Pile Bulkheads at Meeks Creek Outlet	212	0	-212
Total			**-1,715**

Source: Compiled by Ascent Environmental in 2021.

Alternative 3 would alter human-made features visible from Lake Tahoe. The Alternative would result in a net reduction is visible mass along the shoreline of approximately 1,715 sq. ft. Given the small size of the paddlecraft launch and its coloring consistent with the existing surroundings, it would not substantially alter or degrade views of Meeks Bay from Lake Tahoe. As described above, Alternative 3 would not reduce the quality of views from Lake Tahoe or degrade the Forest Service MSI rating, TRPA scenic quality ratings for the applicable shoreline travel unit and shoreline scenic resources, including Shoreline Scenic Resource 10.3. The impact would be **less than significant**.

Alternative 4: Preferred Alternative

As with Alternatives 1, 2, and 3, this alternative would involve removal of the marina and full restoration of the creek, lagoon, and barrier beach. Like Alternative 3, it would not include a pier but would include a small moveable, universally accessible paddlecraft launch structure on the south end of the bay. As with Alternative 1, this alternative would relocate the two motel style cabin units in the Meeks Bay Resort farther inland and replace them with three smaller cabin units while maintaining the existing overnight visitor capacity. When viewed from Viewpoint 1 on Lake Tahoe, Alternative 3 would appear the same as Alternative 1 (see Figure 3.2-5), except it would not include the new 300-foot-long boating pier.

As described above under "Alternative 1: Restoration with Boating Pier," the removal of the sheet pile bulkheads, restoration of Meeks Creek, removal and relocation of the motel style cabins. And replacement of rock gabion with natural-appearing erosion prevention features would benefit views of Meeks Bay from Lake Tahoe by removing human-made visual intrusions along the shoreline and replacing them with natural-appearing features and contours. Table 3.2-6 shows the estimated visible mass of shoreline structures under Alternative 4.

Table 3.2-6 Visible Mass of Shoreline Structures under Alternative 4

Description	Visible Mass Removed (sq. ft.)	Visible Mass Added (sq. ft.)	Total Change in Visible Mass (sq. ft.)
Paddlecraft Launch	0	100	100
Motel-style cabin north building	3,443	0	-3,443
Motel-style cabin south building	2,470	0	-2,470
Three additional cabins	0	4,800	4,800
Rock Gabion/Shoreline Protection Features	1,603	0	-1,603
Sheet Pile Bulkheads at Meeks Creek Outlet	212	0	-212
Total			**-2,828**

Source: Compiled by Ascent Environmental in 2021.

Alternative 4 would alter human-made features visible from Lake Tahoe. The Alternative would result in a net reduction in visible mass along the shoreline of approximately 2,828 sq. ft. Given the small size of the moveable, universally accessible paddlecraft launch and its coloring consistent with the existing surroundings, it would not substantially alter or degrade views of Meeks Bay from Lake Tahoe. As described above, Alternative 4 would not reduce the quality of views from Lake Tahoe or degrade the Forest Service MSI rating, TRPA scenic quality ratings for the applicable shoreline travel unit and shoreline scenic resources, including Shoreline Scenic Resource 10.3. The impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.2-2: Alter Views of Lake Tahoe from the Project Area

Under the No Action Alternative, views of Lake Tahoe from the project area would be the same as under existing conditions because no structures would be constructed or demolished. Thus, there would be **no impact** under the No Action Alternative.

Implementation of Alternative 1 would result in changes that could affect views toward Lake Tahoe from the project area, including the TRPA-designated scenic recreation area Meeks Bay Resort. Alternative 1 includes a new 300-foot-long boating pier with emergency services boat that would be visually prominent along the shoreline and would substantially degrade the overall visual character quality of the view, including from the TRPA-designated scenic recreation areas at Meeks Bay Resort and Meeks Bay Campground. Because there is no feasible mitigation that would reduce this impact while achieving the intent of the alternative, the impact under Alternative 1 would be **significant and unavoidable**.

Alternatives 2, 3, and 4 include project features that would be visible from the project area looking toward the lake, Due to their small size and design, these features would not substantially detract from the view. Therefore, the impact of Alternatives 2, 3, and 4 would be **less than significant**.

No Action Alternative

The No Action Alternative represents the future conditions if the project is not implemented (see Figure 2-3 in Chapter 2). Under this alternative, there would be no restoration and the existing marina would remain in place. Upland features would remain in their current configuration, which includes 76 campsites in two campgrounds and two day-use areas. Views of Lake Tahoe from the project area would therefore be the same as under existing conditions and there would be no change to the view of Lake Tahoe. For these reasons, there would be **no impact** under the No Action Alternative.

<u>Alternative 1: Restoration with Boating Pier</u>

Alternative 1 would result in changes that could affect views toward Lake Tahoe from the project area, including the TRPA-designated scenic recreation area Meeks Bay Resort. Although many of the proposed changes under Alternative 1 would not affect views of Lake Tahoe, such as the restoration of Meeks Creek, removal and replacement of cabins shoreline erosion control structures, and upland improvements (e.g., changes to the campground, bike and pedestrian circulation, multi-use path bridge, and parking lot configurations), Alternative 1 includes a new 300-foot-long boating pier that would be visually prominent along the shoreline. The new pier would include a 20-foot-wide pierhead along the most lakeward 30 feet of the pier, and the pierhead would include one boatlift capable of supporting a 29-foot-long emergency services boat (see Figure 2-9 in Chapter 2).

The project area includes two TRPA-designated scenic recreation areas (Meeks Bay Campground and Meeks Bay Resort). These two areas encompass the entirety of the project area west of SR 89 and are regulated pursuant to TRPA's "Other Areas" scenic threshold standard. This non-degradation standard requires that the sites maintain a score that is equal to or greater than the scenic score recorded when the site was first inventoried in 1993. The scenic scores for designated recreation sites are calculated by rating four different elements of the scenic quality on a scale of 1 to 5 and combining the individual scores to develop a composite scenic score. The four elements of scenic quality that contribute to the score are: 1) coherence of the human-made and natural features visible at the site, 2) physical condition of built features, 3) compatibility of built features with the natural environment, and 4) the design quality of built features. Both designated scenic recreation areas were last evaluated in 2011 and both are in attainment of the threshold standard because the ratings are the same as those recorded when the sites were first inventoried. Table 3.2-7 shows the existing scenic scores for the two TRPA-designated scenic recreation areas within the project area.

Table 3.2-7 Existing Scenic Ratings for TRPA-Designated Scenic Recreation Areas in the Project Area

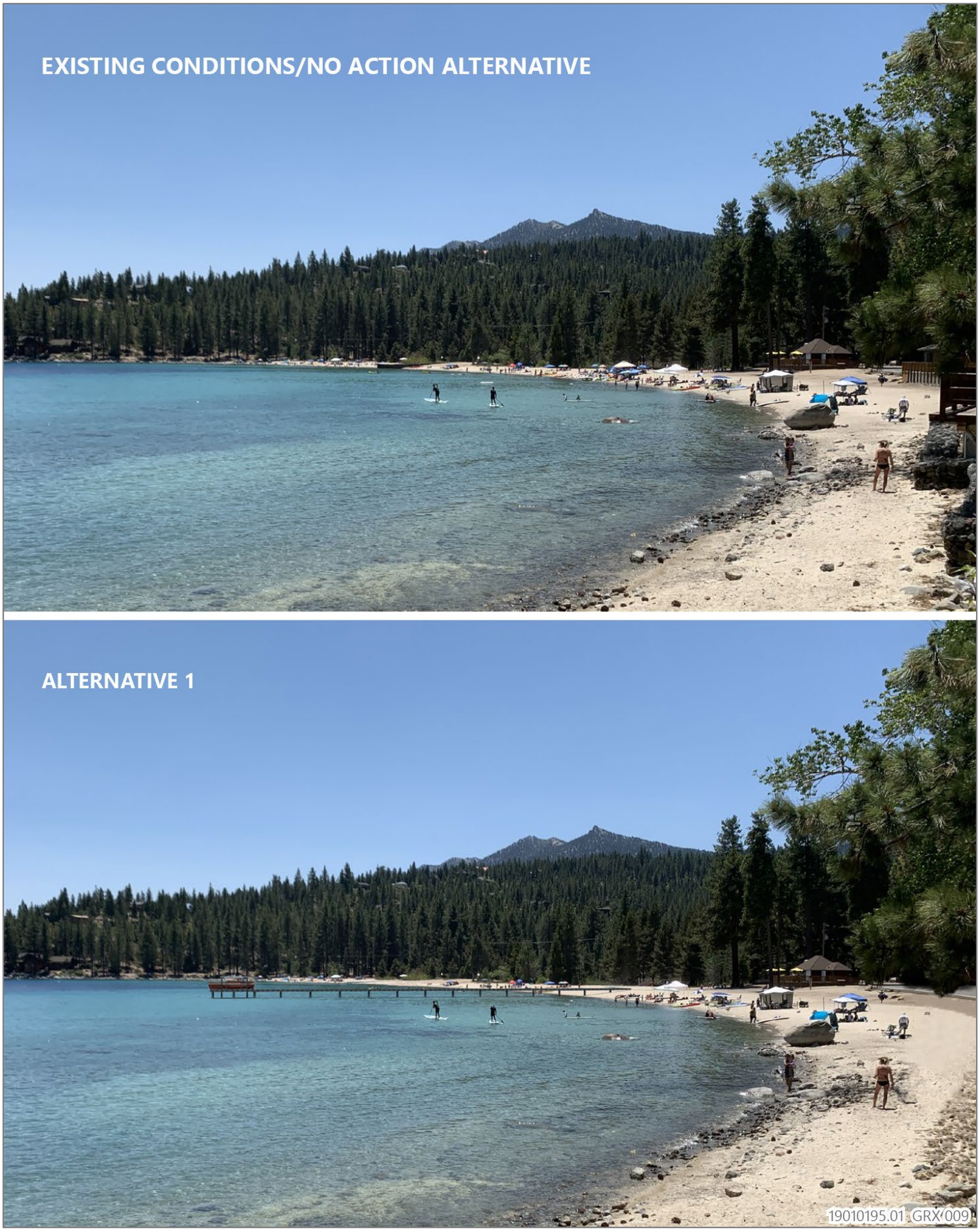
Designated Recreation Area (name and number)	Coherence	Condition	Compatibility	Design Quality	Composite Score
Meeks Bay Resort, # 23	4	4	4	3	15
Meeks Bay Campground, # 24	4	2	3	4	13

Source: TRPA 2011.

Figure 3.2-11 shows the existing and future views under Alternative 1 from Viewpoint 2 on the northern end of Meeks Bay facing south toward southern Meeks Bay and Lake Tahoe. While visitors experience views of Lake Tahoe from multiple points along the beach, this viewpoint provides for a representative assessment of changes in views affecting all viewers along the beach. This viewpoint provides views of the majority of the beach and the major features that would be visible from the beach; it provides a view of the proposed pier at an appropriate distance to view the entire structure and its visual context; and it is within the TRPA-designated scenic recreation area for Meeks Bay Resort. In the existing image, the view of Lake Tahoe is uninterrupted and intact. The lake appears flat and slightly textured and is crystal blue/green in color. The shoreline and background are dominated by conifer trees and distant mountain peaks. The quality of the existing view is good because of the open and highly intact view of the lake, it's crystal blue/green coloring, and the lack of human made structures in the viewshed.

In the simulation of Alternative 1, the new pier and fireboat are visible in the center of the simulation and are the most prominent new visible features of Alternative 1. These features are noticeable and dominate the view from the project area towards the lake. Their mass, horizontal and vertical elements rising above the lake contrast with the flat appearance of the lake. These features partially obscure the view of Lake Tahoe and reduce the coherence a of views from Meeks Bay toward Lake Tahoe.

As shown in Figure 3.2-11, the new pier and emergency services boat would substantially degrade the overall visual character quality of the view These new features would reduce the coherence of the view by introducing new human-made features that partially block an existing unobstructed view of Lake Tahoe. This would reduce the scenic rating for the TRPA-designated scenic recreation area at Meeks Bay Resort. Therefore, the impact under Alternative 1 would be **significant**.



Source: Figure produced by Ascent Environmental in 2021.

Figure 3.2-11 View of Meeks Bay from Viewpoint 2 under Existing Conditions/No Action Alternative and Alternative 1

<u>Alternative 2: Restoration with Pedestrian Pier</u>

Implementation of Alternative 2 would result in changes that could affect views toward Lake Tahoe from the project area, including from the TRPA-designated scenic recreation area Meeks Bay Resort. Although many of the proposed changes under Alternative 2 would not affect views of Lake Tahoe (see discussion above under "Alternative 1: Restoration with Boating Pier"), Alternative 2 includes a 100-foot-long pedestrian pier in the same location at the 300-foot-long boating pier under Alternative 1. The pedestrian pier would be a floating design, with the pier deck floating directly on the surface of the water with pilings extending above the elevation of the pier deck under most lake levels.

Figure 3.2-12 shows the existing and future views under Alternative 2 from Viewpoint 2 on the northern end of Meeks Bay facing south toward southern Meeks Bay and Lake Tahoe. In the existing image, the view of Lake Tahoe is uninterrupted and intact as described above under Alternative 1. In the simulation of Alternative 2, the pedestrian pier is slightly visible toward the center of the image and contrasts with Lake Tahoe in form and color. However, the pedestrian pier does not dominate the viewshed. Although the presence of the pedestrian pier detracts from the view of Lake Tahoe, because of its small size and low-profile design, it does not substantially detract from the view and Lake Tahoe remains the dominant feature in the viewshed. Therefore, while it detracts from the scenic quality of the view, it would not reduce the scenic score for the TRPA-designed scenic recreation area Meeks Resort and the impact would be **less than significant**.

<u>Alternative 3: Restoration with No Pier</u>

Alternative 3 would result in many of the same shoreline and upland features as Alternatives 1 and 2, which would not be visible in views from the project area toward Lake Tahoe. Alternative 3 would not include a pier but would include a small moveable, universally accessible paddlecraft launch structure on the south end of the bay. The facility would include a floating platform or dock of up to 30 feet in length and 20 feet in width that could move with lake level fluctuations. It would include a ramp for paddlecraft launching. It could include handrails along the launch ramp, but otherwise would not include features extending above the floating platform/dock. While the exact design of the paddlecraft launch has not been determined, it is conservatively estimated to result in up to 100 sq. ft. of visible mass when calculated consistent with the visible mass calculations for piers. The launch facility would be medium tan color, or other earth tone color that blends into the surroundings.

The view of Lake Tahoe from Viewpoint 2 under Alternative 3 would be similar to the view under existing conditions given the location of the paddlecraft structure at the south end of Meeks Bay and its small size. Although it would be visible from southern Meeks Bay looking out toward Lake Tahoe, it would be small and colored consistent with its surroundings and therefore would not substantially detract from the view or reduce the scenic score for the TRPA-designated scenic recreation area Meeks Resort. Thus, the impact would be **less than significant**.

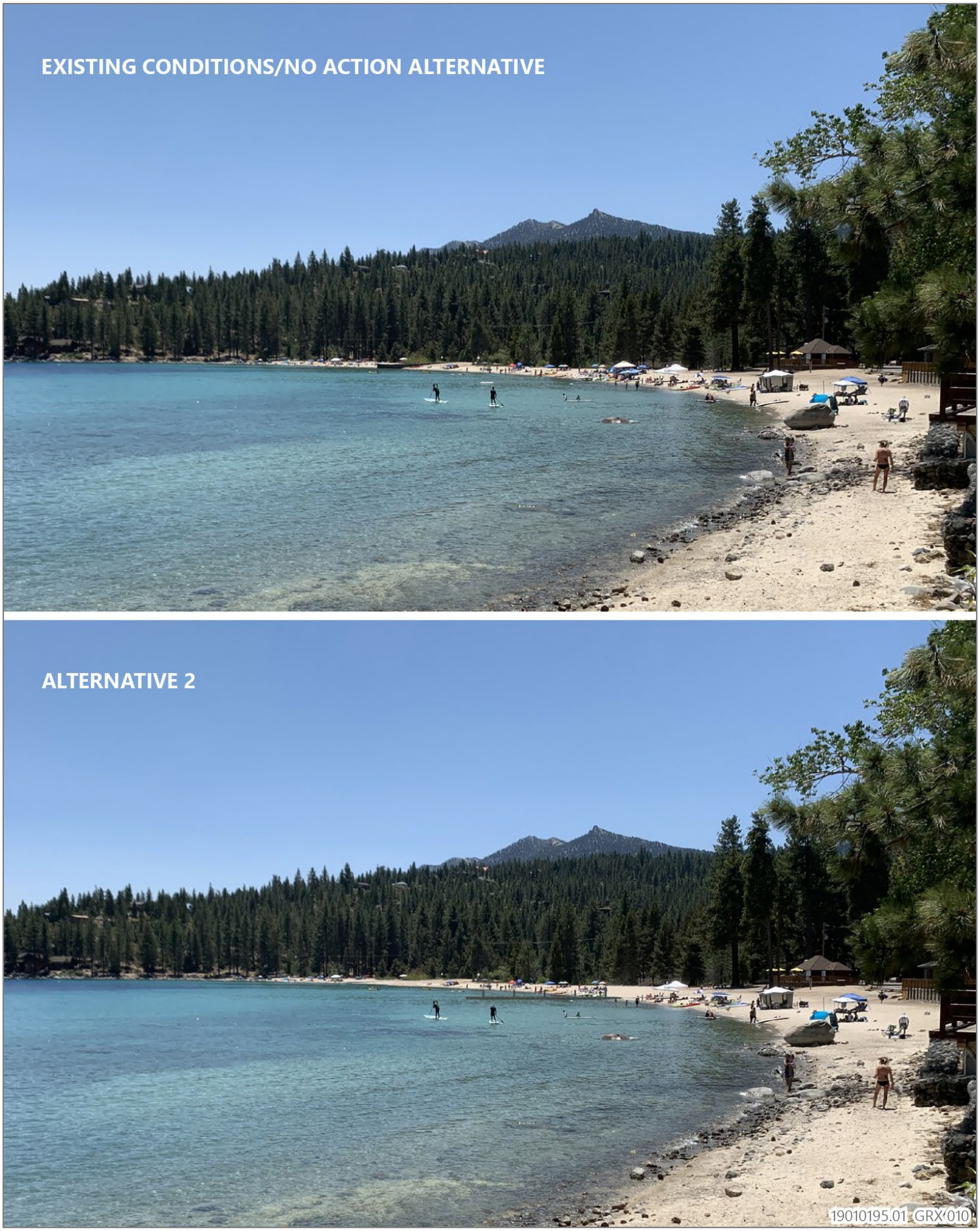
<u>Alternative 4: Preferred Alternative</u>

Alternative 4 would include the same moveable, universally accessible paddlecraft launch as described under "Alternative 3: Restoration with No Pier" above. No other features or structures proposed under Alternative 4 would be visible in views from the project area toward Lake Tahoe. Therefore, for the reasons described above for Alternative 3, the impact under Alternative 4 would be **less than significant**.

Mitigation Measures

No mitigation would be required for Alternatives 2, 3, and 4.

As described above, Alternative 1 would result in a significant impact because the new pier and emergency services boat would substantially degrade the overall visual character quality of views from the project area facing Lake Tahoe, including from the TRPA-designated scenic recreation areas at Meeks Bay Resort and Meeks Bay Campground. The new pier and fireboat would be the most prominent new visible features of Alternative 1, which would dominate the view from the project area towards the lake. Because the affected view is the localized view form the beach within the project area towards the lake, mitigation would be required to reduce or avoid degradation of views from the beach facing Lake Tahoe. While it could be feasible to incorporate additional scenic enhancement elsewhere in the project area or nearby vicinity (e.g., undergrounding utilities, vegetative screening of structures), these enhancements would not improve the degraded view from the beach and would not avoid or reduce the significant impact.



Source: Figure produced by Ascent Environmental in 2021.

Figure 3.2-12 View of Meeks Bay from Viewpoint 2 under Existing Conditions/No Action Alternative and Alternative 2

Modifications to the pier design and location were considered as potential mitigation approaches. As described in Section 2.6.1, "Alternative 1 Boating Pier," in Chapter 2, the proposed pier already complies with TRPA design standards that minimize the visual prominence of the structure. These include color requirements, and open design that minimizes pilings, and limits on features extending above the pier deck unless necessary for public safety. The impacts to the view could be reduced by shortening the pier. However, as described in Section 2.6.1, the pier must be approximately 300 feet long to reach a lakebed elevation of 6,217 feet LTD, which would allow for motorized boat access during typical low water conditions. If the pier were shortened, it would not effectively provide motorized boat access, which is a primary purpose of the alternative that is intended to reduce significant impacts to motorized boating access.

Relocating the pier to another point on the beach was also considered as a mitigation approach. Alternative pier locations were considered in coordination with stakeholders during the alternative development process. Relocating the pier to the south end of the project area could result in introducing boating activity that would disrupt existing beach and campground uses and disturb nearby residents south of the project area. Relocating the pier to the north end of the project area would create access challenges and conflicts with the existing cabin uses. Relocating the pier farther north, to the north side of the Kehlet mansion would result in difficult access for visitors, alter the existing recreation uses at the Kehlet mansion, which serves as a private rental for events, and potentially degrade historic resources and be infeasible to construct. Access for this pier would require substantial grading and potential significant impacts to the other historic cabins at Meeks Bay Resort. More importantly, relocating the pier to a different location on the beach would still result in degradation of views toward Lake Tahoe from the beach. With a relocated pier, the disruption to views would affect different portions of the beach to different extents than with the pier as proposed, but it would still substantially degrade views from a TRPA-designated scenic recreation area resulting in a significant impact.

As described above, there is no additional feasible mitigation that would reduce the impact of the proposed pier in Alternative 1, while still achieving the intent of Alternative 1.

Significance after Mitigation

As described above, no feasible mitigation would avoid or reduce the impact of Alternative 1 on views toward Lake Tahoe from the project area. Therefore, Alternative 1 would remain **significant and unavoidable**.

Impact 3.2-3: Substantially Degrade Views from SR 89

No structures would be constructed or demolished and the creek would not be restored under the No Action Alternative. Therefore, views from SR 89 would not be altered and there would be **no impact** under the No Action Alternative. Alternatives 1 through 4 would result in changes that would be visible from SR 89, including the updated and widened bridge, the new multi-use path and bridge, and the restoration of Meeks Creek and lagoon. Because most of the changes that would occur under Alternatives 1 through 4 would be screened from view by the existing trees in the project area, and the changes that would be visible from SR 89 would be consistent with the existing landscape and not substantially alter or degrade existing views of the project area from SR 89, the impact under Alternatives 1 through 4 would be **less than significant**.

Views from SR 89 into the project area are limited by the dense trees throughout the project area. Only project features near SR 89 would have the potential to be visible from SR 89; therefore, only proposed non-shoreline features are evaluated under each alternative in this section.

No Action Alternative

No visible changes would be evident from SR 89 under the No Action Alternative. Therefore, there would be no changes to the scenic quality or character of the project area and views for SR 89 would not be altered. There would be **no impact** under the No Action Alternative.

Alternative 1: Restoration with Boating Pier

The stone railings on the existing SR 89 bridge contribute to the scenic quality of human-made features along the roadway travel unit (see Figure 3.2-13). The replaced SR 89 bridge would be widened and include a new multi-use path, which would be visible to motorists. The addition of a multi-use path along and adjacent to SR 89 would not detract from the existing views from SR 89 because it would be consistent in color and marking to the existing

Source: Photograph taken by Ascent Environmental in 2021.

Stone Railing of SR 89 Bridge over Meeks Creek

Source: Photograph taken by Ascent Environmental in 2021.

View of Meeks Creek from Roadway Scenic Resource 7.4 Looking East from SR 89 Bridge

Figure 3.2-13 Bridge Photographs

highway and would provide a more orderly appearance to the existing road shoulder. Although the existing SR 89 bridge would be replaced and would be widened to include a multi-use path, the new bridge would be designed to replicate the look of the existing bridge railings. The new railings would closely mimic the appearance of the existing stone railings as shown in Figure 3.2-13. The replaced railings would be constructed of stone or materials that closely mimic the appearance of natural stone, such as molded and hand painted concrete. Thus, the bridge replacement would retain the appearance of the existing stone railings and would not substantially degrade views from SR 89.

Meeks Creek is visible briefly as motorists cross the SR 89 bridge, as shown in Figure 3.2-13. TRPA-designated Roadway Scenic Resource 7.4 is located on the SR 89 bridge and includes views into the project area facing downstream (east) along the creek corridor as shown in Figure 3.2-13. The natural appearance of the creek and surrounding vegetation contributes positively to the variety of natural scenery along SR 89 in this roadway travel unit and to the quality of Roadway Scenic Resource 7.4. The restoration of Meeks Creek and lagoon would alter views of the creek and riparian vegetation as seen from SR 89. During construction, views of the creek would be degraded due to the presence of equipment, materials, and active earthwork. However, these changes would be temporary and short term. Over the long-term, the creek would continue to appear as a natural creek corridor containing native riparian vegetation. The creek channel directly downstream from SR 89 would be raised, which would increase groundwater levels and improve the diversity and vigor of riparian vegetation. Steep eroding banks would be replaced with bio-engineered bank stabilization constructed of natural materials such as willow plantings, logs, and rocks. Adjoining areas would be replanted with native riparian vegetation, which would increase the extent of riparian vegetation and contribute positively to the diversity of views of natural features from SR 89. Overall, the restored creek would continue to appear as a natural creek, which would not detract from or degrade the views from SR 89 or from Roadway Scenic Resource 7.4.

Under Alternative 1, the Meeks Bay Resort Campground, on the south side of the project area, would be reconfigured and the total number of campsites would be slightly increased or decreased as needed to accommodate an improved layout, from the current 40 sites to 36–42 sites. Over time, some campsites in the campgrounds could be replaced with alternative camping facilities such as yurts, cabin tents, or camping cabins. The number of alternative camping facilities would not exceed 50 percent of the total number of campsites. The replacement of campsites with yurts, cabin tents, or camping cabins would result in permanent facilities that would be more visible than regular tents, particularly in campsites near the SR 89. Views of the project area from SR 89 include tents and RVs using the campgrounds, overhead powerlines, a large stone wall and other fencing separating the shoulder of SR 89 from the campgrounds within the project area, and large trees. Given the presence of several non-natural features in the viewshed from SR 89 that contrast with the natural environment in color and form and reduce visual unity and intactness, the existing visual character and quality of views from SR 89 is moderate. Similarly, the yurts and tent cabins would likely be more visible than regular tents, and be a permanent presence in the campgrounds. However, they would be visually consistent with current views from SR 89 of RVs and tents in the project area and would not substantially alter views. Nor would these changes be highly evident to motorists travelling along SR 89 due to the distance of these changes from the roadway and the speed at which motorists are traveling.

Two multi-use paths would be constructed to connect the existing Tahoe Trail, which would end in the northern portion of the project area and provide access through the project area to SR 89 on the south where it would eventually connect to a proposed multi-use path along SR 89. This would include a multi-use path along SR 89 crossing Meeks Creek on the new SR 89 bridge and a new multi-use path bridge across the restored creek located approximately 450 feet east of SR 89. This multi-use path bridge would be constructed of composite, wood, or metal materials with natural colors that would be consistent with TRPA and USFS design standards, which would minimize contrasts with the natural environment. Because of the distance from the highway and the surrounding trees and vegetation, people traveling on SR 89 would likely not be able to see the bridge. Reconfiguration or improvements would be made to the existing parking areas for resource protection and to achieve more efficient use of the area, although overall quantities of parking would remain the same. These proposed changes would not be discernable to motorists traveling along SR 89 due to intervening trees, the speed at which motorists would be traveling, their focus being on the immediate vicinity of the road, and the minimal change to aesthetics that would occur.

Therefore, because most of the changes that would occur under Alternative 1 would be screened from view by the existing trees in the project area, and that the changes that would be visible from SR 89 would not substantially alter or degrade existing views of the project area from SR 89 or reduce the Forest Service MSI rating, the impact would be **less than significant**.

Alternative 2: Restoration with Pedestrian Pier

The replacement of the existing SR 89 bridge and restoration of Meeks Creek and lagoon would be similar to what would occur under Alternative 1. The only difference would be that two separate bicycle and pedestrian bridges would be constructed adjacent to the east side of the SR 89 bridge as opposed to one of the multi-use paths being accommodated along the SR 89 bridge. The separate bicycle and pedestrian bridge closest to SR 89 would introduce an additional human-made element into the view from SR 89 and TRPA-designated Roadway Scenic Resource 7.4. The second bicycle and pedestrian bridge would be located approximately 450 feet east of SR 89, far enough from SR 89 that it would likely not be visible. The addition of the bicycle and pedestrian bridge closest to SR 89 could create additional roadway distractions, which have the potential to detract from scenic quality. However, both bridges would be designed consistent with USFS and TRPA design standards, which require earth tone colors, prohibit reflective materials, and minimize the visual prominence of roadside structures. Scenic threshold monitoring conducted by TRPA in 2019 evaluated several similar bicycle and pedestrian paths with fencing, including north of the project area in Roadway Travel Unit 7 (Meeks Bay), in Roadway Travel Unit 26 (Sand Harbor), as well as a new multi-use path and bridge across Madden Creek in Roadway Travel Unit 11 (Homewood). In all cases, this monitoring determined that the new paths and bridge were clearly visible from the road but did not detract from scenic quality because they were consistent with expected facilities along roadways and complied with relevant design standards. Thus, it is reasonable to assume that the separate pedestrian and bicycle bridges proposed in Alternative 2 would not detract from scenic quality because they would be consistent with the same design standards.

As described in Section 2.7.2, "Alternative 2 Campgrounds," the campgrounds would also be similar to Alternative 1. The Meeks Bay Resort Campground, on the north side of the project area, would remain similar to its current condition with minor improvements as described under Alternative 1. The Meeks Bay Campground, on the south side of the project area would be reconfigured to provide additional privacy between campsites. The total number of campsites in this campground would be slightly increased or decreased as needed to accommodate an improved layout, from the current 40 sites to 36–42 sites. Like Alternative 1, some campsites in both campgrounds could be replaced with alternative camping facilities such as yurts, cabin tents, or camping cabins to provide a greater diversity of camping options. In addition, parking and circulation improvements under Alternative 2 would be similar to Alternative 1, and it would include a similar multi-use path and creek crossing as described above under Alternative 1. Therefore, because most of the changes that would occur under Alternative 2 are the same as or similar to Alternative 1, they would be screened from view by the existing trees in the project area, and the changes that would be visible from SR 89 would not substantially alter or degrade the Forest Service MSI rating, or existing views of the project area from SR 89 or Scenic Resource 7.4 for the same reasons described for Alternative 1. Therefore, the impact would be **less than significant**.

Alternative 3: Restoration with No Pier

The replacement of the existing SR 89 bridge and restoration of Meeks Creek and lagoon would be the same as Alternative 2. As with Alternative 2, Alternative 3 would result in the same multi-use paths and bridges, and would result in the same number of campsites that could be converted to alternative camping; however, the Meeks Bay Resort and Meeks Bay campgrounds would be expanded and reconfigured, for a total increase of 7 to 22 campsites in the project area. The Meeks Bay Campground would also be partially relocated away from SR 89 in the southwest corner of the project area to reduce noise in the campground. Overall, parking capacity would be increased by 14 spaces. On the south side of the project area, parking would be expanded to include 80 stalls in a new parking area near the entrance to the Meeks Bay campground in the southwest corner of the project area. A drop-off area near the beach and day-use area would be provided, which would include up to 10 handicap parking spaces.

Although there would be additional camping and parking expansions under Alternative 3, camping and parking facilities already exist in the project area and the potential increase of up to 22 campsites and 14 parking spaces would not substantially alter views of the project area from SR 89. Furthermore, the parking area would be screened by an existing wall along SR 89 and would be consistent with existing views of parked vehicles along this section of SR 89. For this reason and the reasons described above for Alternatives 1 and 2, the impact would be **less than significant**.

Alternative 4: Preferred Alternative

The replacement of the existing SR 89 bridge that would be widened to include a multi-use path, the installation of a bicycle and pedestrian bridge for the second multi-use path, and restoration of Meeks Creek and lagoon would be the same as Alternative 1. As with Alternative 1, Alternative 4 would include a multi-use path adjacent to SR 89, which would not detract from the existing views from SR 89 and would be consistent in color and marking to the existing highway. The Meeks Bay Resort Campground on the north side of the project area would remain similar to its current condition with minor improvements as described under Alternative 1. The Meeks Bay Campground on the south side of the project area would be reconfigured to provide additional privacy between campsites. The total number of campsites in this campground would be slightly increased or decreased as needed to accommodate an improved layout, from the current 40 sites to 36–42 sites. Like Alternative 3, overall parking capacity under Alternative 4 would be increased by 14 spaces. At Meeks Bay Resort, parking capacity would remain the same as under existing conditions (300 spaces). On the south side of the project area, parking would be expanded to include 90 stalls in an expanded parking area near the same location as the existing parking lot between the campground and day-use area.

Although there would be camping and parking expansions and reconfigurations under Alternative 4 relative to existing conditions, camping and parking facilities already exist in the project area and the potential changes would be mostly screened from view by existing trees and a wall along SR 89. These changes would not substantially alter views of the project area from SR 89 or Roadway Scenic Resource 7.4. For this reason, and the reasons described above for Alternatives 1, 2, and 3, the impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.2-4: Degrade the Visual Character of the Project Area

No facilities would be constructed or demolished, and no visible changes would occur under the No Action Alternative; accordingly, there would be no changes to the scenic quality or character of the project area. Therefore, there would be **no impact** under the No Action Alternative.

Under Alternatives 1, 2, 3, and 4, several proposed changes would improve the visual character and quality of the project area, including the restoration of Meeks Creek and lagoon, removal and replacement of shoreline erosion control features with natural-appearing erosion prevention features. Other features of the alternatives would be consistent with the existing visual character of the area, such as parking and campsite reconfigurations. The shoreline structures proposed in the action alternatives are common along the Lake Tahoe shoreline and therefore, would not substantially alter the visual character of the area or reduce the Forest Service MSI rating. The impact of Alternatives 1, 2, 3, and 4 would be **less than significant**.

No Action Alternative

No structures or facilities in the project area would change under the No Action Alternative; accordingly, there would be no changes to the scenic quality or character of the project area. Therefore, there would be **no impact** under the No Action Alternative.

Alternative 1: Restoration with Boating Pier

Implementation of Alternative 1 would result in several changes that could affect the visual character of the project area. As described under "Scenic Recreation Areas" in Section 3.2.2, "Environmental Setting," above, Meeks Bay Resort and Meeks Bay Campground are TRPA-designated scenic recreation areas and are rated as having high scenic integrity under the Forest Service Scenic Management System From Meeks Bay Resort, views focus out toward the openness of the lake, but behind the beach the forest and various structures restrict views. In the TRPA Lake Tahoe Basin Scenic

Resource Evaluation scenic recreation areas inventory, it is noted that development on the southern peninsula has not been entirely sensitive to the natural character of the bay and additional development could alter it further. Although development for recreation uses at the resort itself has been intensive, the natural environment continues to dominate. The barrack-like cabins and associated retaining wall sited close to the lake's edge are called out specifically as detracting from the scenic quality of Meeks Bay Resort (TRPA 1993).

From Meeks Bay Campground, because the campsites are located in the forested portion of the area, viewing distances are short and no significant viewsheds are visible. The camping area is separated from the beach by an open field and a mature stand of conifers. Two parking areas are located in this space, once sited in the trees and the other just outside the stand of trees in the open space. The beach itself is a wide, deep, and flat area covered with white sand. The facilities and natural features of the Meeks Bay Campground are somewhat limited. The beach, though visually appealing, is not distinctive. Views are of good scenic quality and the sheltered enclosure of the bay adds to the uniqueness of the viewshed. It is noted that care must be taken in the development of the two peninsulas to retain the dominant natural setting (TRPA 1993).

Recommendations from the 1993 Lake Tahoe Basin Scenic Resource Evaluation for preserving the scenic quality of Meeks Bay Resort and include using materials that blend into the surrounding landscape and redesign of the parking areas and pedestrian circulation to eliminate existing visual clutter. In addition, recommendations for mitigation of the visual impact of the Meeks Bay Resort multi-unit structures at the north end of the beach (TRPA 1993). Recommendations for preserving the scenic quality of Meeks Bay Campground include landscaping several areas to better integrate them with the surrounding forest, preserving existing trees as a visual screen between structures and major public use areas, structures should not be allowed to rise above the forest canopy, any new development should be set back from the lake's edge to preserve its natural appearance, use of materials that blend into the surrounding environment should be encouraged, and policies should be established to require any new development to revegetate all slopes exposed by grading (TRPA 1993).

Alternative 1 includes the removal of the two motel style cabin units in the Meeks Bay Resort and replacement by new cabins farther inland (refer to Figure 3.2-5). The new cabins would be dark brown in color and their form would have vertical elements, consistent with the surrounding trees. The relocated cabins would blend better with the dense forested areas along the shoreline than under existing conditions and would not dominate views of the beach like the existing cabins. Overall, this element of Alternative 1 would improve the visual character of the project area by relocating and redesigning the cabins to visually blend with the natural surroundings, would contribute to maintaining the high MSI rating, and would be consistent with the recommendations for preserving the scenic quality of Meeks Bay Resort in the 1993 Lake Tahoe Basin Scenic Resource Evaluation (TRPA 1993). Alternative 1 also includes restoration of Meeks Creek and removal and replacement of shoreline erosion control features with natural-appearing erosion prevention features such as boulders and native vegetation. These features of Alternative 1 would also improve the overall visual character of the project area by using natural-appearing materials and returning the landscape to a more natural condition consistent with recommendations from the Lake Tahoe Basin Scenic Resource Evaluation and a high MSI rating.

In addition, under Alternative 1, a new 300-foot-long boating pier would be developed and the Meeks Bay Resort Campground and Meeks Bay Campground, would be reconfigured and the total number of campsites would be slightly increased or decreased as needed to accommodate an improved layout. Over time, some campsites in the campgrounds could be replaced with alternative camping facilities such as yurts, cabin tents, or camping cabins. Two multi-use paths would be constructed to connect the existing Meeks Bay Bike Trail, which ends in the northern portion of the project area and would provide access along the road and through the project area to SR 89 on the south where it would eventually connect to a proposed multi-use path along SR 89. Reconfiguration or improvements would be made to the existing parking areas for resource protection and to achieve more efficient use of the area, although overall quantities of parking would remain the same. In addition, the existing SR 89 bridge over Meeks Creek would be replaced and widened to accommodate the new multi-use path along the road and the multi-use path through the project area would include construction of a multi-use path bridge over Meeks Creek. Campsite and vehicle/pedestrian reconfigurations would not substantially alter the visual character of the project area because the reconfigurations would not result in any substantial changes to the locations or quantities of available parking or campsites and would be visually consistent with the existing condition of the area. The new SR 89 bridge would be designed to replicate the look of the existing bridge, including the stone railings as shown in Figure 3.2-13, keeping with the existing visual character. The new multi-use path bridge would introduce a new human made feature into the project area. However, that bridge would be consistent with TRPA and USFS design standards, which would minimize contrasts with the natural environment, would be offset by the removal of human-made features at the marina, and would be consistent with the existing type of level of development at the site. The 300-foot-long boating pier would alter the visual character along the shoreline by adding a new recreation element and visual mass in Meeks Bay. It would be a visually prominent feature that would degrade views of the lake. However, piers are common around Lake Tahoe and are consistent with the types of recreation activities that occur in the project area; therefore, the presence of a new boating pier at Meeks Bay would not substantially degrade the existing visual character of the overall area or change the Forest Service MSI rating.

Given that several of the proposed changes under Alternative 1 would improve the visual character and quality of the area and are consistent with the recommendations for the TRPA-designated scenic recreation areas, and others would be consistent with the existing visual character of the area, the impact under Alternative 1 would be **less than significant**.

Alternative 2: Restoration with Pedestrian Pier

As with Alternative 1, this alternative would involve removal of the marina and full restoration of Meeks Creek and lagoon, campground alterations involving a slight increase or decrease in total number of campsites and some replacement with alternative camping facilities, parking and circulation improvements, and SR 89 bridge replacement. However, as discussed under Impact 3.2-3, this alternative would include two multi-use paths over Meeks Creek. As described above under "Alternative 1: Restoration with Boating Pier," these proposed changes would either improve the visual character and quality of the area and would be consistent with the recommendations for the TRPA-designated scenic recreation areas or would at least be consistent with the existing visual character of the area.

Alternative 2 includes a new, floating 100-foot pedestrian pier. It would be a medium tan color or other earth tone, consistent with TRPA design standards. The pedestrian pier would change the visual character of the area by adding a new recreation element that is visually prominent in Meeks Bay. However, piers are common around Lake Tahoe and are consistent with the types of recreation activities that occur in the project area; therefore, the presence of a new pedestrian pier at Meeks Bay would not substantially degrade the existing visual character of the overall area or change the Forest Service MSI rating.

Given that several of the proposed changes under Alternative 2 would improve the visual character and quality of the area and others would be consistent with the existing visual character of the area, the impact under Alternative 2 would be **less than significant**.

Alternative 3: Restoration with No Pier

Under Alternative 3, the same restoration of Meeks Creek and lagoon that would occur under Alternatives 1 and 2 would be implemented, and similar alterations to campgrounds and parking and circulation would occur. This alternative would include two multi-use paths across Meeks Creek with one bridge located near SR 89 and the second bridge located more internally to the project area, similar to that described above for Alternative 2. Overall, a total of 7–22 campsites would be added, and parking capacity would be increased by 14 spaces. Alternative 3 would also include moveable, universally accessible paddlecraft launch in the southern portion of the project area. The facility would include a floating platform or dock of up to 30 feet in length that could move with lake level fluctuations. It could include handrails along the launch ramp, but otherwise would not include features extending above the floating platform/dock. The launch facility would be dark to medium tan color, or other earth tone that blends into the surroundings. All of the components of Alternative 3 would be visually similar to existing conditions and consistent with the existing visual character of the project area and the existing Forest Service MSI rating. The paddlecraft launch facility would be small and would visually blend in with its surroundings. The restoration components of all alternatives would improve the visual character of the Meeks Creek area. Therefore, the impact to visual character under Alternative 3 would be **less than significant**.

Alternative 4: Preferred Alternative

As with Alternatives 1, 2, and 3, this alternative would involve removal of the marina and full restoration of the creek, lagoon, and barrier beach. Alternative 4 would include two multi-use paths through the project area with one path following the road and incorporated into the new SR 89 bridge (similar to Alternative 1) and one path traversing the creek on a separate bridge (similar to Alternatives 1, 2, and 3). Like Alternative 3, it would not include a pier but would include a moveable, universally accessible paddlecraft launch on the south end of the bay. As with Alternative 1, this alternative would remove the two motel-style cabins in the Meeks Bay Resort inland and replace them with three smaller cabin units farther inland while maintaining the existing overnight visitor capacity. This alternative would not relocate the parking on the south end of the project area, but it would expand parking capacity by 14 spaces. Meeks Creek restoration and the relocation of the motel style cabins farther from the shoreline would improve the visual character and quality of the project area by returning Meeks Creek to a more natural condition and improving shoreline views by moving the cabins farther inland. Like the other action alternatives, parking, circulation, and campground reconfigurations would not change the existing visual character of the area because visually, the changes would be consistent with existing conditions and existing Forest Service MSI rating. Therefore, the impact to visual character under Alternative 4 would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

CUMULATIVE IMPACTS

While scenic effects are generally limited to a particular viewshed depending on the visibility of specific features, localized effects on multiple viewsheds can combine to affect the cumulative scenic quality. To maintain scenic values in the Tahoe Basin, as mandated by the Tahoe Regional Planning Compact, the TRPA environmental thresholds include scenic standards for roadways, the shoreline, and public recreation areas and bike trails. As described in the most recent Threshold Evaluation (TRPA 2019), all scenic threshold categories are at or somewhat better than the target and are either trending toward moderate improvement or show little to no change. Thus, while there are localized scenic concerns in some portions of the Tahoe Basin, there is not an existing adverse cumulative effect associated with scenic quality in the Tahoe Basin. Of the cumulative projects identified in Table 3-2, only the Shoreline Plan could combine with the project to affect views from the project area. As documented in the Shoreline Plan EIS (TRPA 2018), buildout of the shoreline plan would not have significant effects on the scenic quality of the Lake Tahoe Basin due to required design standards, scenic offsets, and mitigation measures. In addition, there is little opportunity for additional shoreline structures to be developed within the same viewshed as the project because the viewshed is primarily public land and nearby private parcels mostly already include piers and would not be eligible for additional shoreline structures. As described in Section 3.2.3, "Environmental Impacts and Mitigation Measures," Alternatives 2, 3, and 4 would not degrade the scenic quality ratings for the roadway or shoreline unit, or the TRPA-designated scenic recreation areas, and would therefore not contribute to a cumulative effect on scenic resources. Alternative 1 would result in a significant impact to views of Lake Tahoe from Meeks Bay, which could degrade the TRPA scenic recreation area threshold for the Meeks Bay Resort. However, there is not an existing adverse cumulative condition related to the scenic quality of recreation areas and other past, present, and reasonably foreseeable projects would not degrade the scenic resources within the same viewshed. Therefore, the scenic impact of Alternative 1 would not combine with other reasonably foreseeable projects to create a new adverse cumulative condition. For these reasons, the action alternatives would have a **less than cumulatively considerable** impact on scenic resources.

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3.3 CULTURAL AND TRIBAL CULTURAL RESOURCES

This section analyzes and evaluates the potential impacts of the project on known and unknown cultural resources. Cultural resources include districts, sites, buildings, structures, or objects generally older than 50 years and considered to be important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. They include pre-historic resources, historic-era resources, and "tribal cultural resources" (the latter as defined by AB 52, Statutes of 2014, in PRC Section 21074).

Archaeological resources are locations where human activity has measurably altered the earth or left deposits of prehistoric or historic-era physical remains (e.g., stone tools, bottles, former roads, house foundations). Historical (or architectural) resources include standing buildings (e.g., houses, barns, outbuildings, cabins) and intact structures (e.g., dams, bridges, roads, districts), or landscapes. A cultural landscape is defined as a geographic area (including both cultural and natural resources and the wildlife therein), associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values. Tribal cultural resources were added as a resource subject to review under CEQA, effective January 1, 2015, under AB 52 and includes site features, places, cultural landscapes, sacred places or objects, which are of cultural value to a tribe.

3.3.1 Regulatory Setting

FEDERAL

Section 106 of the National Historic Preservation Act

Federal protection of resources is legislated by (a) the National Historic Preservation Act (NHPA) of 1966 as amended by 16 U.S. Code 470, (b) the Archaeological Resource Protection Act of 1979, and (c) the Advisory Council on Historical Preservation. These laws and organizations maintain processes for determination of the effects on historical properties eligible for listing in the National Register of Historic Places (NRHP).

Section 106 of the NHPA and accompanying regulations (36 CFR Part 800) constitute the main federal regulatory framework guiding cultural resources investigations and require consideration of effects on properties that are listed in or may be eligible for listing in the NRHP. The NRHP is the nation's master inventory of known historic resources. It is administered by the National Park Service and includes listings of buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, and cultural districts that are considered significant at the national, state, or local level.

The formal criteria (36 CFR 60.4) for determining NRHP eligibility are as follows:

1. The property is at least 50 years old (however, properties under 50 years of age that are of exceptional importance or are contributors to a district can also be included in the NRHP);
2. It retains integrity of location, design, setting, materials, workmanship, feeling, and associations; and
3. It possesses at least one of the following characteristics:

   Criterion A Association with events that have made a significant contribution to the broad patterns of history (events).

   Criterion B Association with the lives of persons significant in the past (persons).

   Criterion C Distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant, distinguishable entity whose components may lack individual distinction (architecture).

   Criterion D Has yielded, or may be likely to yield, information important to prehistory or history (information potential).

Listing in the NRHP does not entail specific protection or assistance for a property but it does guarantee recognition in planning for federal or federally assisted projects, eligibility for federal tax benefits, and qualification for federal historic preservation assistance. Additionally, project effects on properties listed in the NRHP must be evaluated under CEQA.

The National Register Bulletin also provides guidance in the evaluation of archaeological site significance. If a heritage property cannot be placed within a particular theme or time period, and thereby lacks "focus," it is considered not eligible for the NRHP. In further expanding upon the generalized National Register criteria, evaluation standards for linear features (such as roads, trails, fence lines, railroads, ditches, and flumes) are considered in terms of four related criteria that account for specific elements that define engineering and construction methods of linear features: (1) size and length; (2) presence of distinctive engineering features and associated properties; (3) structural integrity; and (4) setting. The highest probability for National Register eligibility exists within the intact, longer segments, where multiple criteria coincide.

Advisory Council on Historic Preservation

Under federal law, the Criteria of Adverse Effect are set forth by the Advisory Council on Historic Preservation (ACHP) in its implementing regulations, 36 CFR Part 800. As codified in 36 CFR Part 800.4(d)(2), if historic properties may be affected by a federal undertaking, the agency official shall assess adverse effects, if any, in accordance with the Criteria of Adverse Effect.

The Criteria of Adverse Effect (36 CFR 800.5 [a][1]) read:

> An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the [NRHP] in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the [NRHP]. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.

36 CFR 800.5 (a)(2) reads:

> Adverse effects on historic properties include, but are not limited to:
>
> (i) Physical destruction of or damage to all or part of the property;
>
> (ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the [Secretary of the Interior's] Standards for the Treatment of Historic Properties (the Standards) (36 CFR part 68) and applicable guidelines;
>
> (iii) Removal of the property from its historic location;
>
> (iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
>
> (v) Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;
>
> (vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and
>
> (vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

TAHOE REGIONAL PLANNING AGENCY

Article V(c)(3) of the Tahoe Regional Planning Compact (Public Law 96-551) required the development of a conservation plan for the preservation, development, utilization, and management of scenic and other natural resources within the Tahoe Basin, including historic resources. TRPA accomplishes historic resource protection through implementation of its Goals and Policies and Code provisions as described below.

Tahoe Regional Plan

TRPA regulates growth and development in the Tahoe Region through the Regional Plan, which includes the Goals and Policies, Code of Ordinances, and other components.

The Goals and Policies establish guiding policies for each resource element. The Conservation Element (Chapter 4) of the Goals and Policies document includes a Cultural Subelement, that includes a goal (Goal C-1) to identify and preserve sites of historic, cultural, and architectural significance within the Tahoe Region, and policies to identify and protect historic and culturally significant landmarks (Policy C-1.1), and sites and structures designated as historically, culturally, or archaeological significance (Policy C-1.2) (TRPA 2012a:4-28).

Code of Ordinances

The Code is a compilation of the rules, regulations, and standards to implement the Regional Plan Goals and Policies. Adopted standards in the Code must be met by projects. TRPA recognizes sites, objects, structures, districts or other resources, eligible for designation as resources of historical, cultural, archaeological paleontological, or architectural significance locally, regionally, state-wide or nationally. Those resources must meet at least one of the criteria summarized below. Chapter 67 of the Code also provides for consultation with state historic preservation offices as well as the Washoe Tribe. Additionally, Standard 33.3.7 in Chapter 33 (Grading and Construction, Section 33.3, Grading Standards) addresses discovery of historic resources.

- **Resources Associated with Historically Significant Events and Sites.** Such resources shall meet one or more of the following: a) association with an important community function in the past; b) association with a memorable happening in the past; or c) contain outstanding qualities reminiscent of an early state of development in the region.
- **Resources Associated with Significant Persons.** Such resources include: a) buildings or structures associated with a locally, regionally, or nationally known person; b) notable example or best surviving works or a pioneer architect, designer or master builder; or c) structures associated with the life or work of significant persons.
- **Resources Embodying Distinctive Characteristics.** Resources that embody the distinctive characteristics of a type, period, or method of construction that possess high artistic values or that represent a significant and distinguishable entity but whose components may lack individual distinction. Works of a master builder, designer, or architect also are eligible. Resources may be classified as significant if they are a prototype of, or a representative example of, a period style, architectural movement, or method of construction unique in the region, the states, or the nation.
- **State and Federal Guidelines.** Archeological or paleontological resources protected or eligible for protection under state or federal guidelines.
- **Prehistoric Sites.** Sites where prehistoric archaeological or paleontological resources that may contribute to the basic understanding of early cultural or biological development in the region.

STATE

California Register of Historical Resources

All properties in California that are listed in or formally determined eligible for listing in the NRHP are eligible for the CRHR. The CRHR is a listing of State of California resources that are significant within the context of California's history. The CRHR is a statewide program of similar scope and with similar criteria for inclusion as those used for the NRHP. In addition, properties designated under municipal or county ordinances are also eligible for listing in the CRHR.

A historic resource must be significant at the local, state, or national level under one or more of the criteria defined in the California Code of Regulations Title 15, Chapter 11.5, Section 4850 to be included in the CRHR. The CRHR criteria are similar to the NRHP criteria and are tied to CEQA because any resource that meets the criteria below is considered a significant historical resource under CEQA. As noted above, all resources listed in or formally determined eligible for the NRHP are automatically listed in the CRHR.

The CRHR uses four evaluation criteria:

1. Is associated with events or patterns of events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.
2. Is associated with the lives of persons important to local, California, or national history.
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master, or possesses high artistic values.
4. Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation.

Similar to the NRHP, a resource must meet one of the above criteria and retain integrity. The CRHR uses the same seven aspects of integrity as the NRHP.

California Environmental Quality Act

CEQA requires public agencies to consider the effects of their actions on "historical resources," "unique archaeological resources," and "tribal cultural resources." Pursuant to PRC Section 21084.1, a "project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." Section 21083.2 requires agencies to determine whether projects would have effects on unique archaeological resources.

Historical Resources

"Historical resource" is a term with a defined statutory meaning (PRC, Section 21084.1; determining significant impacts to historical and archaeological resources is described in the State CEQA Guidelines, Sections 15064.5[a] and [b]). Under State CEQA Guidelines Section 15064.5(a), historical resources include the following:

1. A resource listed in, or determined to be eligible by the State Historical Resources Commission for listing in, the California Register of Historical Resources (PRC Section 5024.1).
2. A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the Public Resources Code or identified as significant in a historical resource survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, will be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
3. Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource will be considered by the lead agency to be historically significant if the resource meets the criteria for listing in the California Register of Historical Resources (PRC Section 5024.1).
4. The fact that a resource is not listed in or determined to be eligible for listing in the California Register of Historical Resources, not included in a local register of historical resources (pursuant to Section 5020.1(k) of the Public Resources Code), or identified in a historical resources survey (meeting the criteria in Section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that the resource may be an historical resource as defined in PRC Section 5020.1(j) or 5024.1.

Unique Archaeological Resources

CEQA also requires lead agencies to consider whether projects will impact unique archaeological resources. PRC Section 21083.2(g) states that unique archaeological resource means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Tribal Cultural Resources

CEQA also requires lead agencies to consider whether projects will impact tribal cultural resources. PRC Section 21074 states the following:

a) "Tribal cultural resources" are either of the following:
   1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
      A) Included or determined to be eligible for inclusion in the California Register of Historical Resources.
      B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
   2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

Public Resources Code Section 21080.3

AB 52, signed by the California Governor in September of 2014, established a new class of resources under CEQA: "tribal cultural resources," defined in PRC 21074. Pursuant to PRC Sections 21080.3.1, 21080.3.2, and 21082.3, lead agencies undertaking CEQA review must, upon written request of a California Native American Tribe, begin consultation before the release of an environmental impact report, negative declaration, or mitigated negative declaration. PRC Section 21080.3.2 states:

> Within 14 days of determining that a project application is complete, or to undertake a project, the lead agency must provide formal notification, in writing, to the tribes that have requested notification of proposed projects in the lead agency's jurisdiction. If it wishes to engage in consultation on the project, the tribe must respond to the lead agency within 30 days of receipt of the formal notification. The lead agency must begin the consultation process with the tribes that have requested consultation within 30 days of receiving the request for consultation. Consultation concludes when either: 1) the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource, or 2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached.

California Native American Historical, Cultural, and Sacred Sites Act

The California Native American Historical, Cultural, and Sacred Sites Act applies to both state and private lands. The Act requires that upon discovery of human remains, construction or excavation activity cease and the County coroner be notified. If the remains are of a Native American, the coroner must notify the Native American Heritage Commission (NAHC), which notifies and has the authority to designate the most likely descendant of the deceased.

The Act stipulates the procedures the descendants may follow for treating or disposing of the remains and associated grave goods.

Health and Safety Code Sections 7050.5 and 7052

Section 7050.5 of the Health and Safety Code requires that construction or excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If determined to be Native American, the coroner must contact the NAHC. Section 7052 states that the disturbance of Native American cemeteries is a felony.

Public Resources Code Section 5097

PRC Section 5097 specifies the procedures to be followed in the event of the unexpected discovery of human remains on nonfederal land. The disposition of Native American burial falls within the jurisdiction of the NAHC. Section 5097.5 of the Code states the following:

> No person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

3.3.2 Environmental Setting

REGIONAL PREHISTORY

A recent synthesis of the prehistory of California's Northern Sierra region focuses on data from more than 100 excavated sites in the watersheds of the Mokelumne, Calaveras, Stanislaus, and Tuolumne rivers. With timeframes adjusted for modern calibration curves for radiocarbon dates, the chronological sequence for this region is divided into five major time periods: Early Archaic (11,500–7000 calibrated before present [cal BP]), Middle Archaic (7000–3000 cal BP), Late Archaic (3000–1100 cal BP), Recent Prehistoric I (1100–610 cal BP), and Recent Prehistoric II (610–100 cal BP) (NIC 2021).

Early Archaic Period (11,500–7000 cal BP)

There is little evidence of the Early Archaic Period in the Sierran foothill region watersheds. Stratified cultural deposits at two sites have yielded wide stemmed and large stemmed dart points, as well as handstones and millingslabs, cobble core tools, and large percussion-flaked greenstone bifaces (NIC 2021).

Middle Archaic Period (7000–3000 cal BP)

A number of buried sites have been found in the western Sierran foothills that date to the Middle Archaic Period. The cultural material is primarily distinguished by corner-notched dart points, with an occasional mortar and pestle, as well as the earliest house structures in association with large subterranean storage pits. Various stone pendants, incised slate, and stone beads, as well as soapstone "frying pans" and other vessels first appear in the local archaeological record during this period. The presence of atlatl weights and spurs in these deposits confirms that the dart and atlatl were the primary hunting implements (NIC 2021).

Late Archaic Period (3000–1100 cal BP)

Although Late Archaic lifeways, technologies, and subsistence patterns are similar to those of the Middle Archaic, a primary difference is an increase in the use of obsidian. Flaked stone assemblages found above 6,000 feet on the western slope are composed almost entirely of obsidian. The use of chert, which is only available in the foothills of the western Sierra below about 3,000 feet, is more common below 6,000 feet. This pattern suggests that groups who used the upper elevations of the western Sierra likely arrived from the east side where obsidian was the primary toolstone (NIC 2021).

Recent Prehistoric I Period (1100–610 cal BP)

The beginning of the Prehistoric Period coincides with a region-wide interval of reduced precipitation known as the Medieval Climatic Anomaly. Among the most important changes in the archaeological record of the western slope at this time was the introduction of the bow and arrow. This innovation appears to have been borrowed from neighboring groups to the north or east (NIC 2021).

Recent Prehistoric II Period (610–100 cal BP)

During the Recent Prehistoric II Period, bedrock milling features are established across the western Sierran landscape. The common occurrence of bedrock mortars suggests they became an important milling technology by the start of the period. Greater settlement differentiation is also evident during this period, with focused residential sites that often include house depressions and other structural remains, as well as with special-use localities consisting simply of bedrock milling features. Additional specialized technologies associated with the Recent Prehistoric II include stone drills and bone awls. Desert Side-notched arrow points, which were likely adopted from Great Basin people to the east, appear in the archaeological record. The increase in sedentism and population growth led to the development of social stratification, with a more elaborate social and ceremonial organization. Imported shell beads from coastal California first appear in appreciable amounts in Recent Prehistoric II village sites (NIC 2021).

ETHNOGRAPHY

The Lake Tahoe area is the nucleus of Washoe territory and is considered by the Washoe to be the "physical and spiritual center of the Washoe world". Prehistoric remains in the traditional Washoe territory are considered by the Washoe to be of their direct ancestors. Washoe Tribe members point to the lack of an oral tradition of migration or mass movement to support that the prehistoric history of the Tahoe Basin is the history of the Washoe Tribe. Their language is an isolate, with no recognizable relationships to the dominant Numic language family speakers to the east or any of the Penutian language stock Native American groups to the west (NIC 2021).

The ethnographically unique Washoe engaged in a seasonal round, relying on a diverse range of resources (fish, animals, and plants) that were harvested at specific times of the year. There was a tendency to live on the lakeshore or other lower elevation areas during colder times and move up to higher elevations in warmer times. Ethnographers have noted that the Washoe tended to avoid living at places regarded as sacred. Permanent winter villages were established by local groups on high ground near springs and rivers, usually at the ecotone of several ecological zones. Individual, circular houses were usually 12–15 feet in diameter and made of poles interlocked at the top like a cone. The sides were covered with bark slabs or thatched with grass, tule, and willow. Temporary summer dwellings were dome-shaped and thatched with grass and tule. The dead were disposed of in a variety of ways, including cremation, tree or scaffold exposure, burial under logs, or burial in remote places (NIC 2021).

To gather and collect food resources, the Washoe used a wide array of tools, implements, and enclosures. These included bows and arrows, traps and snares, nets, and rock blinds for hunting mammals and birds, and duck and other shaped decoys for hunting waterfowl. Communal hunting drives were used to take both large and small mammals, using large nets and clubs. Cedar bark and tule rafts were used for lake fishing and reaching bird eggs along the banks. Woven tools (seed beaters, burden baskets, and carrying nets) and sharpened digging sticks were used to collect plant resources (NIC 2021).

External relations with many Native American groups were not always friendly. There were frequent clashes when Washoe groups encountered the Sacramento River Valley Miwok, Maidu, and Nisenan in the foothill gathering locales, since each claimed the same resource areas. Conflicts have also been recorded with the Konkow to the southwest and the Atsugewi and Achumawi to the northwest; the Washoe would have had to cross Maidu and Northern Paiute lands to reach these groups (NIC 2021).

The Washoe had little or no contact with Europeans, except for the occasional fur trapper, until the 1849 gold rush and later, the 1858 silver strike in Virginia City, brought miners and settlers through their territory. Even after this, there is little mention of the Washoe in settler accounts for several years because they moved their camps away from European American immigrant settlements. Following attempts to drive off settlers and facing increasing attacks by

Paiutes who had acquired guns and horses, many Washoe sought accommodations with ranchers and farmers who had appropriated their lands. The Washoe soon were prevented from fishing in Lake Tahoe and other prime areas by European American commercial fisheries, and loggers cut down the piñon pine forests. Faced with such difficulties, many Washoe participated in the Ghost Dance of the 1870s, a religious movement that diffused among Great Basin native peoples and prophesized an end to European American expansion (NIC 2021).

By 1859, the Washoe were urged to move to proposed reservations at Pyramid and Walker lakes with the Paiutes, but Washoe leaders refused to take their people to the homeland of a tribe that was now their enemy. Between 1887 and 1917, the federal government, the state of Nevada, and sympathetic European Americans set aside small parcels of land for the Washoe, in mostly worthless land, including Dresslerville Colony, Reno-Sparks Colony, and Carson Colony in Nevada. In 1936, the Washoe Tribe of Nevada and California was formed under regulations of the 1934 Indian Reorganization Act and started taking actions on their own behalf. They submitted land compensation claims to the Indian Claims Commission along with other California and Nevada tribes, and received a monetary award in the 1970s, which the Washoe invested in lands and businesses (NIC 2021).

Although the Washoe escaped the waves of infectious epidemics encountered by California coastal and valley tribes, and avoided direct contact with European American immigrants, the miners and settlers affected their traditional collecting, hunting, and fishing areas heavily. For this reason, their numbers were reduced by 1910 to perhaps 800 from a pre-contact population estimated at 1,500. As of 1984, the Washoe estimated a population of 1,530 on the tribal rolls. Today, the tribe has four communities—one in California at Woodfords and three in Nevada at Carson, Dresslerville, and Stewart—and shares the Reno-Sparks Indian Colony with Paiute and Shoshone tribes (NIC 2021).

HISTORIC SETTING

Regional History

El Dorado was one of the original 27 counties in the state of California. Its history is tied to the discovery of gold at Sutter's Mill on the American River in Coloma in January of 1848. Travel over the Carson Pass on the Carson Emigrant Road through today's El Dorado County was profuse. By 1849, nearly 90,000 people had journeyed to the gold fields of California and the state was officially incorporated the next year, largely as a result of the Gold Rush. Coloma was the first county seat, although it was superseded by Placerville in 1857. A few of the mining camps, including Diamond Springs, El Dorado, and Placerville, developed into permanent towns with schools, stores, hotels, mills, residences, and roadways that continue to serve as economic and cultural centers in the County (NIC 2021).

Parts of the Carson Emigrant Road were superseded by the Placerville Road, which is now part of U.S. Route 50. There were also a variety of deviations (e.g., Johnson's Cutoff) by miners trying to find shorter routes to the gold fields. In 1859, the discovery of silver ore sparked a "reverse" rush by prospective miners to the Comstock Lode in Nevada. During the Comstock Era, roads in El Dorado County were used primarily to provide supplies and lumber to the mines, as well as a route for the miners heading east. The growth in traffic prompted the construction of private toll roads and an increasing number of teamsters in the area (NIC 2021).

The Lake Tahoe Wagon Road was completed in 1863 and provided an alternate route to traffic that normally went over Daggett Pass on Kingsbury Grade. The route became the first state highway in 1895. The Lake Tahoe Wagon Road was designated a link in the Lincoln Highway, the pioneering transcontinental automobile road in 1914-1915. After the Federal Aid Highway Act of 1925 created our current U.S. interstate road system, the route became part of U.S. Route 50. The road was oiled in 1927 and constructed as a modern highway in the early 1930s. While the majority of Old U.S. 50 has been obliterated following construction of modern U.S. 50 in the 1920s and 1930s, intact segments of varying lengths of the historic route have been recorded in El Dorado County and elsewhere (NIC 2021).

Beginning in the early 1860s, resorts were established at Lake Tahoe as fashionable summer retreats for the well-to-do. The first permanent settlements were at the mouth of McKinney Creek, Ward Creek, Glenbrook, and Tahoe City, where the Tahoe House was erected in 1864. When the Central Pacific Railroad reached Truckee in 1868, a wagon road was constructed from Truckee to the lake and the tourism boom was on (Ascent Environmental 2022).

Some of the earliest resorts on the California side of the lake included the Lake House at Al Tahoe, Rubicon Point Lodge, Grand Hotel at Tahoe City, and the Bellevue Hotel at Sugar Pine Point. After the turn of the century, when Tahoe had become more accessible due to the completion of the Tahoe Railway, which connected Truckee with Tahoe City, tourism surged, and additional resorts were constructed. Two of these, E. J. Baldwin's Tallac and the Bliss family's Tahoe Tavern in Tahoe City, were extremely luxurious for their time (Ascent Environmental 2022).

Project Area History

The first Euro-American recreational activity at Meeks Bay was provided by Sierra Nevada "Vade" Phillips Clark, who in the spring of 1906, leased the property to establish a resort. Vade constructed several structures at the bay, including tent cabins and a common dining hall. This endeavor lasted only a few summers and by 1920 there were no longer any structures at Meeks Bay. The next entrepreneurs to see potential in Meeks Bay were the Kehlet family. The Kehlets first camped on the shoreline in 1919. After their stay at Meeks Bay, Oswald Kehlet and son George were convinced that the west shore of Lake Tahoe would be a good choice for commercial development. In September of 1921 they purchased the 645-acre bayfront property and adjoining meadows (Ascent Environmental 2022).

Work on the resort began in the fall of 1921, with the opening of the campground. The headquarters building, the first structure completed at the bay, operated as the store, office, and lunch counter. The second structure to be erected was the residence for Oswald and his wife, Effie, in 1922. A recreation hall with a maple dance floor soon followed in 1923, as did the first six rental cabins. A bathhouse with running water for visitors was also added in 1923. At the end of the 1923 season, over 650 carloads of tourists had visited the resort, resulting in a gross income of $8,100. Expansion of the amenities the resort offered continued to evolve as the decade moved forward, and included an auto camp south of Meeks Creek. In 1924, nine more cabins were built to the west followed by a dozen more in 1926, and 11 more in 1927. A dining room was added to the south side of the dance hall in the fall of 1924. The tent cabins, known as the “Bungalows,” were converted to rentals, and in 1929, a 15-room hotel was erected at the northeast end of the Bungalows (Ascent Environmental 2022).

The early part of the 1930s were an exceptional time at the resort. It was during this time that many additional buildings were erected, and old ones were modernized. By 1932 the resort boasted 48 cabins and was so busy that two people were often required to man the front desk. It was also during this time that two residences for the Kehlet brothers were constructed; a modest home for Fred and Alice located southeast of the entrance, and a large “mansion” on the point for George and Marjorie. By 1935, the resort had 125 separate structures. During a busy summer day, one could expect over 1,200 people to visit the resort (Ascent Environmental 2022).

By 1940, Meeks Bay had developed into a thriving summer settlement, with Fred and George Kehlet and their sons actively participating in the management of the resort. The years during World War II, however, were difficult ones for the resort, though it continued to operate with a diminished staff. After the end of the war, the resort was again fully staffed, and the campsite north of the creek was replaced by employee housing and maintenance buildings. The campground was quite popular, with over 80 sites continuously occupied throughout the summer season (Ascent Environmental 2022).

In 1961, the same year that Fred Kehlet died, the Marina was completed. In 1962 the 1920s cabins (No. 1-8) on the beach were demolished and replaced by two motel type units. By the late 1960s, at least 5 other structures were demolished to be replaced by modern structures. By the end of the 1960s, environmental requirements for a sewer system turned the operation around. Each cabin was required to be hooked up to the sewer at estimate totaling $400,000 to $500,000. The resort was also told it needed to obtain other services and utilities, such as garbage pickup and water. As a result, George decided to sell the property (Ascent Environmental 2022).

In February of 1969, it was purchased by the Macco Corporation of Newport Beach. However, when their parent firm went bankrupt shortly thereafter, William Hewlett, with assistance from the League to Save Lake Tahoe, stepped in and purchased the property to hold until a suitable public entity could purchase it. Then in December of 1974, the newly formed Lake Tahoe Basin Management Unit of the U.S. Forest Service (LTBMU or U.S. Forest Service) purchased Meeks Bay Resort for $3,000,000 (Ascent Environmental 2022).

The 645-acre purchase included two beaches, a 135-slip marina, pier, campground with 150 campsites and 80 trailer sites, a pack station, 151 structures (primarily housekeeping cabins), a post office, theatre, dining hall, real estate office, donut shop, sporting goods store, soda fountain, general store, teen center and dance hall, snack bars, offices, beauty and barbers shops, and the Kehlet Mansion; all were noted as in poor condition. One of the first activities undertaken by the LTBMU was the proposed demolition of nearly all existing buildings, proposing to retain only two. The first structure to be demolished was the Effie Moon Kehlet Cabin, the oldest building in the complex. By 1975 the Boardwalk was gone, every cabin from No. 43 south through the dining room was demolished. The general store and hotel were planned for demolition, but time ran out before the snows fell. The following year the cabins by the road were taken, and the theatre collapsed. What was left of the resort was leased to Duke and Beverly Hubbard in 1977 (Ascent Environmental 2022).

The Hubbards continued to run the resort until Duke's death in 1997. According to the prospectus for development, the corporation was to provide minimum development, including buoys; managing and operating the motel units plus the Kehlet Mansion; maintaining the caretaker's residence, office, entrance station, and shop; as well as operating on-site food service, grocery store, and teen center; and maintaining the laundry facilities and house trailers for employees. Provision was also made for the development of an RV park. All the other facilities not under the operational permit, including the 1920s cabins, the store, lodge, hotel, maintenance buildings, and other facilities were demolished by the LTBMU by 1981. After the death of Duke Hubbard, five firms bid on the proposal to operate the resort for the next 20 years and the lease was awarded to the Washoe Tribe of California and Nevada, who continue to operate the Meeks Bay Resort under a special use permit with the U.S. Forest Service (Ascent Environmental 2022).

The Meeks Bay Campground was created in 1974 when LTBMU purchased the Meeks Bay Resort. The campground is located on the grounds of the former resort auto camp. The campground is owned by the LTBMU and operated by Tahoe Recreation. Under the auspices of the LTBMU, the campground was improved in the late 1970s and a new visitor's center erected in the summer of 1981, replacing the original store and resort headquarters (Ascent Environmental 2022).

RECORDS SEARCHES, SURVEYS, AND CONSULTATION

A California Historical Resources Information System (CHRIS) records search was conducted by the North Central Information Center on the campus of California State University, Sacramento for the project area and a 0.5-mile radius. The records search is to determine whether prehistoric or historic cultural resources have been previously recorded within the project area, the extent to which the project area has been previously surveyed, and the number and type of known cultural resources within a 0.5-mile radius. The results of the CHRIS search were returned on June 15, 2020. The archival search of the archaeological and historical records, national and state databases, and historic maps included the following sources:

- NRHP and CRHR,
- Historic Property Data File for El Dorado County,
- Archaeological Determinations of Eligibility,
- California Inventory of Historical Resources,
- California Historical Landmarks, and
- California Points of Historical Interest.

The CHRIS records search indicates that 16 prior cultural resource studies which include portions of the project area have been completed, and an additional nine have been completed outside the project area but within the 0.5-mile search radius. The CHRIS search also indicates that four cultural resources have been previously recorded within the project area, and ten additional resources have been previously identified within the 0.5-mile search radius. Of the four resources within the project area, two are prehistoric and two are historic built environment resources; these are described below.

An intensive pedestrian survey of the 50-acre landside portion of the project area was conducted between July 29 and 30, 2020. All landside portions of the project area were surveyed intensively using transects spaced no greater than 15 meters apart. During the survey, all visible ground surfaces were carefully examined for cultural material (e.g., flaked stone tools, tool-making debris, stone milling tools, or fire-affected rock), soil discoloration that might indicate the presence of a cultural midden, soil depressions and features indicative of the former presence of structures or buildings (e.g., postholes, foundations), and historic-era debris (e.g., metal, glass, ceramics). No previously unrecorded cultural resources of any kind were identified during the pedestrian survey.

An underwater field survey was carried out of the approximately 7-acre Meeks Bay beach and offshore area included in the zone designated for possible construction of a recreational pier. The survey was done in two stages. First, a drone was employed to provide aerial coverage of the Meeks Bay shoreline and offshore where bottom visibility was possible. Second, a SCUBA survey was done focusing on the proposed recreational pier location north of the outfall of Meeks Creek. This was accomplished under excellent diving conditions on May 6, 2021. The survey covered the offshore area designated for possible pier construction. It extended some 300 feet offshore to a depth of 35 feet. No cultural resources of significance were identified. There was a light scatter of modern trash and concrete anchors for a buoy line were noted. No stumps, historic artifacts, or sunken vessels were found to be present. The underwater survey concluded that the archaeological sensitivity for the area is low.

A built environment survey of the project area was conducted on July 23, 2021. The survey focused on buildings, structures, and objects 45 years or older within the project area that have the potential to be impacted by the current project. All resources surveyed were subject to written documentation on appropriate California Department of Parks and Recreation 523 forms as appropriate. Photographs that documented major characteristics and notable alterations were also taken.

Previously Known Archaeological Sites

P-09-005224 – *Mayala Wata*

This archaeological site was a prehistoric summer home site along Meeks Creek that was used by the Washoe Tribe during midsummer for fishing and plant resource gathering. Among the utilized natural resources readily available at *Mayala wata* were wild strawberries, raspberries, currant, rhubarb, camas, wild onions, lilies, and various seeds that were prominent in the Washoe diet. The site is still regarded as important by the Washoe Tribe who cooperatively manage the landscape with the U.S. Forest Service. The primary site locus of *Mayala Wata* is described as being located below the Meeks Creek Bridge on State Route 89 (SR 89); however, it was likely affected by bridge construction, and its informational value lost. Existing site boundaries appear to be incompletely defined and additional work would be needed to better characterize the resource. No previously unrecorded artifacts or features associated with the *Mayala wata* site were observed during the archaeological field survey.

P-09-003861 – Bedrock Mortar

This archaeological site is a granite bedrock mortar site with three distinct site loci. Locus A is within the Meeks Bay Resort portion of the project area, while Loci B and C are within the Meeks Bay Campground portion of the project area. Locus A is a low, flat granite boulder with five cupules, three small slicks, and a broad slick surrounding the others. Locus C is a granite boulder with two cupules and two slicks. Loci A and C were located and no change in overall site condition was noted. Locus B was not found, which is likely attributable to the fact that the small granite boulder with a single slick was located on the edge of a steep slope; it is likely that it has fallen downslope and is now submerged.

Historic Features

P-09-005052 – Meeks Creek Bridge

The Meeks Creek Bridge (P-09-005052) is located on SR 89 at Postmile 24.9, between the entrances to Meeks Bay Resort and Meeks Bay Campground. The bridge is a reinforced concrete double box culvert bridge (Caltrans Category 5) measuring 27 feet long and 44 feet wide. This bridge replaced an earlier wooden structure which was removed when State Route 38 (now SR 89) was rerouted and improved in 1928 to 1929. The most outstanding feature of this bridge is its rubble-masonry parapet with arches. These are original to the bridge as are the two 5-foot-wide sections of sidewalk. The bridge has not been significantly altered since it was constructed in 1929.

The Meeks Creek Bridge was constructed during a significant period of recreation and transportation improvements within the Lake Tahoe Basin, related to providing opportunities for travelers to have scenic experiences and easy access to recreation. However, that does not convey the significance of this event under NRHP/CRHR Criterion A/1. The Meeks Creek Bridge also does not have any direct associations with any individuals significant to history (Criterion B/2). Because the bridge is constructed from two concrete box culverts it does not possess artistic elements or outstanding engineering. Concrete box culverts are deemed a common bridge type that is not capable of possessing historic significance per the guidelines of the State Historic Bridge Inventory. Therefore, it is not significant under NRHP/CRHR Criterion C/3. The Meeks Creek Bridge is also not eligible under Criterion D/4 because it is unlikely to yield any additional important information about bridge engineering or transportation structures and construction details of the bridge are completely documented on As Built plans (Ascent Environmental 2022).

The bridge had previously been categorically determined not eligible for listing in the NRHP as part of the Caltrans Historic Bridge Inventory in 1986 as a common bridge type. As described in the Caltrans Standard Environmental Reference, "Category 5 bridges were determined not eligible through the Section 106 process, either through a consensus determination with SHPO or a formal determination of ineligibility by the Keeper of the National Register. The vast majority of bridges fall into this category" (Caltrans 2019: E-6.2-3). The CRHR evaluation was conducted as part of the built environment investigation for this project. Therefore, the Meeks Creek Bridge is neither a historic property for the purposes of Section 106 nor a historical resource for the purposes of CEQA.

<u>FS #05-19-1283 – Meeks Bay Resort Historic District</u>

The Meeks Bay Resort Historic District is a lodging and recreation property containing recreational and commercial buildings and structures on approximately 68 acres. It is owned by the LTBMU and is currently under lease to the Washoe Tribe of Nevada and California who are managing the property. The resort is bordered by Meeks Bay on the west, SR 89 to the east, Sugar Pine Point State Park to the north, and Meeks Creek to the south (Marvin 2011).

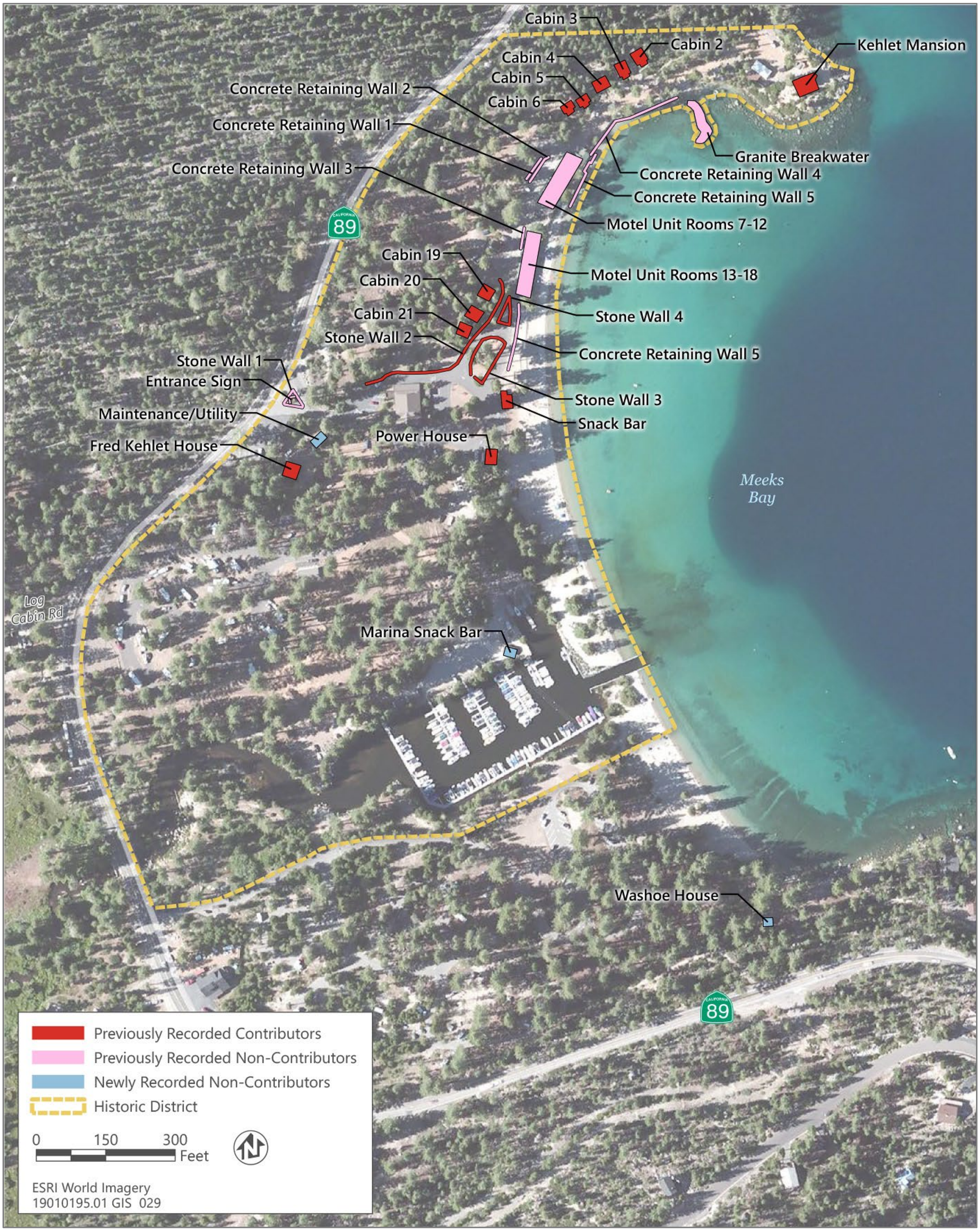
The Meeks Bay Resort Historic District was recorded and evaluated in 2011 for the LTBMU and appears eligible for the NRHP under Criteria A and C; therefore, the historic district automatically appears eligible for CRHR Criteria 1 and 3. The resort is associated with the expansion of the outdoor recreation movement and the auto-tourist camp resort industry associated with the newly created state highway system. The cabins and commercial buildings at the resort exhibit the distinctive qualities of rustic vernacular and popular architecture. As an assemblage of related buildings set along the west shore of Lake Tahoe, Meeks Bay Resort conveys a strong identity with rustic mountain tourist camps of the early twentieth century, a strong sense of handcrafted aesthetic in harmony with the natural and cultural landscape, and the reflection of a strong association with the development of the automobile and an improved state and national highway system (Marvin 2011).

The contributors to the historic district date from 1930 to 1939 and include: the George Kehlet Mansion, the Fred Kehlet Residence, the Snack Bar, the Powerhouse, Cabins 2, 3, 4, 5, 6, 19, 20, and 21, and the mortared stone walls. Non-contributing structures that would be affected by the project are the motel units, the marina, the concrete retaining walls, and the granite breakwater (Figure 3.3-1) (Marvin 2011).

The July 2021 pedestrian survey added the previously recorded Meeks Bay Resort sign (P-09-004454) into the boundaries of the historic district and defines it as a non-contributing element. Additionally, the boat rental building (located north of the Meeks Bay Marina) and the Washoe House (located at the south end of the Meeks Bay Campground) were incorporated into the boundaries of the historic district as non-contributing elements.

<u>TRPA Resource #49 – Meeks Bay</u>

The TRPA Historic and Cultural Inventory includes Meeks Bay as a designated historic resource. However, there is no additional information or documentation on this resource (TRPA 2012b:3.15-11).



Source: adapted by Ascent Environmental in 2020.

Figure 3.3-1 Meeks Bay Resort Historic District

Meeks Bay Campground

The Meeks Bay Campground had not been previously recorded or evaluated. The campground is bounded on the south and west by SR 89, on the north by Manicina Road (also known as Meeks Bay Access Road) and on the east by Meeks Bay Beach. The campground contains 40 developed campsites, roadways, signage, fencing, parking stalls, and restrooms. The campground does not appear to be eligible for listing in the NRHP or the CRHR as it is not associated with events that have made a significant contribution to history (Criterion A/1), does not have any direct associations with any individuals significant to history (Criterion B/2), is without noteworthy architectural qualities (Criterion C/3), and is not likely to yield any additional important information about our history (Criterion D/4) (Ascent Environmental 2022).

Tribal Cultural Resources

The NAHC was contacted for a search of their sacred land file (SLF) for traditional cultural resources within or near the project area. The results of the search returned by the NAHC on June 11, 2020, were negative for Native American cultural resources in the project area. A tribal consultation letter to initiate Section 106 consultation was sent to the Washoe Tribe on January 11, 2024. No concerns were returned to the Forest Service.

Native American Consultation under AB 52

The Lahontan Regional Water Quality Control Board (Lahontan RWQCB), as CEQA lead agency for the project, notified the two Native American tribes who had previously requested CEQA project notification under PRC Section 21080.3.2. On August 13, 2018, Lahontan RWQCB mailed AB 52 notices to the United Auburn Indian Community of the Auburn Rancheria (UAIC) and Wilton Rancheria. No response was received from UAIC. Wilton Rancheria requested consultation in January 2019, which is past the 30-day response window prescribed by PRC Section 21080.3.2. Therefore, there was no consultation under AB 52.

Additional Tribal Outreach

The NAHC provided contact information for the tribal groups affiliated with the region (the Washoe Tribe of Nevada and California and the Colfax-Todds Valley Consolidated Tribe) and recommended that they be contacted for more information on the potential for Native American cultural resources within or near the project area. A project information letter and map were mailed on June 16, 2020. The responses are summarized below.

Mr. Darrel Cruz, Director of the Washoe Tribe of Nevada and California, Tribal Historic Preservation Office/Cultural Resources Office, responded via email on June 16, 2020, indicating that the entire creek and meadow system is a culturally relevant area known to the tribe as *Mayala wata*. Mr. Cruz also requested a copy of the completed cultural report, which was provided.

Ms. Pamela Cubbler, Treasurer and Cultural Preservation Officer of the Colfax-Todds Valley Consolidated Tribe, responded on June 19, 2020, requesting site plans and information on planned ground-disturbance for the Project and previous cultural resource survey reports. Additional project details were provided. Ms. Cubbler replied on June 24, 2020, requesting tribal monitoring during ground disturbance and rehabilitation efforts.

3.3.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

The impact analysis for archaeological resources is based on the findings and recommendations of the *Cultural Resources Inventory for the Meeks Bay Restoration Project* (NIC 2021). The impact analysis for historical resources is based on the findings and recommendations of the *Historic Resource Evaluation Report for the Meeks Bay Restoration Project* (Ascent Environmental 2022). The analysis is also informed by the provisions and requirements of federal, state, and local laws and regulations that apply to cultural resources.

Section 21083.2 of the State CEQA Guidelines defines "unique archaeological resource" as an archeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets one or more of the following CRHR-related criteria: 1) that it contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information; 2) that it as a special and particular quality, such as being the oldest of its type or the best available example of its type; or 3) that it is directly associated with a scientifically recognized important prehistoric or historic event or person. An impact on a "nonunique resource" is not a significant environmental impact under CEQA (State CEQA Guidelines Section 15064.5[c][4]). If an archaeological resource qualifies as a resource under CRHR criteria, then the resource is treated as a unique archaeological resource for the purposes of CEQA.

PRC Section 21074 defines tribal cultural resources as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe" that are listed or determined eligible for CRHR listing, listed in a local register of historical resources, or otherwise determined by the lead agency to be a tribal cultural resource.

For the purposes of the impact discussion, "historical resource" is used to describe built-environment historic-period resources. Archaeological resources (both prehistoric and historic-period), which may qualify as "historical resources" pursuant to CEQA, are analyzed separately from built-environment historical resources.

THRESHOLDS OF SIGNIFICANCE

The thresholds of significance were developed in consideration of the State CEQA Guidelines, TRPA Thresholds, TRPA Initial Environmental Checklist, LTBMU Forest Plan, and other applicable policies and regulations. Under NEPA the significance of an effect must consider the context and intensity of the environmental effect. The factors that are considered under NEPA to determine the context and intensity of its effects are encompassed by the thresholds of significance. An alternative would have a significant effect on cultural and tribal cultural resources if it would:

- cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5 of the State CEQA Guidelines;
- cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the State CEQA Guidelines;
- cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe;
- substantially disturb human remains, including those interred outside of dedicated cemeteries;
- result in alteration of or adverse physical or aesthetic effect to a significant archaeological or historical site, structure, object or building;
- be located on a property with any known cultural, historical, and/or archaeological resources, including resources on TRPA or other regulatory official maps or records;
- be located on a property associated with any historically significant events and/or sites or persons;
- have the potential to cause a physical change which would affect unique ethnic cultural values; or
- restrict historic or pre-historic religious or sacred uses within the potential impact area.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.3-1: Cause a Substantial Adverse Change in the Significance of a Historical Resource

The Meeks Bay Resort Historic District has been evaluated as appearing eligible for the NRHP under Criteria A and C and is therefore a historical resource under CEQA. The action alternatives would not physically alter the contributing buildings, however one of the contributing mortared stone walls would be partially demolished. This would not change the property's uses, or otherwise diminish those aspects of integrity that enable the resource to convey its historical significance. This would be a **less-than-significant** impact for the purposes of NEPA, CEQA, and TRPA for Alternatives 1 through 4. There would be **no impact** under the No Action Alternative.

As described above, neither the Meeks Creek Bridge nor the Meeks Bay Campground meet any of the CRHR criterion; therefore, neither of these built-environment features are considered a resource under CEQA. The Meeks Bay Resort Historic District has been evaluated as appearing eligible for the NRHP; therefore, it is a historical resource under CEQA. The contributors to the historic district include: the George Kehlet Mansion, the Fred Kehlet Residence, the Snack Bar, the Powerhouse, Cabins 2, 3, 4, 5, 6, 19, 20, and 21, and the mortared stone walls. Additionally, Meeks Bay is designated historic resource #49 in the TRPA Historic and Cultural Inventory and is therefore a historical resource under CEQA.

No Action Alternative

The No Action Alternative would be a continuation of existing conditions. Because there would be no improvements with the No Action Alternative, there would be no alteration to or demolition of historical structures. Therefore, there would be **no impact** on historical resources for the purposes of NEPA, CEQA, and TRPA.

Alternative 1: Full Restoration with Boating Pier

With this alternative, the marina would be removed, and the creek, lagoon, and barrier beach would be restored. To partially offset the loss of boating access at the marina, this alternative would include a 300-foot boating pier. To expand the useable beach space on the north end of the bay, this alternative would relocate the two motel style cabin units in the Meeks Bay Resort farther inland and replace them with three smaller cabin units while maintaining the existing overnight visitor capacity. The day-use area in the southern part of the project area would be expanded and reconfigured. It would also include upland features common to all the action alternatives, including multi-use paths parallel to SR 89 with a spur loop through the project area, replaced SR 89 bridge, new multi-use path bridge over Meeks Creek, reconfigured parking and circulation, shoreline revetments on the north end of the bay, paddlecraft storage structure, reconfigured day-use areas, and interpretive features.

The project would not cause the physical destruction, alteration, or removal of the following contributing structures: the George Kehlet Mansion, the Fred Kehlet Residence, the Snack Bar, the Powerhouse, and Cabins 2, 3, 4, 5, 6, 19, 20, and 21. However, it would include the partial demolition of one of the mortared stone walls. The project would include a resource protection measure (see Appendix A) to retain as much of the wall as possible. There are two other examples of the wall remaining in the district and they have been thoroughly documented, as required by TRPA ordinance 67.7.3a. Therefore, this alteration would not dimmish the integrity of the district and the Meeks Bay Resort Historic District would remain eligible for the NRHP (Ascent Environmental 2022). The project would not change the character of the Meeks Bay Resort Historic District or cause its neglect, transfer, lease, or sale. With regard to criterion v of ACHP's Criteria of Adverse Effect 36 CFR 800.5 (a)(2), the Meeks Bay Restoration Project would introduce new visual elements (the construction of a new pier, removal of the marina, and roadway improvements); however, these project elements would not substantially degrade the existing visual, atmospheric, or auditory setting and would not diminish those aspects of integrity that enable the resource to convey its significance (Ascent Environmental 2022). Additionally, because Meeks Bay has previously had a pier and recreation piers are expected in this environment, the construction of a 300-foot boating pier would not affect Meeks Bay in such a way to cause the removal of its listing from the TRPA Historic and Cultural Inventory. Alternative 1 would result in a **less-than-significant** impact on historical resources for the purposes of NEPA, CEQA, and TRPA.

Alternative 2: Full Restoration with a Pedestrian Pier

As with Alternative 1, this alternative would involve removal of the marina and full restoration of the creek, lagoon, and barrier beach, and partial demolition of the mortared stone wall of the southern day-use area. Alternative 2 would include an approximately 100-foot-long pedestrian pier, which would provide recreational access but not access for motorized boats. It would also include upland features common to all the action alternatives, described above.

For the same reason described above under Alternative 1, construction of project features associated with Alternative 2 would not physically alter the contributing structures to the Meeks Bay Resort Historic District, change the resort's uses, or otherwise diminish those aspects of integrity that enable the resource to convey its historical significance (Ascent Environmental 2022). Therefore, this impact would be **less than significant** for the purposes of NEPA, CEQA, and TRPA.

Alternative 3: Full Restoration with No Pier

As with Alternatives 1 and 2, this alternative would involve removal of the marina and full restoration of the creek, lagoon, and barrier beach, and partial demolition of the mortared stone wall of the southern day-use area. Alternative 3 would not include a pier but would include a small moveable, universally accessible paddlecraft launch on the south end of the bay. It would also include upland features common to all the action alternatives, described above.

For the same reason described above under Alternative 1, construction of project features associated with Alternative 3 would not physically alter the contributing structures to the Meeks Bay Resort Historic District, change the resort's uses, or otherwise diminish those aspects of integrity that enable the resource to convey its historical significance. Additionally, because Meeks Bay has previously had a pier and recreation piers are expected in this environment, the construction of a small paddlecraft launch would not affect Meeks Bay in such a way to cause the removal of its listing from the TRPA Historic and Cultural Inventory. Therefore, this impact would be **less than significant** for the purposes of NEPA, CEQA, and TRPA.

Alternative 4: Preferred Alternative

As with Alternatives 1, 2, and 3, this alternative would involve removal of the marina and full restoration of the creek, lagoon, and barrier beach, and partial demolition of the mortared stone wall of the southern day-use area. Like Alternative 3, this alternative would not include a pier but would include a small moveable, universally accessible paddlecraft launch structure on the south end of the bay. It would also include an expanded parking lot on the south side of the project areas and upland features common to all the action alternatives, described above.

For the same reason described above under Alternative 1, construction of project features associated with Alternative 4 would not physically alter the contributing structures to the Meeks Bay Resort Historic District, change the resort's uses, or otherwise diminish those aspects of integrity that enable the resource to convey its historical significance. Because this alternative does not include the construction of a pier or other structures in Meeks Bay, it would not affect Meeks Bay in such a way to cause the removal of its listing from the TRPA Historic and Cultural Inventory. Therefore, this impact would be **less than significant** for the purposes of NEPA, CEQA, and TRPA.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.3-2: Cause a Substantial Adverse Change in the Significance of Unique Archaeological Resources

The records search and pedestrian survey revealed two archaeological sites within the project area. Additionally, project-related ground-disturbing activities could result in discovery or damage of yet undiscovered archaeological resources as defined in State CEQA Guidelines Section 15064.5. This would be a **potentially significant** impact for the purposes of NEPA, CEQA, and TRPA for Alternatives 1 through 4. Implementation of Mitigation Measures 3.3-2a, 3.3-2b, and 3.3-2c would reduce impacts associated with archaeological resources to a **less-than-significant** level for Alternatives 1 through 4 because it would require the performance of feasible, professionally accepted, and legally compliant procedures for the protection of previously recorded archaeological resources and the potential discovery of any previously undocumented unique archaeological resources. There would be **no impact** under the No Action Alternative.

The two prehistoric resources, *Mayala wata* (P-09-005224) and the associated bedrock mortar (P-09-003861), are within the boundary of project. Tribal representatives of both the Washoe Tribe of Nevada and California and the Colfax-Todds Valley Consolidated Tribe have expressed concern for the area of these two sites. It is recommended that a 20-foot buffer be established around the two remaining bedrock mortars constituting P-09-003861 (Loci A and C) and that the site be avoided during Project-related work.

<u>No Action Alternative</u>

The No Action Alternative would be a continuation of existing conditions. Because there would be no improvements with the No Action Alternative, there would be no construction-related ground disturbance. Therefore, there would be **no impact** on archaeological resources for the purposes of NEPA, CEQA, and TRPA.

<u>Alternative 1: Full Restoration with Boating Pier</u>

Project activities, primarily the creek and lagoon restoration, could damage the two known prehistoric archaeological resources within the project area. Additional project activities, such as the demolition and reconstruction of Meeks Creek Bridge, construction of the pier, and removal of the marina, could result in discovery or damage of yet undiscovered archaeological resources as defined in State CEQA Guidelines Section 15064.5. This would be a **potentially significant** impact for the purposes of NEPA, CEQA, and TRPA.

<u>Alternative 2: Full Restoration with a Pedestrian Pier</u>

For the same reason described above under Alternative 1, construction of project features associated with Alternative 2 could result in disturbance, or destruction of archaeological resources, including previously recorded P-09-005224 and P-09-003861. This would be a **potentially significant** impact for the purposes of NEPA, CEQA, and TRPA.

<u>Alternative 3: Full Restoration with No Pier</u>

For the same reason described above under Alternative 1, construction of project features associated with Alternative 3 could result in disturbance, or destruction of archaeological resources, including previously recorded P-09-005224 and P-09-003861. This would be a **potentially significant** impact for the purposes of NEPA, CEQA, and TRPA.

<u>Alternative 4: Preferred Alternative</u>

For the same reason described above under Alternative 1, construction of project features associated with Alternative 4 could result in disturbance, or destruction of archaeological resources, including previously recorded P-09-005224 and P-09-003861. This would be a **potentially significant** impact for the purposes of NEPA, CEQA, and TRPA.

Mitigation Measures

Mitigation Measure 3.3-2a: Develop and implement a Worker Environmental Awareness Program

This mitigation measure will apply to Alternatives 1, 2, 3, and 4.

Prior to initiating project construction, the project implementer shall design and implement a Worker Environmental Awareness Program (WEAP) that shall be provided to all construction personnel and supervisors who will have the potential to encounter and alter cultural resources. The WEAP shall describe, at a minimum:

- types of heritage and cultural resources expected in the project area;
- types of evidence that indicate cultural resources might be present (e.g., ceramic shards, trash scatters, lithic scatters);
- what to do if a worker encounters a possible resource;
- what to do if a worker encounters bones or possible bones; and
- penalties for removing or intentionally disturbing heritage and cultural resources, such as those identified in the Archeological Resources Protection Act.

Mitigation Measure 3.3-2b: Establish an Archaeological Buffer for P-09-003861

This mitigation measure will apply to Alternatives 1, 2, 3, and 4.

Prior to any ground-disturbing activities in the vicinity of the resource, a qualified archaeologist, in cooperation with a Tribal monitor/consultant, shall establish a 20-foot buffer around the two bedrock mortars constituting P-09-003861 (Loci A and C). The archaeologist shall oversee the installation of the standard orange construction fencing; once established, the fencing shall be checked periodically, as determined by the archaeologist. This will ensure the resource shall be avoided during project-related work. The fence shall remain until project work in the vicinity of the resource is complete; fence removal shall be overseen by the archaeologist.

Mitigation Measure 3.3-2c: Retain an Archaeological Monitor and Native American Monitor, and Halt Ground-Disturbing Activity Upon Discovery of Subsurface Archaeological Features

This mitigation measure will apply to Alternatives 1, 2, 3, and 4.

Prior to any ground-disturbing activities, a qualified archaeologist meeting the United States Secretary of Interior guidelines for professional archaeologists will be retained by the project proponent. The monitor shall only be present onsite during the construction phases that involve ground-disturbing activities for the project, including but not limited to utility installation, as well as any other terrestrial disturbance required for proposed campground construction, parking lot improvements, and bridge removal. Monitoring of project-related work in submerged areas is not required. The monitor shall complete daily monitoring logs that describe each day’s activities, including construction activities, locations, soil, and any cultural materials identified.

The project proponent shall also invite a Tribal monitor/consultant who is approved by both the Washoe Tribe of Nevada and California and the Colfax-Todds Valley Consolidated Tribe. The project proponent shall contact the Tribal representatives a minimum of seven days prior to beginning earthwork or other ground-disturbing activities; construction activities will proceed if no response is received 48 hours prior to ground-disturbing activities.

In the event that any prehistoric or historic-era subsurface archaeological features or deposits, including locally darkened soil (“midden”) that could conceal cultural deposits, are discovered during construction, all ground-disturbing activity within 50 feet of the resources shall be halted and Lahontan RWQCB, TRPA, and LTBMU shall be notified. A qualified professional archaeologist shall assess the significance of the find. Specifically, the archaeologist shall determine whether the find qualifies as an historical resource, a unique archaeological resource, or tribal artifact. If the find does fall within one of these three categories, the qualified archaeologist shall then make recommendations to Lahontan RWQCB, TRPA, and LTBMU regarding appropriate procedures that could be used to protect the integrity of the resource and to ensure that no additional resources are affected. Procedures could include but would not necessarily be limited to, preservation in place, archival research, subsurface testing, or contiguous block unit excavation and data recovery, with preservation in place being the preferred option if feasible. If the find is a tribal artifact, LTBMU shall provide a reasonable opportunity for input from the tribal monitor or representatives. The tribal representative will determine whether the artifact is considered a tribal cultural resource, as defined by PRC Section 21074. Lahontan RWQCB, TRPA, and LTBMU shall implement such recommended measures (e.g., relocation, replacement, or providing interpretive features) if it determines that they are feasible in light of project design, logistics, and cost considerations.

<u>Significance after Mitigation</u>

Implementation of Mitigation Measures 3.3-2a, 3.3-2b, and 3.3-2c would reduce impacts associated with archaeological resources to a **less-than-significant** level because it would require the performance of feasible, professionally accepted, and legally compliant procedures, including preservation in place, subsurface testing, and data recovery, consistent with TRPA ordinance 67.3.3, for the protection of previously recorded archaeological resources and the potential discovery of any previously undocumented unique archaeological resources.

Impact 3.3-3: Cause a Substantial Adverse Change in the Significance of a Tribal Cultural Resource or Affect Unique Ethnic Cultural Values or Restrict Sacred Uses

Lahontan RWQCB sent notification for consultation to two tribes on August 13, 2018. No responses were received during the 30-day response period for AB 52 as defined in PRC 21080.3.1; therefore, no resources were identified as TCRs. Additional tribal outreach resulted in concern related to *Mayala wata*. Because project activities could still uncover or destroy archaeological resources with tribal, ethnic, or cultural values, this impact is considered **potentially significant** for the purposes of NEPA, CEQA, and TRPA for Alternatives 1 through 4. Implementation of Mitigation Measure 3.3-3 would reduce potentially significant impacts to archaeological and tribal resources because mitigation would avoid, move, record, or otherwise treat a discovered resource appropriately, in accordance with pertinent laws and regulations. By providing an opportunity to avoid disturbance, disruption, or destruction of sites, structures, and areas that have religious or sacred significance or other cultural significance to the Washoe people, this impact would be reduced to a **less-than-significant** level for Alternatives 1 through 4. There would be **no impact** under the No Action Alternative.

As described above, Lahontan RWQCB mailed AB 52 notices to UAIC and Wilton Rancheria. No responses were received during the 30-day response window prescribed by PRC Section 21080.3.2. Therefore, there was no consultation under AB 52 and no resources identified as tribal cultural resources pursuant to PRC Section 21074. Additionally, a search of the NAHC's SLF for traditional cultural resources was negative.

The Washoe Tribe of Nevada and California has indicated that the entire creek and meadow system is a culturally relevant area known to the tribe as *Mayala wata*. The Colfax-Todds Valley Consolidated Tribe requested tribal monitoring during ground-disturbance and rehabilitation efforts.

<u>No Action Alternative</u>

The No Action Alternative would be a continuation of existing conditions. Because there would be no improvements with the No Action Alternative, there would be no construction-related ground disturbance. Therefore, there would be **no impact** on tribal cultural resources or sacred uses for the purposes of NEPA, CEQA, and TRPA.

<u>Alternative 1: Full Restoration with Boating Pier</u>

There are no known tribal cultural resources within the project area meeting any of the PRC 5024.1(c) criteria, pursuant to PRC Section 21074. However, construction activities that result in ground disturbance at the creek, lagoon, or resort area could damage or destroy previously unidentified tribal cultural resources. Similarly, although the Washoe Tribe is leading the restoration of Meeks Meadow upstream of the project area and have been involved in the planning process for this project, ground-disturbing activities at *Mayala wata* could affect unique ethnic cultural values or temporarily restrict sacred uses. This would be a **potentially significant** impact for the purposes of NEPA, CEQA, and TRPA.

<u>Alternative 2: Full Restoration with a Pedestrian Pier</u>

For the same reason described above under Alternative 1, construction of project features associated with Alternative 2 could result in the disturbance or destruction of tribal cultural resources, if present within the project area, or ground-disturbing activities at *Mayala wata* could affect unique ethnic cultural values or temporarily restrict sacred uses. This would be a **potentially significant** impact for the purposes of NEPA, CEQA, and TRPA.

Alternative 3: Full Restoration with No Pier

For the same reason described above under Alternative 1, construction project features associated with Alternative 3 could result in the disturbance or destruction of tribal cultural resources, if present within the project area, or ground-disturbing activities at *Mayala wata* could affect unique ethnic cultural values or temporarily restrict sacred uses. This would be a **potentially significant** impact for the purposes of NEPA, CEQA, and TRPA.

Alternative 4: Preferred Alternative

For the same reason described above under Alternative 1, construction of any new project associated with Alternative 4 could result in the disturbance or destruction of tribal cultural resources, if present within the project area or ground-disturbing activities at *Mayala wata* could affect unique ethnic cultural values or temporarily restrict sacred uses. This would be a **potentially significant** impact for the purposes of NEPA, CEQA, and TRPA.

Mitigation Measures

Mitigation Measure 3.3-3: Avoid Degradation of Tribal Cultural Resources, Ethnic, and Cultural Values

This mitigation measure will apply to Alternatives 1, 2, 3, and 4.

Implement Mitigation Measure 3.3-2c.

Significance after Mitigation

Implementation of Mitigation Measure 3.3-3 would reduce potentially significant impacts to archaeological and tribal resources because mitigation would avoid, move, record, or otherwise treat a discovered resource appropriately, in accordance with pertinent laws and regulations. By providing an opportunity to avoid disturbance, disruption, or destruction of sites, structures, and areas that have religious or sacred significance or other cultural significance to the Washoe people, this impact would be reduced to a **less-than-significant** level.

Impact 3.3-4: Disturb Human Remains

Based on documentary research, no evidence suggests that any prehistoric or historic-era marked or un-marked human interments are present within or in the immediate vicinity of the project area. Because Alternatives 1 through 4 would result in some new construction and ground-disturbing activities, each has the potential to disturb, disrupt, or destroy human remains through implementation of specific projects. Compliance with California Health and Safety Code Sections 7050.5 and California PRC Section 5097 would make this impact **less than significant** for the purposes of NEPA, CEQA, and TRPA for Alternatives 1 through 4. There would be **no impact** under the No Action Alternative.

No Action Alternative

The No Action Alternative would be a continuation of existing conditions. Because there would be no improvements with the No Action Alternative, there would be no construction-related ground disturbance. Therefore, there would be **no impact** on human remains for the purposes of NEPA, CEQA, and TRPA.

Alternative 1: Full Restoration with Boating Pier

Based on documentary research, no evidence suggests that any prehistoric or historic-era marked or un-marked human interments are present within or in the immediate vicinity of the project area. However, the location of grave sites and Native American remains can occur outside of identified cemeteries or burial sites. Therefore, there is a possibility that unmarked, previously unknown Native American or other graves could be present within the project area and could be uncovered by project-related construction activities. California law recognizes the need to protect Native American human burials, skeletal remains, and items associated with Native American burials from vandalism and inadvertent destruction. The procedures for the treatment of Native American human remains are contained in California Health and Safety Code Section 7050.5 and PRC Section 5097.

These statutes require that, if human remains are discovered, potentially damaging ground-disturbing activities in the area of the remains shall be halted immediately, and the appropriate County coroner shall be notified immediately. If the remains are determined by the coroner to be Native American, NAHC shall be notified within 24 hours and the guidelines of the NAHC shall be adhered to in the treatment and disposition of the remains. Following the coroner's findings, the NAHC-designated Most Likely Descendant, and the landowner shall determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments, if present, are not disturbed. The responsibilities for acting upon notification of a discovery of Native American human remains are identified in PRC Section 5097.94.

Compliance with California Health and Safety Code Section 7050.5 and PRC Section 5097 would provide an opportunity to avoid or minimize the disturbance of human remains, and to appropriately treat any remains that are discovered. Therefore, this impact would be **less than significant** for the purposes of NEPA, CEQA, and TRPA.

<u>Alternative 2: Full Restoration with a Pedestrian Pier</u>
For the same reason described above under Alternative 1, construction of any new project associated with Alternative 2 could result in disturbance, disruption, or destruction of human remains, if present within the project area. For the same reasons described above in Alternative 1, construction that could occur with Alternative 3 would comply with California Health and Safety Code Section 7050.5 and PRC Section 5097 to minimize the disturbance of human remains and appropriately treat any remains that are discovered. Therefore, this impact would be **less than significant** for the purposes of NEPA, CEQA, and TRPA.

<u>Alternative 3: Full Restoration with No Pier</u>
For the same reason described above under Alternative 1, construction of any new project associated with Alternative 3 could result in disturbance, disruption, or destruction of human remains, if present within the project area. For the same reasons described above in Alternative 1, construction that could occur with Alternative 3 would comply with California Health and Safety Code Section 7050.5 and PRC Section 5097 to minimize the disturbance of human remains and appropriately treat any remains that are discovered. Therefore, this impact would be **less than significant** for the purposes of NEPA, CEQA, and TRPA.

<u>Alternative 4: Preferred Alternative</u>
For the same reason described above under Alternative 1, construction of any new project associated with Alternative 4 could result in disturbance, disruption, or destruction of human remains, if present within the project area. For the same reasons described above in Alternative 1, construction that could occur with Alternative 4 would comply with California Health and Safety Code Section 7050.5 and PRC Section 5097 to minimize the disturbance of human remains and appropriately treat any remains that are discovered. Therefore, this impact would be **less than significant** for the purposes of NEPA, CEQA, and TRPA.

Mitigation Measures
No mitigation is required for this impact.

3.3.4 Cumulative Impacts

The geographic scope for the analysis of cumulative impacts to archaeological resources and human remains is the Lake Tahoe Basin, where archaeologists have developed a taxonomic framework describing patterns characterized by technology, particular artifacts, economic systems, trade, burial practices, and other aspects of culture. The geographic scope for the analysis of cumulative impacts to tribal cultural resources is the historic lands of the Washoe people. Beyond Lake Tahoe itself, Washoe territory extends from the edge of the Great Basin to the east at the Pah Pah range, to the crest of the Sierra Nevada to the west, to Honey Lake in the north and the Sonora Pass in the south.

Because all significant cultural resources are unique and nonrenewable members of finite classes, meaning there are a limited number of significant cultural resources, all adverse effects erode a dwindling resource base. The loss of any one archaeological site could affect the scientific value of others in a region because these resources are best understood in the context of the entirety of the cultural system of which they are a part. The cultural system is represented archaeologically by the total inventory of all sites and other cultural remains in the region. As a result, a meaningful approach to preserving and managing cultural resources must focus on the likely distribution of cultural resources, rather than on a single project or parcel boundary.

Euro-American development in the Tahoe Basin since 1858 has resulted in an existing significant adverse effect on archaeological resources and human remains. The historic lands of the Washoe people have been affected by development since 1858 when western expansion and the discovery of the Comstock Lode saw considerable numbers of Euro-Americans moving west. As a result, Washoe lands were colonized, and tribal members were displaced as settlers, ranchers, and miners moved into the region. These activities have resulted in an existing significant adverse effect on tribal cultural resources and cumulative development, including some of the projects described in Table 3-2 and the project, continues to contribute to the potential disturbance of these resources.

Two known archaeological resources are located within the project area; no known tribal cultural resources or human remains are located within the project area. Project-related earth-disturbing activities could damage as yet undiscovered archaeological resources, tribal cultural resources, or human remains. Implementation of the project, in combination with other development in the region, could contribute to ongoing substantial adverse changes in the significance of unique archaeological resources and tribal cultural resources resulting from urban development and conversion of natural lands. Cumulative development could result in potentially significant archaeological resource impacts.

Implementation of Mitigation Measures 3.3-2a, 3.3-2b, and 3.3-c would ensure that the project's contribution to cumulatively significant archaeological resource impacts would not be considerable by implementing a Worker Environmental Awareness Program, establishing a 20-foot buffer around the two bedrock mortars constituting P-09-003861, and requiring construction work to cease in the event of an accidental find and the appropriate treatment of discovered resources, in accordance with pertinent laws and regulations. Similarly, implementation of Mitigation Measure 3.3-3 would ensure that the project's contribution to cumulatively significant tribal cultural resource impacts would not be considerable by providing an opportunity to avoid disturbance, disruption, or destruction of sites, structures, and areas that have religious or sacred significance or other cultural significance to the Washoe people. With implementation of this mitigation measure, the project's contribution to these impacts would be offset. Further, cumulative development would be required to implement similar mitigation to avoid/reduce impacts to archaeological resources. Compliance with California Health and Safety Code Section 7050.5 and PRC Section 5097 would ensure that treatment and disposition of the remains occurs in a manner consistent with state guidelines and California Native American Heritage Commission guidance. Therefore, the project would have a **less than cumulatively considerable** impact related to archaeological resources, tribal cultural resources, or human remains.

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3.4 TERRESTRIAL BIOLOGICAL RESOURCES

This section identifies the regulatory context and policies related to biological resources including federal, TRPA, state, and local regulations; describes the existing conditions in the project area; and evaluates potential biological resources impacts of the proposed Meeks Bay Restoration Project. Biological resources include vegetation and habitat types, special-status plant and animal species, and otherwise sensitive plant communities. Data reviewed in preparation of the analysis include aerial photographs of the project area; records searches of the California Natural Diversity Database (CNDDB), the California Native Plant Society Inventory of Rare Plants, and the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation database; LTBMU sensitive species lists, the project Invasive Plant Risk Assessment (incorporated by reference), the project Biological Evaluation (hereinafter referred to as the "BE" and incorporated by reference), and the project Biological Assessment (hereinafter referred to as the "BA" and incorporated by reference) (CNDDB 2021; CNPS 2021; ESA 2022; USFS 2013a; USFS 2013b; USFWS 2021; LTBMU 2021; and LTBMU 2022); California Department of Forestry and Fire Protection Fire and Resources Assessment Program (FRAP) land cover data, and recent biological resources surveys and assessments conducted in the project area, including an aquatic resources delineation prepared for the project (Ascent Environmental 2020).

3.4.1 Regulatory Setting

See Section 3.6, "Hydrology and Water Quality," for a discussion of Section 404 of the Clean Water Act and the Porter-Cologne Water Quality Control Act.

FEDERAL

Federal Endangered Species Act

Pursuant to the federal Endangered Species Act (ESA) (16 U.S.C. Section 1531 et seq.), USFWS regulates the taking of species listed in the ESA as threatened or endangered. In general, persons subject to ESA (including private parties) are prohibited from "taking" endangered or threatened fish and wildlife species on private property, and from "taking" endangered or threatened plants in areas under federal jurisdiction or in violation of state law. Under Section 9 of the ESA, the definition of "take" is to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." USFWS has also interpreted the definition of "harm" to include significant habitat modification that could result in take.

Section 10 of the ESA applies if a non-federal agency is the lead agency for an action that results in take and no other federal agencies are involved in permitting the action. Section 7 of the ESA applies if a federal discretionary action is required (e.g., a federal agency must issue a permit), in which case the involved federal agency consults with USFWS.

Executive Order 11990—Protection of Wetlands

Executive Order 11990 established the protection of wetlands and riparian systems as the official policy of the federal government. The order requires all federal agencies to consider wetland protection as an important part of their policies and take action to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA), first enacted in 1918, provides for protection of international migratory birds and authorizes the Secretary of the Interior to regulate the taking of migratory birds. The MBTA provides that it will be unlawful, except as permitted by regulations, to pursue, take, or kill any migratory bird, or any part, nest, or egg of any such bird. Under the MBTA, "take" is defined as "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or any attempt to carry out these activities." A take does not include habitat destruction or alteration, as long as there is not a direct taking of birds, nests, eggs, or parts thereof. The current list of species protected by the MBTA can be found in Title 50 of the CFR, Section 10.13 (50 CFR 10.13). The list includes nearly all birds native to the United States.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act, enacted in 1940 and amended multiple times since, prohibits the taking of bald and golden eagles without a permit from the Secretary of the Interior. Similar to the ESA, the Bald and Golden Eagle Protection Act defines "take" to include "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb" (16 U.S. Code 668–668c). For the purpose of the act, disturbance that would injure an eagle, decrease productivity, or cause nest abandonment, including habitat alterations that could have these results, are considered take and can result in civil or criminal penalties.

Executive Order 13112—National Invasive Species Management Plan

Executive Order 13112 directs all federal agencies to prevent the introduction and control the spread of invasive species in a cost-effective and environmentally sound manner to minimize economic, ecological, and human health impacts. It established a national Invasive Species Council made up of federal agencies and departments and a supporting Invasive Species Advisory Committee composed of state, local, and private entities. The Invasive Species Council and advisory committee oversee and facilitate implementation of the executive order.

National Forest Management Act

The National Forest Management Act is an amendment of the Forest and Rangeland Renewable Resources Planning Act of 1974. This Act establishes standards for how the USDA Forest Service manages the national forests, requires the development of land management plans for national forests and grasslands, and directs the USDA Forest Service to develop regular reports on the status and trends of the Nation's renewable resources on all forest and rangelands.

TAHOE REGIONAL PLANNING AGENCY

Thresholds

The TRPA thresholds includes standards that have been developed to focus management efforts and provide a measure of progress for vegetation, wildlife, and fisheries. The adopted TRPA threshold standards for vegetation and wildlife that pertain to the Meeks Bay Restoration Project, and the attainment status for each standard, are summarized in Table 3.4-1 (TRPA 2021a).

Table 3.4-1 Relevant TRPA Vegetation, Wildlife, and Fisheries Resource Threshold Indicators and Their Attainment Status

TRPA Threshold Indicator	2019 Attainment Status
Vegetation	
Common Vegetation:	
Vegetation Community Richness	At or Somewhat Better than Target
Relative Abundance of Red Fir Forest in Seral Stages Other Than Mature	At or Somewhat Better than Target
Relative Abundance of Yellow Pine Forest in Seral Stages Other Than Mature	Considerably Worse than Target
Relative Abundance of Meadow and Wetland Vegetation	Somewhat Worse than Target
Relative Abundance of Shrub Vegetation	Considerably Better than Target
Relative Abundance of Deciduous Riparian Vegetation	Considerably Worse than Target
Size of Forest Openings and Juxtaposition of Vegetation Communities – Management Standard	Implemented
Consistency with Baily Land Capability System	Implemented
Nondegradation of Stream Environment Zones	Implemented
Appropriate Management Practices	Implemented
Uncommon Plant Communities:	
Deep-Water Plants	Considerably Worse than Target

TRPA Threshold Indicator	2019 Attainment Status
Sensitive Plants:	
Tahoe Yellow Cress	Somewhat Worse than Target
Late Seral/Old-Growth Ecosystems Overall and in Montane, Upper Montane, and Subalpine Elevation Zones	Considerably Worse than Target (in all elevation zones)
Wildlife	
Special Interest Species:	
Northern Goshawk Population Sites	Somewhat Worse than Target
Osprey	Considerably Better than Target
Nesting Bald Eagle Population	Considerably Better than Target
Wintering Bald Eagle Population Sites	Considerably Better than Target
Golden Eagle Population Sites	Insufficient Data to Determine Status
Peregrine Falcon Population Sites	Considerably Better than Target
Waterfowl Population Sites	At or Somewhat Better than Target
Deer Disturbance Free Zones Management Standards	Implemented

Source: TRPA 2021a

Tahoe Regional Plan

The Conservation Element of the Tahoe Regional Plan establishes goals for the preservation, development, utilization, and management of natural resources within the Tahoe Region. These goals and policies are designed to achieve and maintain adopted threshold standards and are implemented through the Code.

The Conservation Element includes 10 subelements that address the range of Lake Tahoe's natural and historical resources. The Vegetation, Wildlife, and Stream Environment Zone (SEZ) Subelements are discussed in this section, and the goals related to the Meeks Bay Restoration Project from each of these subelements are identified below.

Chapter 4 of the Goals and Policies identifies the following six goals for vegetation in the Tahoe region:

GOAL Veg-1: provide for a wide mix and increased diversity of plant communities.

GOAL Veg-2: provide for the protection, maintenance, and restoration of such unique ecosystems as wetlands, meadows, and other riparian vegetation.

GOAL Veg-3: conserve threatened, endangered, and sensitive plant species and uncommon plant communities of the Lake Tahoe Region.

GOAL Veg-4: provide for and increase the amount of late seral/old-growth stands within the Lake Tahoe Region.

GOAL Veg-5: the appropriate stocking level and distribution of snags and coarse woody debris shall be retained in the Region's forests to provide habitat for organisms that depend on such features and to perpetuate natural ecological processes.

GOAL Veg-6: TRPA shall work with fire protection agencies in the Region to reduce the risk of catastrophic wildfire.

The two goals identified for wildlife are as follows:

GOAL WL-1: maintain suitable habitats for all indigenous species of wildlife without preference to game or nongame species through maintenance and improvement of habitat diversity.

GOAL WL-2: preserve, enhance, and where feasible, expand habitats essential for threatened, endangered, rare, or sensitive species found in the Region.

The goal identified for SEZs is:

GOAL SEZ-1: provide for the long-term preservation and restoration of stream environment zones.

Code of Ordinances

The applicable provisions of the TRPA Code regarding terrestrial vegetation and wildlife are summarized below.

Protection and Management of Vegetation

The Code requires the protection and maintenance of all native vegetation types. Chapter 61, "Vegetation and Forest Health," Section 61.3, "Vegetation Protection and Management," provides for the protection of SEZ vegetation, other common vegetation, uncommon vegetation, and sensitive plants in SEZs (TRPA 2021b). TRPA defines an SEZ as an area that owes its biological and physical characteristics to the presence of surface water or groundwater. SEZ includes perennial, intermittent, or ephemeral streams; meadows and marshes; and other areas with near–surface water influence within the Tahoe Basin. No project or activity may be implemented within the boundaries of an SEZ except as otherwise permitted for habitat improvement, dispersed recreation, vegetation management, or as provided in Code Chapter 30, "Land Coverage." TRPA can require the preparation and implementation of a remedial vegetation management plan, where the need has been identified, for the purposes of threshold standard maintenance or attainment. In addition, Chapter 61, Section 61.4, "Revegetation," specifies minimum criteria for revegetation programs.

Protection of Sensitive and Uncommon Plants

Code Chapter 61, Section 61.3.6, "Sensitive and Uncommon Plant Protection and Fire Hazard Reduction," establishes standards for preserving and managing sensitive plants and uncommon plant communities, as referenced above in Thresholds. Projects and activities that are likely to harm, destroy, or otherwise jeopardize sensitive plants or their habitat must fully mitigate their significant adverse effects. Measures to protect sensitive plants and their habitat include:

- fencing to enclose individual populations or habitat,
- restricting access or intensity of use,
- modifying project design as necessary to avoid adverse impacts,
- dedicating open space to include entire areas of suitable habitat, and
- restoring disturbed habitat.

Tree Removal

TRPA regulates the management of forest resources in the Tahoe Basin to achieve and maintain the threshold standards for species and structural diversity, to promote the long-term health of the resources, and to create and maintain habitats for diverse wildlife species. Tree removal is typically subject to review and approval by TRPA, however tree removal by the Forest Service on National Forest System lands is exempt from TRPA approval.

In addition, trees and vegetation not scheduled to be removed must be protected during construction in accordance with Chapter 33, "Grading and Construction," Section 33.6, "Vegetation Protection during Construction."

Wildlife

TRPA sets standards for preserving and managing wildlife habitats, with special emphasis on protecting or increasing habitats of special significance, such as deciduous trees, wetlands, meadows, and riparian areas (Code Chapter 62). Specific habitats that are protected include riparian areas, wetlands, and SEZs; wildlife movement and migration corridors; important habitat for any species of concern; critical habitat necessary for the survival of any species; nesting habitat for raptors and waterfowl; fawning habitat for deer; and snags and coarse woody debris. In addition, TRPA-designated special-interest species (also referred to as "threshold species"), which are locally important because of rarity or other public interest, and species listed under the ESA or the California Endangered Species Act (CESA) are protected from habitat disturbance by conflicting land uses.

TRPA-designated special-interest wildlife species are northern goshawk (*Accipiter gentilis*), osprey (*Pandion haliaetus*), bald eagle (*Haliaeetus leucocephalus*), golden eagle (*Aquila chrysaetos*), peregrine falcon (*Falco peregrinus anatum*), mule deer (*Odocoileus hemionus*), and waterfowl species.

The Code includes the following requirements for protection of wildlife movement and migration corridors:

- SEZs adjoining creeks and major drainages that link islands of habitat will be managed, in part, for use by wildlife as movement corridors. Structures, such as bridges, proposed within these movement corridors will be designed to avoid impairment of wildlife movement.
- Projects and activities in the vicinity of deer migration areas will be required to mitigate or avoid significant adverse impacts.

The Code also contains several provisions regarding critical habitat. TRPA defines critical habitat as any element of the overall habitat for any species of concern that, if diminished, could reduce the existing population or impair the stability or viability of the population. This applies also to habitat for special-interest species native to the Tahoe Basin whose breeding populations have been extirpated but could return or be reintroduced. The Code includes the following critical-habitat provisions:

- No project or activity will cause, or threaten to cause, the loss of any habitat component considered critical to the survival of a particular wildlife species.
- No project or activity will threaten, damage, or destroy nesting habitat of raptors and waterfowl or fawning habitat of deer.
- Wetlands shall be preserved and managed for their ecological significance, including their value as nursery habitat to fishes, nesting and resting sites for waterfowl, and as a source of stream recharge, except as permitted pursuant to Chapter 30 of the TRPA Code.

STATE

California Fish and Game Code Sections 3503 and 3503.5—Protection of Bird Nests and Raptors

Section 3503 of the Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 of the California Fish and Game Code states that it is unlawful to take, possess, or destroy any raptors (i.e., species in the orders *Falconiformes* and *Strigiformes*), including their nests or eggs. Typical violations include destruction of active nests as a result of tree removal or disturbance caused by project construction or other activities that cause the adults to abandon the nest, resulting in loss of eggs and/or young.

California Fish and Game Code Fully Protected Species

Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code prohibit take of fully protected birds, mammals, reptiles and amphibians, and fish. Species listed under these statutes may not be taken or possessed at any time and no incidental take permits can be issued for these species except for scientific research purposes, for relocation to protect livestock, or as part of a natural community conservation plan (NCCP).

Native Plant Protection Act

The Native Plant Protection Act (NPPA) (California Fish and Game Code Section 1900 et seq.) allows the California Fish and Game Commission to designate plants as rare or endangered. Sixty-four species, subspecies, and varieties of plants are protected as rare under the NPPA. The act prohibits take of endangered or rare native plants but includes exceptions for agricultural and nursery operations; for emergencies; and, after proper notification of CDFW, for vegetation removal from canals, roads, and other building sites, changes in land use, and other situations.

3.4.2 Environmental Setting

OVERVIEW OF LAND COVER AND HABITAT TYPES

Habitat composition and distribution in the project vicinity is consistent with other conifer forest, meadow, and alpine lake systems of the northern Sierra Nevada. Land cover types in the project area consist of Jeffrey pine, lodgepole pine, montane chaparral, montane riparian, perennial grassland, and Sierran mixed conifer, and lacustrine habitat as documented by FRAP using the California Wildlife Habitat Relationship (CWHR) classification system. Figure 3.4-1 shows the distribution and extent of habitat types within the project area.

Although the project area is composed mostly of natural habitat types typical of the northern Sierra Nevada, it is a popular summer recreation site providing opportunities for camping, boating, picnicking, swimming, and beach use. Approximately 80 percent of the project area on the east side of SR 89 is occupied by developed facilities, including RV and tent camping areas, a boat ramp, resort buildings, parking areas, the existing marina, and roads and paths. Most of these uses are embedded within the matrix of natural cover types in the project area and substantially limit the quality and potential ecological functions of these habitats. For example, most of the Jeffrey pine and Sierran mixed conifer understory is occupied by campsites, parking areas, roads and trails, and other summer-use facilities and these areas are subject to high levels of disturbance.

Sierran Mixed Conifer

Within the project area, Sierran mixed conifer is located within Meeks Bay Campground; it is a relatively open forest dominated by a mix of white fir (*Abies concolor*), Jeffrey pine (*Pinus jeffreyi*), and lodgepole pine (*Pinus contorta*). Canopy cover varies from approximately 30 to 70 percent. In open areas, the understory consists of a variety of shrubs, grasses, and forbs, including Woods' rose (*Rosa woodsii*) and big sagebrush (*Artemesia tridentata*). Some of the understory is unvegetated due to the Meeks Bay Campground and other facilities located within this habitat type.

Jeffrey Pine

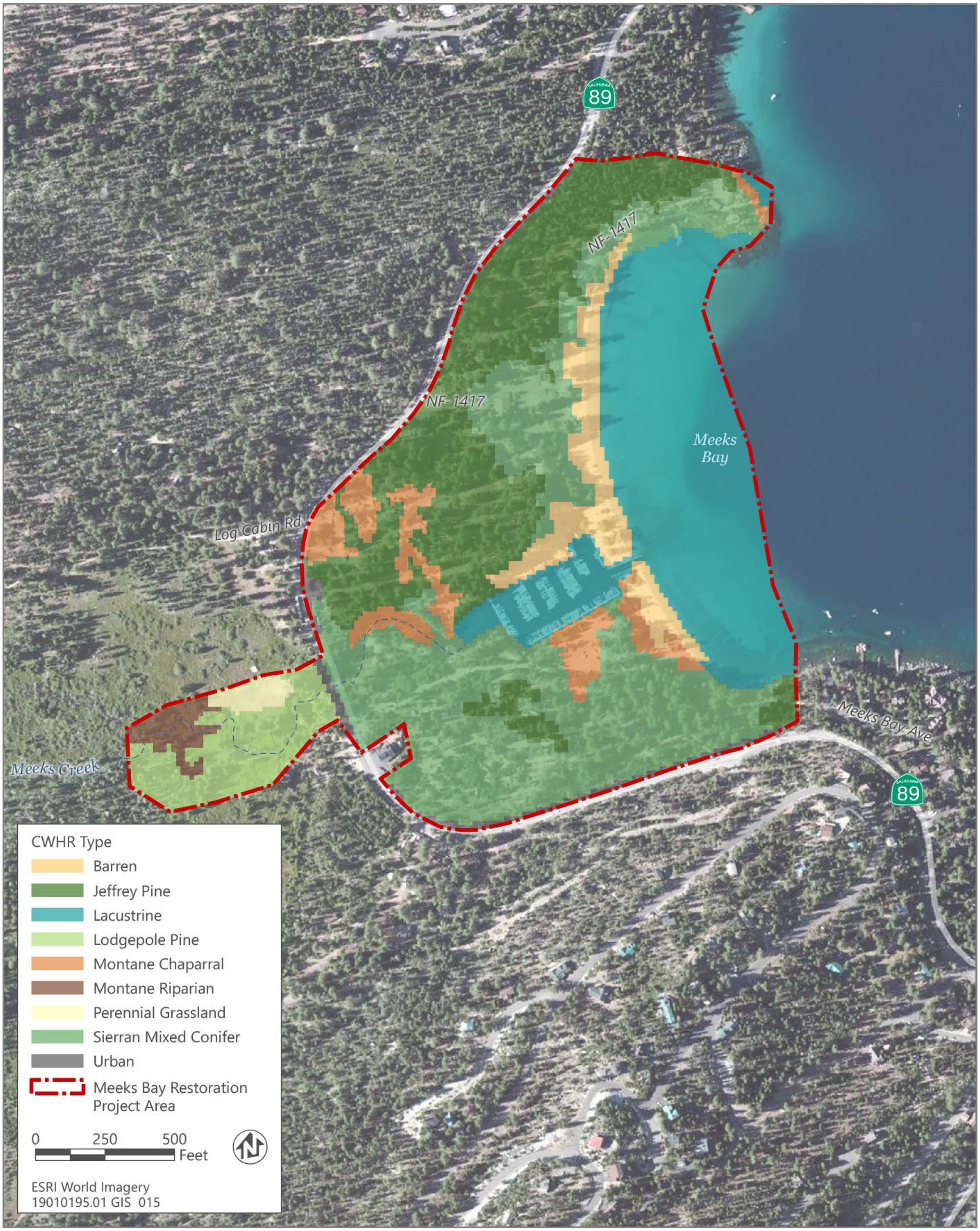
Jeffrey pine covers drier, upland regions of the project area with a single tree layer. The single tree layer ranges from approximately 50 to 150 feet in height. The stand has typically between 40 and 70 percent crown cover in the tree layer. The understory consists of greenleaf manzanita (*Arctostaphylos patula*), rabbitbrush (*Chrysothamnus nauseosa*), big sagebrush (*Artemisia tridentata* ssp. *tridentata*), sulfur buckwheat (*Eriogonum umbellatum*), and antelope bitter brush (*Purshia tridentata*). Much of the understory is unvegetated due to the Meeks Bay Campground and other facilities located within this habitat type.

Montane Chaparral

The growth form of montane chaparral species can vary from treelike to prostrate. When mature, montane chaparral is often impenetrable to large mammals. Understory vegetation in the mature chaparral is largely absent. Conifer trees may occur in sparse stands or as scattered individuals within the chaparral type. On shallow granitic soils in the Sierra Nevada, low dense growths of pinemat manzanita (*Arctostaphylos nevadensis*) and huckleberry oak (*Quercus vacciniifolia*) characterize an edaphic late-seral or climax community (i.e., a steady state influenced by substrate), associated with scattered conifers and exposed granite.

Lodgepole Pine

Lodgepole pine occurs on moist sites that are transitional between upland forest communities and wet montane meadow. This plant community is characterized by open canopies of lodgepole pine (*Pinus contorta*) of similarly sized trees in association with few other species and with a sparse understory. Trees can reach a height of 130 feet but typically average 40 to 65 feet. Many lodgepole pine stands are associated with meadow edges and streams, where the understory typically consists of willows and herbaceous species characteristic of wet montane meadows, such as grasses, forbs, and sedges.



Source: data downloaded from USDA Forest Service (EVEG) in 2018.

Figure 3.4-1 Land Cover

Urban
Areas mapped as "urban" in the project area are associated with paved surfaces in the SR 89 corridor.

Barren (Beach)
The beach area along Lake Tahoe is mapped mostly as the "barren" CWHR type in the FRAP layer. The Meeks Bay beach in the project area provides habitat for Tahoe yellow cress (*Rorippa subumbellata*), which only grows along the shores of Lake Tahoe. Beaches along Lake Tahoe consist of course-grained sand with a fluctuating water elevation.

Montane Riparian
Lemmon's willow (*Salix lemmonii*) is the dominant species with an extensive understory of a wide variety of herbaceous vegetation. In the project area, this community commonly occurs in wetter parts of Meeks Meadow.

Perennial Grassland
Perennial grassland habitat in the project area is dominated by perennial grasses and sedges such as Idaho bentgrass (*Agrostis idahoensis*) and slender wheatgrass (*Elymus trachycaulus*) and is associated with whiskerbrush (*Leptosiphon ciliatus*). This habitat occurs in the drier portions of Meeks Meadow.

Lacustrine
Lacustrine habitat in the project area consists of Lake Tahoe. Lake Tahoe is characterized by open water with a shoreline of sandy beach. The proportion of Lake Tahoe's open water and sandy beach fluctuates annually and seasonally with changing lake levels. The plants and animals found in the littoral zone vary with water depth, and a gradient of species composition is distributed from deeper water to shore.

JURISDICTIONAL WETLANDS

The project area contains several potentially jurisdictional aquatic resources: five riverine waters (two intermittent drainages and three perennial drainages), one lacustrine water (i.e., Lake Tahoe, described above), four palustrine emergent wetlands, five palustrine scrub-shrub wetlands, and one palustrine forested wetland (Ascent Environmental 2020; Table 3.4-2).

Table 3.4-2 Total Acres of Habitat Types in the Project Area

Vegetation Community Type	Size (acres)
Terrestrial Habitats	
Sierran Mixed Conifer	22.6
Jeffrey Pine	16.4
Montane Chaparral	4.5
Lodgepole Pine	4.1
Urban	1.3
Montane Riparian	1.1
Perennial Grasslands	0.7
Barren	4.2
Aquatic Habitats	
Lacustrine	18.8
Riverine	4.9[1]
Palustrine Emergent Wetland	2.2[1]
Scrub-Shrub Wetland	0.9[1]
Forested Wetland	1.0[1]

1 These acreages overlap with identified terrestrial habitats and do not contribute to the total acreage of the project area.

Source: Data compiled by Ascent Environmental in 2021; Ascent Environmental 2020

INAVSIVE PLANTS

Four LTBMU invasive species of concern are known to occur in the project area; cheatgrass (*Bromus tectorum*), Canada thistle (*Cirsium arvense*), bull thistle (*Cirsium vulgare*), and oxeye daisy (*Leucanthemum vulgare*). Additional infestations of cheatgrass, bull thistle, oxeye daisy, and common St. John's wort (*Hypericum perforatum*) were documented on adjacent properties (LTBMU 2022). However, comprehensive invasive plant surveys have not occurred in the project area. Table 3.4-3 lists these invasive species, their threat ratings, and the number of infestations within the project area and on adjacent properties (LTBMU 2022).

Table 3.4-3 Invasive Plant Species within the Project Area

Species	Common Name	CDFA Rating[1]	Cal-IPC Rating[2]	Number of Infestations within: Project Area	Number of Infestations within: Adjacent Properties
Bromus tectorum	Cheatgrass	NA	High	4	5
Cirsium arvense	Canada thistle	B	Moderate	1	0
Cirsium vulgare	Bull thistle	C	Moderate	8	1
Hypericum perforatum	St. John's wort	C	High	0	1
Leucanthemum vulgare	Oxeye daisy	NA	Moderate	1	1
TOTAL				15	8

Notes: NA = not applicable

[1] CDFA ratings: A-listed weeds: eradication or containment is required at the state or county level; B-listed weeds: eradication or containment is at the discretion of the County Agricultural Commissioner; C-listed weeds: eradication or containment required only when found in a nursery or at the discretion of the County Agricultural Commissioner. (California Department of Food and Agriculture 2021)

[2] Cal-IPC ratings: High: attributes conducive to moderate to high rates of dispersal and establishment; usually widely distributed among and within ecosystems. Moderate: impacts substantial and apparent, but not severe; attributes conducive to moderate to high rates of dispersal; distribution may range from limited to widespread. Limited: ecological impacts are minor or information is insufficient to justify a higher rating, although they may cause significant problems in specific regions or habitats; attributes result in low to moderate rates of invasion; distribution generally limited, but may be locally persistent and problematic. (California Invasive Plant Council 2021)

Source: LTBMU 2022.

SENSITIVE BIOLOGICAL RESOURCES

In this analysis, sensitive biological resources include those species and biological communities that receive special consideration through the TRPA Goals and Polices and TRPA Code, ESA, CESA, CWA, or local plans, policies, and regulations; or that are otherwise considered sensitive by federal, state, or local resource conservation agencies and organizations. Sensitive biological resources evaluated as part of this analysis include sensitive natural communities and special-status plant and animal species. These resources are addressed in the following sections.

Sensitive Natural Communities and Habitats

Sensitive habitats include those that are of special concern to resource agencies or are afforded specific consideration through the TRPA Goals and Policies and TRPA Code, Section 404 of the CWA, and other applicable regulations. Sensitive natural habitats may be of special concern to these agencies and conservation organizations for a variety of reasons, including their locally or regionally declining status, or because they provide important habitat to common and special-status species. Sensitive natural communities are those native plant communities defined by CDFW as having limited distribution statewide or within a county or region and that are often vulnerable to environmental effects of projects (CDFW 2018). These communities may or may not contain special-status plants or their habitat (CDFW 2018). CDFW designates sensitive natural communities based on their state rarity and threat ranking using NatureServe's Heritage Methodology. Natural communities with rarity ranks of S1 to S3, where S1 is critically imperiled, S2 is imperiled, and S3 is vulnerable, are considered sensitive natural communities to be addressed in the environmental review processes of CEQA and its equivalents (CDFW 2018). Many riparian plant communities qualify as sensitive natural communities based on the plant associations therein. In addition, riparian habitats are protected under Section 1602 of California Fish and Game Code. The project area contains approximately 1.1 acres of montane riparian habitat (Table 3.4-2; Figure 3.4-1).

Sensitive natural communities are generally identified at the alliance level of vegetation classification hierarchy using the Manual of California Vegetation (Sawyer et al. 2009). Known occurrences of sensitive natural communities are included in the CNDDB; however, no new occurrences have been added to the CNDDB since the mid-1990s when funding was cut for this portion of the CNDDB program. One sensitive natural community was identified within the nine USGS 7.5-minute quadrangles surrounding the project area: fen (CNDDB 2021). Fen habitat was not identified during the delineation of aquatic resources (Ascent Environmental 2020). Given the incomplete nature of this information in the CNDDB, and the presence of montane riparian habitat in the project area, additional sensitive natural communities may occur in the project area.

Habitats consisting of deciduous trees, wetlands, and meadows (i.e., riparian, wetland, and meadow habitats) are designated by TRPA as habitats of special significance. The TRPA threshold standard for habitats of special significance is nondegradation while providing for opportunities to increase the acreage of these habitats. Additionally, most wetland and riparian habitats in the Tahoe Basin are also designated as SEZ, which is one of two TRPA-adopted threshold standards for soil conservation. SEZ is a term used specifically in the Tahoe Basin to describe perennial, intermittent, and ephemeral streams; wet meadows, marshes, and other wetlands; riparian areas; and other areas expressing the presence of surface and ground water through biological and physical characteristics.

As described above under "Jurisdictional Wetlands," the project area contains riverine waters, lacustrine habitat (i.e., Lake Tahoe), palustrine emergent wetlands, palustrine scrub-shrub wetlands, and palustrine forested wetlands (Ascent Environmental 2020; Table 3.4-2). These habitats would be considered SEZs and sensitive habitats. Additional sensitive terrestrial natural communities and habitats in the project area include montane riparian habitat and meadow habitat.

Special-Status Species

Special-status species are defined as species that are legally protected or that are otherwise considered sensitive by federal, state, or local resource agencies. Special-status species are species, subspecies, or varieties in one or more of the following categories, regardless of their legal or protection status:

- designated as sensitive, special interest, or a threshold species by TRPA;
- officially listed by California or the federal government as endangered, threatened, or rare;
- a candidate for state or federal listing as endangered or threatened;
- taxa (i.e., taxonomic category or group) that meet the criteria for listing, even if not currently included on any list, as described in California Code of Regulations (CCR) Section 15380 of the State CEQA Guidelines;
- species identified by CDFW as species of special concern;
- species listed as fully protected under the California Fish and Game Code;
- species designated as sensitive by USDA Forest Service; and
- taxa considered by CDFW to be "rare, threatened, or endangered in California" and assigned a California Rare Plant Rank (CRPR). The CDFW system includes five rarity and endangerment ranks for categorizing plant species of concern, summarized as follows:
  - CRPR 1A - Plants presumed to be extinct in California;
  - CRPR 1B - Plants that are rare, threatened, or endangered in California and elsewhere;
  - CRPR 2 - Plants that are rare, threatened, or endangered in California but more common elsewhere;
  - CRPR 3 - Plants about which more information is needed (a review list); and
  - CRPR 4 - Plants of limited distribution (a watch list).

Typically, CRPR 3 and CRPR 4 species do not qualify as special-status species, as they may be locally abundant or otherwise not sufficiently rare to warrant protection. However, several CRPR 3 and CRPR 4 species are also considered USDA Forest Service sensitive species in the LTBMU; thus, they are included in this analysis.

The term "California species of special concern" is applied by CDFW to animals not listed under ESA or CESA, but that are considered to be declining at a rate that could result in listing, or that historically occurred in low numbers and known threats to their persistence currently exist. CDFW's fully protected status was California's first attempt to identify and protect animals that were rare or facing extinction. Most species listed as fully protected were eventually listed as threatened or endangered under CESA; however, some species remain listed as fully protected but do not have simultaneous listing under CESA. Fully protected species may not be taken or possessed at any time and no take permits can be issued for these species except for scientific research purposes or for relocation to protect livestock.

A preliminary list of special-status plant and animal species known or with potential to occur in the project area was developed based on a review of the sources listed at the beginning of this chapter. The data review identified 47 and 31 special-status terrestrial plant and wildlife species, respectively, known or with potential to occur in the project area or vicinity (see Tables B-1 and B-2 in Appendix B, "Special-Status Species"). A total of 23 special-status plant species and 18 special-status wildlife species are known to occur or may occur in the project area and could be affected by construction activities (e.g., grading, excavation, heavy equipment use, staging) under the alternatives (see Tables B-1 and B-2 in Appendix B). These species are the focus of the impact analysis for special-status species presented in Section 3.4.3, "Environmental Impacts and Mitigation Measures," and are described below. Other special-status terrestrial species could use or occur in portions of the project area but are not expected to be affected considerably by the alternatives.

The following provides additional discussion of special-status species known or with potential to occur in the project area and addressed in the impact analysis under Section 3.4.3.

State-Listed and TRPA Special Interest Plant Species

Tahoe Yellow Cress

Tahoe yellow cress occurs only on the sandy beaches of Lake Tahoe. This species is designated as a sensitive plant and threshold indicator species by TRPA, a USDA Forest Service sensitive plant species and is listed as endangered by the state of California. The distribution and abundance of Tahoe yellow cress are closely linked to lake level, with greater abundance and more occurrences present during low lake levels when more beach habitat is available for colonization (Pavlik and Murphy 2002, Stanton et al. 2015). The species exhibits a metapopulation dynamic, where populations or clusters of plants at some locations may periodically disappear or decline in number in some years (e.g., in high water years), and Tahoe yellow cress may recover or colonize exposed habitats suitable for the species during other periods (Pavlik and Murphy 2002). The timing and probability of these dynamic extirpation and colonization events depend primarily on lake level and disturbances from recreation or development, but also on the biophysical characteristics of the sites themselves. The primary anthropogenic disturbances to this species are recreational use of beaches occupied by Tahoe yellow cress and development of marinas, boat ramps, and piers, which result in trampling and degradation or loss of habitat. In response to low numbers of Tahoe yellow cress occurrences in the late-1990s, a multiagency technical advisory group (TAG) was formed to develop and implement a conservation strategy for the species. The Tahoe Yellow Cress Conservation Strategy (Conservation Strategy) was completed in 2002 (Pavlik and Murphy 2002) and updated in 2015 (Stanton et al. 2015), and a memorandum of understanding and conservation agreement were signed by 13 state and local agencies and stakeholders to implement the strategy. In 2002, the TAG initiated a research program that has included seed collection, greenhouse propagation, experimental outplantings of container-grown Tahoe yellow cress plants, translocation of naturally occurring Tahoe yellow cress among sites, and some limited genetic analysis. In 2005, members of the TAG transitioned to being members of an adaptive management working group (AMWG). A central goal of the Conservation Strategy is to ensure a sufficient level of protection and conservation for the species that will preclude the need for USFWS to list Tahoe yellow cress under the ESA.

The AMWG conducts regular population surveys at known and potential Tahoe yellow cress population sites in the shorezone.

Tahoe yellow cress is known to occur in Meeks Bay within the project area, and this Meeks Bay population is ranked as a high priority for conservation based on the population's size (stem counts), persistence, and stem count variation during long-term, ongoing monitoring of the species carried out by the AMWG (Stanton et al. 2015). The cumulative distribution of Tahoe yellow cress occurrences near the project area (based on numerous years of data) is displayed in Figure 3.4-2.

Other Special-Status Plants

USDA Forest Service Sensitive Plant Species

Ten additional special-status plants that are designated as sensitive species by LTBMU may occur in the project area. Short-leaved hulsea is associated with red fir and mixed conifer habitat types and is the only Forest Service Sensitive plant of upland habitats that may occur in the project area. The following Forest Service Sensitive plants with potential to occur are all generally associated with mesic sites, including seeps, meadow, and streambank habitat types, but a few can occur on drier sites as well, including summer-dry meadows, and shrubland habitat types (see Table B-1 in Appendix B):

- Upswept moonwort,
- Scalloped moonwort,
- Mingan moonwort,
- Western Goblin,
- Bolander's candle moss,
- Blandow's bog moss,
- Plumas ivesia,
- Broad-nerved hump-moss, and
- Goward's water fan.

California Rare Plant Rank Species

Thirteen special-status plants with California Rare Plant Ranks but no other status may occur in the project area. Mountain bent grass, threetip sagebrush, Davy's sedge, and subalpine aster all occur in upper or lower coniferous forest, with several occurring in open and rocky sites. The following species are all generally associated with mesic sites, including wet meadows, swamps, seeps, and shallow water, but several can also occur in drier montane coniferous forest sites (see Table B-1 in Appendix B):

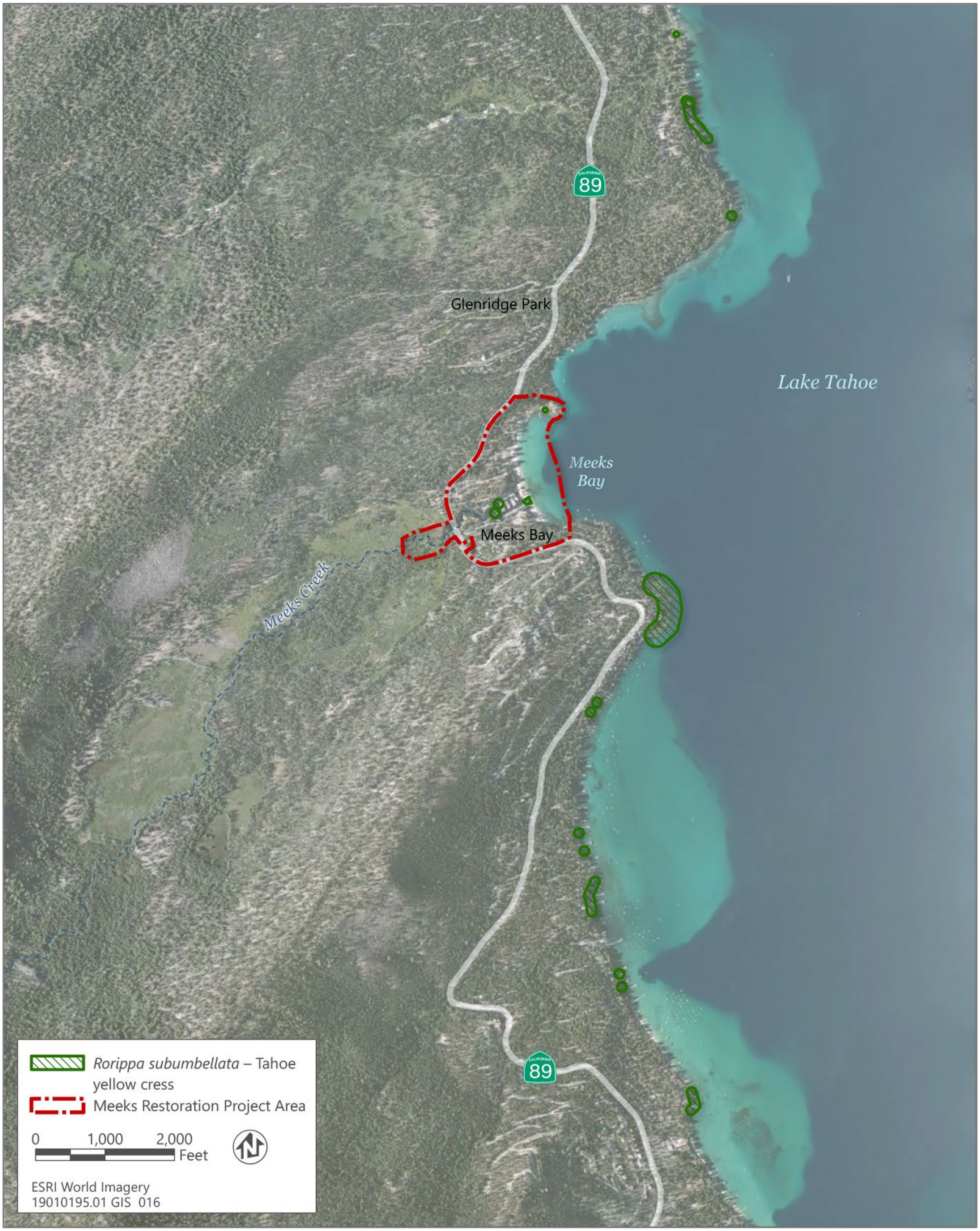
- Watershield,
- Woolly-fruited sedge,
- Mud sedge,
- American manna grass,
- Nuttall's ribbon-leaved pondweed,
- Alder buckthorn,
- Marsh skullcap,
- Northern slender pondweed, and
- Flat-leaved bladderwort.

TRPA Special Interest Wildlife Species

Osprey

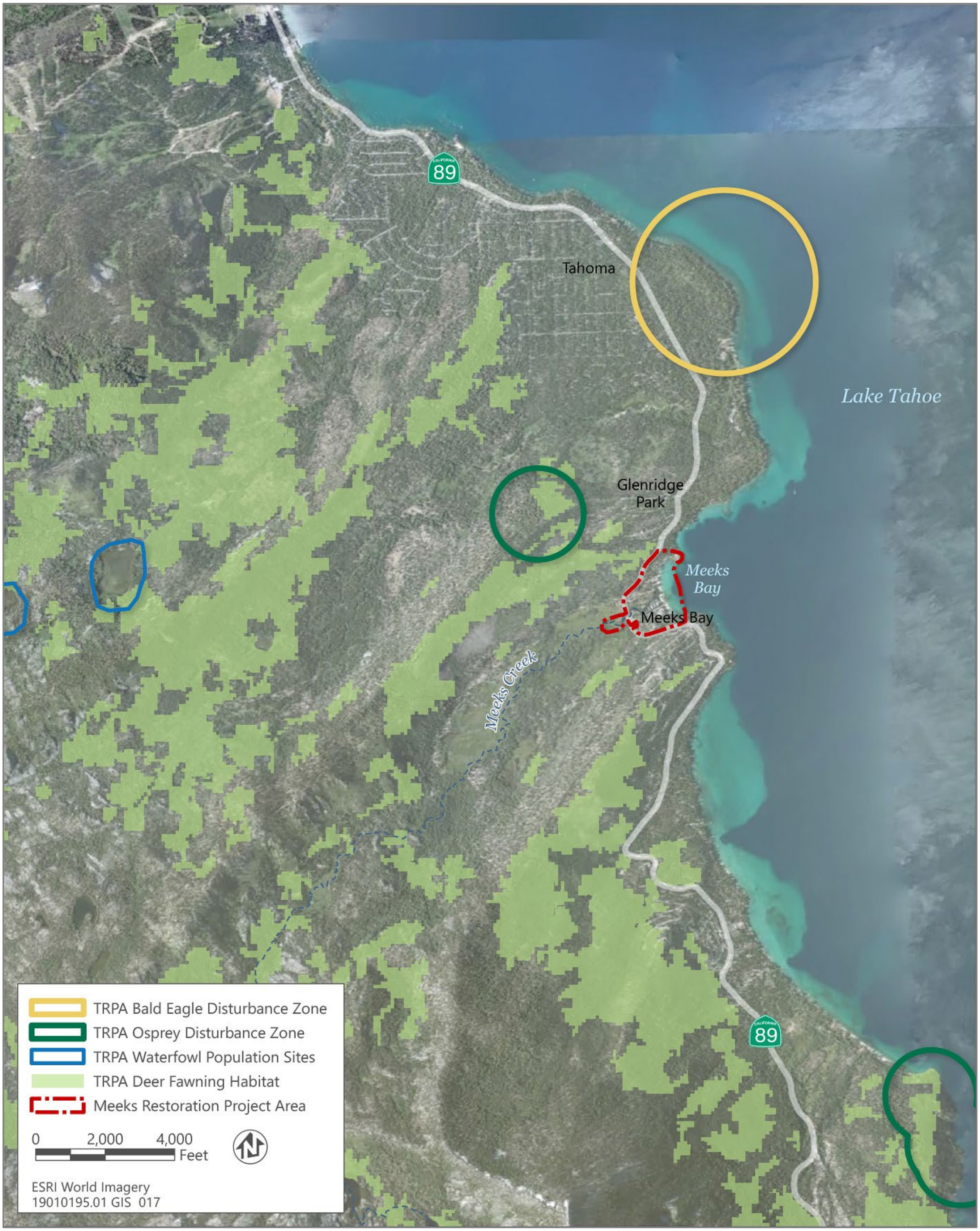
Osprey is designated by TRPA as a special interest species. The nearest documented osprey nest is approximately 2.8 miles south of the project area near Rubicon Point (TRPA 2020). Ospreys forage in Lake Tahoe as well as several other fish-bearing lakes, streams, and rivers within the Tahoe Basin. Nesting and foraging habitat potentially suitable for osprey is present in the project area.

TRPA maintains a nondegradation standard for habitat within a 0.25-mile buffer zone ("disturbance zone") around each osprey nest site. The number of nesting pairs, active nests, and associated disturbance zones in the shorezone vary annually, and the locations of nest sites have shifted over the last several years. For example, some trees along Lake Tahoe that were historically used by osprey for nesting have fallen in recent years. Figure 3.4-3 shows the most recent (2020) distribution of osprey disturbance zones in the vicinity of the project area, based on years of annual nest monitoring coordinated by TRPA (TRPA 2020). The project area is outside of any osprey disturbance zone identified by TRPA (TRPA 2020; Figure 3.4-3).



Source: data received from TRPA in 2018.

Figure 3.4-2 Tahoe Yellow Cress Occurrences in the Vicinity of the Project Area



Source: data received from TRPA in 2018.

Figure 3.4-3 TRPA Osprey and Bald Eagle Disturbance Zones and Waterfowl Population Sites

Bald Eagle

Bald eagle is designated by TRPA as a special interest species and is also designated as a sensitive species in LTBMU by USDA Forest Service. Bald eagle is also federally protected by USFWS under the Bald and Golden Eagle Protection Act, listed under CESA as endangered, and fully protected under California Fish and Game Code. Bald eagles require large bodies of water or free-flowing streams with abundant fish and adjacent snags or other perches for hunting. They generally nest in undisturbed coniferous forests, usually within 1 mile of a lake or reservoir. Bald eagle habitat typically consists of several components, most significantly, proximity to large bodies of water and wetlands associated with lakes, mature coniferous stands with presence of dominant trees, and adequate protection from human disturbance. Nesting bald eagles have been documented approximately 1.6 miles north and 5 miles southeast of the project area (CNDDB 2021, TRPA 2020). The project area is outside of any bald eagle disturbance zone identified by TRPA (TRPA 2020; Figure 3.4-3). The project area does not contain nesting habitat suitable for bald eagle; however, foraging and wintering for the species is present.

Waterfowl

"Waterfowl" is designated by TRPA as a special-interest group of species because its nesting habitat in the Tahoe Basin is limited. Several waterfowl species occur in the Tahoe Basin during spring and summer months as described in Table B-2 in Appendix B. Most of these species nest along shallow-water margins of streams or lakes, in areas of emergent vegetation or other vegetation that provides concealment. In the Tahoe Basin wetlands provide nesting, resting, and foraging habitat for waterfowl. Important waterfowl areas have not been identified by TRPA in Meeks Bay (TRPA 2020); however, many waterfowl species likely forage in aquatic habitats in the project area and waterfowl species could nest in Meeks Meadow.

TRPA has established threshold standards and regulates activities within 18 designated waterfowl population sites. The distribution of TRPA waterfowl population sites in the vicinity of the project area is displayed in Figure 3.4-3. Because of increased recreational encroachment into wetland areas over the last several decades, habitat quality at TRPA-designated waterfowl population sites has been degraded; however, the 2019 TRPA threshold attainment status is considered at or somewhat better than target (Table 3.4-1, TRPA 2021a). Existing TRPA regulations prevent new projects from directly degrading wetland and riparian habitats, including mapped waterfowl population sites (TRPA 2021b).

Mule Deer

Mule deer is designated by TRPA as a special interest species. Existing TRPA regulations prevent new projects from threatening, damaging, or destroying fawning habitat for deer or having adverse impacts on deer migration areas. The distribution of TRPA deer fawning habitat in the vicinity of the project area is displayed in Figure 3.4-3. While mule deer may forage or move through the project area, the project area does not contain deer fawning habitat as defined and mapped by TRPA (TRPA 2022; Figure 3.4-3).

Other Special-Status Wildlife Species

Sierra Nevada Yellow-Legged Frog

Sierra Nevada yellow-legged frog is listed as endangered under ESA, threatened under CESA, and is designated as a sensitive species in LTBMU by USDA Forest Service. This species occurred historically in much of the Lake Tahoe area and remaining extant occurrences are present in the highest elevations of the south and southwest portions of the Tahoe Basin (see Table B-2 in Appendix B); however, there are no known historic or extant occurrences in the vicinity of the project area (CNDDB 2021). Additionally, the presence of predators (e.g., nonnative salmonids, bullfrogs, crayfish) further reduces the likelihood of presence of Sierra Nevada yellow-legged frogs in the project area. While this species is unlikely to occur in the project area due to degraded habitat conditions, absence of known occurrences in the vicinity, and overall rarity, Sierra Nevada yellow-legged frog is addressed in the impact analysis presented in Section 3.4.3, below. Ongoing restoration activities in Meeks Bay may improve habitat for Sierra Nevada yellow-legged frog, which may be present in the project area in the future.

Additionally, the analysis of Sierra Nevada yellow-legged frog is provided to support informal Section 7 ESA consultation with USFWS on the project. Potentially suitable habitat for SNYLF on LTBMU lands (and eight other National Forests in Forest Service Region 5) has been generally defined by USFWS (2014b) in a Programmatic Biological Opinion (BO; December 19, 2014, Ref # FFO8ESMFOO-2014-F-0557) as: elevations above 4,500 feet; permanent water bodies or those hydrologically connected with permanent water including adjacent areas up to 82 feet (25 m) away; and overland areas in between water bodies within 984 feet (300 m) of one another. (The Programmatic BO for Region 5 refers to these physical features generally as "suitable habitat," although they have not necessarily been verified for the presence of habitat primary constituent elements [PCEs] or actual suitability for SNYLF based on site-specific ecological conditions across the Region.) Although not currently expected to support Sierra Nevada yellow-legged frog based on site-specific ecological conditions and past survey results (see Table B-2 in Appendix B), Meeks Creek and its adjacent uplands meet the general definition of potentially suitable habitat established in the Programmatic BO.

Southern Long-Toed Salamander

Southern long-toed salamander is a CDFW species of special concern. Habitat suitable for this species includes alpine meadows and high mountain ponds and lakes. Adults of this species are subterranean during most of the year, using mammal burrows, rock fissures, and occasionally human-made structures. During breeding migration they may be found under surface objects such as rocks or logs near the breeding pond. The project area is within the known range of southern long-toed salamander and adult salamanders and larvae have been observed within the project area in Meeks Creek (CNDDB 2021). Aquatic habitat suitable for this species is present in Meeks Creek. While southern long-toed salamanders are known to use upland habitats within approximately 330 feet (100 meters) of aquatic habitat, much of the upland areas within 330 feet of Meeks Creek is developed and highly disturbed (i.e., campgrounds). Therefore, upland habitat suitable for southern long-toed salamanders is only present within approximately 100 feet or less from Meeks Creek.

Other Special-Status Birds and Common Native Nesting Birds

Three additional special-status birds may occur in the project area: long-eared owl, olive-sided flycatcher, and yellow warbler (Table B-2 in Appendix B). All of these species are CDFW species of special concern, and could nest within montane riparian and forest (i.e., Jeffrey pine, lodgepole pine, Sierran mixed conifer) habitat in the project area. Nesting habitat suitable for long-eared owl and yellow warbler is limited to riparian and forest habitat within Meeks Meadow or adjacent to Meeks Meadow west of SR 89. While olive-sided flycatcher is more likely to nest in the forest habitat adjacent to Meeks Meadow west of SR 89, the species could still occur in the forest areas east of SR 89. Other raptor species (e.g., Cooper's hawk [*Accipiter cooperi*], red-tailed hawk [*Buteo jamaicensis*], great horned owl [*Bubo virginianus*]) and other common native nesting birds have potential to nest within or adjacent to the project area, and these species and their nests are protected under California Fish and Game Code.

Monarch

Monarch is a candidate for listing under ESA. The project area is within the spring/summer breeding and spring/fall migration ranges. Breeding and foraging habitat suitable for monarchs includes meadows and forest clearings with native milkweeds and other nectar-producing flowering plants. The project area likely contains native milkweeds and sufficient flowering plants to provide habitat suitable for monarchs. Although not documented, monarch butterfly is assumed to potentially breed in the project area.

Western Bumble Bee

Western bumble bee was designated as a candidate for listing as endangered under CESA by the California Fish and Game Commission on June 12, 2019. A November 13, 2020, court decision by the Superior Court of Sacramento ruled that insects are not eligible for listing under CESA and vacated the candidacy of this and three other bumble bee species. Although western bumble bee is not currently a candidate for listing under CESA, the species is imperiled and considered sufficiently rare by the scientific community to be considered a special-status species under CEQA and is also designated as a sensitive species in LTBMU by USDA Forest Service. Western bumble bee has recently undergone a decline in abundance and distribution and is no longer present across much of its historic range. In California, western bumble bee populations are currently largely restricted to high elevation areas in the Sierra Nevada (Xerces

2018). Western bumble bees have been detected historically near Emerald Bay, approximately 8 miles south of the project area (CNDDB 2021). There is only one known collection record of western bumble bee in the Tahoe Basin (on LTBMU lands) since 2000; a detection in 2007 approximately 12 miles southeast of the project area (CNDDB 2021).

Although the life history characteristics of western bumble bees are not well understood, bumble bees have three basic habitat requirements: suitable nesting sites for the colonies, availability of nectar and pollen from floral resources throughout the duration of the colony period (spring, summer, and fall), and suitable overwintering sites for queens. Known native floral resources for western bumble bee include ceanothus (*Ceanothus* spp.), thistle (*Centaurea* spp., *Cirsium* spp.), rabbitbrush, lupine (*Lupinus* spp.), coyote mint (*Monardella* spp.), goldenrod (*Solidago* spp.), and clover (*Trifolium* spp.) (Williams et al. 2014). Bumble bees are typically generalist foragers and are known to use other native and nonnative floral resources, such as vetch (*Vicia* spp.) and clover (*Trifolium* spp.) (Williams et al. 2014).

Western bumble bee is generally believed to overwinter near the ground surface in loose soil or under leaf litter or other debris (e.g., thatch and bunch grasses). Western bumble bee nests typically occur in abandoned rodent burrows or other animal nests. Nesting and overwintering habitat potentially suitable for this species may be present with the project area, especially within less developed areas.

American Badger

American badger is a CDFW species of special concern. This species occurs throughout California and is associated with various habitat types, including shrubland, woodland, forest, and grassland habitats, with friable soils. Habitat potentially suitable for American badgers is present within Meeks Meadow and undeveloped open woodlands (i.e., west of SR 89) in the project area.

Ringtail

Ringtail is a fully protected species under California Fish and Game Code. Ringtails are typically associated with riparian, forest, and shrub habitats and is typically found near habitats with a permanent water source (e.g., perennial streams, longer-lasting intermittent streams). Habitat potentially suitable for ringtails is present within undeveloped forest and riparian woodland habitats in the project area (i.e., within Meeks Meadow and west of SR 89). Ringtails use a variety of habitats for denning, including rock crevices, snags, and tree hollows. While optimal denning habitat is likely not present in the project area, there are some large trees and snags that may provide den habitat for ringtail.

Special-Status Bats

Four special-status bats may occur in the project area: fringed myotis, pallid bat, Townsend's big-eared bat, and western red bat. Fringed myotis, pallid bat, and Townsend's big-eared bat are designated as a sensitive species in LTBMU by USDA Forest Service; pallid bat, Townsend's big-eared bat, and western red bat are also CDFW species of special concern. These species use a variety of habitats to roost, including caves, crevices, mines, hollow trees, buildings, and foliage (e.g., clusters of leaves found in willow, or other tree species). Roosting habitat potentially suitable for special-status bats is present in the project area within crevices (e.g., exfoliating bark, cracks and fissures in tree stems or branches, crevices in buildings), foliage (e.g., willows), and cavities (e.g., large tree hollows, unoccupied buildings). The bridge over Meeks Creek does not have features that would support critical roosting for bats.

Sierra Nevada Snowshoe Hare

Sierra Nevada snowshoe hare is a CDFW species of special concern. Habitat potentially suitable for Sierra Nevada snowshoe hare in the project area is present primarily within riparian areas in Meeks Meadow. Snowshoe hares build nests (which are also known as "forms") on the ground within brush or young forest habitat. Snowshoe hare young are precocial, meaning that they are born fully furred and capable of locomotion very soon after birth. Young Sierra Nevada snowshoe hares have been observed from approximately June through July (Brylski et al. 1998).

Western White-tailed Jackrabbit

Western white-tailed jackrabbit is a CDFW species of special concern. The project area contains undeveloped brush and forest habitat (i.e., west of SR 89) potentially suitable for this species. Like Sierra Nevada snowshoe hare, western white-tailed jackrabbits build nests (which are also known as "forms") on the ground within brush or young forest habitat. Western white-tailed jackrabbits breed from February to July.

3.4.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

Evaluation of potential biological impacts is based on a review of existing documents and studies that address biological resources in the vicinity of the project. Information obtained from these sources was reviewed and summarized to describe existing conditions and to identify potential environmental effects, based on the standards of significance presented in this section. In determining the level of significance, the analysis assumes that the project would comply with relevant federal, state, and local laws, ordinances, and regulations.

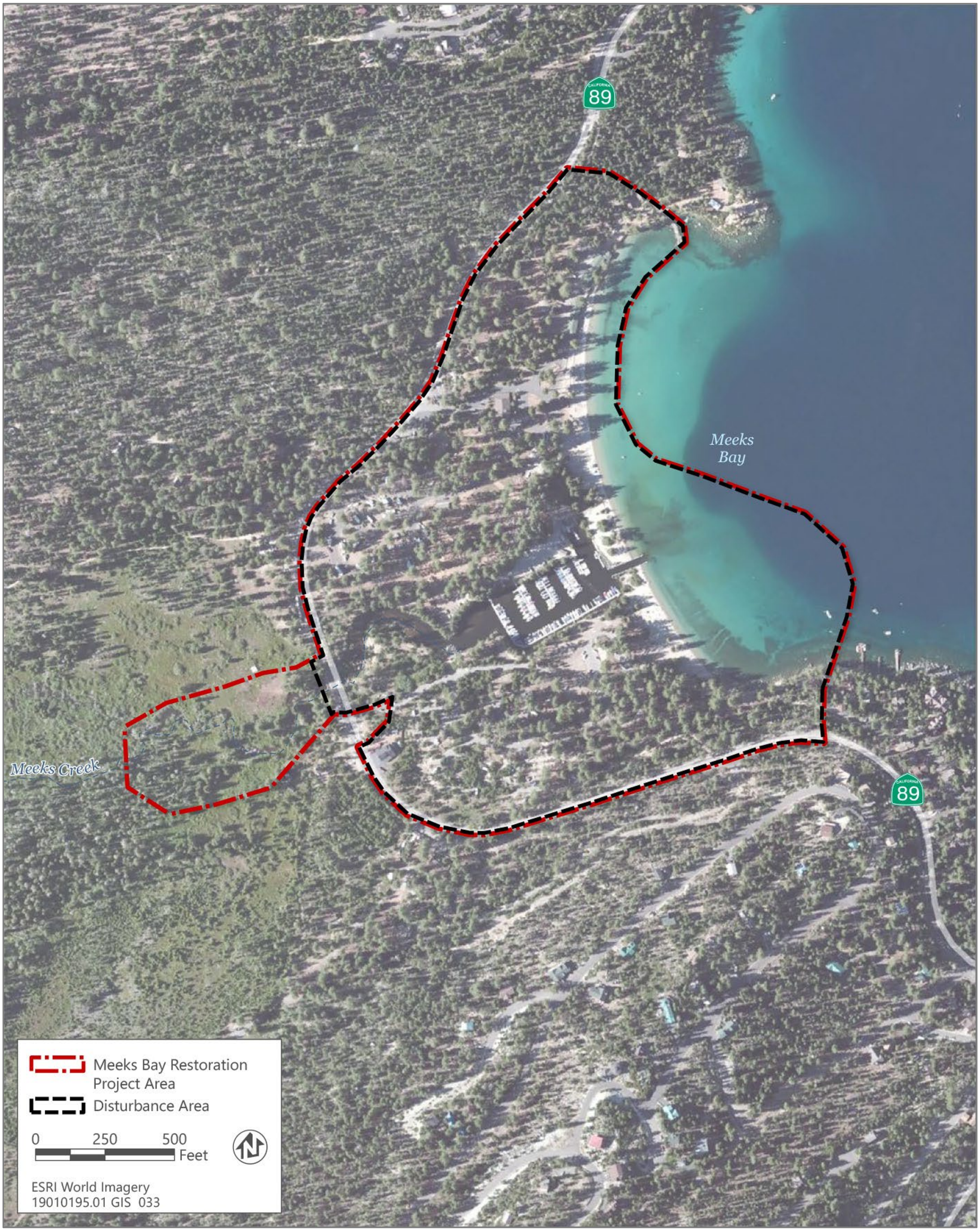
Disturbance Area

The Meeks Bay Restoration Project area includes Meeks Bay, recreation facilities (i.e., Meeks Bay Marina, Meeks Bay Resort, Meeks Campground), and Meeks meadow (see Figure 2-2 in Chapter 2, "Description of the Proposed Action and Alternatives"). For the purposes of the biological resources impact analysis, a portion of the project area including areas east of SR 89 and approximately 75 feet west of SR 89 is considered the "disturbance area." Outside of the disturbance area, ground disturbance, vegetation removal, staging, and other project activities would not occur. Therefore, impacts on biological resources are not expected to occur outside of the disturbance area. Figure 3.4-4 shows the disturbance area in relation to the larger project area.

THRESHOLDS OF SIGNIFICANCE

The thresholds of significance were developed in consideration of the State CEQA Guidelines, TRPA Thresholds, TRPA Initial Environmental Checklist, LTBMU Forest Plan, and other applicable policies and regulations. Under NEPA the significance of an effect must consider the context and intensity of the environmental effect. The factors that are taken into account under NEPA to determine the context and intensity of its effects are encompassed by the thresholds of significance. An alternative would have a significant effect on terrestrial biological resources if it would:

- have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, USFWS, or designated as sensitive by the Regional Forester (i.e., "Forest Service sensitive");
- have a substantial adverse effect on any riparian habitat, wetlands, or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFW or USFWS;
- interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;
- result in substantial removal of riparian vegetation or other vegetation associated with critical wildlife habitat, either through direct removal or indirect lowering of the groundwater table;
- substantially change the diversity or distribution of species, or numbers of any species of plants (including trees, shrubs, grass, crops, micro flora, and aquatic plants;
- reduce the numbers of any unique, rare, or endangered species of plants or animals;
- result in deterioration of existing fish or wildlife habitat quantity or quality;
- substantially reduce the size, continuity, or integrity of wildlife habitat, or result in unnatural changes in the abundance, diversity, or distribution of native wildlife species; and
- conflict with the Standards and Guidelines from the LTBMU Land and Resource Management Plan (USDA Forest Service 2016).



Source: Adapted by Ascent in 2022.

Figure 3.4-4 Disturbance Area

ISSUES NOT DISCUSSED FURTHER

Implementation of the alternatives would not introduce new vegetation that would require excess fertilizer or water. After completion of construction and restoration activities under the alternatives, native wetland and riparian vegetation would be re-established throughout the restoration area. Existing native vegetation and soil removed during implementation of restoration activities are salvaged and replanted on site to the extent feasible. Implementation of the alternatives would not change the natural functioning of any old growth ecosystems because the project area does not contain old growth habitat. These TRPA criteria are not discussed further. The project area is not within the plan area of any adopted Habitat Conservation Plan or NCCP. This issue is not discussed further.

Special-Status Wildlife Species outside of the Disturbance Area

As described above under "Methodology," ground disturbance, vegetation removal, staging, and other project activities would be limited to the disturbance area and would not occur in the western portion of the project area, including Meeks Meadow. Several special-status wildlife species were determined to have potential to occur only within habitats in Meeks Meadow or directly adjacent to Meeks Meadow: long-eared owl, yellow warbler, American badger, ringtail, Sierra Nevada snowshoe hare, and western white-tailed jackrabbit (Table B-2 in Appendix B). Because project activities would not occur outside of the disturbance area, and these species are not expected to occur in the disturbance area, impacts on these species are not expected to occur. These species are not analyzed further.

Impacts on Nesting Birds from Construction Noise

Construction activities would generate noise due to the use of heavy equipment (e.g., pile driver, excavator, backhoe, generator). Excessive construction noise can result in disturbance to nearby bird nests, potentially resulting in abandonment of the nest and loss of eggs or chicks. The disturbance area is located greater than one mile from the nearest bald eagle disturbance zone and greater than 0.5 mile from the nearest osprey disturbance zone as designated by TRPA (Figure 3.4-3). As described in Section 3.11, "Noise," at this distance (i.e., greater than 0.5 mile), construction noise generated from the project area would be less than noise levels experienced in urban environments or near roadways (e.g., existing traffic noise from SR 89). Therefore, it is unlikely that nesting bald eagles or osprey that have been documented in the vicinity of the project area would be adversely affected by construction noise. Further, habitat potentially suitable for other special-status birds (i.e., long-eared owl, yellow warbler) is located within and adjacent to Meeks Meadow, several hundred feet from the disturbance area. As described in Section 3.11, "Noise," modeled noise levels at this distance from the noise source, using standard attenuation rates, would be similar to noise levels experienced in urban environments or near roadways (e.g., existing traffic noise from SR 89). Therefore, impacts on special-status birds resulting from construction noise are not expected to occur. This issue is not discussed further.

Impacts on Foraging or Overwintering Habitat for Special-Status Birds

Nesting habitat suitable for bald eagle is not present within the project area; however, the species may forage or overwinter in the project area. Several additional special-status bird species may also forage or in the project area (i.e., American peregrine falcon, osprey, willow flycatcher, northern goshawk, California spotted owl) despite limited or absent nesting habitat. While project construction activities may result in temporary disruption of foraging or overwintering activities due to the presence of construction crews and associated increased human activity, project activities, including tree removal, are not expected to result in substantial permanent adverse effects on foraging or overwintering habitat for special-status birds. Restoration of Meeks Creek is expected to result in a net benefit for birds generally, because the channel banks and floodplain would be revegetated with native riparian plant species that would provide additional foraging and nesting opportunities and because removal of facilities and infrastructure may result in more available natural habitat for foraging and breeding. Therefore, impacts on foraging and overwintering habitat for special-status birds are not expected to occur. As described in the BE, project implementation may affect but is not likely to lead to a trend toward listing or loss of viability of bald eagle. This issue is not discussed further.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.4-1: Result in Disturbance, Loss, or Reduced Abundance of Tahoe Yellow Cress and Other Special-Status Plants

Implementation of Alternatives 1, 2, 3, and 4 would consist of restoration and construction activities that would include ground disturbance, vegetation removal, and the use of vehicles and heavy machinery, which could result in damage or removal of Tahoe yellow cress and other special-status plant species. Implementation of RPMs developed for the project would require identification and protection of Tahoe yellow cress and other special-status plant occurrences, and mitigation for unavoidable, permanent losses that would reduce the number of plants in the occurrence below self-sustaining numbers, or permanently adversely alter occupied habitat of special-status plant species. Further, project actions would ultimately result in a functional lift in ecosystem functions and an increase in habitat for Tahoe yellow cress and other special-status plants associated with mesic habitat from current conditions. Therefore, the impact related to special-status plants associated with Alternatives 1, 2, 3, and 4 would be **less than significant**. Implementation of the No Action Alternative would not include restoration of Meeks Creek and lagoon and may contribute to the ongoing degradation of Meeks Creek, which could result in adverse effects on Tahoe yellow cress occurrences. This would be a **potentially significant** impact.

No Action Alternative

Under the No Action Alternative, there would be no restoration and the marina would remain in place as it currently is, with a boat ramp and approximately 120 slips. The marina would be operational during accessible, high and normal lake levels and would not be operational during periods of low lake levels. Upland features would remain in their current configuration, which includes 76 campsites in two campgrounds and two day-use areas. Under existing conditions, Meeks Creek is degraded and lacks the wetland, lagoon, and barrier beach habitat that historically existed in the project area.

These degraded conditions would continue and may worsen under the No Action Alternative, ultimately resulting in reduced hydrologic and geomorphic functions of Meeks Creek and the lagoon, continued incision and decreased floodplain connectivity, continued lowering of groundwater levels and alteration of complex, deltaic sediment transport dynamics, and continued loss of wetland area and impairment of riparian function.

The degraded conditions in Meeks Creek would continue as described above, which could result in loss of habitat for Tahoe yellow cress occurrences, as well as special-status plants associated with mesic habitat. Therefore, this alternative may result in **potentially significant** impacts on Tahoe yellow cress and other special-status plants associated with mesic habitat in the project area.

Alternative 1: Full Restoration with Boating Pier

Alternative 1 would involve complete restoration of Meeks Creek and lagoon, which would result in a short-term period of high-intensity disturbance during restoration activities and construction of infrastructure features (i.e., parking, paths, utilities). A 300-foot-long boating pier would also be constructed. Restoration and construction activities would include grading, earthmoving, and excavation which would include the use of vehicles and heavy machinery including trucks, loaders, dozers, excavators, backhoes, and generators. Some removal of trees and other vegetation would occur (including trees greater than 30 inches dbh) within the restoration footprint. With Alternative 1, construction and other restoration activities such as the removal of sheet pile at the mouth of Meeks Creek and restoration of the barrier beach could potentially remove or damage occurrences of Tahoe yellow cress present near the creek outlet and other special-status plants associated with mesic habitat in the project area. Construction and other project activities in conifer forest habitats could remove or damage occurrences of special-status plants associated with forest habitats, including short-leaved hulsea (a USDA Forest Service sensitive species), if present.

Several RPMs would be implemented as part of the project, including identification and protection of Tahoe yellow cress populations during restoration activities (see applicable RPMs included in Appendix A). Resource protection barriers and interpretive information would be installed to protect the species where it occurs in Meeks Bay. The BE/BA identified RPMs for impacts on Tahoe yellow cress and other special-status plants, which are described in

Appendix A (LTBMU 2021). Through implementation of the RPMs, surveys would be conducted in potential habitat to identify any occurrences of the special-status plant species on site prior to carrying out any project activities. For Tahoe yellow cress, identified occurrences would be buffered from restoration activities and protected on site, where full avoidance is achievable while implementing necessary restoration actions. For any project-related removal of Tahoe yellow cress that may be required to accomplish the restoration objectives (e.g., if removal of sheet pile at the mouth of Meeks Creek and restoration of the barrier beach requires work in occupied Tahoe yellow cress habitat and full avoidance of all plants is not feasible), the RPMs require implementation of mitigation measures including translocation and outplanting of Tahoe yellow cress plants within suitable habitat in the project area, and long-term monitoring and adaptive management. For all other special-status plant species with potential to occur in the project area, identified occurrences would be buffered from restoration activities and protected on site. If removal of any special-status plants, other than Tahoe yellow cress, is required to achieve restoration objectives and design requirements, the number of plants and area of occupied habitat removed would be limited to the minimum necessary to accomplish project objectives. If project activities would result in removal or mortality of a small number of individuals of a special-status plant population but would not result in loss of an entire special-status plant occurrence, would not reduce the number of plants in the occurrence below self-sustaining numbers, and would not remove or permanently adversely alter occupied habitat, then mitigation, such as plant salvage and relocation efforts, would not be necessary. If an entire special-status plant occurrence would be lost through removal or adverse habitat modification and this loss represents a substantial portion of the species' local (Tahoe Basin) population, the loss would be mitigated through transplantation, sacrifice seed collection, restoration of disturbed habitat and replacement of topsoil; and performance standards would be established and implemented to ensure survival of the salvaged or translocated plants. The decision about whether plant salvage and replanting or relocation will be required will be made in consultation with the responsible agency (e.g., LTBMU, TRPA, or CDFW). As specified in the RPMs for special-status plants (see Appendix A), relocation of special-status plants would only be attempted in cases where relocation has a high probability of success, and it would not be possible to implement the project without harming the entire occurrence of special-status plants.

In addition to direct removal of special-status plants, project activities have potential to result in indirect adverse effects to special-status plants, if present, through adverse modifications to habitat, such as soil compaction, hydrological modification, removal of shade vegetation. Alternative 1 would not substantially change visitation at the site and would therefore not affect risks of recreational trampling. Further, project actions under Alternative 1 would ultimately result in a functional lift in ecosystem functions through removal of the marina, recreating shallow lagoon habitat, and to restoring channel and floodplain topography along Meeks Creek allowing floodplain connectivity and establishment of wetland habitat, increasing habitat for special-status plants associated with mesic habitat from current conditions. Restoration of the barrier beach would increase habitat for Tahoe yellow cress. Therefore, implementing Alternative 1 would result in an indirect beneficial effect on special-status plants, including Tahoe yellow cress due to improved habitat conditions and increased habitat availability in Meeks Bay. Because RPMs would be implemented to minimize, avoid, and/or compensate for any loss of special-status plant occurrences, this impact would be **less than significant**; and, as described in the BE/BA, **project implementation may affect but is not likely to lead to a trend toward listing or loss of viability of Tahoe yellow cress or any other USDA Forest Service sensitive plant species**.

<u>Alternative 2: Full Restoration with Pedestrian Pier</u>

Alternative 2 would include the restoration and construction activities described for Alternative 1 but would include an approximately 100-foot-long pedestrian pier instead of the 300-foot-long boating pier included in Alternative 1. The mechanisms for impacts on special-status plants would be the same as described above for Alternative 1. The addition of a pedestrian pier would introduce similar impacts as those described for the boating pier. Further, project actions under Alternative 2 would ultimately result in a functional lift in ecosystem functions and an increase in habitat for Tahoe yellow cress and other special-status plants associated with mesic habitat from current conditions.

For the same reasons described for Alternative 1, impacts on special-status plants, including Tahoe yellow cress, would be **less than significant**.

<u>Alternative 3: Full Restoration with No Pier</u>

Alternative 3 would include the restoration and construction activities described for Alternative 1 and Alternative 2 but would include a small moveable, universally accessible paddlecraft launch instead of the boating pier or pedestrian pier included in Alternative 1 and Alternative 2, respectively. The mechanisms for impacts on special-status plants would be the same as described above for Alternative 1. The addition of a paddlecraft launch structure would introduce similar impacts as those described for the boating pier. Alternative 3 could result in up to a 5 percent increase in visitation during peak periods (i.e., July and August) (see Section 3.1, "Recreation"). However, the project includes TYC protection measures such as signage and/or natural barriers to prevent trampling, which would minimize the risk of recreational trampling. Further, project actions under Alternative 3 would ultimately result in a functional lift in ecosystem functions and an increase in habitat for Tahoe yellow cress and other special-status plants associated with mesic habitat from current conditions.

For the same reasons described for Alternative 1, impacts on special-status plants, including Tahoe yellow cress, would be **less than significant**.

<u>Alternative 4: Preferred Alternative</u>

Similar to Alternatives 1, 2, and 3, Alternative 4 would involve removal of the marina and full restoration of the creek, lagoon, and barrier beach. Like Alternative 3, this alternative would not include a pier but would include a small moveable, universally accessible paddlecraft launch on the south end of the bay. As with Alternative 1, this alternative would relocate the two motel style cabin units in the Meeks Bay Resort farther inland and replace them with three smaller cabin units while maintaining the existing overnight visitor capacity. This alternative would not relocate the parking on the south end of the project area, but it would expand parking capacity by 14 spaces; it would also include upland features common to all the action alternatives.

The mechanisms for impacts on special-status plants would be the same as described above for Alternative 1. The addition of a paddlecraft launch structure would introduce similar impacts as those described for the boating pier. The expanded parking could increase visitation, but to a lesser extent than Alternative 3. As with Alternative 3, this alternative would include signage and/or barriers to reduce the risk of recreational trampling. Further, project actions under Alternative 4 would ultimately result in a functional lift in ecosystem functions and an increase in habitat for Tahoe yellow cress and other special-status plants associated with mesic habitat from current conditions.

For the same reasons described for Alternative 1, impacts on special-status plants, including Tahoe yellow cress, under Alternative 4 would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.4-2: Result in Disturbance, Loss, or Reduced Abundance of Special-Status Wildlife from Construction and Recreational Uses

Implementation of Alternatives 1, 2, 3, and 4 would consist of restoration and construction activities that would include ground disturbance, vegetation removal, and the use of vehicles and heavy machinery, which could result in disturbance, injury, or mortality of several special-status wildlife species if present. Implementation of RPMs developed for the project would require identification of special-status wildlife occurrences through preconstruction surveys and implementation of protective measures to avoid impacts on these occurrences. Therefore, the impact related to special-status plants associated with Alternatives 1, 2, 3, and 4 would be **less than significant**. Impacts on special-status wildlife that may occur in the disturbance area would be **less than significant** under the No Action Alternative.

Table B-2 in Appendix B provides a list of the special-status wildlife species that may occur or are known to occur within the project area. As noted above, under "Issues Not Discussed Further," several species that may occur in the project area are not expected to occur in the disturbance area and impacts on foraging and overwintering species are not expected to occur. Ten remaining special-status wildlife species or species groups may occur within the disturbance area: osprey, waterfowl, Sierra Nevada yellow-legged frog, southern long-toed salamander, monarch, western bumble bee, fringed myotis, pallid bat, Townsend's big-eared bat, and western red bat.

No Action Alternative

Under the No Action Alternative, there would be no restoration and the marina would remain in place as it currently is, with a boat ramp and approximately 120 slips. The marina would be operational during accessible, high lake levels and would not be operational during periods of low lake levels. Upland features would remain in their current configuration, which includes 76 campsites in two campgrounds and two day-use areas. Because no construction activities would occur under the No Action Alternative, direct and indirect impacts on special-status wildlife would not occur. Impacts on special-status wildlife would be **less than significant**.

Alternative 1: Full Restoration with Boating Pier

Alternative 1 would involve complete restoration of Meeks Creek and lagoon, which would result in a short-term period of high-intensity disturbance during restoration activities and construction of infrastructure features (i.e., parking, paths, utilities). A 300-foot-long boating pier, reconstructed bridge, relocated cabins, and other recreation features would also be constructed. Restoration and construction activities would include grading, earthmoving, and excavation which would include the use of vehicles and heavy machinery including trucks, loaders, dozers, excavators, backhoes, and generators. Some removal of trees and other vegetation would occur throughout the project area (including trees greater than 30 inches dbh within the restoration footprint).

Sierra Nevada Yellow-legged Frog

Restoration activities would likely result in an overall improvement of potential habitat for this species; however, restoration and construction activities (i.e., installation of temporary barriers including a diversion dam, dewatering of a portion of Meeks Creek, placement of fill in the existing lagoon, grading of creek and lagoon, installation of a multi-use path bridge and nonmotorized watercraft launch, and replacement of the SR 89 bridge) could result in the direct loss of Sierra Nevada yellow-legged frog individuals in Meeks Creek, if present, or temporary impacts on aquatic habitat. Existing best management practices (BMPs) for construction included in TRPA Code of Ordinances, Lahontan RWQCB requirements, and National Pollutant Discharge Elimination System permits would be implemented, which would include preparation and implementation of stormwater pollution prevention and hazardous materials handling and management plans, which would minimize the potential for impacts on aquatic habitat.

Further, an RPM for impacts on fish and other important native aquatic species (e.g., Sierra Nevada yellow-legged frog, southern long-toed salamander) has been identified, which is described in Appendix A, "Resource Protection Measures." This RPM would require biological monitoring when flows are diverted from in-channel construction sites and screens covering pump intakes to limit entrainment of these species. With implementation of existing BMPs and this RPM, in addition to the low likelihood of presence of Sierra Nevada yellow-legged frog in the project area, impacts on this species resulting from Alternative 1 would be **less than significant**. As described in the BA prepared for the project, **project implementation may affect but is not likely to adversely affect Sierra Nevada yellow-legged frog.**

Southern Long-Toed Salamander

Restoration activities would likely result in an overall improvement of habitat for this species; however, restoration and construction activities that would involve ground disturbance or vegetation removal could result in the direct loss of southern long-toed salamander individuals in Meeks Creek or in underground habitat in upland areas (e.g., rodent burrows). RPMs for impacts on southern long-toed salamanders have been identified, which are described in Appendix A. These RPMs include a preconstruction survey for southern long-toed salamanders within Meeks Creek and associated wet meadow and wetland habitat, as well as upland areas within approximately 100 feet of these features, and include biological monitoring when flows are diverted from in-channel construction sites and screens covering pump intakes to limit entrainment of aquatic species, including southern long-toed salamanders. With implementation of these RPMs, impacts on southern long-toed salamanders resulting from Alternative 1 would be **less than significant**.

Special-Status Birds (Osprey, Olive-Sided Flycatcher, Waterfowl) and Common Nesting Birds

Tree removal, other vegetation removal, and ground disturbance activities in the disturbance area could result in loss of nests of special-status birds (i.e., osprey, olive-sided flycatcher, waterfowl) and common tree- and ground-nesting native birds protected by California Fish and Game Code, if present in the disturbance area. An RPM for vegetation removal has been developed, and pursuant to this RPM, all vegetation (i.e., riparian vegetation, conifers) would be removed the year prior to commencement of construction activities and/or outside of the nesting bird season (i.e., February 1 through August 31), unless surveys determine that no nesting birds are present (see Appendix A). With implementation of this RPM, direct loss of the nests of special-status bird and common tree- and ground-nesting native birds would not occur. Further, restoration of Meeks Creek is expected to result in a net benefit for birds, because the channel banks and floodplain would be revegetated with native riparian plant species that would provide additional foraging and nesting opportunities and because removal of facilities and infrastructure may result in more available natural habitat for foraging and breeding. With implementation of this RPM, impacts on special-status birds and common nesting birds resulting from Alternative 1 would be **less than significant**.

Mule deer

As noted above, while not considered abundant in the vicinity of the project area, mule deer may forage or move through the project area on occasion. The project area does not contain deer fawning habitat and is not positioned in any important movement corridors for the Loyalton-Truckee mule deer herd. Additionally, the SR 89 corridor and disturbance from recreational use of the project area and surroundings limit the project area from functioning as an important deer movement corridor. Implementation of the project would not impose new barriers to movement of mule deer in the region relative to existing conditions. Therefore, project implementation would not threaten, damage, or destroy fawning habitat for deer or result in adverse impacts on deer migration areas and impacts on mule deer resulting from Alternative 1 would be **less than significant**.

Monarch Butterfly

Restoration and construction activities that would involve ground disturbance or vegetation removal could result in disturbance of monarchs and habitat suitable for the species. Milkweed host plants and breeding monarch butterflies could be disturbed, injured, or lost during construction activities if present in the project area. Construction and restoration activities would not occur in Meeks Meadow, with the exception of limited excavation adjacent to the SR 89 bridge, which would limit the likelihood of impacts on optimal habitat for monarchs. Disturbance resulting from restoration and construction activities would be temporary, and restoration of Meeks Creek is expected to result in a net benefit for monarchs, because the channel banks and floodplains would be revegetated with native riparian plant species that would provide additional nectar resources for the species and because removal of facilities and infrastructure may result in more available natural habitat for foraging and breeding. As described in the BE/BA, project implementation may affect but is not likely to lead to a trend toward listing or loss of viability of monarchs. An RPM for impacts on monarch habitat has been identified, which is described in Appendix A. The RPM includes implementation of pollinator habitat restoration measures, which would further benefit monarchs. With implementation of the RPM, impacts on monarchs resulting from Alternative 1 would be **less than significant**.

Western Bumble Bee

Restoration and construction activities that would involve ground disturbance or vegetation removal could result in mortality of western bumble bees while foraging and within nesting or overwintering colonies (e.g., in underground rodent holes, loose soil, leaf litter, log/tree cavities, surface vegetation), if present in the project area. While loss of individual western bumble bees or a colony as a result of project activities may not cause the population to drop below self-sustaining levels, threaten to eliminate the species, or substantially reduce the range of the species, the population status of this species is poorly understood, and loss of colonies could have a substantial effect on the population. It is unlikely that the project area would support a high concentration of western bumble bee colonies due to the rarity of the species in the region. Further, construction and restoration activities would not occur in Meeks Meadow, with the exception of limited excavation adjacent to the SR 89 bridge, which would limit the likelihood of impacts on optimal habitat for western bumble bee. Thus, project implementation is not expected to result in loss of a significant number of bumble bees, if present. As described in the BE/BA, project implementation may affect but is not likely to lead to a trend toward listing or loss of viability of western bumble bee. Restoration of Meeks Creek is expected to result in a net benefit for native bees, including potentially western bumble bee, because the channel banks would be revegetated with native riparian plant species that would provide additional nectar and pollen resources for the species and because removal of facilities and infrastructure may result in more available natural habitat for nesting and overwintering. An RPM for impacts on western bumble bee habitat has been identified, which is described in Appendix A. The RPM includes implementation of pollinator habitat restoration measures, which would further benefit western bumble bee. With implementation of the RPM, impacts on western bumble bees resulting from Alternative 1 would be **less than significant**.

Special-Status Bats

Tree and building removal activities could result in loss of active roosts of special-status bats if present in the project area. Construction activities could result in disturbance to active roosts due to the visual stimulus and noise from vehicles, heavy equipment, and personnel, potentially resulting in roost abandonment.

An RPM for vegetation removal has been developed, and pursuant to this RPM, all vegetation (i.e., riparian vegetation, conifers) would be removed the year prior to commencement of construction activities and/or outside of the bat maternity and bat hibernation season (i.e., May 1 through September 15 and November 15 through March 15, respectively) (see Appendix A). This RPM requires all building demolition to occur outside of the bat maternity and bat hibernation season, if feasible. An additional RPM, described in Appendix A, includes a survey for potential communal bat roosting if demolition of buildings with confirmed or suspected use by bats during the bat maternity and hibernation seasons would occur. With implementation of these RPMs, impacts on fringed myotis, pallid bat, Townsend's big-eared bat, western red bat, and other common bat species resulting from Alternative 1 would be **less than significant** and, as described in the BE/BA, **project implementation may affect but is not likely to lead to a trend toward listing or loss of viability of fringed myotis, pallid bat, and Townsend's big-eared bat**. Furthermore, the project includes the construction of bat boxes near the restored lagoon, which could have long-term beneficial effects on the species.

Alternative 2: Full Restoration with Pedestrian Pier

Alternative 2 would include the restoration and construction activities described for Alternative 1 but would include an approximately 100-foot-long pedestrian pier instead of the 300-foot-long boating pier included in Alternative 1. The mechanisms for impacts on special-status wildlife would be the same as described above for Alternative 1. The addition of a pedestrian pier would introduce similar impacts as those described for the boating pier.

For the same reasons described for Alternative 1, impacts on Sierra Nevada yellow-legged frog, southern long-toed salamander, special-status birds (i.e., osprey, olive-sided flycatcher, waterfowl), common tree- and ground-nesting native birds protected by California Fish and Game Code, mule deer, monarch, western bumble bee, special-status bats (i.e., fringed myotis, pallid bat, Townsend's big-eared bat, western red bat) would be **less than significant** under Alternative 2.

Alternative 3: Full Restoration with No Pier

Alternative 3 would include similar restoration and construction activities described for Alternatives 1 and 2 but would include a small moveable, universally accessible paddlecraft launch structure instead of the boating pier or pedestrian pier included in Alternative 1 and Alternative 2, respectively. The mechanisms for impacts on special-status wildlife would be the same as described above for Alternative 1. The addition of a paddlecraft launch structure would introduce similar impacts as those described for the boating pier.

For the same reasons described for Alternative 1, impacts on Sierra Nevada yellow-legged frog, southern long-toed salamander, special-status birds (i.e., osprey, olive-sided flycatcher, waterfowl), common tree- and ground-nesting native birds protected by California Fish and Game Code, mule deer, monarch, western bumble bee, special-status bats (i.e., fringed myotis, pallid bat, Townsend's big-eared bat, western red bat) would be **less than significant** under Alternative 3.

Alternative 4: Preferred Alternative

Similar to Alternatives 1, 2, and 3, Alternative 4 would involve removal of the marina and full restoration of the creek, lagoon, and barrier beach. Like Alternative 3, this alternative would not include a pier but would include a small paddlecraft launch structure on the south end of the bay. As with Alternative 1, this alternative would relocate the two motel style cabin units in the Meeks Bay Resort farther inland and replace them with three smaller cabin units while maintaining the existing overnight visitor capacity. This alternative would not relocate the parking on the south end of the project area, but it would expand parking capacity by 14 spaces. It would also include upland features common to all the action alternatives.

The mechanisms for impacts on special-status wildlife would be the same as those described above for Alternative 1. The addition of a paddlecraft launch structure would introduce similar impacts as those described for the boating pier. For the same reasons described for Alternative 1, impacts on Sierra Nevada yellow-legged frog, southern long-toed salamander, special-status birds (i.e., osprey, olive-sided flycatcher, waterfowl), common tree- and ground-nesting native birds protected by California Fish and Game Code, mule deer, monarch, western bumble bee, special-status bats (i.e., fringed myotis, pallid bat, Townsend's big-eared bat, western red bat) would be **less than significant** under Alternative 4.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.4-3: Result in Disturbance or Loss of Common Terrestrial Vegetation Communities and Wildlife Habitats, Trees, Sensitive Natural Communities, and Riparian Habitat

Construction and restoration activities under Alternatives 1, 2, 3, and 4 would not occur in Meeks Meadow, other than limited disturbance directly adjacent to the SR 89 bridge; therefore, impacts on sensitive natural communities in the meadow would not occur. The potential disturbance or removal of terrestrial vegetation resulting from Alternatives 1, 2, 3, and 4 would not substantially reduce the quantity or quality of terrestrial vegetation communities and habitats in the project area or cause a change in species distributions or diversity. Therefore, the impact related to common terrestrial vegetation communities and wildlife habitats, trees, sensitive natural communities, and riparian habitat would be **less than significant**.

With the No Action Alternative, no vegetation would be removed or disturbed and direct and indirect impacts on habitats present in the project area would not occur. Impacts from ongoing recreation on common terrestrial vegetation communities and wildlife habitats, trees, sensitive natural communities, and riparian habitat would not change and would be **less than significant**.

No Action Alternative

Under the No Action Alternative, there would be no restoration and the marina would remain in place as it currently is, with a boat ramp and approximately 120 slips. The marina would be operational during accessible, high lake levels and would not be operational during periods of low lake levels. Upland features would remain in their current configuration, which includes 76 campsites in two campgrounds and two day-use areas. Because no construction activities would occur under the No Action Alternative, no vegetation would be removed or disturbed and direct and indirect impacts on habitats present in the project area would not occur. Impacts on common terrestrial vegetation communities and wildlife habitats, trees, sensitive natural communities, and riparian habitat from recreation activities would continue the same as under existing conditions. This would be **less than significant**.

Alternative 1: Full Restoration with Boating Pier

Alternative 1 would involve complete restoration of Meeks Creek and lagoon, which would result in a short-term period of high-intensity disturbance during restoration activities and construction of infrastructure features (i.e., parking, paths, SR 89 bridge, reconstructed cabins, utilities). A 300-foot-long boating pier would also be constructed. Restoration and construction activities would include grading, earthmoving, and excavation which would include the use of vehicles and heavy machinery including trucks, loaders, dozers, excavators, backhoes, and generators. Some removal of trees and other vegetation would occur (including trees greater than 30 inches dbh) within the restoration footprint.

Common natural terrestrial habitats within the project area consist primarily of conifer forest (i.e., Sierran mixed conifer, Jeffrey pine, lodgepole pine), montane chaparral, grassland, and beach habitat included in the barren FRAP category (Table 3.4-2; Figure 3.4-1). Sensitive natural communities and sensitive habitats in the project area include montane riparian habitat, meadow habitat, and wetlands (discussed in detail under Impact 3.4-4). Project construction and restoration activities under Alternative 1 would not occur in portions of Meeks Meadow, where these sensitive natural communities and sensitive habitats have been documented. Thus, impacts on these habitats are not expected to occur. Construction and restoration activities would occur within common terrestrial vegetation communities that may provide habitat for wildlife. Additionally, trees (including those greater than 30 inches dbh) may be removed to establish defensible space and maintain healthy forest communities. As described above under in Section 3.4.2, "Environmental Setting," much of the common terrestrial vegetation communities are associated with campsites, parking areas, roads and trails, and other summer-use facilities and are already subject to high levels of disturbance. Disturbance or permanent loss of common vegetation communities would be minor and incidental and any temporarily disturbed areas would be restored following construction and restoration. TRPA's Handbook of Best Management Practices and standard conditions of approval require minimizing the disturbance footprint and amount of native vegetation removed by a project, temporarily fencing retained vegetation, and revegetating any temporarily disturbed areas.

While common vegetation could be permanently or temporarily removed or disturbed during construction and restoration activities under Alternative 1, the potential loss would be relatively minor for reasons discussed previously. Additionally, the terrestrial vegetation communities and habitats that may be affected are common and widely distributed in the Tahoe Basin and elsewhere in the Sierra Nevada, and the amount of habitat disturbance and loss would be very small relative to the total amount available in the area. Additionally, any tree removal that may be required would not substantially affect overall canopy cover or reduce the abundance of this vegetation type on the landscape.

In sum, potential disturbance or removal of terrestrial vegetation that would occur under Alternative 1 would not substantially reduce the quantity or quality of vegetation communities and habitats in the project area and would not result in a change in diversity or distribution of species in the project area. There would be no impacts on sensitive natural communities or sensitive habitats in the project area. Additionally, project implementation would not result in a substantial change in local population numbers of any common plant or tree species or any unique, rare, or endangered species of plants or animals. Any permanent and temporary loss and disturbance that would occur under Alternative 1 would be relatively minor and not substantially reduce the size, continuity, or integrity of any common vegetation community or habitat type or disrupt the natural processes that support common vegetation communities in the project area. This impact would be **less than significant**.

Alternative 2: Full Restoration with Pedestrian Pier

Alternative 2 would include the restoration and construction activities described for Alternative 1 but would not include removal and reconstruction of cabins and would include an approximately 100-foot-long pedestrian pier instead of the 300-foot-long boating pier included in Alternative 1. The addition of a pedestrian pier would not introduce a more severe impact than the boating pier described in Alternative 1. For the same reasons described for Alternative 1, impacts on common terrestrial vegetation communities and wildlife habitats (including trees), sensitive natural communities, and sensitive habitats would be **less than significant** under Alternative 2.

Alternative 3: Full Restoration with No Pier

Alternative 3 would include similar restoration and construction activities described for Alternative 2 but would include campground expansion and a small moveable, universally accessible paddlecraft launch structure instead of the pedestrian pier included in Alternative 2. The addition of a paddlecraft launch structure would not introduce a more severe impact than the boating pier described in Alternative 1. For the same reasons described for Alternative 1, impacts on common terrestrial vegetation communities and wildlife habitats (including trees), sensitive natural communities, and sensitive habitats would be **less than significant** under Alternative 3.

Alternative 4: Preferred Alternative

Similar to Alternatives 1, 2, and 3, Alternative 4 would involve removal of the marina and full restoration of the creek, lagoon, and barrier beach. Like Alternative 3, this alternative would not include a pier but would include a small moveable, universally accessible paddlecraft launch structure on the south end of the bay. As with Alternative 1, this alternative would relocate the two motel style cabin units in the Meeks Bay Resort farther inland and replace them with three smaller cabin units while maintaining the existing overnight visitor capacity. Alternative 4 would not relocate the parking on the south end of the project area, but it would expand parking capacity by 14 spaces. It would also include upland features common to all the action alternatives.

The mechanisms for impacts on common vegetation communities and wildlife habitats (including trees), sensitive natural communities, and sensitive habitats would be the same as those described above for Alternative 1. The addition of a paddlecraft launch structure would not introduce a more severe impact than the boating pier described in Alternative 1. For the same reasons described for Alternative 1, impacts on common terrestrial vegetation communities and wildlife habitats (including trees), sensitive natural communities, and sensitive habitats would be **less than significant** under Alternative 4.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.4-4: Result in Disturbance or Loss of State or Federally Protected Wetlands

Implementation of Alternatives 1, 2, 3, and 4 would consist of restoration and construction activities that would include ground disturbance; however, project actions would not result in a net loss of state or federally protected wetlands or other water waters and would ultimately result in a functional lift in ecosystem functions and an increase in wetland habitat from current conditions. Therefore, the project would not have a substantial adverse effect on any riparian habitat, wetlands, or other sensitive natural community, and the impact related to state or federally protected wetlands associated with Alternatives 1, 2, 3, and 4 would be **less than significant**. Implementation of the No Action Alternative would not include restoration of Meeks Creek and lagoon and may contribute to the ongoing degradation of Meeks Creek and continued loss of wetland area associated with the creek. This would be a **potentially significant** impact for the No Action Alternative.

<u>No Action Alternative</u>

Under the No Action Alternative, there would be no restoration and the marina would remain in place, with a boat ramp and approximately 120 slips placed in the lagoon. Currently, some marina infrastructure, including the floating platforms and slips, have been removed from the marina to facilitate AIS control and other management actions. With the No Action Alternative, this infrastructure would be reinstalled, and the marina would continue to operate as it had in the past. Under existing conditions, Meeks Creek is degraded and lacks the wetland, lagoon, and barrier beach habitat that historically existed in the project area. Additionally, continued maintenance of the marina would require ongoing dredging to remove accumulated sediment and aquatic invasive plant species and would involve the use of heavy equipment in Meeks Creek. These degraded conditions would continue and may worsen under the No Action Alternative, ultimately resulting in reduced creek function, continued incision and disconnection of the creek from the floodplain, interference with lagoon and barrier beach processes, and continued loss of wetland area associated with the creek. This impact would be **potentially significant**.

<u>Alternative 1: Full Restoration with Boating Pier</u>

Alternative 1 would involve complete restoration of Meeks Creek and lagoon, which would result in a short-term period of high-intensity disturbance during restoration activities. Restoration activities would include earth moving and grading to recreate a shallow lagoon and to restore channel and floodplain topography along Meeks Creek from SR 89 to Lake Tahoe. This would result in removal of anthropogenic fill from the marina and placement of clean gravel and sand fill to recreate historic channel and floodplain conditions. Restoration would also include removal of existing marina infrastructure, including the concrete boat launch, steel and concrete retaining walls, and boulder riprap. Riparian areas and floodplain surfaces would include microtopographic features (hummocks and depressions), as well as backwater channels, oxbow features, and multiple distributary channel to promote habitat complexity and vegetation diversity. In addition, the lagoon and floodplain would be graded to a range of elevations to support a mix of natural obligate wetland and riparian vegetation. Overall, project actions would not result in a net loss of state or federally protected wetlands or other water waters and would ultimately result in a functional lift in ecosystem functions and an increase in wetland habitat from current conditions.

For these reasons, impacts on state and federally protected wetlands would be **less than significant**.

<u>Alternative 2: Full Restoration with Pedestrian Pier</u>

Alternative 2 would include the restoration and construction activities described for Alternative 1 but would include an approximately 100-foot-long pedestrian pier instead of the 300-foot-long boating pier included in Alternative 1. The addition of a pedestrian pier would not introduce a more severe impact than the boating pier described in Alternative 1. For the same reasons described for Alternative 1, impacts on state and federally protected wetlands would be **less than significant** under Alternative 2.

<u>Alternative 3: Full Restoration with No Pier</u>

Alternative 3 would include the restoration and construction activities described for Alternative 1 and Alternative 2 but would include a small moveable, universally accessible paddlecraft launch structure instead of the boating pier or pedestrian pier included in Alternative 1 and Alternative 2, respectively. The addition of a paddlecraft launch structure would not introduce a more severe impact than the boating pier described in Alternative 1. For the same reasons described for Alternative 1, impacts on state and federally protected wetlands would be **less than significant** under Alternative 3.

<u>Alternative 4: Preferred Alternative</u>

Similar to Alternatives 1, 2, and 3, Alternative 4 would involve removal of the marina and full restoration of the creek, lagoon, and barrier beach. Like Alternative 3, this alternative would not include a pier but would include a small moveable, universally accessible paddlecraft launch structure on the south end of the bay.

The mechanisms for impacts on wetlands would be the same as those described above for Alternative 1. The addition of a paddlecraft launch structure would not introduce a more severe impact than the boating pier described in Alternative 1. For the same reasons described for Alternative 1, impacts on state and federally protected wetlands would be **less than significant** under Alternative 4.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.4-5: Interfere with Wildlife Movement Corridors or Impede the Use of Wildlife Nurseries

Implementation of the alternatives would not result in substantial interference with wildlife movement corridors because the project area does not currently function as an important wildlife movement corridor and the alternatives would not result in construction of new barriers to wildlife movement. No wildlife nurseries are known to occur in the project area; however, communal bat roosts may occur. Implementation of an RPM developed for the project (see Appendix A) would require identification and protection of communal bat roosts. Therefore, the project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors relative to baseline conditions. Nor would it impede the use of native wildlife nursery sites. This impact would be **less than significant**.

<u>No Action Alternative</u>

Under the No Action Alternative, there would be no restoration and the marina would remain in place as it currently is, with a boat ramp and approximately 120 slips. The marina would be operational during accessible, high lake levels and would not be operational during periods of low lake levels. Upland features would remain in their current configuration, which includes 76 campsites in two campgrounds and two day-use areas. Because no construction activities would occur under the No Action Alternative, there would be no physical change to the project area relative to existing conditions. Interference with wildlife movement corridors or adverse effects on wildlife nurseries would not occur. Impacts on wildlife movement corridors and wildlife nurseries would be **less than significant**.

<u>Alternative 1: Full Restoration with Boating Pier</u>

Alternative 1 would involve complete restoration of Meeks Creek and lagoon, reconstruction of the SR 89 bridge, demolition and reconstruction of cabins, and other facility construction that would result in a short-term period of high-intensity disturbance during restoration activities and construction of infrastructure features. A 300-foot-long boating pier would also be constructed. Restoration and construction activities would include grading, earthmoving, and excavation which would include the use of vehicles and heavy machinery including trucks, loaders, dozers, excavators, backhoes, and generators. Some removal of trees and other vegetation would occur (including trees greater than 30 inches dbh) within the restoration footprint.

The project area contains natural vegetation (i.e., forest, chaparral, grassland, lacustrine); however, the majority of the project area is characterized by heavy recreational use associated with Meeks Bay Marina, Meeks Bay Resort, and Meeks Campground. As described in Section 3.4.2, "Environmental Setting," the project area does not contain any portion of a natural landscape block or ECA as defined by the California Essential Habitat Connectivity Project and is separated by nearby ECAs and natural landscape blocks by SR 89 (Spencer et al. 2010). The existing level of human activity in the project area and the existing anthropogenic barriers to wildlife movement likely limit the project area from functioning as an important wildlife movement corridor. Further, restoration and construction activities would be temporary and project implementation would not impose new barriers to movement of wildlife relative to existing conditions. In fact, a terrestrial wildlife undercrossing would be incorporated into the design of the new SR 89 bridge.

There are no known native wildlife nursery sites in the project area. The project area does not contain deer fawning habitat as defined by TRPA (TRPA 2022; Figure 3.4-3); however, the project area could contain roosting habitat for common bat species. As described in Impact 3.4-2, the BE/BA identified an RPM for impacts on bat roosts, which is described in Appendix A (LTBMU 2021). This RPM includes a survey for potential communal bat roosting if potential roost habitat is planned for removal and retention of habitat features with confirmed or suspected use by bats during the bat maternity and hibernation seasons. With implementation of this RPM, impacts on communal bat roosts in the project area would be avoided. For these reasons, impacts on wildlife movement corridors and wildlife nursery sites from Alternative 1 would be **less than significant**.

<u>Alternative 2: Full Restoration with Pedestrian Pier</u>

Alternative 2 would include similar restoration and construction activities described for Alternative 1, including a terrestrial wildlife undercrossing incorporated into the design of the new SR 89 bridge, but would include an approximately 100-foot-long pedestrian pier instead of the 300-foot-long boating pier included in Alternative 1. The addition of a pedestrian pier would not introduce a more severe impact than the boating pier described in Alternative 1. For the same reasons described for Alternative 1, impacts on wildlife movement corridors and native wildlife nursery sites would be **less than significant** under Alternative 2.

<u>Alternative 3: Full Restoration with No Pier</u>

Alternative 3 would include similar restoration and construction activities described for Alternative 1 and Alternative 2, including a terrestrial wildlife undercrossing incorporated into the design of the new SR 89 bridge, but would include a small moveable, universally accessible paddlecraft launch structure instead of the boating pier or pedestrian pier included in Alternative 1 and Alternative 2, respectively. The addition of a paddlecraft launch structure would not introduce a more severe impact than the boating pier described in Alternative 1. For the same reasons described for Alternative 1, impacts on wildlife movement corridors and native wildlife nursery sites would be **less than significant** under Alternative 3.

<u>Alternative 4: Preferred Alternative</u>

Alternative 4 would involve removal of the marina and full restoration of the creek, lagoon, and barrier beach described for Alternatives 1, 2, and 3. This alternative would also include a terrestrial wildlife undercrossing incorporated into the design of the new SR 89 bridge. Like Alternative 3, this alternative would not include a pier but would include a small moveable, universally accessible paddlecraft launch structure on the south end of the bay.

The mechanisms for impacts on wildlife movement and native wildlife nursery sites would be the same as those described above for Alternative 1. The addition of a paddlecraft launch structure would not introduce a more severe impact than the boating pier described in Alternative 1. For the same reasons described for Alternative 1, impacts on wildlife movement corridors and native wildlife nursery sites would be **less than significant** under Alternative 4.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.4-6: Conflict with Local Policies and Ordinances

Land uses in the project area are regulated by the TRPA Regional Plan and Code of Ordinances, and the LTBMU Forest Plan. Implementation of RPMs developed for the project and mitigation measures identified under Impact 3.4-2 and included in Appendix A would reduce impacts on resources protected by TRPA goals, policies, and Code of Ordinances and LTBMU standards and guidelines to less than significant for Alternatives 1, 2, 3, and 4. Therefore, the impact related to potential conflict with local policies or ordinances protecting biological resources would be **less than significant** for all alternatives.

No Action Alternative

Under the No Action Alternative, there would be no restoration and the marina would remain in place as it currently is, with a boat ramp and approximately 120 slips. The marina would be operational during accessible, high lake levels and would not be operational during periods of low lake levels. Upland features would remain in their current configuration, which includes 76 campsites in two campgrounds and two day-use areas. Because no construction activities would occur under the No Action Alternative, there would be no project-related physical change to the project area relative to existing conditions that would conflict with a local policy or ordinance protecting biological resources. Impacts on biological resources protected by TRPA goals, policies, and Code of Ordinances, or the LTBMU Forest Plan would not occur. Therefore, impacts resulting from conflict with local policies and ordinance would be **less than significant**.

Alternative 1: Full Restoration with Boating Pier

Alternative 1 would involve complete restoration of Meeks Creek and lagoon, which would result in a short-term period of high-intensity disturbance during restoration activities and construction of recreation and infrastructure features (i.e., parking, SR 89 bridge, cabins, paths, utilities). A 300-foot-long boating pier would also be constructed. Restoration and construction activities would include grading, earthmoving, and excavation which would include the use of vehicles and heavy machinery including trucks, loaders, dozers, excavators, backhoes, and generators. Some vegetation removal would occur (including trees greater than 30 inches dbh) within the restoration footprint.

Land uses in the project area are regulated by the LTBMU Forest Plan, and TRPA Regional Plan and Code of Ordinances. The Forest Plan, TRPA Regional Plan, and Code of Ordinances includes policies protecting biological resources, such as sensitive and uncommon plants, wildlife, special-status species habitat, aquatic habitat, wetland and riparian habitat, trees, and native vegetation. As discussed above in Impacts 3.4-1, 3.4-2, 3.4-3, 3.4-4, and 3.4-5, while implementation of the alternatives could result in some tree removal and other adverse effects on these resources, RPMs identified in the BE/BA (also see Appendix A) would be implemented to reduce impacts on biological resources to less than significant. Additionally, compliance with the TRPA Code of Ordinances is a regulatory requirement for project approval and permitting. Therefore, implementation of the approved project would not conflict with local policies protecting these resources; impacts from Alternative 1 would be **less than significant**.

Alternative 2: Full Restoration with Pedestrian Pier

Alternative 2 would include similar restoration and construction activities described for Alternative 1 but would include an approximately 100-foot-long pedestrian pier instead of the 300-foot-long boating pier included in Alternative 1. The addition of a pedestrian pier would not introduce a more severe impact than the boating pier described in Alternative 1. Therefore, for the same reasons described for Alternative 1, no conflict with the policies protecting these resources would occur and impacts from Alternative 2 would be **less than significant**.

Alternative 3: Full Restoration with No Pier

Alternative 3 would include similar restoration and construction activities described for Alternative 1 and Alternative 2 but would include a small moveable, universally accessible paddlecraft launch structure instead of the boating pier or pedestrian pier included in Alternative 1 and Alternative 2, respectively. The addition of a paddlecraft launch structure would not introduce a more severe impact than the boating pier described in Alternative 1. Therefore, for the same reasons described for Alternative 1, no conflict with the policies protecting these resources would occur and impacts from Alternative 3 would be **less than significant**.

Alternative 4: Preferred Alternative

Alternative 4 would involve removal of the marina and full restoration of the creek, lagoon, and barrier beach described for Alternatives 1, 2, and 3. Like Alternative 3, this alternative would not include a pier but would include a small moveable, universally accessible paddlecraft launch structure on the south end of the bay. As with Alternative 1, this alternative would relocate the two motel-style cabin units in the Meeks Bay Resort farther inland and replace them with three smaller cabin units while maintaining the existing overnight visitor capacity. Alternative 4 would not relocate the parking on the south end of the project area, but it would expand parking capacity by 14 spaces. It would also include upland features common to all the action alternatives.

The mechanisms for impacts on biological resources and the applicable local ordinances would be the same as those described above for Alternative 1. The addition of a paddlecraft launch structure would not introduce a more severe impact than the boating pier described in Alternative 1. Additionally, compliance with the TRPA Code of Ordinances is a regulatory requirement for project approval and permitting. For the same reasons described for Alternative 1, implementation of the approved project under Alternative 4 would not conflict with local policies protecting biological resources and this potential impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

CUMULATIVE IMPACTS

Cumulative impacts on biological resources are considered in the context of the Meeks Creek watershed, Lake Tahoe Basin, the range of affected special-status species, as well as adjacent migration and movement corridors (e.g., natural habitat areas surrounding the project area, the Pacific flyway for migratory birds) that are connected to the project area. Past, present, and reasonably foreseeable future development, recreation, and fuels management projects, including the projects listed in Table 3-2, have resulted and likely will continue to result in significant cumulative impacts on special-status plants, special-status wildlife, sensitive natural communities, riparian habitat, state or federally protected wetlands, wildlife movement corridors, and native wildlife nurseries. In the distant past, development occurred absent environmental regulation and habitat conversion, degradation, and indirect effects (e.g., noise, air, and light pollution) occurred with little or no mitigation. In recent decades, however, development has continued, but in a regulatory context that required compensatory actions for project-related adverse effects on state and private lands. Also in recent years, restoration projects have restored habitat and natural areas resulting in benefits to regional flora and fauna. The Mayala Wata Restoration at Meeks Creek Project would be implemented concurrently with the project. This project will result in a net benefit to biological resources; however, immediate, temporary impacts resulting from restoration activities would be similar to the Meeks Bay Restoration Project. Recreation projects, such as the Tahoe Trail, while not without their impacts, serve to focus recreational use in specific areas, preventing impacts to more pristine areas. Fuels reduction projects may result in temporary impacts on wildlife habitat and introduce noise, vibration, and other disturbance, but their objectives to reduce the risk of catastrophic wildfire is ultimately beneficial to biological resources, including wildlife, forest, and riparian habitat in the region.

All action alternatives would require active construction adjacent to and in Meeks Creek and Lake Tahoe. RPMs identified in Appendix A would be implemented, which would reduce impacts on special-status plants and special-status wildlife by requiring identification of these resources through focused surveys and avoidance of the resources if detected. Additionally, restoration of Meeks Creek and lagoon would likely constitute an overall benefit for special-status wildlife in the vicinity of the project area by restoring native vegetation and ecosystem function. The net beneficial effects associated with the Mayala Wata Restoration at Meeks Creek Project would likely compound with the net beneficial effects associated with the Meeks Bay Restoration Project. Other projects listed in Table 3-2 would result in similar temporary impacts on biological resources (e.g., restoration projects, fuels management projects) or permanent impacts on these resources (e.g., development projects, recreation projects). However, these projects would also be required to mitigate these impacts to a less-than-significant level through implementation of RPMs or mitigation measures.

Project construction and restoration activities under all action alternatives would not occur in Meeks Meadow, where sensitive natural communities and sensitive habitats (i.e., montane riparian habitat, meadow habitat) have been documented. While common vegetation could be permanently or temporarily removed or disturbed during construction and restoration activities under the action alternatives the potential loss would be relatively minor because these habitats are already subject to high levels of disturbance and any temporarily disturbed areas would be restored following construction and restoration. Additionally, the terrestrial vegetation communities and habitats that may be affected are common and widely distributed in the Tahoe Basin and elsewhere in the Sierra Nevada, and the amount of habitat disturbance and loss would be very small relative to the total amount available in the area. Additionally, any tree removal that may be required would not substantially affect overall canopy cover or reduce the abundance of this vegetation type on the landscape.

Project construction and restoration activities under all action alternatives would result in a short-term period of high-intensity disturbance during restoration activities. Overall, project actions would not result in a net loss of state or federally protected wetlands or other water waters and would ultimately result in a functional lift in ecosystem functions and an increase in wetland habitat from current conditions.

The majority of the project area is characterized by heavy recreational use associated with Meeks Bay Marina, Meeks Bay Resort, and Meeks Campground, and the project area does not contain any portion of a natural landscape block or Essential Connectivity Area. The existing level of human activity in the project area and the existing anthropogenic barriers to wildlife movement likely limit the project area from functioning as an important wildlife movement corridor, restoration and construction activities would be temporary, and project implementation would not impose new barriers to movement of wildlife relative to existing conditions. Further, there are no known native wildlife nursery sites or deer fawning areas in the project area. A design criterion would be implemented to identify and protect communal bat roosts.

Land use in the project area is regulated by the TRPA Regional Plan and Code of Ordinances, which include policies to protect biological resources, such as sensitive and uncommon plants, wildlife, special-status species habitat, aquatic habitat, wetland and riparian habitat, trees, and native vegetation. To address potential impacts on biological resources, resource protection measures would be implemented to reduce impacts on biological resources to less-than-significant levels. Additionally, compliance with the TRPA Code of Ordinances is a regulatory requirement for project approval and permitting. Therefore, implementation of the approved project would not conflict with local policies protecting these resources.

For the reasons described above, the alternatives would have a **less than cumulatively considerable** impact related to terrestrial biological resources.

3.5 AQUATIC BIOLOGICAL RESOURCES

This section addresses common and sensitive aquatic biological resources that could be affected by implementation of the Meeks Bay Restoration Project. It includes a summary description of the existing conditions of Meeks Creek and the Lake Tahoe nearshore habitat in the project area that pertain to fish and other aquatic species and their aquatic habitats, and brief summaries of key or important fish species that are known to exist in the project area and the various factors affecting those species. Data reviewed in preparation of the analysis include aerial photographs of the project area; records searches of the California Natural Diversity Database (CNDDB) and the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation database; USDA Forest Service, LTBMU sensitive species lists, and the project Biological Evaluation for Sensitive Species (incorporated by reference) (CNDDB 2021; USFWS 2022; LTBMU 2022); and recent biological resources surveys and assessments conducted in the project area.

Terrestrial biological resources (including amphibians), and hydrology and water quality are described and analyzed separately in Sections 3.4 and 3.6, respectively.

3.5.1 Regulatory Setting

See Section 3.4, "Terrestrial Biological Resources," for a discussion of the federal Endangered Species Act, California Endangered Species Action, and California Fish and Game Code fully protected species and Section 3.6, "Hydrology and Water Quality," for a discussion of Section 404 of the Clean Water Act.

FEDERAL

Nonindigenous Aquatic Nuisance Prevention and Control Act and National Invasive Species Act

As defined in the Nonindigenous Aquatic Nuisance Prevention and Control Act (NANPCA) of 1990, as amended (P.L. 106-580, Dec. 29, 2000), aquatic nuisance species are nonindigenous species that threatened the diversity or abundance of native species or the ecological stability of infested waters, or commercial, agricultural, aquacultural, or recreational activities dependent on such waters. The NANPCA further states that "when environmental conditions are favorable, non-indigenous species become established, may compete with or prey upon native species of plants, fish, and wildlife, and may carry diseases or parasites that affect native species, and may disrupt the aquatic environment and economy of affected nearshore environments." The intent of the NANPCA is to prevent the unintentional introduction and dispersal of nonindigenous species into waters of the United States, coordinate federally conducted, funded or authorize research, prevention, control, information dissemination and other activities regarding zebra mussel and other aquatic nuisance species. In 1996, the National Invasive Species Act (NISA) amended NANPCA of 1990 to address ballast water from ships that enter the U.S.

While the NANPCA nor the NISA do not explicitly affect state authority, an Executive Order on Invasive Species (1999) extended federal efforts and, in addition to a number of federal laws, called for the formation of a National Aquatic Nuisance Species Task Force (ANSTF) (co-chaired by the USFWS and the National Oceanic and Atmospheric Administration [NOAA]) to coordinate the growing number of federal laws and coordinate with states in developing aquatic nuisance species management plans. The *Lake Tahoe Region Aquatic Invasive Species Management Plan: California-Nevada* (TRPA 2014) was approved by the ANSTF and aims to inform management, policy, and funding decisions related to aquatic invasive species (AIS) in the region by enhancing coordination of regional, bi-state, state, and federal programs and to guide implementation of AIS prevention, monitoring, control, education, and research in the Lake Tahoe Region (TRPA 2014).

USDA Forest Service, Lake Tahoe Basin Management Unit

The USDA Forest Service LTBMU manages nearly 80 percent of lands within the Tahoe Basin. With the exception of the portion of the project area within the California Department of Transportation (Caltrans) right-of-way, the project would be implemented on USDA Forest Service lands, and biological resources there could be affected by project implementation.

Management of the USDA Forest Service lands adjacent to or near the study area is guided by the LTBMU Forest Plan (USFS 2016). The Forest Plan includes management direction (36 CFR 219.3, 1982), and explanatory material. The management direction is the Forest Plan content that must be followed in planning and implementing management activities and is also referred to as the Plan components. More specific standards and guidelines for biological and other resources are described in detail in the LTBMU Forest Plan (USDA Forest Service 2016). In addition, the LTBMU maintains a list of plants and animals designated as sensitive by the Regional Forester of USFS Region 5 that should be addressed when a project may affect LTBMU land. USDA Forest Service sensitive fish species with the potential to occur in the project area are described below and a full analysis of potential project effects on these species is provided in the Biological Evaluation.

TAHOE REGIONAL PLANNING AGENCY

Thresholds

TRPA thresholds have been established for water quality, air quality, scenic resources, soil conservation, fish, vegetation, wildlife, noise, and recreation. TRPA cannot approve projects that would cause a significant adverse effect on a threshold area without appropriate mitigation. Every 5 years, TRPA conducts a comprehensive evaluation to determine whether each threshold is being achieved and/or maintained, creates specific recommendations to address problem areas, and directs general planning efforts for the next 5-year period. The most recent threshold evaluation was completed in 2019. The adopted TRPA thresholds for aquatic resources are described below (TRPA 2016).

Water Quality – Aquatic Invasive Species

The TRPA aquatic invasive species (AIS) is a management standard under the Water Quality threshold that states that TRPA must "[p]revent the introduction of new aquatic invasive species into the region's waters and reduce the abundance and distribution of known aquatic invasive species" and "[a]bate harmful ecological, economic, social and public health impacts resulting from aquatic invasive species." Other management standards under the Water Quality threshold are addressed in Section 3.6, "Hydrology and Water Quality."

The Lake Tahoe AIS Program is implemented by 40 public and private partner organizations, including federal, state, and local jurisdictions, research partners, public utility districts, and private marinas. The TRPA and the Tahoe Resource Conservation District (TRCD) lead the program in collaboration with the public and private partners. The program's mission is to prevent, detect, and control aquatic invasive species in the region so that future generations can enjoy Lake Tahoe.

Fisheries

The goal of TRPA threshold standards for fisheries resources is to improve aquatic habitat important for the growth, reproduction, and perpetuation of existing and threatened fish resources in the Lake Tahoe Basin. TRPA has adopted four indicator reporting categories in the fisheries threshold category, three numerical standards for stream habitat condition, and one management standard for instream flow and Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*) (LCT).

Fisheries – Lake Habitat

The lake habitat threshold standard is a management standard with a numeric target to achieve the equivalent of 5,948 acres of "prime" fish habitat within the nearshore of Lake Tahoe, defined by substrate size. Prime fish habitat includes spawning habitat and feed and cover habitat. The indicator for lake habitat showed that the status is "at or somewhat better" than the adopted management targets with an "unknown" trend. Analysis of remotely sensed data collected in August 2010 and 2015 estimated that there are about 6,135 acres of "prime" fish habitat in Lake Tahoe's nearshore/littoral zone (O'Neil-Dunne et al. 2016), suggesting that TRPA is meeting the adopted management target of 5,948 acres.

Fisheries – Stream Habitat

The stream habitat threshold standard is a management standard with a numeric target to maintain 75 miles of excellent, 105 miles of good, and 38 miles of marginal stream habitat as indicated by the Stream Habitat Quality

Overlay map, amended May 1997, based upon the re-rated stream scores set forth in Appendix C-1 of the 1996 Evaluation Report. Analysis of remotely sensed data estimated that TRPA is meeting the adopted management target for excellent stream habitat but is not meeting the targets for good or marginal stream habitat.

Tahoe Regional Plan

The following goals and policies of the Tahoe Regional Plan (TRPA 2012) relate to protection of aquatic species potentially affected by the project:

GOAL FI-1: seeks to improve aquatic habitat essential for the growth, reproduction, and perpetuation of existing and threatened fish resources in the Lake Tahoe Region.

- Policy FI-1.2: Unnatural blockages and other impediments to fish movement shall be prohibited and removed, wherever appropriate.
- Policy FI-1.4: Standards for boating activity shall be established for the shallow zone of Lake Tahoe.
- Policy FI-1.5: Habitat improvement projects are acceptable practices in streams and lakes.
- Policy FI-1.9: Prohibit the release of nonnative aquatic invasive species in the region in cooperation with public and private entities. Control or eradicate existing populations of these species and take measures to prevent accidental or intentional release of such species.

Code of Ordinances

Chapter 63, "Fish Resources," of the TRPA Code of Ordinances (TRPA Code), includes provisions to ensure the protection of fish habitat and to provide for the enhancement of degraded habitat. The chapter applies to all projects and activities that could interfere with the health of fish populations in Lake Tahoe, its tributaries, and other lakes in the region. Provisions for the protection or enhancement of fish habitat shall be included for all new uses, projects and activities within fish habitat as identified by TRPA fish habitat maps or a qualified biologist. Fish habitat consists of a complex set of elements, such as spawning and nursery areas, food supply, and escape cover (TRPA 2021a).

Lake habitat is protected in Chapter 63.3.1. Projects and activities conducted in the shorezone may be prohibited, limited, or otherwise regulated in prime habitat areas, or in areas and/or at times found by TRPA to be vulnerable or critical to the needs of fish (TRPA 2021a).

Chapter 63.4, "Aquatic Invasive Species," includes provisions to prevent the introduction and spread of AIS. Section 63.4.1 prohibits the transport or introduction of AIS into the Tahoe Region; the launching of any watercraft or landing of any seaplane contaminated with AIS into the waters of the region; the launching, or attempting to launch, of any motorized watercraft into the waters of the region without an inspection by TRPA or its designee, to detect the presence, and prevent the introduction of, AIS (non-motorized watercraft and seaplanes are subject to inspection and are included in this provision if determined necessary by TRPA or its designee); the provision of inaccurate or false information to TRPA or persons designated to conduct inspections; and the alteration, modification or unauthorized use of any inspection seal or other device used by TRPA or its designee to indicate that a watercraft or seaplane last entered the waters of the Tahoe Region (TRPA 2021a).

STATE

Section 2301 – Dreissenid Mussel Prevention

California Fish and Game Code Section 2301 allows designated staff (and other authorized state authorities including California Department of Pesticide Regulation [CADPR] peace officers and California Department of Food and Agriculture [CDFA]) to inspect, impound, or quarantine any conveyance (e.g., watercraft) that may carry dreissenid mussels (i.e., quagga and zebra mussels [*Dreissena bugensis* and *D. polymorpha*, respectively]). CDFA is also the lead agency for regulatory activities associated with noxious weeds (CAC Title 3, Sec. 3400).

3.5.2 Environmental Setting

The project area encompasses the mouth of Meeks Creek as it enters Meeks Bay along the west shore of Lake Tahoe in El Dorado County, California. The project area extends westward along the creek channel to 75 feet upstream of the SR 89 bridge. To the east, the project area includes the Lake Tahoe shoreline both to the north and south of the mouth of Meeks Creek. The project is located at the historic wetland, lagoon, and barrier beach of the Meeks Creek watershed. Currently, the lagoon now contains the Meeks Bay Marina. The project area includes approximately 4.9 acres of riverine and stream environment zone and 18.8 acres of open water/lacustrine, which includes nearshore areas of Lake Tahoe and the historic lagoon (now marina). See Section 3.4, "Terrestrial Biological Resources," for additional details regarding land cover types and jurisdictional wetlands (aquatic habitat types).

AQUATIC HABITATS

Meeks Creek

The 11.2-kilometer-long Meeks Creek watershed originates in Desolation Wilderness and covers roughly 2,250 hectares. The upper watershed consists of a network of glacially formed lakes joined by short sections of creek. The middle reaches are characterized by high gradient riffle-pool complexes and small waterfalls that transition to a lower gradient meandering meadow channel as the creek enters a valley floor. The lower portion of Meeks Creek is predominantly low gradient meadow, wetland and lagoon and barrier beach habitat (Swanson H+G 2006).

The hydrology of the watershed is driven by seasonal precipitation patterns (predominantly winter snow and associated runoff). Peak flow coincides with snowmelt, typically from April-June, and flows are lowest during summer. Warm rainstorms can result in flashy, high-discharge events, particularly in spring when snowmelt is accelerated (Swanson H+G 2006).

The reach of Meeks Creek within the project area is characterized by low gradient, modified habitat. The aquatic habitat in the western portion of the project area includes shallow meadow riffles upstream of the SR 89 bridge. Continuing downstream, the channel becomes incised, widens, and deepens, becoming run then pool and eventually a human-made marina as it flows eastward toward the mouth, which is connected to Lake Tahoe via a cut channel with sheet piles bulkheads.

The natural configuration of the lagoon has been manipulated to build the marina. Historical photos show the shoreline of the lagoon was once a complex landform and supported marsh and wetland vegetation communities. The lagoon was deepened when the marina was constructed to allow boat access. Concurrently, the marina shoreline was graded into a rectangular shape and hardened with boulder banks; there is little to no diversity in bank vegetation under current conditions because the steep slopes force an immediate transition from open water to upland communities. Sheet piling at the mouth of Meeks Creek creates a permanent opening through the barrier beach to allow access to the marina. Consequently, the mouth has remained open and has not changed position since the marina was constructed, altering natural processes associated with seasonal beach barrier closures and openings. The marina has been closed since 2014 and the floating pier system has already been removed.

Dominant substrates transition from cobble and gravel to silt to sand downstream through the site from west to east. Dominant riparian vegetation includes willow (*Salix* spp), mountain alder (*Alnus incana*), Jefferey pine (*Pinus jefferyi*), lodgepole pine (*P. contorta*), annual and perennial grasses, and deciduous shrubs (Swanson H+G 2006). Human-made features including box culverts, dredged lagoon channels, sheet pile bulkheads, placement of fill, paved roads, and campgrounds characterize much of the aquatic and riparian habitat within the project area.

Lagoons often function as highly productive habitats, incorporating elements of both riverine and lacustrine ecosystems. They offer potentially valuable rearing habitat for juvenile fish, including native minnows. However, the disturbances present in the Meeks Creek lagoon (conversion to a marina) contribute to a reduction in habitat quality and low aquatic biological function, due to habitat modification and simplification (e.g., relatively deep, homogenous conditions lacking complexity and natural processes, static connection between lagoon marina and Lake Tahoe) relative to creek mouth and wetland habitats elsewhere in the Tahoe Basin, such as the Upper Truckee River Marsh.

Nearshore

Although TRPA defines the nearshore specifically based on depth and distance from the shoreline, no consistent definition of a nearshore fish habitat is readily available (Heyvaert et al. 2013). The generic definition of the nearshore zone or nearshore habitat as it relates to aquatic species is to consider it equivalent to the littoral zone. A littoral zone, as it is typically used in scientific literature, is defined as the shallow area of a lake that supports macrophyte (i.e., aquatic plant) growth with "the deepest extent of the littoral zone considered that depth at which one percent or less of surface light penetrates to the bottom sediments (i.e., photic zone)" (Heyvaert et al. 2013). Due to Lake Tahoe's extreme water clarity, the 1-percent light level is very deep. Conditions in the nearshore fluctuate with precipitation, wind, and lake levels.

Nearshore habitat provides rich spawning, nursery, and rearing habitat for native fish species and is the location of the lake where highest fish densities are found. This narrow strip of lake also receives the greatest concentration of human activity, which includes intense recreation, commercial interests, and private development (Allen and Reuter 1996). Over the past 50 years, a large increase in human population within the Tahoe Basin and a concomitant increase in shoreline development and alterations have occurred.

TRPA has established regulations for shorezone structures and the activities associated with them. TRPA, in coordination with CDFW and the Tahoe Environmental Research Center, also has defined prime fish habitat locations around the lake. Prime habitat maps were originally adopted in 1984 to classify the amount of habitat available to nearshore fish. Since then, the maps have been updated several times. Nearshore areas within the project area have not been defined as prime fish habitat.

TRPA classifies nearshore habitat into three types based primarily on substrate size and characteristics, including (1) marginal habitats that correspond to nearshore areas dominated with sand and silt substrates, (2) feed and cover habitats that are areas dominated with cobble and boulder substrates, and (3) spawning habitats that are limited to areas of gravel (Byron et al. 1989, TRPA 1996). Naturally occurring cobble/boulder and gravel habitats (i.e., "spawning" and "feed and cover") are considered excellent or prime habitat and have been used to judge compliance with the adopted lake threshold standard, which is a no net loss standard (i.e., TRPA's goal is to prevent any loss of prime fish habitat). Nearshore areas within the project area have been defined as mostly marginal with smaller areas of feed and cover. No spawning habitat has been identified. Definitions for these two habitat classifications are provided below.

Feed and Cover

Larger rocky substrates (e.g., cobble, boulder) represent feed and cover habitats and are used by fish as foraging habitat and to provide refuge from predation (TRPA 2016). Overhanging riparian vegetation is also important for providing shade to minimize rapid fluxes in stream and lake temperatures. In addition, some species of larval and postlarval fish often use shallow, sandy portions of the shorezone because high water temperatures provide for optimal growth. The nearshore area within the project analysis area includes portions of feed and cover habitat.

Marginal

Marginal habitats are dominated by sand and silt substrates interspersed with occasional willow thickets that establish during low lake levels (TRPA 2016). When the TRPA Prime Fish Habitat maps were originally produced in 1984, shoreline areas that consisted of sand and silt substrates (less than 2 millimeters in diameter) were designated as marginal habitat. Although that terminology is still used today the term "marginal" habitat may be misleading because it implies that this habitat is of poor quality to fish. However, Beauchamp et al. (1990, 1991) found that these substrates provided important nursery habitat for the underyearling littoral fish. Furthermore, this type of habitat is used for spawning by Lahontan Lake tui chub (*Siphateles bicolor [pectinifer* and *obesa*]). Marginal habitats are characterized by a predominance of sand and silt substrates that often are interspersed with vegetation. The nearshore area within the project analysis area includes portions of marginal habitat.

Aquatic Invasive Plants

There are two known species of nonindigenous aquatic plants in Lake Tahoe: Eurasian watermilfoil (*Myriophyllum spicatum*) and curly-leaf pondweed (*Potamogeton crispus*). These species adversely affect recreational activities, navigation, and ecosystem dynamics. Eurasian watermilfoil is known to occur in Meeks Bay and has been targeted for removal efforts in recent years using hand-pulling and bottom barriers. Despite these efforts, fragments are still able to enter Meeks Bay from Lake Tahoe proper, resulting in potential re-spread. Though temporarily closed in 2015 (including removal of docks and supporting infrastructure), the Meeks Bay Marina is a partially enclosed structure that reduces water circulation, resulting in elevated water temperatures and poor water quality from a lack of mixing with open water. Additionally, the growth and subsequent senescence of rooted aquatic plants also act as a "pump" to move nutrients from the sediments to the overlying water column where these nutrients are further available for algae growth. These characteristics create optimal habitat for invasive aquatic organisms to thrive. When boats visited or launched from the marina, they served as vector sources for the spread of aquatic invasive species to other parts of Lake Tahoe. Because most Eurasian watermilfoil populations are within marinas or other protected nearshore areas, dispersible fragments can easily be created by boat propellers or from mechanical harvesting (Wittmann and Chandra 2015). Outside of the Tahoe Keys, efforts to control populations of Eurasian watermilfoil have occurred elsewhere in Lake Tahoe, including Emerald Bay, and most recently in Taylor Creek and Tallac Creek marshes.

FISH

Eight native fish species are known to occur in the Tahoe Basin (Murphy and Knopp 2000; Moyle 2002; Dill and Cordone 1997; Schlesinger and Romsos 2000). The general abundance of the native fish community has declined considerably since the arrival of the first Euro-Americans in the Tahoe Basin in the 1840s. Several factors are believed to have contributed to the decline or extinction of native fish and the degradation of fish habitat throughout the Tahoe Basin. Logging, water diversions, grazing, commercial harvest, road building, and the introduction of non-native fish and other aquatic organisms have cumulatively contributed to the change in the Tahoe Basin's fisheries composition and degradation of fish habitat (Murphy and Knopp 2000). At present, 24 fish species occur in Lake Tahoe (Murphy and Knopp 2000; Moyle 2002; Dill and Cordone 1997; Schlesinger and Romsos 2000; USFS LTBMU, unpublished data) (Table 3.5-1).

Fish found in the segment of Meeks Creek in the project study area are identified in Table 3.5-1. Much of the watershed is dominated by non-native salmonids introduced to provide fishing opportunities for recreational anglers. The most widespread fish species in the watershed is the brook trout (*Salvelinus fontinalis*) which is well known as a generalist species that can adapt to a range of habitat conditions. The once ubiquitous LCT (*Oncorhynchus clarkii henshawi*) had been extirpated from the watershed due to over-fishing, loss of habitat, and introduction of non-native fish such as brown trout (*Salmo trutta*), brook trout, and rainbow trout (*Oncorhynchus mykiss*) (see additional discussion below); however, recovery efforts have resulted in reintroduction of LCT into several areas within the Tahoe Basin, including Lake Tahoe proper. The lower gradient segment of Meeks Creek downstream of SR 89 includes backwater areas and connection to Lake Tahoe that allow for minnows, suckers, sculpins, and adfluvial species such as rainbow trout and Kokanee salmon (*Oncorhynchus nerka*) to persist. A passage barrier occurs at the SR 89 culvert crossing that appears to be depth barrier at low flows and a velocity barrier at high flows (Swanson H+G 2006).

Table 3.5-1 Native and Introduced Fish Species Found in Lake Tahoe and Documented in the Project Study Area

Common Name	Scientific Name	Status[1]	Documented Presence in Study Area
Native			
Lahontan Cutthroat Trout	*Oncorhynchus clarkii henshawi*	FT	—
Lahontan Redside Shiner	*Richardsonius egregious*	—	X
Lahontan Speckled Dace	*Rhinichthys osculus robustus*	—	X
Lahontan Lake Tui Chub	*Siphateles bicolor (pectinifer* and *obesa*)	SSC, FSS	X
Mountain Whitefish	*Prosopium williamsoni*	SSC	X
Paiute Sculpin	*Cottus beldingi*	—	X
Mountain Sucker	*Catostomus platyrhynchus*	—	—
Tahoe Sucker	*Catostomus tahoensis*	—	X
Introduced			
Black Crappie	*Pomoxis nigromaculatus*	—	—
Bluegill	*Lepomis macrochirus*	—	—
Brook Trout	*Salvelinus fontinalis*	—	X
Brown Bullhead	*Ameiurus nebulosus*	—	—
Black Bullhead	*Ameiurus melas*	—	—
Brown Trout	*Salmo trutta*	—	X
Common Carp	*Cyprinus carpio*	—	—
Goldfish	*Carassius auratus*	—	—
Golden Shiner	*Notemigonus crysoleucas*	—	—
Green Sunfish	*Lepomis cyanellus*	—	—
Kokanee (Sockeye Salmon)	*Oncorhynchus nerka*	—	X
Lake Trout (Mackinaw)	*Salvelinus namaycush*	—	—
Largemouth Bass	*Micropterus salmoides*	—	—
Western Mosquitofish	*Gambusia affinis*	—	—
Rainbow Trout	*Oncorhynchus mykiss*	—	X
Smallmouth Bass	*Micropterus dolomieu*	—	—

[1] Status Codes:

FT = federally listed as threatened
FSS = Forest Service sensitive
SSC = California Department of Fish and Wildlife Species of Special Concern
— = no special-status designation
X = present
— = not present

Sources: Moyle 2002; Dill and Cordone 1997; Schlesinger and Romsos 2000; Swanson H+G 2006 citing unpublished USFS LTBMU data; compiled by Environmental Science Associates 2021.

Special-Status Fish Species

Special-status fish species include LCT, mountain whitefish, and Lahontan Lake tui chub; each are discussed below.

Lahontan Cutthroat Trout (*Oncorhynchus clarki henshawi*)

Lahontan cutthroat trout is federally listed as a threatened species. It historically occupied large freshwater and alkaline lakes, small mountain streams and lakes, small tributary streams, and major rivers of the Lahontan Basin of northern Nevada, eastern California, and southern Oregon, including the Truckee, Carson, Walker, Susan, Humboldt, Quinn, Summit Lake/Black Rock Desert, and Coyote Lake watersheds. Within the LTBMU, LCT currently occupy the Upper Truckee River, Lake Tahoe, and Fallen Leaf Lake. Occurrences within the Meeks Creek watershed have not been reported; however, reintroduction efforts in Lake Tahoe demonstrate that this species has access and could be present.

LCT spawn from April through July, depending upon stream flow, elevation, and water temperature. LCT are obligatory stream spawners, sometimes migrating large distances to find adequate spawning areas. Distance traveled to spawning sites varies with stream size and strain of LCT (strain refers to locally adapted populations in a particular area or environment). Populations in Pyramid and Winnemucca Lakes migrated as far as 160 kilometers (km) (100 miles (mi)) up the Truckee River into Lake Tahoe and its tributary streams.

Optimal stream habitat is characterized by clear, cold water with silt-free substrate and a 1:1 pool-riffle ratio. Streams should have a variety of habitats including areas with slow deep water, abundant instream cover (i.e., large woody debris, boulders, undercut banks), and relatively stable streamflow and temperature regimes. Streambanks should be well vegetated to provide cover, shade, and bank stabilization. As described above, the relatively short segment of Meeks Creek in the project area (upstream of the SR 89 bridge) possesses some of these attributes.

Mountain Whitefish (*Prosopium williamsoni*)

Mountain whitefish is a CDFW Species of Special Concern. They are silvery, large-scaled salmonids, a small ventral mouth, a short dorsal fin, a cylindrical body and a forked tail. The body is silvery and olive green to dusky on the back, and scales on the back are often outlined in dark pigment. In Lake Tahoe, they consume snails, a variety of insect larvae, crayfish, and amphipods. Most feeding takes place at dusk or after dark.

Mountain whitefish spawn from October through early December at water temperatures of 1– 11°C (usually 2–6°C). From lakes, whitefish migrate into tributaries to spawn, but some lake spawning may take place in shallow waters as well. Spawning migration is often associated with a fairly rapid drop in water temperature.

Mountain whitefish in California inhabit clear, cold streams and rivers at elevations of 1,400–2,300 m. While they are known to occur in a few natural lakes (e.g., Tahoe), there are few records from reservoirs. In streams, they are generally associated with large pools (over a meter in depth). In lakes, they typically live close to the bottom in fairly deep water, although they will move into shallows during spawning season. Spawning takes place in riffles where depths are greater than 75 cm and substrates are coarse gravel, cobble, and rocks less than 50 cm in diameter. Because of their low tolerance for high water temperatures and poor water quality, they also are a good indicator of 'health' of the Carson, Walker, and Truckee rivers, as well as of Lake Tahoe and other natural lakes (CDFW 2010b). Mountain whitefish have been documented in Meeks Creek (up and downstream of the SR 89 bridge) and the lagoon.

Lahontan Lake Tui Chub (*Siphateles bicolor pectinifer*)

Lahontan Lake tui chub is a Forest Service sensitive species and CDFW Species of Special Concern that can reach lengths of 35 to 41 cm FL. Lahontan Lake tui chub feed mostly on zooplankton, especially cladocerans and copepods, but also consume benthic insects such as chironomid larvae, annelid worms, and winged insects such as ants and beetles. They are primarily mid-water feeders, with gill-raker structure adapted to feeding on plankton. In Lake Tahoe, spawning apparently occurs at night during May and June and possibly later. They are probably serial spawners, capable of reproducing several times during a season. Reproductive adults spawn in near-shore shallow areas over beds of aquatic vegetation and found fertilized eggs adhering to the aquatic vegetation (CDFW 2010a). Lahontan Lake tui chub have been documented in the Meeks Creek lagoon.

Common Native Species

Native minnows, suckers, sculpin, and trout are found in the Meeks Creek and in Lake Tahoe (Swanson H+G 2006 citing unpublished USFS LTBMU data). These native nongame species are important to the function of the stream ecosystem. Juveniles and smaller individuals may be important prey for larger trout. Some of these species have special management status and a high probability of occurrence in the study area based on existing habitat conditions (Table 3.5-2).

Table 3.5-2 Life History of Native Fishes of the Tahoe Basin and Potential for Occurrence in Project Area

Common Name	Scientific Name	Status[1]	Potential for Occurrence	Migration	Spawning	Incubation	Habitat Preference - Fry	Habitat Preference - Juvenile	Habitat Preference - Adults
Minnows									
Lahontan Speckled Dace	*Rhinichthys osculus robustus*		High	May - June	June - July	6 days	Warm shallow waters, between cobbles w/interstitial space	Warm shallows near large rocks	Pools with abundant cover (rocks, vegetation)
Lahontan Redside	*Richardsonius egregius*		High		May - August	3 to 6 days	Along stream margins or in backwater areas	Along stream margins or in backwater areas	High velocity water at the heads of pools
Lahontan Lake Tui Chub	*Gila bicolor pectinifer*	CSC/FSS	High		April - July	3 to 6 days	Near shore sandy bottoms or in mouths of streams with dense vegetation	Near shore sandy bottoms with dense vegetation	Near shore sandy bottoms with dense vegetation
Lahontan Stream Tui Chub	*Gila bicolor obesa*		High		April - July	3 to 6 days	Sandy bottoms or in mouths of streams with dense vegetation	Sandy bottoms with dense vegetation	Sandy bottoms with dense vegetation
Suckers									
Tahoe Sucker	*Catostomus tahoensis*		High	April - May	March – June	3 to 6 days	Gravel riffles with a few large rocks	Shallow areas w/slow currents	Pools and runs
Salmonids									
Lahontan Cutthroat Trout	*Oncorhynchus clarkii henshawi*	FT/TRPA	Low	April to May	April - July	6 to 8 weeks	Stream margins with shallow water, low flows	Lake dwelling	Lake dwelling
Mountain Whitefish	*Prosopium williamsoni*		Medium	unknown	October - December	6 to 10 weeks	Shallow backwaters	Rivers and creeks and lake bottom habitats in upper portions of the lake	Benthic habitats in larger rivers and in lakes
Sculpins									
Paiute Sculpin	*Cottus beldingi*		High		May - August, peaks May through July		Gravel bottoms, crevices under rocks	Stream margins, lake margins (algae beds)	Streams (gravel substrate)

[1] Special Status Codes:
FT = Federal Threatened
FSS = Forest Service Sensitive
CSC = California Species of Concern
TRPA = TRPA Threshold Special-Status Species

Sources: Environmental Science Associates 2021, Moyle 2002

Non-native Species

A variety of non-native warmwater game fish species were illegally introduced in the mid-1970s to late- 1970s and again in the late-1980s (Reuter and Miller 1999). More recently, in the Tahoe Keys, Smallmouth Bass (*Micropterus dolomieu*) were discovered in 2011 and Common Carp (*Cyprinus carpio*) were found in 2012 (Wittmann and Chandra

2015). Additionally, warmwater nongame fish species, including Golden Shiner (*Notemigonus crysoleucas*) and Western Mosquitofish (*Gambusia affinis*), also are found in the lake.

The most common non-native warmwater species in Lake Tahoe generally are Largemouth Bass and Bluegill (*Lepomis macrochirus*). Control efforts have been implemented to reduce non-native warmwater fish species, but generally they continue to persist (Wittmann and Chandra 2015). Non-native warmwater fishes primarily occur in the Tahoe Keys lagoons; however, snorkel surveys show satellite populations of Bluegill and Largemouth Bass occur in other areas of the lake (Chandra et al. 2009, Kamerath et al. 2008). The extent of warmwater fishes in areas outside of the Tahoe Keys remains unclear, but research suggests suitable habitat has increased due to warming water temperatures and the expansion of aquatic weed beds (Kamerath et al. 2008; Chandra et al. 2009; Ngai et al. 2013). Although suitable spawning habitat for warmwater fish is available in a number of areas around the lake, the south shore provides the most overall suitable spawning habitat followed by the east shore, north shore, and west shore (Chandra et al. 2009).

Non-native warmwater fish feed on a variety of food types. Top predators such as bass feed on native minnows (family Cyprinidae) and trout. Bass also feed on juvenile tui chub when they are rearing in nearshore areas (Moyle 2002). Brown bullhead are bottom feeders that feed on mollusks, insects, leeches, crustaceans, fish and fish eggs (USFS 2017). Common carp also scavenge bottom sediments, grubbing for zooplankton, crayfish and benthic worms. The diet of black crappie consists of zooplankton, insects, larvae, and small fish (USFS 2017). The diet of bluegill and golden shiner overlaps with native fish species, and they feed primarily on mollusks, plant material, and invertebrates (Chandra et al. 2009). Western mosquitofish also compete with native species for food and are wide spectrum omnivores.

As discussed above, in Meeks Creek, non-native brook trout and brown trout occur in Meeks Creek (up and downstream of the SR 89 bridge), in the project area. In the lower and middle reaches, rainbow trout and Kokanee salmon are present and likely utilize Meeks Creek for their adfluvial (migrating between rivers and streams) spawning behavior; however, Kokanee salmon have not been documented above the SR 89 bridge. Other non-native fish species may also be present; however, recent survey data are lacking.

AQUATIC BENTHIC MACROINVERTEBRATES

Aquatic Benthic Macroinvertebrates (BMI) are common inhabitants of the aquatic environment. Insects are the main types present in streams, and commonly include mayflies, stoneflies, caddisflies, and true flies. Non-insect macroinvertebrates include snails, leeches, worms, and scuds, which tend to be more common in aquatic environments with slower moving water and with increased organic materials present (e.g., aquatic vegetation, fine sediments). Aquatic BMI are central to the proper ecological functioning of aquatic environments. They consume decomposing organic matter (e.g., detritus, wood, and leaf debris) and attached algae, and in turn become an important food resource to fish and birds. In addition to their role in the food web, aquatic BMI have varying degrees of ability to withstand environmental degradation; thus, they may be used as indicators of water quality and habitat condition. For example, sediments from erosion and/or pollutants from runoff may decrease the variety of BMI that are able to survive, which may indicate a degradation of biological health. Tolerance/intolerance measures are specific metrics that reflect the relative sensitivity of the community (group of taxa) to aquatic disturbances. Although the taxa used are usually pollutant tolerant or intolerant, they are not specific to the type of stressor. For example, these metric values typically also vary with increasing fine particulate organic matter and sedimentation.

Native aquatic BMI have received special attention in the Tahoe Basin due to marked declines throughout North America. The western pearlshell mussel (*Margaritifera falcata*) is known to be a highly sensitive indicator species (Nedeau, Smith, and Stone 2005) and is known to occur within the lower reaches of the Upper Truckee River (California Tahoe Conservancy 2007); however, there are no known records of occurrences in the Meeks Creek watershed. Further, the soft, fine, organic-rich sediments in the Meeks Creek lagoon/marina do not provide suitable habitat conditions for the mussel.

The Great Basin rams-horn (*Helisoma newberryi*) is a USDA Forest Service sensitive species that is known to occur in Lake Tahoe. These snails utilize areas that have well oxygenated but soft substrate and clear, cold, slowly flowing water in larger lakes and spring-fed streams. Again, the organic-rich sediments in the Meeks Creek lagoon/marina do not provide suitable habitat conditions for the rams-horn; however, the species could be present in other portions of the project area where suitable conditions may exist (i.e., nearshore areas).

The Lake Tahoe benthic stonefly (*Capnia lacustra*) is a USFWS species of concern and is ranked as a species of concern by the Nevada Natural Heritage Program. This species is known to occur in Lake Tahoe at depths of 95 to 400 feet. Meeks Creek lagoon/marina and the adjacent Lake Tahoe shorezone do not provide suitable habitat conditions for the Lake Tahoe benthic stonefly.

Non-native Species

Asian clams (*Corbicula fluminea*) were first discovered along Lake Tahoe's south shore in 2002. Since the initial discovery, these non-native clams have proliferated along the southeast portion of the Lake from Glenbrook to Emerald Bay, reaching densities up to 6000 clams per square meter in some locations. Asian clams are known to adversely affect native invertebrate communities, phytoplankton assemblages, benthic habitats, and nutrient cycling. In order to minimize these impacts and prevent the establishment of new populations, scientists, natural resource managers, and community stakeholders conducted numerous studies in Lake Tahoe to determine if a safe and effective treatment method could be implemented (UC Davis TERC 2021). Asian clams reproduce at very high rates, on the order of nearly 70,000 juveniles per adult (Aldridge and McMahon 1978). Upon release, juveniles (shell length<0.5 mm) are capable of attaching to sediment, filamentous algae, debris, or avian species for further spread (summarized in Sousa et al. 2008 and Prezant and Chalermwat). Attachment occurs using a mucilaginous byssal thread (Kramer-Wilt 2008) that is lost at adulthood; however, a mucilagenous dragline is maintained that also facilitate travel in the water column via currents (Rosa et al. 2012).

With funding from multiple agencies, Tahoe Environmental Research Center (University of California at Davis) researchers explored various types of treatment and found covering clams with EDPM rubber pond liner anchored to the lake bottom to be the most efficient method for controlling new clam populations. These bottom barriers cut off clam access to dissolved oxygen in the water column. Prolonged deprivation of dissolved oxygen resulted in 100% mortality under the barrier in a matter of months. This technology was used to treat a satellite population of Asian clams found at Sand Harbor State Park along Lake Tahoe's northeast shore. There are currently no know Asian clam infestations in the project area.

AQUATIC PLANTS

Aquatic plants provide important structure and function in aquatic ecosystems and have major effects on productivity and biogeochemical cycles in freshwater (Carpenter and Lodge 1986). In particular, nutrient cycling, light availability, temperature, water flow, and substrate. Rooted aquatic plants are the interface between sediment nutrients and overlying water column nutrients that are subsequently available for phytoplankton, hence invertebrates and fish that occupy the food chain. As plants grow, they pull nutrients from the sediment for growth and release these nutrients back to the water column upon senescence (plant death). Their effects on light availability are more readily observed for species that grow either rooted in the sediment with a densely branched canopy across the water surface or in species that are strictly floating and similarly cover the entire water surface. Both growth forms result in greatly diminished light availability with depth. This dense growth pattern can also disrupt wind-mixing patterns, potentially resulting in very high surface water temperatures that can be harmful to other aquatic taxa. High water temperatures also diminish the ability for atmospheric oxygen to dissolve in water to support other aquatic taxa. Dense growth of rooted aquatic plants can also reduce water flow and increase the deposition of fine sediments that may be less beneficial to some aquatic organisms that require coarser sediments to support certain life stages.

At least 15 species of submersed aquatic plants (including macroalgae) are known to occur within Lake Tahoe (TRPA 2014, Singer 2019, S. Jones pers. comm.). A lake-wide survey conducted in 2018 identified five species associated with Meeks Bay (S. Jones pers. comm.). Native aquatic plants reported from that survey included *Chara* spp. (a macroalgae), common bladderwort, elodea, northern milfoil, and aquatic mosses. The only non-native species observed was Eurasian watermilfoil. Elodea and Eurasian watermilfoil were estimated to have the greatest density.

Eurasian watermilfoil (*Myriophyllum spicatum*) is a highly invasive submersed aquatic plant that displaces other native plant species, disrupts navigation and recreation, and impairs water quality. The plant is a CDFA ranked C plant meaning it is a pest of known economic or environmental detriment that is widespread in CA. Eurasian watermilfoil readily spreads by plant fragments that are transported by waves or watercraft and become established in other areas. Curlyleaf pondweed (*Potamogeton crispus*) is another non-native aquatic plant known to occur in Lake Tahoe, particularly the Tahoe Keys Lagoons (TKPOA 2020), but has not been reported in Meeks Bay.

Since the 2018 survey of Meeks Bay, targeted efforts by the LTBMU and their partners have been implemented to manage Eurasian watermilfoil using hand-pulling and bottom barriers (https://tahoercd.org/our-work/aquatic-invasive-species/tahoe-ais-control-monitoring/). Prior to implementing this stream restoration project, TRPA and the LTBMU plan to survey and treat invasive species if they are found in the lagoon.

3.5.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

The impact analysis for aquatic resources examines effects of each alternative in both the short term and the long term. Short-term effects could occur over hours, days, or weeks during the active construction phase Long-term effects are the result of changes to the creek channel, lagoon, nearshore, and associated riparian corridor and include changes to habitat conditions over a period of time after construction has been completed.

Information related to the study area and vicinity, and professional experience on similar projects has been referenced and incorporated into the analysis of the river system history, existing condition, likely future conditions, and conditions expected under each action alternative. The impact analysis for fisheries and aquatic resources incorporates information and analysis provided in other analyses in Section 3.6, “Hydrology and Water Quality.” Significance of a potential impact to aquatic species was evaluated based on anticipated effects on population levels, survival rates, distribution, and habitat use.

THRESHOLDS OF SIGNIFICANCE

The thresholds of significance were developed in consideration of the State CEQA Guidelines, TRPA Thresholds, TRPA Initial Environmental Checklist, LTBMU Forest Plan, and other applicable policies and regulations. Under NEPA the significance of an effect must consider the context and intensity of the environmental effect. The factors that are considered under NEPA to determine the context and intensity of its effects are encompassed by the thresholds of significance. An alternative would have a significant effect on aquatic biological resources if it would:

- result in a net decrease in the amount of TRPA-designated prime fish habitat;
- result in harmful ecological economic, social, or public health impacts from the introduction or spread of invasive species;
- substantially change the diversity or distribution of aquatic species;
- substantially reduce the number or reduce the viability of special-status fish species;
- result in a barrier to fish movement that would block access to spawning habitat;
- substantially reduce the suitability of habitat for native or game fish species;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW and USFWS; or
- interfere substantially with the movement of any native resident or migratory fish species.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.5-1: Short-Term Aquatic Habitat Degradation

Short-term construction activities associated with Alternatives 1, 2, 3, and 4 in Meeks Creek and the Lake Tahoe shorezone could temporarily reduce aquatic habitat quality by increasing suspended sediments and turbidity and through the release and exposure of contaminants, through direct disturbance, including hydrostatic pressures within the construction site during construction associated with restoration of Meeks Creek and marina removal (including bank stabilization), replacement of the SR 89 bridge (and installation of weir structure will be incorporated into the creek channel at or adjacent to the bridge to facilitate control of fish movement), the installation of a pier or moveable, universally accessible paddlecraft launch facility, and installation of multi-use path bridges. However, effective construction-phase site management plans (e.g., BMPs) would be implemented to comply with required permits and to minimize risks of water quality degradation and direct disturbance. Although elevated turbidity may occur, the expected turbidity levels would not substantially reduce the suitability of habitat for native or game fish species, substantially change the diversity or distribution of aquatic species, or substantially reduce the number or reduce the viability of special-status fish species. Therefore, this impact would be **less than significant** for Alternatives 1 through 4. Implementation of the No Action Alternative would not include restoration of Meeks Creek and lagoon and may contribute to the ongoing degradation of aquatic habitat in Meeks Creek. This would be a **potentially significant** impact for the No Action Alternative.

No Action Alternative

Under the No Action Alternative, there would be no restoration and the marina would remain in place, with a boat ramp and approximately 120 slips placed in the former lagoon. Currently, some marina infrastructure, including the floating platforms and slips, have been removed from the marina to facilitate AIS control and other management actions. With the No Action Alternative, this infrastructure would be reinstalled, and the marina would continue to operate as it had in the past. Permanent marina infrastructure, including sheet pile bulkheads, a boat ramp, grading, and bank revetments are still in place. The reinstallation of floating docks and slips would be accomplished with land-based or floating equipment (e.g., barge and crane) and would not require dewatering or major disturbance. Reinstallation of the floating marina infrastructure would comply with standard USDA Forest Service and TRPA BMPs, and applicable permit requirements. This impact would be **potentially significant**.

Alternative 1: Restoration with Boating Pier

The restoration of Meeks Creek and lagoon and marina removal would include substantial grading within the existing creek and marina areas. Soil from the banks and nearby upland areas would be placed in the dredged marina to recreate a shallow lagoon. Native wetland and riparian vegetation would be re-established throughout the restoration area.

Before removal of the marina, a temporary impervious barrier, or barriers, would be placed near the mouth of Meeks Creek to separate the restoration area from Lake Tahoe. During construction, the flow of the creek would be diverted via a temporary diversion dam constructed upstream of the affected areas. The creek's flow would be captured in pipes and diverted into Lake Tahoe downstream of the project area by gravity flow. Water diversion pumping for construction and dewatering in the creek channel and lagoon may also be required; in such cases, pumping could occur continuously for several days. Water pumped from excavation activities would contain suspended sediments and other solids. The suspended sediments would not be discharged into Meeks Creek, Lake Tahoe, stream environment zones unless water quality discharge standards are met (as defined by TRPA), wetlands (as defined by USACE), or storm drains. Water pumped from the construction area would be disposed of in upland portions of the project area within temporary infiltration basins or dispersed through sprinklers or similar methods. If it is not possible to dispose of water removed from the construction area into the project area, then water would be pumped into trucks and disposed of off-site. All excavation, filling, or other disturbance of the soil would be limited to the May 1-October 15 timeframe unless a TRPA grading season extension is issued for the project. In-channel restoration work would generally occur in late summer or early fall when water levels in Meeks Creek are lowest.

Construction of a new SR 89 bridge, multi-use path bridge, and fish management structure across Meeks Creek would require dewatering for construction activities that would encounter groundwater, including installation of the bridge and fish management structure footings, and utility replacement and or protection. As necessary during construction, water-tight cofferdams would be temporarily installed to prevent scour and to maintain soil- and water-free areas to allow for installation of bridge and fish weir footings. Once the footings are constructed, the cofferdams would be removed, and the remaining portion of the bridge and fish management structure would be constructed from outside Meeks Creek.

The fish management structure (e.g., weir) would be constructed in the creek channel near the SR 89 bridge, multi-use path bridge, or in the channel between the SR 89 and multi-use path bridges. The fish management structure would consist of a weir or similar in-channel structure that could be adjusted to block or allow the movement of fish. Additionally, the structure would be located and constructed in a fashion to avoid stream flows bypassing the structure, streambank erosion, undercutting, and/or restricting flows causing backwatering or increased velocity. As described under "Fish Management Structure," in Chapter 2, "Description of the Proposed Action and Alternatives," because of some uncertainty of optimal location and designs to meet objectives, a feasibility study would be completed prior to implementation. This structure would be managed to prevent the movement on non-native fish species into the upper watershed in order to protect and support the recovery of native fish species in the upper watershed.

A new multi-use path bridge would be constructed across Meeks Creek channel downstream of SR 89 and upstream of the restored lagoon. The bridge could be constructed at the same time as the creek restoration, or separately after restoration is complete. If constructed concurrent with the restoration, all in-channel work would occur while the creek is diverted, as described above. If constructed separately from the restoration, diversion of creek flows and dewatering or water diversion for construction activities may be required. As described above, water pumped from the active construction area would be disposed of in upland portions of the project area within temporary infiltration basins or dispersed through sprinklers or similar methods. If it is not possible to dispose of water removed from the construction area into the project area, then water would be pumped into trucks and disposed of off-site.

Construction BMPs would be installed in accordance with all permits and Caltrans requirements. Utility work and bridge footing work within Meeks Creek is anticipated to take several weeks and would be completed during one construction season, primarily in the summer months.

The pier would be constructed by a floating or amphibious barge with pile driver during the winter season (October to May). Piles would be installed by either pile driving or drilling. A caisson would be used to isolate the pile driving or drilling site to protect water quality. A caisson is a watertight retaining structure used to isolate the work area during pier construction. With a caisson, the water can be pumped out to create a dry environment. Turbidity curtains would only be used during pile installation if necessary to minimize water quality impacts from suspended sediment. A turbidity curtain is a floating barrier consisting of relatively impervious fabric, used to prevent fine and coarse suspended sediment transport away from areas of water-based construction activities, in this case the driving of the pier piles.

Suspended Sediments and Turbidity

Construction activities could disturb sediments and soils within and adjacent to waterways. Any construction-related erosion or disturbance of sediments and soils could temporarily increase downstream turbidity and sedimentation throughout the study area if soils were transported in creek flows or stormwater runoff.

The abundance, distribution, and survival of fish populations have been linked to levels of turbidity and silt deposition. Prolonged exposure to high levels of suspended sediment could create a loss of visual capability of fish in aquatic habitats within the study area, leading to reduced feeding and growth rates. Such exposure could also result in a thickening of the gills, potentially causing the loss of respiratory function; in clogging and abrasion of gills; and in increased stress levels, which in turn could reduce tolerance to disease and toxicants (Waters 1995). Silt deposition could also degrade benthic habitats by settling in substrate and reducing oxygenation of eggs in gravels. Turbidity also could result in increased water temperature and decreased dissolved oxygen (DO) levels, especially in low-velocity pools, which can cause stressed respiration.

As stated in Section 2.10, “Construction,” all project construction management plans would be reviewed and approved, as required, under TRPA’s Code of Ordinances, Lahontan RWQCB requirements, and National Pollutant Discharge Elimination System (NPDES) permits, which would include preparation and implementation of a Stormwater Pollution Prevention Plan. TRPA “Standard Conditions of Approval for Grading Projects” includes standards such as temporary best management practices (BMPs) and erosion control requirements. With the implementation of site management practices sufficient to meet these criteria and adhere to the required permits, including a suite of RPMs described in Appendix A, fisheries or aquatic habitat would not be substantially affected by suspended sediment and turbidity.

Construction-Related Contaminants

Use of heavy equipment and storage of materials is required for many construction activities. If not properly contained and managed, contaminants (e.g., fuels, lubricants, hydraulic fluids) could be introduced into the water, either directly or through surface runoff. Contaminants may be toxic to fish or cause altered oxygen diffusion rates and acute and chronic toxicity to aquatic organisms, thereby reducing growth and survival. However, all project construction management plans would be reviewed and approved, as required, under TRPA’s Code of Ordinances, Lahontan RWQCB requirements, and NPDES permits, which would include preparation and implementation of spill prevention plans (see Appendix A), which would avoid and/or minimize the potential for the release and exposure of contaminants.

Direct Disturbance

Fish and other aquatic biota, if present, could be injured or killed during in-water construction activities. As described above, the construction site would be isolated from adjacent habitats with diversions dams and/or cofferdams and dewatering. A separate analysis of potential stranding of aquatic biota from dewatering work sites is provided below under Impact 3.5-2.

If pile driving is required, measures would be implemented to avoid direct physical injury, including pile driving with vibratory hammers and managed (through operational controls) to be less than 206 decibels (dB) peak (dBpeak) and 183 dB (fish less than 2 grams) and 187 dB (fish greater than or equal to 2 grams) sound exposure level (dBSEL) measured at a distance of 10 meters (Fisheries Hydroacoustic Working Group 2008). (Attenuation is assumed at a rate of 4.5 dB per doubling of distance.) As stated above, caissons would be used during pile installation to minimize water quality impacts from suspended sediment. Further, as described above, the pier would be constructed by a floating or amphibious barge with pile driver during the winter season (October to May), which is outside of the summer period when nearshore fish densities are highest and the peak spawning period for many nearshore fish species in Lake Tahoe.

With the implementation of site management practices sufficient to meet and adhere to the required permits, fisheries or aquatic habitat would not be substantially affected. Additionally, RPMs described in Appendix A (e.g., use of a caisson), would be taken to substantially reduce impacts of pile driving and construction of the boating pier on fish or aquatic species. Therefore, this impact would be **less than significant**.

Alternative 2: Restoration with Pedestrian Pier

This impact would be similar to the impact described for Alternative 1. The proposed construction activities under Alternative 2 with the potential to degrade aquatic habitat would include installation of temporary barriers including a diversion dam, dewatering of a portion of Meeks Creek, placement of fill in the existing lagoon, grading of creek and lagoon, replacement of the SR 89 bridge, installation of two multi-use path bridges, and the installation of the pedestrian pier (albeit smaller than the boat pier under Alternative 1). With the implementation of site management practices sufficient to meet and adhere to the required permits, fisheries or aquatic habitat would not be substantially affected. Therefore, this impact would be **less than significant**.

Alternative 3: Restoration with No Pier

This impact would be similar to the impact described for Alternative 1. The proposed construction activities under Alternative 3 with the potential to degrade aquatic habitat would include installation of temporary barriers including a diversion dam, dewatering of a portion of Meeks Creek, placement of fill in the existing lagoon, grading of creek and lagoon, installation of a two multi-use path bridges, and replacement of the SR 89 bridge. There would be no pier under this alternative although it would include a moveable, universally accessible paddlecraft launch. With the implementation of site management practices sufficient to meet and adhere to the required permits, fisheries or aquatic habitat would not be substantially affected. Therefore, this impact would be **less than significant**.

Alternative 4: Preferred Alternative

This impact would be similar to the impact for Alternative 1 with the exception of the boating pier, which is not proposed under Alternative 4. The proposed construction activities under Alternative 4 with the potential to degrade aquatic habitat would include installation of temporary barriers including a diversion dam, dewatering of a portion of Meeks Creek, placement of fill in the existing lagoon, grading of creek and lagoon, installation of a multi-use path bridge and moveable, universally accessible paddlecraft launch, and replacement of the SR 89 bridge. With the implementation of site management practices sufficient to meet and adhere to the required permits, fisheries or aquatic habitat would not be substantially affected. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.5-2: Stranding of Aquatic Biota from Dewatering Worksites

Under Alternatives 1 through 4, certain construction activities—diverting streamflow from sections of Meeks Creek and dewatering the lagoon—could result in stranding and mortality of fish and other aquatic biota, potentially including special-status species such as LCT and Lahontan tui chub. The project would avoid and/or minimize stranding and mortality of species in dewatered areas and not substantially change the diversity or distribution of aquatic species, or substantially reduce the number or reduce the viability of special-status fish species. Therefore, this impact would be **less than significant** for Alternatives 1 through 4. Under the No Action Alternative, construction activities that involve diverting or dewatering streamflow would not occur and there would be **no impact**.

No Action Alternative

In the absence of restoration activities, the existing degraded habitat conditions in Meeks Creek and lagoon would persist. However, the No Action Alternative would not include construction activities that could temporarily cause stranding or mortality of aquatic species. Consequently, **no impact** would occur.

Alternative 1: Restoration with Boating Pier

Alternative 1 would involve dewatering Meeks Creek and lagoon. The dewatering could cause stranding and mortality of fish and other aquatic biota. Several special-status species, including LCT (federally listed as threatened) and the Lahontan tui chub (a California Species of Special Concern) could be affected.

If fish are present during the installation of the cofferdams (which will be needed for the SR 89 bridge replacement (that includes a multi-use path), channel and lagoon restoration, fish management structure construction, and construction of a separated multi-use path bridge), they could be injured by the in-water construction activity itself, and/or become trapped behind the cofferdam. If any fish become trapped behind the cofferdam, they would be subject to water quality degradation (e.g., increased temperatures, decrease dissolved oxygen), become entrained in or impinged on pumps used for dewatering, or become stranded after dewatering is complete.

To minimize the stranding of fish and aquatic biota, the project would retain a qualified biologist(s) to oversee rescue and relocate fish, and other important native aquatic species when flows are diverted from in-channel construction sites. Organisms would be removed from these sites and transported and released into suitable sites (i.e., Lake Tahoe or sites on Meeks Creek upstream of the affected area). All equipment used for dewatering and fish rescue would be properly decontaminated to kill or remove all potential invasive aquatic species (i.e., Eurasian watermilfoil). All pump intakes would be screened to limit entrainment of fish and aquatic weeds (i.e., Eurasian watermilfoil). All activities would occur in compliance with TRPA’s Lake Tahoe Region Aquatic Invasive Species Management Plan.

Implementing the RPMs (see Appendix A) and standard BMPs would avoid and/or minimize stranding and mortality of aquatic biota in the project area. Therefore, this impact would be **less than significant**.

Alternative 2: Restoration with Pedestrian Pier

This impact would be similar to the impact for Alternative 1; however, two multi-use path bridges would be installed rather than one, requiring an additional cofferdam and diversion. Alternative 2 would involve dewatering Meeks Creek and lagoon as well. The dewatering could cause stranding and mortality of fish and other aquatic biota.

Implementing the RPMs (see Appendix A) and standard BMPs would minimize stranding and mortality of aquatic biota in the project area. Therefore, this impact would be **less than significant**.

Alternative 3: Restoration with No Pier

This impact would be similar to the impacts for Alternative 2, because this alternative would also include replacement of the SR 89 bridge and construction of two multi-use path bridges. Alternative 3 would involve dewatering Meeks Creek and lagoon as well. The dewatering could cause stranding and mortality of fish and other aquatic biota.

Implementing the RPMs (see Appendix A) and standard BMPs would minimize stranding and mortality of aquatic biota in the project area. Therefore, this impact would be **less than significant**.

Alternative 4: Preferred Alternative

This impact would be the same as the impacts for Alternative 1, because this alternative would also include replacement of the SR 89 bridge (that would include a multi-use path) and one separated multi-use path bridge. Alternative 4 would involve dewatering Meeks Creek and lagoon as well. The dewatering could cause stranding and mortality of fish and other aquatic biota. All activities would occur in compliance with TRPA's Lake Tahoe Region Aquatic Invasive Species Management Plan.

Implementing the RPMs (see Appendix A) and standard BMPs would minimize stranding and mortality of aquatic biota in the project area. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.5-3: Short-Term Disruption of Fish Passage/Migration

Construction of restoration improvements associated with Alternatives 1 through 4 may result in short-term disruption of fish passage between Meeks Creek and Lake Tahoe or in-creek seasonal migration. The temporary fish barriers would be in place for construction for a relatively short time period that would not encompass all of the spawning season for any of the fish species. This impact would not result in a barrier to fish movement that would block access to spawning habitat or interfere substantially with the movement of any native resident or migratory fish species and would be **less than significant** for Alternatives 1 through 4. With the No Action Alternative, no new disruptions to passage would occur and there would be **no impact**.

No Action Alternative

No restoration, recreation infrastructure, or public access features would be constructed under the No Action Alternative; therefore, this alternative would not disrupt fish passage. **No impact** would occur.

Alternative 1: Restoration with Boating Pier

As stated in Section 2.10.1, "Restoration of Meeks Creek and Removal of Meeks Bay Marina," a temporary impervious barrier, or barriers, would be placed near the mouth of Meeks Creek to separate the restoration area from Lake Tahoe. During construction of the SR 89 bridge replacement (with multi-use path), fish management structure, restoration improvements, marina removal, and separate multi-use path bridge, the flow of the creek would be diverted via a temporary diversion dam constructed upstream of the affected areas. These actions would result in temporary barriers to fish passage. Several species of native minnows move locally from the lake into streams for spawning in spring, and mountain suckers move locally within the stream for spawning in midsummer. The primary spawning periods for rainbow trout and Lahontan redsides—spring and early summer—coincide with snowmelt runoff. Mountain suckers are late spring and summer spawners. Mountain whitefish migrate upstream for spawning in the fall (October–December). The project could block fish passage during some of these time periods, but not all of them.

Construction would occur during low-flow conditions, and diversions would occur between July and mid-October. The temporary fish barriers would be in place for dewatering and diversions for a relatively short time period that would not encompass all of the spawning season for any of the fish species; therefore, the construction-phase impact would be **less than significant**.

Alternative 2: Restoration with Pedestrian Pier

This impact would be similar to the impact for Alternative 1; however, two multi-use path bridges would be installed rather than one over the creek. During construction, the flow of the creek would be diverted via a temporary diversion dam that would result in temporary barriers to fish passage. This alternative would include an additional diversion for construction of the additional multi-use path bridge over the creek. As described under Alternative 1, the project could block fish passage during portions of spawning periods for some fish species.

Construction would occur during low-flow conditions, and diversions would occur between July and mid-October. The temporary fish barriers would be in place for dewatering and diversions for a relatively short time period that would not encompass all of the spawning season for any of the fish species; therefore, the construction-phase impact would be **less than significant**.

Alternative 3: Restoration with No Pier

This impact would be similar to the impact for Alternative 2, because this alternative would also include replacement of the SR 89 bridge and construction of two multi-use path bridges. During construction, the flow of the creek would be diverted via a temporary diversion dam that would result in temporary barriers to fish passage. This alternative would include an additional diversion for construction of the additional multi-use path bridge over the creek. As described under Alternative 1, the project could block fish passage during portions of spawning periods for some fish species.

Construction would occur during low-flow conditions, and diversions would occur between August and mid-October. The temporary fish barriers would be in place for dewatering and diversions for a relatively short time period that would not encompass all of the spawning season for any of the fish species; therefore, the construction-phase impact would be **less than significant**.

Alternative 4: Preferred Alternative

This impact would be similar to the impact for Alternative 1, because this alternative would also include replacement of the SR 89 bridge (that would include a multi-use path) and one separated multi-use path bridge. During construction, the flow of the creek would be diverted via a temporary diversion dam that would result in temporary barriers to fish passage. As described under Alternative 1, the project could block fish passage during portions of spawning periods for some fish species.

Construction would occur during low-flow conditions, and diversions would occur between August and mid-October. The temporary fish barriers would be in place for dewatering and diversions for a relatively short time period that would not encompass all of the spawning season for any of the fish species; therefore, the construction-phase impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.5-4: Long-Term Disruption of Fish Passage/Migration

Alternatives 1, 2, 3, and 4 would not result in any long-term change to fish passage or migration because the depth of flow in the restored channel would be improved and the connection between the lake and Meeks Creek would be sustained. This impact would be **beneficial** for Alternatives 1 through 4. Under the No Action Alternative, existing barriers to fish passage/migration at the SR 89 bridge would remain and would potentially worsen over time. Therefore, this impact would be **potentially significant** for the No Action Alternative.

No Action Alternative

No restoration, recreation infrastructure, or public access features would be constructed under the No Action Alternative. The SR 89 bridge currently creates a barrier to fish passage during portions of the year due to the approximately four-foot vertical drop from the culvert bottom to the water surface. This barrier would remain under the No Action Alternative and would potentially worsen over time. Therefore, the impact of the No Action Alternative would be **potentially significant**.

Alternative 1: Restoration with Boating Pier

Restoration included in Alternative 1, specifically replacing box culverts at the SR 89 bridge, raising the creek bed, and improving lagoon connectivity with Lake Tahoe would result in a long-term improvement of fish passage and migration conditions in the project area, including between nearshore habitats in Lake Tahoe and Meeks Creek. This would remove the existing barrier at the SR 89 bridge and provide access to approximately 6.5 miles of habitat for aquatic species in the Meeks Creek watershed. As described under Section 2.5.3, "Resource Enhancement," a fish management structure would be constructed in the creek channel near the SR 89 bridge, multi-use path bridge, or in the channel between the SR 89 and multi-use path bridges. The fish management structure would consist of a weir or similar in-channel structure that could be adjusted to block or allow the movement of fish. Additionally, the structure would be located and constructed in a fashion to avoid stream flows bypassing the structure, streambank erosion, undercutting, and/or restricting flows causing backwatering or increased velocity. As described in Section 2.5.3, because of some uncertainty of optimal location and designs to meet objectives, a feasibility study would be completed prior to implementation. This structure would be managed to prevent the movement on non-native fish species into the upper watershed in order to protect and support the recovery of native fish species in the upper watershed. The structure could allow the passage of fish when it is consistent with management goals. Therefore, this would be a **beneficial** effect with regard to fish passage.

Alternative 2: Restoration with Pedestrian Pier

This impact would be similar to the impact for Alternative 1. It is expected that restoration, specifically replacing box culverts at the SR 89 bridge, raising the creek bed, and improving lagoon connectivity with Lake Tahoe would result in a long-term improvement of fish passage and migration conditions in the project area. A fish management structure would be constructed that could block passage for non-native species as an intentional management action when it would be beneficial to the recovery of native special status aquatic species. This would be a **beneficial** effect with regard to fish passage.

Alternative 3: Restoration with No Pier

This impact would be similar to the impact for Alternative 1. It is expected that restoration, specifically replacing box culverts at the SR 89 bridge, raising the creek bed, and improving lagoon connectivity with Lake Tahoe would result in a long-term improvement of fish passage and migration conditions in the project area. A fish management structure would be constructed that could block passage for non-native species as an intentional management action when it would be beneficial to the recovery of native special status aquatic species. This would be a **beneficial** effect with regard to fish passage.

Alternative 4: Preferred Alternative

This impact would be similar to the impact for Alternative 1. It is expected that restoration, specifically replacing box culverts at the SR 89 bridge, raising the creek bed, and improving lagoon connectivity with Lake Tahoe would result in a long-term improvement of fish passage and migration conditions in the project area. A fish management structure would be constructed that could block passage for non-native species as an intentional management action when it would be beneficial to the recovery of native special status aquatic species. This would be a **beneficial** effect with regard to fish passage.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.5-5: Introduction and Spread of Aquatic Invasive Species by Construction Activities

Eurasian watermilfoil is known to occur in Meeks Bay and has been targeted for removal efforts in recent years using hand-pulling and bottom barriers. Despite these efforts, fragments are still able to enter Meeks Bay from Lake Tahoe proper, resulting in potential re-spread and could potentially be introduced and spread to the creek or the lake during construction activities. Implementation of invasive species management RPMs would substantially reduce the potential for existing aquatic invasive species to spread and result in harmful ecological economic, social, or public health impacts from the introduction or spread of invasive species. Therefore, this impact would be **less than significant** for Alternatives 1 through 4. Under the No Action Alternative, management and controls would be expected to continue with ongoing operations. Therefore, this impact would be **less than significant** for the No Action Alternative.

<u>No Action Alternative</u>

Currently, some marina infrastructure, including the floating platforms and slips, have been removed from the marina to facilitate AIS control and other management actions. With the No Action Alternative, this infrastructure would be reinstalled and the marina would continue to operate as it had in the past. The marina would be operational during navigable, high lake levels and would not be operational during periods of low lake levels. Other activities that could occur under this alternative would be retrofits to the marina for health and safety purposes (e.g., if sheet piling is unsafe), typical maintenance activities, and ongoing AIS control measures, such as bottom barrier treatments within the marina, would continue. No other resource enhancement measures would be implemented. However, the No Action Alternative would not include newly proposed construction activities that could result in the introduction and spread of aquatic invasive species, as described for Alternatives 1–4. Consequently, this impact would be **less than significant**.

<u>Alternative 1: Restoration with Boating Pier</u>

AIS have been introduced into the Meeks Creek watershed ecosystem primarily through operation of the Meeks Bay Marina and associated boat access. The Meeks Bay Marina is a partially enclosed structure that reduces water circulation, resulting in elevated water temperatures and poor water quality from a lack of mixing with open water. These characteristics have created optimal habitat for non-native warmwater invasive fish, and invasive aquatic plants such as Eurasian milfoil. When boats visit or launch, they serve as vectors for the spread of AIS species to other parts of the lake.

An ongoing AIS control project is already occurring within the Meeks Bay Marina with the objective of AIS eradication prior to the start of restoration activities. This is being accomplished through manual control mechanisms such as the placement of bottom barrier mats to smother AIS, and does not include use of pesticides.

Channel construction activities, including direct actions and aquatic species rescue and relocation, present a risk of introducing and spreading invasive species like Eurasian watermilfoil in Meeks Creek or nearshores areas of Lake Tahoe through disturbance and transport/relocation of aquatic organisms. However, additional manual AIS control measures would be implemented prior to and during construction of restoration features to prevent the spread of AIS during construction and reduce the risk of AIS re-establishment after construction.

- AIS infestations are treated prior to ground-disturbing activities and prior to any activities that would generate AIS weed fragments (note AIS treatments have been recently completed, but may be revisited prior to construction, as necessary);
- lagoon soil containing AIS particles would be over-excavated and removed from site or buried by clean fill material to a sufficient depth to prevent propagation of AIS;

- non-native warmwater fish collected during dewatering and aquatic species rescue and relocation efforts will be eradicated; and
- no chemicals would be used to control AIS.

The construction of piers invites an increase in boating activity and subsequent potential for introducing non-native plant and animal species to the area. Potential introductions could result from the transport of aquatic weeds such as Eurasian watermilfoil and curlyleaf pondweed (not currently known to occur in Meeks Bay) entangled on boat propellers leaving infested sites around Lake Tahoe or the Tahoe Keys. Increased transport of aquatic plants (native or non-native) offers an increase in potential transport of attached juvenile Asian clams. However, implementation of continued invasive species management would substantially reduce the potential for existing aquatic invasive species to spread.

All restoration and pier construction activities would occur in compliance with TRPA's Lake Tahoe Region Aquatic Invasive Species Management Plan. Additionally, as described under Section 2.5.4, "Upland Recreation Facilities," in Chapter 2, the paddlecraft storage area would include AIS decontamination facilities and educational materials about AIS would be provided at the paddlecraft storage area and near where watercraft rentals are provided at Meeks Bay Resort. Resource protection measures (see Appendix A) would be implemented to substantially reduce the risk of introduction and spread of aquatic invasive species, such as the invasive plant Eurasian milfoil. Therefore, this impact would be **less than significant**.

Alternative 2: Restoration with Pedestrian Pier

This impact would be similar to the impact for Alternative 1. Alternative 2 includes the construction of a pedestrian pier, which could alter habitat conditions for native fish, although to a lesser extent than Alternative 1 due to the smaller size of the pedestrian pier. Through compliance with TRPA's Lake Tahoe Region Aquatic Invasive Species Management Plan and implementation of RPMs (see Appendix A), the risk of introduction and spread of aquatic invasive species would be substantially reduced. Therefore, this impact would be **less than significant**.

Alternative 3: Restoration with No Pier

Under Alternative 3, no pier would be constructed; however, a small (up to 20 by 30 feet) moveable, universally accessible paddlecraft launch would be placed in the nearshore near the south end of the project area. This structure would be floating and would function similar to a floating pier. The effects of this structure would be similar to but less than that of the floating pier in Alternative 2. Similar to Alternatives 1 and 2, through compliance with TRPA's Lake Tahoe Region Aquatic Invasive Species Management Plan and implementation of RPMs (see Appendix A), the risk of introduction and spread of aquatic invasive species would be substantially reduced. Therefore, this impact would be **less than significant**.

Alternative 4: Preferred Alternative

Alternative 4 would include the same moveable, universally accessible paddlecraft launch as Alternative 3; therefore, the risk of introduction and spread of aquatic invasive species would be the same as Alternative 3. For the reasons described above, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.5-6: Long-Term Disruption of Nearshore Aquatic Habitat

Under Alternatives 1 and 2, construction of a pier could alter the nearshore habitat. Similarly, under Alternatives 3 and 4, installation of a moveable, universally accessible paddlecraft launch could alter nearshore habitat albeit to a lesser extent than a pier (see Chapter 2). Adding an unnatural feature to the shoreline could adversely alter habitat for native species. However, due to existing conditions (no prime spawning habitat present) coupled with the habitat restoration and enhancement in Meeks Creek, and aquatic invasive species eradication measures proposed by the project, it is unlikely that both sufficient populations of such fish and suitable habitat connectivity would be present nearby to create a noticeable adverse effect on native fishes. Further, replacement of existing concrete and rock gabion shoreline revetments on the northern end of the project area with more-natural boulder and vegetation shoreline protection would benefit nearshore habitat. Therefore, this impact would not substantially reduce the suitability of habitat for native or game fish species and would be **less than significant** for Alternatives 1 through 4. Under the No Action Alternative, no new shoreline structures would be constructed, and existing disruption of shoreline habitat associated with the marina and sheetpile creek mouth would continue in its current form. This impact would be **less than significant** for the No Action Alternative.

No Action Alternative

Under the No Action Alternative, the shoreline habitat in Meeks Bay would remain as is. The existing disruption of shoreline habitat associated with the marina and sheetpile at the creek mouth would continue in its current form. This impact would be **less than significant** for the No Action Alternative.

Alternative 1: Restoration with Boating Pier

Alternative 1 includes the construction of an approximately 300-foot boating pier which could adversely alter habitat for native species. It also includes replacement of existing concrete and rock gabion shoreline revetments on the northern end of the project area with more-natural boulder and vegetation shoreline protection, which would benefit nearshore habitat. Based on concerns that increasing boating and presence of structures (i.e., piers) were affecting fish habitat in Lake Tahoe, a multi-phased fish study investigated the distribution of fish communities, as well as their interactions with littoral structures and habitat features, the results of which are generally described below (Byron et al. 1989; Beauchamp et al. 1991, 1994; Allen and Reuter 1996).

Nearshore fish densities are highest during the summer and then decrease during fall as fish move to deeper parts of the lake. This occurs, in part, due to thermal stratification that restricts many fish to shallower depths (Byron et al. 1989). In addition to the permanent inhabitants of nearshore environments, young-of-year or underyearling, fish younger than a year of age, of most other fish species also utilize the nearshore zone. In general, shallow (i.e., less than 30 feet deep) areas with large boulders or other complex environments support substantially more fish than simple (i.e., sandy substrate) littoral zone habitats (Byron et al. 1989). Yearling and older littoral fish generally do not use shallow, nearshore sandy substrate unless is it is less than 7 feet from complex rocky cover (Beauchamp et al. 1991). Rocky habitat is thought to provide important refuge from predation (Beauchamp et al. 1994) and is considered good spawning habitat for many lake-dwelling species by TRPA. Allen and Reuter (1996) found nearly every gravel substrate location surveyed showed evidence of spawning. In contrast, higher densities of underyearling littoral fishes are associated with sandy substrates, likely because they take advantage of the warmest available temperatures located in shallow waters and their small size and transparency protect them from predators (Beauchamp et al. 1991). As underyearlings grow and gain more pigment they form schools to protect themselves from predation. Large aggregations of juveniles are prevalent along the marshy shore where they are able to take refuge in emergent aquatic vegetation (Moyle 2002).

The warm spring and summer months are the peak spawning period for many nearshore fish species in Lake Tahoe. The peak recreational boating period, which occurs from approximately May 1 to September 30, corresponds with utilization of nearshore habitat by native fishes (Beauchamp et al. 1991) and warmwater game species; however, most native fish spawn during the night hours when shorezone activities decrease (Allen and Reuter 1996). Beauchamp et al. (1991) found that underyearlings, which generally use shallow areas did not occupy areas deep enough to be frequently disturbed by normal boat traffic. Nevertheless, boat traffic in marinas and around piers caused fish schools (i.e., yearlings and older fish) to retreat to cover, although they usually returned to normal activity patterns within 30 seconds (Beauchamp et al. 1991). Due to the short disturbance period, the study concluded that, even frequent encounters (e.g., 100 boat passages) would not impinge on foraging time enough to affect growth.

To further investigate potential anthropogenic impacts on nearshore fishes, Allen and Reuter (1996) studied boating impacts on spawning. The researchers reported that boating occurring during maximum night spawning activities had no negative impact on spawning behavior. Further, artificial lighting associated with boating and other nearshore activities did not affect spawning behavior.

The most common anthropogenic alteration to Lake Tahoe's nearshore is the construction of piling-supported piers (piers) and rock crib piers (cribs) (Beauchamp et al. 1994). Piers provide simple submerged structures that lack habitat complexity. Beauchamp et al. (1994) studied piers and cribs to determine if these structures affected fish densities. The researchers reported that piers had no significant effect on littoral fish density, but piers may positively affect fish abundance when the lake level is higher because some species may utilize the shaded areas under docks as cover. Allen and Reuter (1996) conducted another study to determine if piers and/or cribs affected fish spawning success. The researchers reported that substrate was more important than pier presence for littoral fish spawning success (Allen and Reuter 1996).

Existing conditions consist of marginal habitat and/or feed and cover habitat with no prime spawning habitat present. Due to the lack of prime habitat and for the reasons described above, fish would not be adversely affected with the new boating pier. Furthermore, habitat restoration and enhancement, and invasive species eradication efforts proposed as part of Alternative 1 would benefit fish habitat. Therefore, this impact would be **less than significant**.

<u>Alternative 2: Restoration with Pedestrian Pier</u>

This impact would be similar to the impact for Alternative 1. Alternative 2 includes the construction of a pedestrian pier that could alter habitat conditions for native fish, although to a lesser extent than Alternative 1 due to the smaller size of the pedestrian pier. Existing conditions consist of marginal habitat and/or feed and cover habitat with no prime spawning habitat present and it is not expected that populations of these fish would be adversely affected by the new pedestrian pier, based on available literature/applicable studies, especially after habitat restoration and enhancement, and invasive species eradication efforts are complete. Therefore, this impact would be **less than significant**.

<u>Alternative 3: Restoration with No Pier</u>

Under Alternative 3, no pier would be constructed, however a small (up to 20 by 30 feet) moveable, universally accessible paddlecraft launch would be placed in the nearshore near the south end of the project area. This structure would be floating and would function similar to a floating pier. The effects of this structure would be similar to but less than that of the floating pier in Alternative 2. While the moveable, universally accessible paddlecraft launch would be placed near boulders in the nearshore, the area does not contain prime spawning habitat. For the reasons described for Alternative 1, Alternative 3 would not substantially affect fish habitat. Therefore, this impact would be **less than significant**.

<u>Alternative 4: Preferred Alternative</u>

Alternative 4 would include the same moveable, universally accessible paddlecraft launch as Alternative 3; therefore, the effects on fish habitat would be the same as Alternative 3. For the reasons described above, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.5-7: Long-Term Change in in Habitat Conditions Associated with Restoration and Enhancement

Restoration and enhancement activities included in Alternatives 1, 2, 3, and 4, would involve removal of the marina and boat launch infrastructure to allow for full restoration of Meeks Creek, lagoon, and barrier beach along the reach of the creek from SR 89 to Lake Tahoe. Restoration and enhancement associated with Alternatives 1 through 4 would restore ecological process, resulting improved habitat conditions for aquatic resources. This would be a **beneficial** effect related to implementation of Alternative 1, 2, 3, and 4. Implementation of the No Action Alternative would not include restoration and enhancement activities. The current degraded condition of the Creek would persist and may worsen over time. This would be a **potentially significant** impact for the No Action Alternative.

No Action Alternative

Under the No Action Alternative, there would be no restoration and the marina would remain in place, with a boat ramp and approximately 120 slips placed in the lagoon. Currently, some marina infrastructure, including the floating platforms and slips, have been removed from the marina to facilitate AIS control and other management actions. With the No Action Alternative, this infrastructure would be reinstalled, and the marina would continue to operate as it had in the past. Under existing conditions, Meeks Creek is degraded and lacks the creek, lagoon, and barrier beach habitat that historically existed in the project area. Additionally, continued maintenance of the marina would require ongoing dredging to remove accumulated sediment and aquatic invasive plant species and would involve the use of heavy equipment in Meeks Creek. These degraded conditions would continue and may worsen under the No Action Alternative, ultimately resulting in reduced creek function, continued incision and disconnection of the creek from the floodplain, interference with lagoon and barrier beach processes. This impact would be **potentially significant**.

Alternative 1: Restoration with Boating Pier

Alternative 1 would involve removal of the marina and boat launch infrastructure to allow for full restoration of Meeks Creek, lagoon, and barrier beach along the reach of the creek from SR 89 to Lake Tahoe. To accomplish restoration goals, the existing marina infrastructure, including the concrete boat launch, steel and concrete retaining walls that form the perimeter of the marina, boulder riprap, marina office, and other ancillary infrastructure would be entirely removed.

Restoration would occur upstream of and within the footprint of the existing marina infrastructure. Upon removal of Meeks Bay Marina, the natural stream channel, floodplain, lagoon, and barrier beach of Meeks Creek would be restored. Anthropogenic fill surrounding Meeks Creek in the vicinity of the marina would be removed or regraded as necessary to recreate a shallow lagoon and to restore channel and floodplain topography along Meeks Creek from SR 89 to Lake Tahoe. Following grading, the channel banks and lagoon would be revegetated with native emergent lagoon and riparian plant species. Additional restoration design and engineering would occur to establish detailed design parameters to achieve performance standards and incorporate the resource protection measures described in the project description. Further, resource enhancement would be conducted associated with aquatic invasive species control and shoreline stabilization, which would involve removal of the existing gabion wall and replacement with more natural stabilization techniques. Replacement of the SR 89 bridge would address a passage barrier and provide access to approximately 6.5 miles of habitat for aquatic species in the Meeks Creek watershed and a fish management structure would be constructed that could block passage for non-native species as an intentional management action when it would be beneficial to the recovery of native special status aquatic species, including LCT.

Restoration and enhancement associated with Alternative 1 would restore ecological process, resulting improved habitat conditions for aquatic resources. This impact would be **beneficial**.

Alternative 2: Restoration with Pedestrian Pier

This impact would be very similar to the effects of Alternative 1. Restoration would occur upstream of and within the footprint of the existing marina infrastructure. With the removal of Meeks Bay Marina and restoration of the natural stream channel, floodplain, lagoon, and barrier beach of Meeks Creek, habitat conditions would be improved. This impact would be **beneficial**.

Alternative 3: Restoration with No Pier

Habitat conditions under Alternative 3 would be very similar to the effects of Alternative 1, although no pier would be constructed. Restoration would occur upstream of and within the footprint of the existing marina infrastructure. With the removal of Meeks Bay Marina and restoration of the natural stream channel, floodplain, lagoon, and barrier beach of Meeks Creek, habitat conditions would be improved. This impact would be **beneficial**.

Alternative 4: Preferred Alternative

The effects of Alternative 4 on habitat conditions would be very similar to Alternative 1. Restoration would occur upstream of and within the footprint of the existing marina infrastructure. With the removal of Meeks Bay Marina and restoration of the natural stream channel, floodplain, lagoon, and barrier beach of Meeks Creek, habitat conditions would be improved. This impact would be **beneficial**.

Mitigation Measures

No mitigation is required for this impact.

CUMULATIVE IMPACTS

Cumulative impacts on aquatic biological resources are considered in the context of Lake Tahoe, the range of affected special-status species, as well as Meeks Creek. Past, present, and future development, recreation, and fuels management projects, including the projects listed in Table 3-2, have resulted and likely would continue to result in cumulative impacts on special-status aquatic species and habitat. In the distant past, development occurred absent environmental regulation and habitat conversion, degradation, and indirect effects (e.g., noise, air, and light pollution) occurred with little or no mitigation. In recent decades, however, development has continued, but in a regulatory context that required compensatory actions for adverse effects. Also in recent years, restoration projects have restored habitat and natural areas resulting in benefits to regional aquatic ecosystems. Recreation projects, such as the Tahoe Trail, while not without their impacts, serve to focus recreational use in specific areas, preventing impacts to more pristine areas. Fuels reduction projects may result in temporary impacts to aquatic habitat and introduce noise, vibration, and other disturbance, but their objectives to reduce the risk of catastrophic wildfire is ultimately beneficial to aquatic resources.

All action alternatives would require active construction in Meeks Creek and Lake Tahoe. RPMs (see Appendix A) would be implemented, which would reduce impacts on aquatic species and habitat. Additionally, the action alternatives would improve long-term fish passage while minimizing short-term construction related effects on aquatic species movement. Project construction and restoration activities under all action alternatives would result in a short-term period of high-intensity disturbance during restoration activities. Overall, project actions would not result in a net loss of aquatic habitat and would ultimately result in a functional lift in ecosystem functions and an increase in aquatic habitat from current conditions. Additionally, the project would remove a potential source for AIS introductions by removing the marina and would reduce suitable habitat for AIS by restoring the creek and lagoon to habitat conditions that favor native species.

Land uses in the project area are regulated by the Tahoe Regional Plan and Code of Ordinances, which include policies to protect aquatic resources. Design criteria would be implemented to minimize impacts on aquatic resources. Additionally, compliance with the TRPA Code of Ordinances is a regulatory requirement for project approval and permitting. Therefore, implementation of the approved project would not conflict with local policies protecting these resources.

For the reasons described above, the alternatives would have a **less than cumulatively considerable** impact related to aquatic biological resources.

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3.6 HYDROLOGY AND WATER QUALITY

This section identifies the regulatory context and policies related to hydrology and water quality, describes the existing hydrologic conditions in the project area, and evaluates potential hydrology and receiving water quality impacts of the proposed Meeks Bay Restoration Project.

3.6.1 Regulatory Setting

FEDERAL

Federal Antidegradation Policy

The U.S. Environmental Protection Agency (EPA) has designated Lake Tahoe an Outstanding National Resource Water (ONRW). ONRWs are provided the highest level of protection under the EPA Antidegradation Policy, stipulating that states may allow temporary and short-term changes to water quality but that such changes should not adversely affect existing uses or alter the essential character or special uses for which the water was designated an ONRW. EPA interprets this provision to mean that no new or increased discharges to ONRWs shall be permitted if that discharge would result in lower or poorer long-term water quality.

Clean Water Act

EPA is the lead federal agency responsible for water quality management. The Clean Water Act (CWA) is the primary federal law that governs and authorizes water quality control activities by EPA as well as the states. Various elements of the CWA address water quality. These are discussed below.

CWA Section 303(d) Impaired Waters List

Section 303(d) of the CWA requires states to develop lists of water bodies that do not attain water quality objectives after implementation of required levels of treatment by point source dischargers (municipalities and industries). Section 303(d) requires that the state develop a total maximum daily load (TMDL) for each of the listed pollutants. The TMDL is the amount of the pollutant that the water body can receive and still comply with water quality objectives. The TMDL is also a plan to reduce loading of a specific pollutant from various sources to achieve compliance with water quality objectives. In California, implementation of TMDLs is achieved through water quality control plans, known as Basin Plans, of the Regional Water Quality Control Boards (RWQCBs).

Section 404

Section 404 of the CWA prohibits the discharge of fill material into waters of the United States, including wetlands, except as permitted under separate regulations by the U.S. Army Corps of Engineers (USACE) and EPA. To discharge dredged or fill material into waters of the United States, including wetlands, Section 404 requires projects to receive authorization from the Secretary of the Army, acting through USACE. Waters of the United States are generally defined as “waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; territorial seas and tributaries to such waters.” Under Section 404 of the CWA, Lake Tahoe and Meeks Creek are considered waters of the United States.

Section 401

Section 401 of the CWA requires certification of activities through a federal license or permit for discharges of a pollutant into waters of the United States. The certification must be obtained from the state in which the discharge would originate or, if appropriate, from the interstate water pollution control agency with jurisdiction over the affected waters at the point where the discharge would originate. Therefore, all projects that have a federal component and may affect state water quality (including projects that require federal agency approval, such as issuance of a Section 404 permit) must also comply with Section 401. Water quality certification requires evaluation of potential impacts considering water quality standards and CWA Section 404 criteria governing discharge of dredged and fill materials into waters of the United States. EPA delegates water pollution control authority under Section 401 to the states.

Section 402

Section 402 of the CWA establishes the National Pollutant Discharge Elimination System (NPDES) permit program to regulate discharges of pollutants into waters of the United States. An NPDES permit sets specific discharge limits for point source discharges of pollutants into waters of the United States and establishes monitoring and reporting requirements, as well as special conditions. EPA delegates water pollution control authority under Section 402 to the states.

Rivers and Harbors Act of 1899

The Rivers and Harbors Appropriation Act of 1899 is the oldest federal environmental law in the United States. The Act is the initial authority for the USACE regulatory permit program to protect navigable waters and prohibiting the unauthorized obstruction or alteration of any navigable water of the United States.

Section 10

Section 10 requires authorization from the Secretary of the Army, acting through USACE, for the construction of any structure in or over any navigable water of the United States. This includes bank protection and pilings.

TAHOE REGIONAL PLANNING AGENCY

The Tahoe Regional Planning Agency (TRPA) was designated as an areawide planning agency under Section 208 of the CWA in 1974. Under the Tahoe Regional Planning Compact, TRPA has established environmental threshold standards, goals and policies, and ordinances directed at protecting and improving water quality in Lake Tahoe and the Tahoe region. The focus of water quality enhancement and protection is to minimize the effects of human-made disturbances to the watershed and reduce or eliminate pollutants that result from existing and proposed development.

Thresholds

The TRPA Governing Board adopted Resolution 82-11, which established water quality threshold standards for six indicator categories: (1) Lake Tahoe pelagic (deep) waters, (2) Lake Tahoe littoral (nearshore) waters, (3) tributaries, (4) direct surface runoff and stormwater discharge to surface waters, (5) stormwater discharge to groundwater, and (6) other lakes (i.e., lakes in the Tahoe basin other than Lake Tahoe). Resolution 82-11 sets numerical and management standards for water quality. Some of these threshold standards are referenced to state standards, and in other cases, target reference conditions related to specific time periods are noted. The following value statements are used in setting the threshold standards and targets for water quality:

- Attain levels of water quality in the lakes and streams within the Tahoe Region suitable to maintain the identified beneficial uses of Lake Tahoe.
- Restrict algal productivity (rate of growth) to levels that do not impair beneficial uses or deteriorate existing water quality conditions in the Tahoe Region.
- Prevent degradation of the water quality of Lake Tahoe and its tributaries to preserve the lake for future generations.
- Restore all watersheds in the Tahoe Region so that they respond to runoff in a natural hydrologic function.

Goals and Policies

TRPA has established goals and policies related to water quality. Goals include the reduction of sediment and nutrients to Lake Tahoe and the elimination or reduction of other pollutants. The existing goals and policies for water quality protection and shorezone conservation encompass the following regulatory framework (TRPA 2012):

- Support the Lake Tahoe TMDL program (see Section 6.2.5) and local government pollutant/stormwater load reduction planning and implementation.
- Regulate developed properties to install and maintain best management practices (BMPs) that reduce erosion and control stormwater runoff.
- Prohibit the discharge of wastewater, toxic waste, and solid waste into Lake Tahoe, its tributaries, and groundwater resources.
- Regulate the placement and design of shorezone structures to avoid degradation of fish habitat and interference with littoral drift.

Code of Ordinances

The TRPA Code of Ordinances (TRPA Code) contains the requirements and standards intended to achieve water quality thresholds, and the goals and policies of the TRPA Regional Plan Chapter 60 of the TRPA Code is directed specifically at water quality protection (TRPA 2021). Chapters 80–85 of the TRPA Code contain provisions related to permissible uses, activities, and placement of structures within the shorezone (Table 3.6-1).

Table 3.6-1 Code Requirements Related to Water Quality Protection and Shorezone Structures

Code Section	Requirements
Chapter 33	Sets standards for grading and excavation.
Chapter 60.1	Sets discharge standards for runoff to surface water and groundwater.
Chapter 60.2	Sets requirements that new residential, commercial, and public projects completely offset their water quality impacts.
Chapter 60.3	Contains regulations pertaining to recognition of source water, prevention of contamination to source water, and protection of public health relating to drinking water.
Chapter 60.4	Sets standards for installation of BMPs for the protection or restoration of water quality.
Chapter 80	Sets forth findings that must be made by TRPA before approving a project in the shorezone.
Chapter 81	Identifies permissible uses and accessory structures in the shorezone.
Chapter 82	Sets requirements for maintenance, repair, or expansion of existing structures in the shorezone.
Chapter 84	Regulates the placement of new piers, buoys, and other structures in the shorezone to avoid interference with littoral drift; sets BMP compliance standards for new marinas or marina expansions; sets conditions for permittable filling and dredging activities; and sets standards for operation of motorized watercraft.
Chapter 85	Sets standards and policies for projects and activities in the backshore.

Note: BMP = best management practice

Source: TRPA 2021.

STATE

California Porter-Cologne Act

California's primary statute governing water quality and water pollution issues with respect to both surface waters and groundwater is the Porter-Cologne Water Quality Control Act of 1970 (Porter-Cologne Act). The Porter-Cologne Act grants the State Water Resources Control Board (State Water Board) and each of the nine RWQCBs power to protect water quality and is the primary vehicle for implementation of California's responsibilities under the Clean Water Act. The applicable RWQCB for the proposed project is the Lahontan RWQCB. The State Water Board and the Lahontan RWQCB have the authority and responsibility to adopt plans and policies, regulate discharges to surface and groundwater, regulate waste disposal sites, and require cleanup of discharges of hazardous materials and other pollutants. Under the Porter-Cologne Act, each RWQCB must formulate and adopt a water quality control plan (known as a "Basin Plan") for its region.

Water Quality Control Plan for the Lahontan Region

Water quality standards and control measures for surface water and groundwater within the Lahontan Region are contained in the Water Quality Control Plan for the Lahontan Region (Basin Plan). The Basin Plan designates beneficial uses for water bodies. It establishes water quality objectives, waste discharge prohibitions, and other implementation measures to protect those beneficial uses. Chapter 5 of the Basin Plan, "Water Quality Standards and Control Measures for the Tahoe Region," summarizes a variety of control measures for the protection and enhancement of Lake Tahoe.

The Basin Plan was first adopted in 1975 and was most recently updated in 2019. It contains both narrative and numeric water quality objectives for the region. The Basin Plan amendments include additional language related to "mixing zones" for dilution of discharged water, compliance schedules for NPDES permits, discharge prohibition exemptions, simplification of existing prohibition exemptions, and the removal of the prohibition on new pier construction in sensitive areas along the California side of Lake Tahoe (Lahontan RWQCB 2019).

Lake Tahoe TMDL

The Lake Tahoe TMDL was developed in a partnership between the Lahontan RWQCB and Nevada Department of Environmental Protection to address the declining transparency and clarity of Lake Tahoe, which results from light scatter from fine sediment particles (primarily particles less than 16 micrometers in diameter) and light absorption by phytoplankton (algae). The addition of phosphorus and nitrogen to Lake Tahoe contribute to phytoplankton growth. Because fine sediment particles, phosphorus, and nitrogen are responsible for the decline in lake transparency and clarity, Lake Tahoe is listed under Section 303(d) of the CWA as impaired by the input of these three pollutants of concern. Based on California law, the Lahontan RWQCB has the obligation to implement and enforce the California Lake Tahoe TMDL through NPDES discharge permits (over which EPA has jurisdiction).

California's Lake Tahoe TMDL requires attainment of the California transparency objective for Lake Tahoe over a 65-year implementation period. California has identified Lake Tahoe's lack of transparency as the primary basis for its impaired status under its Section 303(d) impaired water listings filed with EPA. To comply with California's Lake Tahoe transparency standard, a Secchi disk would need to be visible 29.7 meters (97.4 feet) below the surface of Lake Tahoe on an average annual basis.

NPDES Construction General Permit for Stormwater Discharges Associated with Construction Activity in the Lake Tahoe Hydrologic Unit

The State Water Board adopted the statewide NPDES General Permit in August 1999. The state requires that projects disturbing more than one acre of land during construction file a Notice of Intent with the RWQCB to be covered under this permit. Construction activities subject to the General Permit include clearing, grading, stockpiling, and excavation. Dischargers are required to eliminate or reduce non stormwater discharges to storm sewer systems and other waters. A stormwater pollution prevention plan (SWPPP) must be developed and implemented for each site covered by the permit. The SWPPP must include best management practices (BMPs) designed to prevent construction pollutants from contacting stormwater and keep products of erosion from moving off-site into receiving waters throughout the construction and life of the project; the BMPs must address source control and, if necessary, pollutant control.

3.6.2 Environmental Setting

HYDROLOGY AND DRAINAGE

Regional Hydrology

The Tahoe Basin was formed approximately 2–3 million years ago by geologic faulting and volcanic activity. Faults running in a north-south direction formed a valley between the uplifting Sierra Nevada and the Carson Range. The northern portion of the valley was blocked and dammed by volcanic activity that created the 506-square-mile basin.

Precipitation and runoff eventually filled a portion of the basin to create Lake Tahoe, which has a water surface area covering nearly two-fifths of the total Basin area.

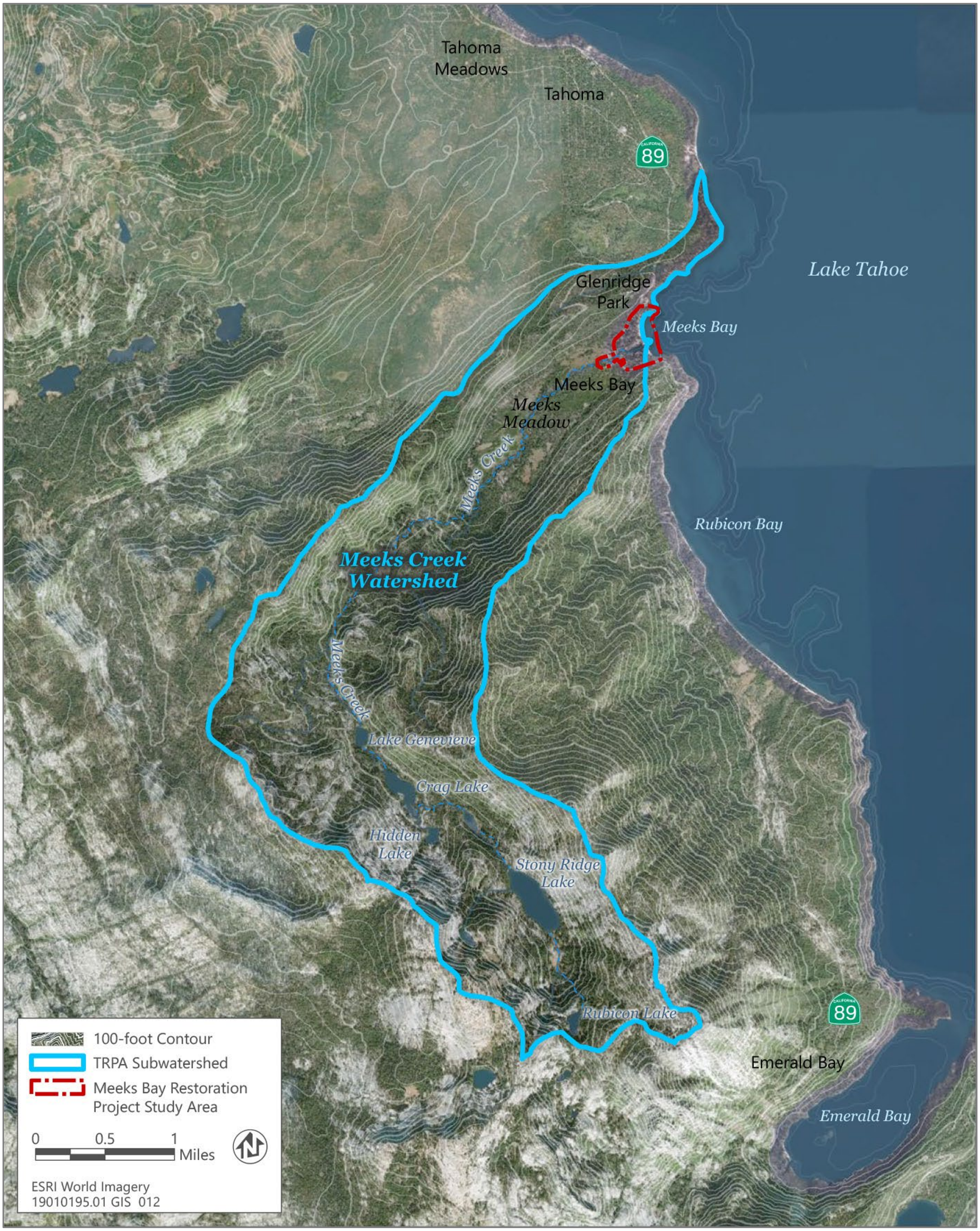
Lake Tahoe is fed by 63 tributary streams and intervening zones that drain directly to the lake. The largest tributary is the Upper Truckee River on the south side of the lake, which accounts for 25 percent of the annual inflow to Lake Tahoe. The Truckee River, on the northwest side of the lake, is the lake's only outlet, flowing to Pyramid Lake in Nevada. A dam constructed at Tahoe City in the early 1900s regulates water flow to the Truckee River from the natural rim at 6,223.0 feet above sea level to the maximum legal lake level of 6,229.1 feet (Lake Tahoe Datum).

Regional topography is characterized by steep mountain slopes at higher elevations, transitioning to more moderately sloped terrain near the lakeshore. A precipitation gradient exists from the western boundary of the Tahoe Region along the crest of the Sierra Nevada to the eastern boundary at the crest of the Carson Range. The west shore of Lake Tahoe averages about 35 inches per year of precipitation, while the east shore averages about 20 inches per year. Most precipitation in the Tahoe Basin falls between October and May as snow at higher elevations and as a mixture of snow and rain at lake level. In the higher elevations, peak stream runoff from snowmelt typically occurs in May or June, while the snowpack near lake level melts a few weeks earlier.

Local Hydrology

The Meeks Creek watershed originates at over 9,000 feet in elevation along the eastern crest of the Sierra Nevada (Swanson 2008) (Figure 3.6-1). The Creek runs 7.5 miles through high mountain lakes in Desolation Wilderness and steep alpine terrain. It then flows into Meeks Meadow before flowing under SR 89 and into the Meeks Bay Marina and into Lake Tahoe. Hydrology and geomorphic processes of the shoreline such as in the project area are highly influenced by the water level of Lake Tahoe (Swanson 2006). The hydrology of Meeks Creek has been significantly altered by many human disturbances including Comstock era logging, grazing of the meadow, road and bridge construction, cessation of the natural and indigenous fire regimes, and climate change (Swanson 2008). Meeks Creek is constricted by two 8-foot by 10-foot box culverts as it flows under SR 89 and then flows through a highly developed campground and marina which was created by dredging the natural lagoon near the mouth of Meeks Creek. There is an approximately 4-foot drop on the downstream end of the culvert to the creek bed. A fixed embayment structure at the mouth of the Creek is surrounded by elevated fill areas and has contributed to a deeply incised creek channel. The creek incision has lowered local groundwater levels, decreased floodplain connectivity, destabilized streambanks, and altered complex sediment transport dynamics that are typical of deltaic environments. The impaired geomorphic and hydrologic processes have led to impaired riparian functions and ecological communities. Development of the marina decreased or eliminated overbank flooding and minimized other important geomorphic and hydrologic processes that once supported a thriving riparian vegetation and aquatic habitat (Swanson 2006). When in use, the marina required dredging to accommodate boat use.

The climate of the project area is characterized by temperate, dry summers and cold, snowy winters. Based on weather data from the nearby Tahoe City weather station, the mean annual precipitation is 16.27 inches (the majority delivered as snow between November and April), and the average annual maximum air temperature is 56.0 ºF and the annual minimum average temperature is 30.5 ºF (WRCC 2020). Sediment transport in Meeks Creek has been characterized as entirely suspended sediment (Balance Hydrologics 2021). The average hydrograph shows that there is little runoff during the dry summer months, but runoff increases in November and December with the onset of winter rain. Through the cold winter months precipitation is stored in the snowpack, and then with rising temperatures the majority of Meeks Creek runoff is generated during spring snowmelt (Swanson 2006). A more recent study by Simon (2008) estimated fine sediment loading for all subwatersheds within the Tahoe basin. Meeks Creek ranked 15th highest in sediment transport among all 63 of the subwatersheds and ranked third within the west shore creeks subgroup (behind Blackwood Creek and Ward Creek). Simon (2008) estimated fine sediment loading from Meeks Creek as 81.4 tons per year, or about 1.42 percent of the total sediment load of 5,739 tons per year for the entire Tahoe Basin.



Source: Data received from TRPA in 2012 and adapted by Ascent Environmental in 2020.

Figure 3.6-1 Meeks Creek Watershed

Present day discharge of Meeks Creek is too low to be correlated with its existing channel characteristics (e.g., meander radium, channel width). It only generates a fraction of the hydraulic force of the prior glacial period responsible for the formation of the present valley floor landforms. The scale of modern Meeks Creek is primarily the result of the drier climate of the late Holocene compared to those of early Holocene and late Pleistocene Epochs (Swanson 2006).

Lake Tahoe

The TRPA Code defines Lake Tahoe's nearshore as the low-water elevation of 6,223 feet to a lake bottom elevation of 6,193 feet (Lake Tahoe Datum), with a minimum lateral distance of 350 feet measured from the shoreline and is thus located within the project area. The scientific approaches and long-term data sets for investigating and understanding the factors that influence Lake Tahoe's nearshore conditions are still being studied and developed. Adjacent land uses and urban stormwater inputs, nonpoint pollutant inputs, boat activity, proximity to stream inputs, water movement and wave action, water depth, substrate type, and localized features of the lake bottom are all factors that influence nearshore conditions (Heyvaert et al. 2013). The quality of water in the nearshore area is tracked by measuring turbidity, which is an indication of the cloudiness of water expressed in Nephelometric Turbidity Units (NTUs). Higher turbidity measurements indicate cloudier water. TRPA maintains standards for nearshore turbidity of 3 NTU in areas influenced by stream discharge such as in the Meeks Bay area.

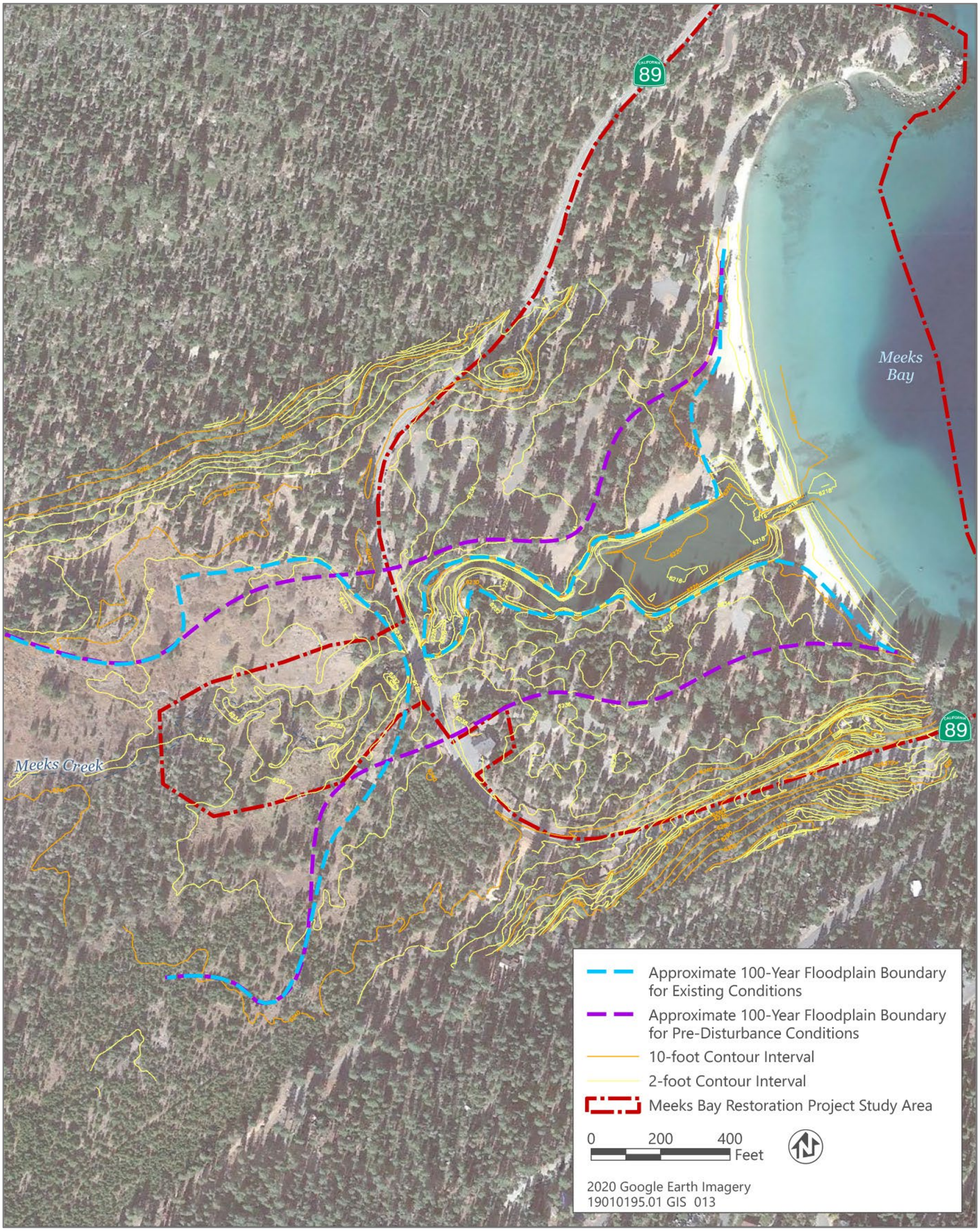
The 2019 TRPA Threshold Evaluation reports the status of turbidity as at or somewhat better than the target, with insufficient data to determine a trend attributable to a lack of a long-term monitoring program and associated data (LT Info 2022a). In 2012, the TRPA Governing Board adopted a new standard in the nearshore environment to address attached algae (periphyton) growing to submerged surfaces in the lake such as lake substrate, rocks, buoys, and piers. The adopted TRPA standard for nearshore attached algae is qualitive and focuses on supporting policy and management actions to reduce the areal extent and density of attached algae in the nearshore. The 2019 TRPA Threshold Evaluation reports the status and trend for attached algae could not be assessed because of insufficient data given the lack of defined numerical targets (LT Info 2022b).

Stormwater Drainage

The developed portions of the project area consist of campsites, roads, and buildings associated with Meeks Bay Resort. There is no formalized storm drain infrastructure in the project area. Stormwater generally moves as sheetflow from roads and campground into native soils where it infiltrates. Some impervious areas are rock lined to aid in reduction of erosion and infiltration.

Flood Conditions

A computer simulation of lower Meeks Creek in peak flood (using the USACE Hydraulic Engineering Center River Analysis System [HEC-RAS]) is shown in Figure 3.6-2. This shows a map of inundation before and after the installation of SR 89, the dredging of Meeks Bay Marina, and the incision of Meeks Creek. Under a projected 100-year flood peak of 1000 cfs, floodplain inundation in the modeled reach was reduced from 38.6 acres to 28.3 acres or by 26 percent. The area of annual inundation as the result of snowmelt runoff is estimated to be 7.5 acres [in 2006], but about 16 acres before development, a 47 percent reduction (Swanson 2006). With climate change, more extreme hydrologic events are predicted, with increasing intensity of storms, rain on snow events and floods. The precipitation from larger storms will be increasing by 5–30 percent, leading to higher flow runoff events and corresponding impacts on erosion, pollutant transport and damage to infrastructure, which will require design specification review and modification by highway engineers and floodplain managers (Hayvaert 2019).



Source: Adapted by Ascent Environmental in 2021 from Swanson 2006.

Figure 3.6-2 100-Year Floodplain

Groundwater Hydrology

Groundwater in the Lake Tahoe basin is the primary source of domestic and municipal water supply in California and an important source of inflow to Lake Tahoe. The Tahoe City/West Shore aquifer, where the project is located, extends from Dollar Point on the north to Rubicon Point on the south, a shoreline distance of about 18 miles (Plume et al. 2009). In the West Shore area, glacial processes separated the area into eight watersheds, each underlain by glacial outwash and fluvial deposits (mostly sands and gravels). Ridges separating the watersheds consist of intrusive igneous rocks that in places are capped by glacial moraines or volcanic rocks. Groundwater containing aquifer materials are penetrated by 31 wells and consist of clay, silt, sand, gravel, and boulders, in places interbedded with volcanic rocks, to depths of 56–805 feet. The specific capacity of these wells range from 0.1 to 30 gallons per minute per foot (Plume et al. 2009).

WATER QUALITY

Surface Water Quality

Meeks Creek upstream of SR 89 discharges some of the cleanest water measured in the Lake Tahoe Basin (Swanson 2006). Measurements taken at SR 89 have led many researchers to cite Meeks Creek as the baseline of pre-disturbance water quality. Below SR 89, human disturbance has increased fine sediment production through bank erosion and has eliminated floodplain fine sediment deposition. Detection of metals and some hydrocarbons in the Meeks Bay Marina, while generally low, indicate pollution directly related to marina use. Leaching of organic carbon from natural drift matter (e.g., leaves and woody debris) trapped and decomposing in Meeks Bay Marina results in discoloration of the water discharged into Lake Tahoe (Swanson 2006).

Normal biological activity in a creek system shows diurnal fluctuations in water temperature and in dissolved oxygen. Water quality sampling found that Meeks Creek demonstrated static conditions in terms of water temperature and very little fluctuation in dissolved oxygen. A large portion of Meeks Creek's macroinvertebrate population consist of species that adapted to degraded environments (Swanson 2006).

Water quality monitoring of Meeks Creek took place during the 2004 water year to investigate the influence of the marina operations on the lagoon system and to compare the Meeks system to water quality of other Lake Tahoe watersheds (Swanson 2006). The highest turbidity values were observed (149 NTU) during the peak of the spring snowmelt, though a greater volume of particulates appear to have been transported through the system during early winter rainstorms and the summer thunderstorms than the entire spring melt (Swanson 2006). The same conditions have been observed in stream monitoring from the Upper Truckee River by the City of South Lake Tahoe. This is likely because of the greater and widespread contributing areas of sediment sources during rainstorms versus the limited areas of spring snowmelt runoff and increased infiltration to shallow groundwater (Swanson 2006).

Total organic carbon (TOC) and dissolved organic carbon (DOC) levels were measured in surface water samples collected from four Lake Tahoe Basin lagoons (i.e., Meeks, Trout, Tallac, and Taylor Creek locations) and their respective inflowing waters. All comparative lagoons (Taylor, Tallac, and Trout Creeks) appeared to sequester organic carbon relative to the inflowing waters, which is typical of naturally functioning lagoon system. Samples collected from the Meeks Creek Watershed indicate a disruption of this natural function. The Meeks Creek inflowing TOC and DOC values are the highest observed in all lagoons that were measured, most likely because of the backwater conditions caused by persistent beaver activity in the SR 89 culvert. As water moves through the Meeks marina, there is very little change observed in the biologically available nutrient levels. If the marina were a functional and productive lagoon system, changes in nutrient levels over time would be expected; however, no seasonal component of biogeochemical cycling is apparent at Meeks Bay Marina (Swanson 2006).

Groundwater Quality

Groundwater quality can be affected by many things, but the main controls on the characteristics of groundwater quality are the source and chemical composition of recharge water, properties of the host sediment, and history of discharge or leakage of pollutants. Due to the relatively undeveloped nature of the project area, very few groundwater impairments exist and groundwater quality is anticipated to be good. The State Water Resources Control Board lists one leaking underground gasoline storage tank in the project area which was closed in 1996 (SWRCB 2021).

Source Water Protection

One active drinking water well is located near the project area. The well is located south of the project area on the Meeks Bay Fire Protection District property. The TRPA 600-foot source water protection zone is located within the project area. No project work is proposed in the vicinity of the well and no additional protections for the well are proposed.

3.6.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

Evaluation of potential hydrologic and water quality impacts is based on a review of existing documents and studies that address water resources in the vicinity of the project. Information obtained from these sources was reviewed and summarized to describe existing conditions and to identify potential environmental effects, based on the standards of significance presented in this section. In determining the level of significance, the analysis assumes that the project would comply with relevant federal, state, and local laws, ordinances, and regulations.

THRESHOLDS OF SIGNIFICANCE

The thresholds of significance were developed in consideration of the State CEQA Guidelines, TRPA Thresholds, TRPA Initial Environmental Checklist, LTBMU Forest Plan, and other applicable policies and regulations. Under NEPA the significance of an effect must consider the context and intensity of the environmental effect. The factors that are considered under NEPA to determine the context and intensity of its effects are encompassed by the thresholds of significance. An alternative would have a significant effect on hydrology and water quality if it would:

- substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river in a manner that would result in substantial erosion, siltation or flooding on- or off-site;
- create or contribute runoff or alter surface drainage in a manner that would exceed stormwater drainage facilities such that surface water runoff could not be contained on site;
- cause substantial short-term accelerated soil erosion and/or release of pollutants to water bodies associated with construction or maintenance activities;
- substantially degrade water quality in Lake Tahoe from fine sediment resuspension and turbidity, atmospheric deposition of pollutants onto the surface of Lake Tahoe, or pollutant discharges of hydrocarbons or other contaminants from boating activities;
- cause substantial interference with, or adverse effects on, littoral processes;
- adversely alter the course or flow of 100-year flood waters or place people or structures within the 100-year floodplain; or
- substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

ISSUES NOT DISCUSSED FURTHER

Risk of seiche and tsunami are discussed in Section 3.7, "Geology and Soils," and are not discussed further in this section.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.6-1: Degradation of Lake Tahoe and Meeks Creek Water Quality from Restoration Activities and Facility Construction and Maintenance

<u>The restoration project would improve water quality in Meeks Creek and Lake Tahoe by reducing erosion, allowing for floodplain sediment deposition, removing hydrocarbons and metals in the marina, and improving channel stability.</u> Implementation of erosion and sediment controls, maintenance of temporary construction BMPs, waste control measures, and management controls for stormwater runoff would be required by regulatory agencies including TRPA and the Lahontan RWQCB for both construction and maintenance activities. Because regulatory protections are in place to minimize erosion and transport of sediment and other pollutants during construction, construction related impacts on water quality for the action alternatives would be reduced to a **less-than-significant** level.

The No Action Alternative would require continued dredging of accumulated sediment and plant matter in the marina which could adversely affect water quality by disturbing and resuspending sediment as well as the operation of heavy equipment in the marina. BMPs would be required by TRPA and the Lahontan RWQCB. The continued degradation of Meeks Creek and lack of permanent BMPs make this impact to water quality **potentially significant** for the No Action Alternative.

<u>No Action Alternative</u>

Though no construction activities would occur with the No Action Alternative, continued maintenance of the marina would require ongoing dredging to remove accumulated sediment and aquatic invasive plant species. This would disturb and resuspend sediments in the marina and would involve the use of heavy equipment in Meeks Creek where fuel or oil leaks could impair water quality. BMPs such as turbidity curtains or other measures to contain pollutants would be required by TRPA Code Section 60.4 and the Lahontan RWQCB in the 401 Water Quality Certification to implement dredging activities. These factors, along with the continued degradation of Meeks Creek and lack of permanent BMPs make this impact **potentially significant**.

<u>Alternative 1: Restoration with Boating Pier</u>

Human disturbance of Meeks Creek has increased fine sediment production from bank erosion and eliminated overbank flow, which would otherwise deposit fine sediment on the floodplain. This condition has resulted in reduced water quality of Meeks Creek and Lake Tahoe. Pollution directly related to marina use has also decreased the water quality of Meeks Creek and Lake Tahoe. The restoration of Meeks Creek, the lagoon, and barrier beach would improve water quality of the creek and lake by reducing fine sediment production and eliminating metals and hydrocarbons deposited by boats in the marina. Allowing the mouth of the lagoon to periodically aggrade and create a barrier beach would prevent fine sediment carried in suspension from freely entering Lake Tahoe as it does under existing conditions at the fixed marina mouth. During periods of high flow, Meeks Creek would breach the barrier beach and some sediment stored in the lagoon or being supplied from upstream will be flushed into Lake Tahoe; however, the long-term trend would be for less sediment—in particular fine sediment—entering the lake. This periodic closure and breaching of the barrier beach is a natural process consistent with undisturbed lagoons around Lake Tahoe.

Alternative 1 would involve complete restoration of Meeks Creek and lagoon and removal of the marina and related infrastructure, which would result in several periods of high-intensity disturbance during restoration activities. The primary threat to water quality during these periods would be sedimentation from physical disturbance associated with the removal of the marina and fill placement in the creek channel to restore the wetland, which is further described along with the construction effects below. This alternative would also replace the SR 89 bridge over Meeks Creek to provide a wider opening for Meeks Creek to restore natural flow patterns and sediment transport dynamics by reducing the severity of the hydraulic bottleneck created by the existing box culverts (Balance Hydrologics 2021). The bridge replacement would decrease bank and bed erosion in Meeks Creek, improve channel stability and aquatic habitat conditions. The proposed bridge would include a 10-foot-wide multi-use path and would span the floodplain. An additional multi-use path bridge would be constructed downstream to connect both campgrounds. As described in Chapter 2, "Description of the Proposed Action and Alternatives," the proposed bridges would span over the entire Meeks Creek channel (i.e., no abutments on the bank or support piers in channel) and be above the FEMA 100-year flood elevation. Thus, these project components would not contribute to soil erosion in the creek. The hydraulics of the flow area under the bridge would have velocities that do not exceed those in adjacent reaches upstream or downstream. Biotechnical bank protection would be used as a preference to exposed rip rap rock wherever possible. This would eliminate the deep fill found along the current alignment, allow for better overbank flow conveyance, and increase meadow area. Various design options including boardwalks and multiple bridge spans could be used to provide for floodplain flow conveyance. Replacement of the SR 89 bridge and the addition of bank protection measures would reduce fine sediment production and improve fine sediment deposition along the creek; thereby reducing the release of fine sediment into Lake Tahoe and improving water quality in the creek and lake over time.

The construction activities associated with implementation of the Meeks Bay Restoration Project may involve vegetation removal, grading, excavation, and temporary stockpiling of soils, all of which could expose soils to wind and water erosion and potentially transport pollutants into Meeks Creek and Lake Tahoe during storm events. Heavy-duty equipment would be used in the floodplain, channel, and lagoon during construction of restoration components. In addition, construction activities would involve on-site staging of construction equipment and vehicles, and construction-related vehicle trips. Fuels and other chemicals could be accidentally spilled or leaked or could otherwise be discharged into Meeks Creek or to Lake Tahoe.

Water quality impacts could also occur when Meeks Creek is rerouted to construct the restoration project, bridge replacement, marina removal, fish management structure, and multi-use path bridge construction. Meeks Creek would be captured upstream of the planned activities and diverted around the construction area in a pipe to discharge at a point that eventually drains to Lake Tahoe, a total distance of approximately 1,300 feet for the channel and lagoon restoration component (Balance Hydrologics 2021).

A dewatering system would be operated to manage water during the restoration activities to drain the work area in the lagoon and in Meeks Creek and to remove ongoing groundwater and lake seepage into the work area since surface water within the work area would contain high levels of suspended fine sediment and could therefore affect water quality. Water pumped from the construction area would be disposed of in upland portions of the project area within temporary infiltration basins or dispersed through sprinklers or similar methods. If it is not possible to dispose of water removed from the construction area into the project area, then water would be pumped into trucks and disposed of off-site.

Alternative 1 would include construction activities to remove and replace the motel-style cabins and reconfigure the campgrounds. These activities would include demolition of existing cabins, excavation of foundations, and repair and minor realignment of existing roads and parking areas. Reconfiguration or improvements would be made to the existing parking areas for resource protection and to achieve more efficient use of the area, but the overall number of parking spaces would remain the same. Ground disturbance during construction could affect water quality through exposed sediment and potential fuel and other chemical spills. The resource protection measures described in Appendix A would be implemented to protect water quality. These include BMPs to control erosion, minimizing soil disturbance, winterization requirements, stockpile protection, spill prevention plans, diversion and dewatering plans, testing of fill for chemical contamination, surface water protections, equipment monitoring, and turbidity control measures.

Although the construction activities described above have the potential to adversely affect surface and groundwater quality, the project would be required to comply with stringent TRPA and Lahontan RWQCB water quality protections. Chapters 33 and 60 of the TRPA Code of Ordinances require the installation of temporary construction BMPs as a condition of project approval. BMPs would be required to meet the installation and use standards described in the TRPA Best Management Practices Handbook (TRPA 2014). BMPs would include temporary erosion control BMPs (e.g., silt fencing, fiber rolls, drain inlet protection); requirements to limit the area and extent of all excavation to avoid unnecessary soil disturbance; winterize construction sites by October 15; dust control measures to prevent transport of materials from a project site into any surface water or drainage course; remove surplus or waste earthen materials from project sites, as well as requirements to stabilize and protect stockpiled material; spill prevention plans to capture and contain pollutants from fueling operations; stream diversions with coffer dams to route clean water around construction areas for each phase of in-channel disturbance; a dewatering approach that could include a sediment filter bag or equally protective measures to collect sediment from being released back into Meeks Creek; fuel storage areas; tracking control and sweeping operations; regular inspection and maintenance of temporary BMPs. Lahontan RWQCB also requires the development of a project-specific stormwater pollution prevention plan (SWPPP) before the start of any project involving ground disturbance that is greater than 1 acre. The SWPPP would describe the site, construction activities, proposed erosion and sediment controls, means of waste disposal, maintenance requirements for temporary BMPs, and management controls for potential pollutant sources other than stormwater runoff. In addition, the SWPPP would require the implementation of a hazardous materials spill response plan, which would reduce the potential of directly and indirectly effecting water quality through construction-related hazardous material spills. Water quality controls outlined in a SWPPP must be consistent with TRPA requirements, the federal antidegradation policy, and maintain designated beneficial uses of Lake Tahoe. Additionally, dewatering and constructing/removal of coffer dams (or approved equivalent), RPM BIO-11 requires pump intakes and outlets to minimize turbidity through energy dissipaters, screens, low entry velocities, disposal in approved locations away from Lake Tahoe, and pumping turbid water out of the channel.

Pier Construction

Construction activity associated with the approximately 300-foot-long fixed boating pier under Alternative 1 could adversely affect water quality in the shorezone by accelerating soil erosion and sedimentation, increasing turbidity, and releasing pollutants. Use of heavy equipment in and adjacent to the water's edge during construction could produce dust and temporarily disturb and resuspend lake sediments in the water column, thus increasing turbidity in the immediate vicinity of the construction site. Additionally, operating heavy equipment such as pile drivers and their associated barges could cause sediment plumes during in-water construction. Sediment levels could exceed TRPA and Lahontan RWQCB pollutant concentration limits for surface waters (a limit of 250 milligrams per liter for suspended sediment). This temporary impact to water quality would be minimized through project design and the water quality protections required through the Clean Water Act Section 401 certification process administered by the Lahontan RWQCB and through the incorporation of marine construction BMPs and described in the TRPA BMP Handbook (TRPA 2014), and adherence to TRPA's Standard Conditions of Approval for Shorezone Projects. These BMPs and any others that Lahontan RWQCB determines to be necessary would be included as conditions of the 401 Water Quality Certification. Applicable BMPs are included in Appendix A, "Resource Protection Measures," and are related to using sediment control measures during placement of pilings, avoiding construction during periods of high wind, avoiding the potential for hazardous materials or contaminated water to runoff into surface waters, monitoring construction equipment for leaks, and retaining an emergency spill kit on-site during construction.

An increase in localized motorized boat traffic in the area could increase the potential for a fuel spill or leak, however the potential localized increased watercraft activity at the pier would be partially offset by the closure and removal of the existing marina. No fueling facilities would be included in the alternative.

The project would be required to comply with Section 10 of the Rivers and Harbors Act and Section 404 of the CWA. Under the terms of Section 10 and 404, USACE is charged with reviewing applications for barriers to navigation and dredging to determine that steps have been taken to avoid or minimize impacts on waters of the United States. The implementation of the RPMs described above, would avoid or minimize suspended sediment and turbidity-related impacts near construction areas, and construction associated with any project in the shorezone would be required to conform to all applicable state, federal, and TRPA regulations pertaining to protection of water quality from construction-related discharges.

Conclusion

For the reasons described above, implementation of the resource protection measures listed in Appendix A and regulatory requirements of the TRPA, USACE, and the Lahontan RWQCB would avoid or minimize the potential for construction of the project to degrade water quality. In addition, one of the objectives of the Meeks Creek Restoration Project is to improve long-term water quality <u>in both Meeks Creek and Lake Tahoe</u> due to stabilization of the channel bed and banks, as well as through enhanced floodplain connectivity and re-establishment of a transitional delta lagoon wetland system. The design of the bed and banks of Meeks Creek would improve water quality by stabilizing soils, thereby decreasing fine sediment loading from bank erosion. Increased floodplain inundation frequency is anticipated to improve water quality by increasing the frequency and duration of overbank flows with greater opportunity for fine sediment deposition (Balance Hydrologics 2021). Permanent BMPs would be installed for the entire project area resulting in a long-term benefit to water quality in both Meeks Creek and Lake Tahoe. The proposed shoreline features would be engineered to provide an increased level of erosion prevention, thereby decreasing sediment loading, which would improve water quality (Balance Hydrologics 2021). For the reasons described above, this impact would be **less than significant**.

Alternative 2: Restoration with Pedestrian Pier

Restoration and construction activities associated with Alternative 2 would be similar to those discussed in Alternative 1, except that Alternative 2 would not include demolition and reconstruction of the motel style cabins and would include two multi-use path bridges that would span or minimize impacts to the reconstructed floodplain and connect the campgrounds. Benefits to surface water quality of Meeks Creek and Lake Tahoe would also be the same as described above for Alternative 1. Impacts related to construction and maintenance of other upland facilities would be very similar to those discussed under Alternative 1.

Alternative 2 includes the construction of an approximately 100-foot-long floating pedestrian pier which would not allow motorized boat access. This would be a floating pier with fixed steel pilings and a floating deck that slides up and down on the pilings as lake levels change. The same construction impacts as discussed under Alternative 2 would occur and the same regulatory requirements would be followed. Removing motorboat traffic from the marina/former lagoon would eliminate a mechanism for sediment resuspension (propeller wash and boat wakes) and a source of hydrocarbons which would improve water quality. This alternative would not increase the potential for boat fuel and oil spills because boats would not be increased in the area, therefore the potential for these pollutants to enter Lake Tahoe would be less than Alternative 1. For the same reasons discussed under Alternative 1, this impact associated with Alternative 2 would be **less than significant**.

Alternative 3: Restoration with No Pier

Restoration activities and construction associated with Alternative 3 would be similar to those discussed for Alternative 1 except Alternative 3 would include two multi-use path bridges that would span or minimize impacts to the reconstructed floodplain and connect the campground. Benefits to surface water quality of Meeks Creek and Lake Tahoe would also be the same as described above for Alternative 1. Campground construction impacts would be slightly greater under this alternative because the number of campgrounds would be expanded and overall parking capacity would be increased by 14 spaces. However, this alternative would not include demolition and reconstruction of cabins. The same regulatory requirements from the TRPA, USACE, and the Lahontan RWQCB to minimize construction and maintenance related impacts as discussed under Alternative 1 would be imposed. Alternative 3 would not include a pier but would include a moveable, universally accessible paddlecraft launch platform or ramp up to 30 feet in length that would move with lake level fluctuations. This would not involve any direct lakebed disturbance because of the floating nature of the platform but regulatory requirements from the TRPA and the Lahontan RWQCB discussed under Alternative 1 would still be required to minimize any impacts to water quality. For the same reasons discussed under Alternative 1, this impact associated with Alternative 3 would be **less than significant**.

Alternative 4: Preferred Alternative

Restoration and construction activities associated with Alternative 4 would be very similar to those discussed in Alternative 1, except that Alternative 4 would not include construction of a pier. Benefits to surface water quality of Meeks Creek and Lake Tahoe from restoration would also be the same as described above for Alternative 1. Upland construction impacts would be slightly greater under this alternative because the number of parking spaces would be expanded by up to 14 spaces. The same regulatory requirements to minimize construction and maintenance related impacts as discussed under Alternative 1 would be followed. Alternative 4 would not include a pier but would include a moveable, universally accessible paddlecraft launch platform or ramp as discussed under Alternative 3. This would not involve any direct lakebed disturbance because of the floating nature of the platform but regulatory requirements from the TRPA and the Lahontan RWQCB discussed under Alternative 1 would still be required to minimize any impacts to water quality. For the same reasons discussed under Alternative 1, this impact associated with Alternative 4 would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.6-2: Alteration of Lake Currents, Littoral Processes, and Shoreline Erosion

Alternatives 1 through 4 would include the construction of piers or a moveable, paddlecraft launch platform that could disrupt existing wave and current circulation patterns near the shoreline. As part of conditions of approval for a TRPA permit, all action alternatives would be required to comply with the design standards in TRPA Code Chapter 80.3.2.A, which requires analyses demonstrating that a proposed structure will not adversely impact littoral processes and backshore stability. All action alternatives also propose the replacement of shoreline stabilization structures that would improve natural littoral processes and beach sand movement. The impact of shoreline stabilization, and pier or floating launch construction associated with Alternatives 1, 2, 3, and 4 on the alteration of lake currents, littoral processes, and shoreline erosion would be **less than significant**.

The No Action Alternative would not change existing conditions and would therefore have **no impact** on lake currents, littoral drift, or shoreline erosion beyond what already occurs.

<u>No Action Alternative</u>

Under the No Action Alternative, there would be no change in the function of Meeks Creek mouth or the nearshore currents because the existing marina, creek channel, and rock wall would remain. The marina and existing sheet pile creek mouth would continue to alter littoral processes and shoreline erosion, but no change from existing conditions would occur. Therefore, there would be **no impact**.

<u>Alternative 1: Restoration with Boating Pier</u>

Alternative 1 would include complete restoration of Meeks Creek and lagoon, which would allow natural geomorphic processes to occur, resulting in modulated sediment supply to the littoral zone (Balance Hydrologics 2021) and the formation of a barrier beach at the mouth of Meeks Creek. Adams and Minor (2002) estimated that between 1938 and 1998, about 1.7 acres shoreline eroded from Meeks Bay, amounting to approximately 9,150 cubic yards (or 11,500 tons) of sand. Sediment aggradation in the marina and subsequent dredging are likely main causes of erosion. Restoration of the lagoon would allow more sand-size sediment important to littoral processes to reach the shorezone. Under current conditions, a large fraction of the sand transported by Meeks Creek is thought to settle within the marina (Balance Hydrologics 2021). After restoration, during times of low flow when Meeks Creek is transporting fine sediment but not sand, there would be increased opportunity for the fine sediment to settle within the lagoon due to emergent riparian vegetation, increased complexity in flow paths, or a physical barrier when the mouth closes (Balance Hydrologics 2021). Geomorphic function would be restored to the Meeks Creek channel by restoring pre-disturbance channel morphology, including a riparian corridor and associated floodplain that transitions through a dynamic delta system into a shallow lagoon with a dynamic mouth that may open and close or migrate laterally within a defined migration zone (Balance Hydrologics 2021). Additionally, with the sheet piling for the marina inlet removed, the mouth of Meeks Creek would be allowed to interact with backwater from Lake Tahoe and the mouth would be expected to periodically close at the barrier beach. The mouth would also be able to migrate laterally within a confined section of the barrier beach (Balance Hydrologics 2021). This type of dynamic barrier beach is present at the nearby mouth of Trout Creek in the Upper Truckee Marsh. At the Trout Creek barrier beach, a relatively high frequency of inundation, littoral sediment transport, sediment transport and deposition from upstream, and subsurface of resistant silt and clay layers provide for a post-restoration dynamic equilibrium and dynamic vertical stability at the mouth of the Upper Truckee River and Trout Creek (CTC and DGS 2017). This stable condition would also be expected for Meeks Creek once restored. The restoration would have a beneficial effect on littoral processes and decrease shoreline erosion.

A portion of the shoreline in the northern part of the project area is currently protected by rock gabions and concrete revetments. This area is not able to supply sediment into the littoral sediment balance. Improvements along the shoreline at the north end of the project area, including removal of the two motel-style cabins and associated revetments, would result in more natural littoral drift conditions and beach morphology, although these changes would not substantially affect sand supply or lake currents. Because the dimensions of the proposed shoreline protection features would be similar to the existing features, impacts to littoral processes from replacement of the shoreline protection features would be negligible (Balance Hydrologics 2021).

Alternative 1 would include the construction of a 300-foot-long fixed boating pier that could alter littoral processes. The 2004 Lake Tahoe Shorezone Ordinance Amendments Draft EIS study concluded that open pile piers constructed to TRPA design standards, such as the one proposed under Alternative 1, have no significant adverse impacts on littoral transport or backshore stability (TRPA 2004). Additionally, new shorezone structures are required to comply with TRPA Code Chapter 80.3.2.A, which requires documentation demonstrating that a proposed structure will not adversely impact littoral processes and backshore stability. The creek and lagoon restoration would result in a beneficial effect on littoral processes and decrease shoreline erosion, and the impact associated with the boating pier would be **less than significant**.

Alternative 2: Restoration with Pedestrian Pier

Restoration and construction activities associated with Alternative 2 would have similar effects on lake currents, littoral processes, and shoreline erosion as those discussed in Alternative 1. For the same reasons discussed under Alternative 1, the effects of these changes would be less than significant.

Alternative 2 proposes an approximately 100-foot-long floating pier. The 2004 Lake Tahoe Shorezone Ordinance Amendments Draft EIS evaluated the effects of floating piers on littoral drift processes by reviewing other studies on wave attenuation and floating piers, as well as through review of field observations of effects at three Lake Tahoe locations with existing floating piers: Camp Richardson; Tahoe Vista; and the Hyatt Pier in Incline Village, NV (TRPA 2004). The study concluded that floating piers could affect littoral transport if the floating section of the pier is at least 50 percent the length of a wavelength sufficient in size to cause littoral drift. The 2004 TRPA littoral drift study further concluded that floating piers rigidly moored to the lake bottom have greater impacts than floating piers allowed to move with wave action (TRPA 2004). Floating piers allowed to move with the wave heave, as is proposed in this alternative, reduced wave heights much less. TRPA Code Section 80.3.2.A requires documentation that the project will not adversely impact littoral processes and backshore stability. The analysis must assess the dimensions of the proposed pier and the ability of waves to initiate and sustain the movement of sediment along the lake bottom under conditions of low lake level (6,223 feet), mid-lake level (6,226 feet), and high lake level (6,229 feet). The lake level condition with the greatest effect on littoral transport and backshore stability shall be used to design the floating pier section. Floating piers may only be approved if they are designed so that wave heights are not reduced by more than 50 percent and the floating pier section is no greater than 50 percent of the length of the site-specific design wavelength. The creek and lagoon restoration would result in a beneficial effect on littoral processes and decrease shoreline erosion, and the impact of the pedestrian pier under Alternative 2 would be **less than significant** through compliance with the TRPA Code.

Alternative 3: Restoration with No Pier

Restoration and upland construction activities associated with Alternative 3 would have very similar effects on lake currents, littoral processes, and shoreline as those discussed in Alternative 1. Alternative 3 does not propose a pier but would include a moveable, universally accessible paddlecraft launch platform or ramp that would include a floating platform or dock of up to 30 feet that could move with lake level fluctuations. The littoral drift study supporting the 2004 Lake Tahoe Shorezone Ordinance Amendments Draft EIS (TRPA 2004) concluded that floating piers could affect littoral transport if the floating section of the pier is at least 50 percent the length of a wavelength sufficient in size to cause littoral drift. Based on the 2004 TRPA study findings, the shortest wavelength that could cause littoral drift in Lake Tahoe is 50 feet, so a floating pier greater than 25 feet could affect littoral drift. While the 2004 analysis was focused on floating piers, the floating nonmotorized launch platform proposed in Alternative 3 would affect littoral drift in the same way as a floating pier.

TRPA Code Section 80.3.2.A requires documentation that the project would not adversely impact littoral processes and backshore stability. Final design of the proposed moveable, universally accessible paddlecraft launch has not been completed. The propose nonmotorized launch could be up to 30 feet in length, although it could be shorter. If the final design of the proposed launch is less than 25 feet in total length, it would have no effect on littoral drift and no additional analysis would be necessary to comply with Code Section 80.3.2.A. If the final design of the launch exceeds 25 feet in total length, an additional analysis, similar to the one described for the floating pier in Alternative 2, above, would be required. A nonmotorized launch greater than 25 feet in length could only be approved if the analysis demonstrates that the final design would not adversely impact littoral processes and backshore stability. The creek and lagoon restoration would result in a beneficial effect on littoral processes and decrease shoreline erosion. Because this alternative would comply with TRPA Code provisions that prevent adverse effects on littoral drift and backshore stability, the impact of the launch platform or ramp on lake currents, littoral processes, and shoreline erosion, would be **less than significant**.

Alternative 4: Preferred Alternative

Restoration and upland construction activities associated with Alternative 4 would have the same effects on lake currents, littoral processes, and shoreline as those discussed in Alternative 1. Alternative 4 would also include a moveable, universally accessible paddlecraft launch platform identical to the one proposed in Alternative 3. The creek and lagoon restoration would result in a beneficial effect on littoral processes and decrease shoreline erosion. For the same reasons as discussed under Alternative 3, the impact of Alternative 4 on lake currents, littoral processes, and shoreline erosion, would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.6-3: Water Quality Effects of Motorized Boating

Alternative 1 would likely decrease boating activity in Meeks Bay from current conditions due to the removal of the marina and would result in boating activity in deeper waters where the effects of wake and propeller wash are minimal. Therefore, the impact of propeller wash and boat wake caused by motorized boating would be **less than significant**.

The No Action Alternative would not change the frequency or intensity of boating in Meeks Bay and there would therefore be **no impact** on water quality from motorized boating. Additionally, Alternatives 2, 3, and 4 would decrease boating activity in Meeks Bay because no structures that support boating are proposed and the marina would be removed. Consequently, Alternatives 2, 3, and 4 would have a **beneficial** effect on sediment resuspension and turbidity affects from motorized boating.

No Action Alternative

There would be no change in the frequency or intensity of boating in Meeks Bay under the No Action Alternative then under current conditions; therefore, sediment resuspension and turbidity from motorized boats utilizing the Marina would remain the same. The Marina would remain operational, and Meeks Bay would experience the same water quality effects from boating as it currently experiences. Therefore, since there would be no action under this alternative, there would be **no impact** on water quality.

Alternative 1: Restoration with Boating Pier

When a propeller is operating at a high speed in shallow waters, the turbulence created can interact with the lakebed and scour and resuspend sediments. Lab and field tests have found that the energy from propeller wash for recreational watercraft has limited impacts greater than 7 feet and generally no effects for water depths greater than 10 feet (Beachler and Hill 2003). The proposed boating pier would reach a lakebed elevation of 6,217 feet LTD which would allow for motorized boat access during typical low water conditions. The low water elevation of Lake Tahoe is 6,223. Therefore, propellor wash could affect water depths shallower than 7 feet and cause water quality impacts. This affect would primarily occur during daytime hours during the summer when recreational boating takes place on Lake Tahoe.

Alternative 1 would remove the existing marina and would therefore result in fewer motorized boats in Meeks Bay than under existing conditions. Currently, boats are launched from the Meeks Bay Marina. As described in Table 3.1-3 in Section 3.1, "Recreation," approximately 1,750 boats are launched from the Meeks Bay Marina per year, which equates to approximately 3,500 boat trips through Meeks Bay per year, assuming two trips per launch (i.e., one trip leaving the marina and one returning). Under this alternative, a boat pier for launching motorized boats would be constructed. Even though it is not possible to know how many boats would access the new boating pier, based on anecdotal observations at other public piers around Lake Tahoe, it is assumed that an average of five to 10 boats would access the pier per day during the approximately 100-day boating season that generally lasts from Memorial Day weekend through Labor Day weekend. This would result in approximately 500–1,000 boats accessing the pier over the season and a total of 1,000–2,000 boat trips (assuming one trip to the pier and one trip from the pier for each boat accessing the pier).

Compared to baseline conditions, implementing Alternative 1 would produce an estimated reduction of 1,500–2,500 boat trips per year. To be conservative, this analysis assumes that implementing Alternative 1 would result in approximately 2,000 boat trips per year, which is 1,500 fewer trips than under baseline conditions with the operation of the marina. Other incidental boat trips, such as boats beaching outside of swim areas or boats anchoring in Meeks Bay, would be unchanged under all the alternatives.

Additionally, Hoverson and McGinley (2007), in their experiments on marl-dominated sediments, found that propellor wash impacts from recreational boats operated at no-wake speeds were undetectable. The pier would be located well within the TRPA mandated no-wake zone. Therefore, the impact of propellor wash associated with Alternative 1 on water quality would be negligible.

Boat wake is the pattern of waves generated as a boat moves and displaces surrounding water. The size and associated energy of boat wake depend on boat dimensions, motor power, and boat speed. Effects from boat wake are limited to shallower areas of a lake, such as the nearshore of Meeks Bay, where boat wake can either contribute to the resuspension of lakebed sediment or contribute to shoreline erosion. TRPA Code Section 84.17.1 requires a no-wake zone within 600 feet of the shore with a 5-mph speed limit. Under Alternative 1, the boating pier would be 300-feet long and therefore entirely within the no-wake zone. Therefore, the impact of wave action caused by motorized boating would be less than significant.

Boating activity could result in elevated levels of hydrocarbons or other contaminants in Meeks Bay through motor exhaust which contains hydrocarbons and accidental leaks which could affect water quality. Exhaust from motorboat engines typically contacts or passes through the surface of the water. While most exhausted hydrocarbons volatize quickly and leave solution, some fraction of both soluble and insoluble components remains in the water column (Balloffett and Quinn 2004). Direct discharge of contaminants from boating activities in Meeks Bay could occur from accidental leaks, bilge water discharges, and illicit sewage discharges. Given the reduced level of boating activity under Alternative 1, rapid rate of biodegradation of hydrocarbon compounds in the lake (Miller et al. 2003) and lack of fueling facilities proposed; the boating activity that would occur in Meeks Bay due to the construction of a boating pier and associated with hydrocarbon and contaminant discharge would create a less-than-significant impact.

As described above, Alternative 1 would result in less boating activity than under existing conditions when the marina is operational. It would have minimal effects on water quality related to propeller wash, wake, and hydrocarbon contamination. Therefore, this impact would be **less than significant**.

Alternative 2: Restoration with Pedestrian Pier

Alternative 2 would reduce the amount of motorized boating in Meeks Bay because it would remove the existing marina and would not provide additional motorized boating facilities. Alternative 2 would have a **beneficial** effect on water quality due to the removal and restoration of the marina which would decrease water quality effects from motorized boating.

Alternative 3: Restoration with No Pier

For the same reasons discussed under Alternative 2, Alternative 3 would have a **beneficial** effect on water quality from the reduction in motorized boating.

Alternative 4: Preferred Alternative

For the same reasons discussed under Alternative 2, Alternative 4 would have **a beneficial** effect on water quality from the reduction in motorized boating.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.6-4: Potential for Increase in Stormwater Runoff, Impacts to Existing Drainage Systems, or Alteration of Drainage Patterns

All impervious areas would be required to meet TRPA Code Section 60.4.6 which require permanent BMPs to infiltrate stormwater runoff equivalent to the 20-year, one-inch-per-hour storm event. Additionally, the restoration project proposed under all action alternatives would result in the restoration of Meeks Creek and lagoon which would restore floodplain and filtration opportunities resulting in improved drainage patterns. Therefore, all alternatives would improve existing stormwater runoff and drainage conditions and the impact would be **less than significant**. The No Action Alternative would not alter existing conditions and would therefore have a **less-than-significant** impact on stormwater runoff or drainage systems.

No Action Alternative

Under the No Action Alternative, no construction would occur and there would be no changes to existing conditions. The functionality of the marina could be limited under future lake level fluctuations associated with future climate change scenarios. In addition, the marina would continue to not support natural hydrologic and biological processes that could provide resilience to climate change. However, this would be the same as under existing conditions and the impact would be **less than significant**.

Alternative 1: Restoration with Boating Pier

Implementation of Alternative 1 would result in restoration of Meeks Creek and lagoon, which would increase connection to floodplain surfaces and enhance riparian vegetation that would help to treat stormwater runoff in the floodplain by natural filtration and could offer a modest amount of stormwater attenuation (Balance Hydrologics 2021). Floodplain and wetland depressions offer opportunities to capture and treat stormwater before discharging to Meeks Lagoon and ultimately Lake Tahoe. The channel itself would be sized to convey a range of design flows, which would include stormwater run on from adjacent areas. Additionally, restoration activities associated with the project are intended to increase climate resiliency of Meeks Creek to changes in temperature and precipitation patterns, and lake level fluctuations due to climate change. There would be a beneficial effect to storm water and drainage conditions related to restoration of the creek and lagoon.

The peak flow and volume of stormwater runoff generated from an area is affected by development through conversion of vegetated, natural areas to impervious surfaces and by the development of drainage systems that connect these impervious surfaces to streams or other water bodies. Per the resource protection measures listed in Appendix A, "Resource Protection Measures," the new SR 89 bridge and multi-use path bridge would span over the entire Meeks Creek channel (i.e., no abutments on the bank or support piers in channel) and be above the FEMA 100-year flood elevation. The hydraulics of the flow area under the bridges would have velocities that do not exceed those in adjacent reaches upstream or downstream. Biotechnical bank protection would be used in preference to exposed rip rap rock wherever possible. This would eliminate the deep fill found along the current alignment, allow for better overbank flow conveyance, and increase meadow area. Various design options including boardwalks, multiple bridge spans and/or multiple culvert openings could be used to provide for floodplain flow conveyance. The boating pier would not adversely affect stormwater or drainage conditions as it is pervious, and stormwater would flow directly to the lake. Construction of impervious surfaces such as roads, parking areas, and campsites would require the construction of stormwater treatment and infiltration BMPs capable of infiltrating the 20-year, one-inch-per-hour storm event per TRPA Code Chapter 60.4. This would improve stormwater runoff conditions. Therefore, the impact of Alternative 1 on stormwater runoff and drainage conditions would be **less than significant**.

Alternative 2: Restoration with Pedestrian Pier

Alternative 2 would involve construction of an additional multi-use path bridge across the newly restored Meeks Creek channel and floodplain. This bridge would also span over the entire Meeks Creek channel (i.e., no abutments on the bank or support piers in channel) and be above the FEMA 100-year flood elevation. For the same reasons discussed under Alternative 1, Alternative 2 would have a **less-than-significant** impact on stormwater runoff and drainage patterns.

Alternative 3: Restoration with No Pier

Although Alternative 3 proposes more impervious area in the form of parking and campsites, all areas would be required to have associated stormwater treatment and infiltration BMPs as discussed under Alternative 1. In addition, Alternative 3 would involve construction of an additional multi-use path bridge across the newly restored Meeks Creek channel and floodplain, which would span over the entire Meeks Creek channel and be above the FEMA 100-year flood elevation. For the same reasons discussed under Alternative 1, Alternative 3 would have a **less-than-significant** impact on stormwater runoff and drainage patterns.

Alternative 4: Preferred Alternative

Alternative 4 proposes slightly more impervious area than Alternative 1, in the form of 14 parking spaces. All impervious areas would be required to have associated stormwater treatment and infiltration BMPs as discussed under Alternative 1. For the same reasons discussed under Alternative 1, Alternative 4 would have a **less-than-significant** impact on stormwater runoff and drainage patterns.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.6-5: Groundwater Impacts

Effects on groundwater quantity and quality as a result of the restoration project would be beneficial. Best management practices required by TRPA and the Lahontan RWQCB would minimize the potential for sediment and pollutants to enter groundwater during construction. All impervious areas would be required to implement BMPs to treat and infiltrate stormwater in the vicinity of the impervious area; therefore, the net impact to groundwater quantity and quality would be **less than significant**. The No Action Alternative would not affect groundwater quantity or quality. This alternative would have **no impact**.

No Action Alternative

No activities would take place under the No Action Alternative and therefore the groundwater volume and quality would remain unchanged from degraded existing conditions. Therefore, there would be **no impact**.

Alternative 1: Restoration with Boating Pier

The restoration activities proposed in Meeks Creek and lagoon would have a beneficial effect on groundwater volume and quality. A rise in shallow groundwater levels is anticipated as a result of raising the streambed, which would enhance hydrologic support for riparian plants that are effective in nutrient uptake (Balance Hydrologics 2021). Grading of the Meeks Creek channel would consist of fill placement to raise the channel bed which is expected to raise groundwater levels and increase groundwater storage (Balance Hydrologics 2021). The increased groundwater levels adjacent to the channel would likely decrease the lateral groundwater gradient and the rise is anticipated to extend into the riparian zone. Groundwater levels would also be enhanced by increased frequency of overbank flooding, which would infiltrate into the floodplain and recharge shallow groundwater (Balance Hydrologics 2021). Fill placement to raise the bottom of the lagoon alone would not appreciably affect groundwater levels since the lagoon is adjacent to Lake Tahoe and lake levels are the primary control on the lagoon stage and surrounding groundwater elevations (Balance Hydrologics 2021). At times when the barrier beach is closed and the lagoon is filling, there also would be a slight local increase in groundwater levels (Balance Hydrologics 2021). After the barrier beach breaches, however, groundwater levels would likely equilibrate to near lake levels. Wetland and other surfaces graded around the perimeter of the lagoon would enhance groundwater storage and provide some recharge for shallow groundwater (Balance Hydrologics 2021). This would have a beneficial effect on groundwater quantity.

During construction of the restoration project, exposed soil, diverting water around Meeks Creek and the lagoon, and dewatering have the potential to introduce turbid water that could affect groundwater quality. The diversion and dewatering systems would be designed to minimize the risk of exposure to disturbed soils within the work area. The temporary surface water and groundwater BMPs required by TRPA and Lahontan RWQCB are intended to minimize impacts to groundwater quality.

Construction of the boating pier would not adversely affect groundwater volume because construction would take place within the lake. There is a possibility that there could be temporary, construction related impact to groundwater quality similar to the impacts to surface water quality discussed in Impact 3.6-1. This impact would be minimized through the water quality protections required through the Clean Water Act Section 401 certification process administered by Lahontan RWQCB, through the incorporation of marine construction BMPs and described in the TRPA BMP Handbook (TRPA 2014), and adherence to TRPA's Standard Conditions of Approval for Shorezone Projects.

Development of the campground, roads, and parking areas would create impervious areas, which would prevent snowmelt and stormwater infiltration and groundwater recharge. Under Alternative 1, there would be approximately 3 acres less coverage compared to existing conditions (see Tables 3.7-5 and 3.7-6 in Section 3.7, "Geology and Soils"). This alternative would result in approximately 10.3 acres of impervious coverage. All impervious areas would be required to comply with TRPA Code Chapter 60.4 and would be required to implement temporary BMPs during construction and permanent BMPs, which would treat and infiltrate the equivalent of the 20-year, one-inch-per-hour storm event. Implementation of these BMPs would recharge groundwater. The TRPA would also require a Land Capability District Verification to determine the sensitivity of the land in which coverage is proposed. For the reasons described above, the net impact would be **less than significant**.

Alternative 2: Restoration with Pedestrian Pier

For the same reasons discussed under Alternative 1, restoration of Meeks Creek and lagoon would have a beneficial effect on groundwater quality and volume. The same construction related impacts during restoration would also occur under Alternative 2 as under Alternative 1. It is estimated construction/re-construction of roads, campgrounds, and parking that Alternative 2 would result in slightly less impervious coverage than Alternative 1 (10.8 acres of impervious coverage) (see Tables 3.7-6 and 3.7-7 in Section 3.7, "Geology and Soils"). Alternative 2 would result in 1.95 acres less coverage than compared to existing conditions (Table 3.7-7). The pedestrian pier would have the same construction related impacts as the boating pier discussed under Alternative 1, though they would occur to a lesser extent. Implementation of the regulatory BMPs discussed under Alternative 1 would also apply to Alternative 2 and the impact would therefore be **less than significant**.

Alternative 3: Restoration with No Pier

For the same reasons discussed under Alternative 1, restoration of Meeks Creek and lagoon would have a beneficial effect on groundwater quality and volume. The same construction related impacts during restoration would also occur under Alternative 3 as under Alternative 1. The moveable, universally accessible paddlecraft launch facility would have no impact on groundwater because of its location on the water and there would be no construction related impacts. It is estimated that construction/re-construction of roads, campgrounds, and parking under Alternative 3 would result in an estimated total of 12.4 acres of coverage because of the increase in campgrounds and expansion of parking. However, overall implementation of Alternative 3 would result in 0.45 acres less than the existing amount of coverage (see Tables 3.7-5 and 3.7-8 in Section 3.7, "Geology and Soils"). This impact would be **less than significant** for the same reasons discussed under Alternative 1.

Alternative 4: Preferred Alternative

For the same reasons discussed under Alternative 1, restoration of Meeks Creek and lagoon would have a beneficial effect on groundwater quality and volume. The same construction related impacts during restoration would also occur under Alternative 4 as under Alternative 1. The moveable, universally accessible paddlecraft launch facility would have no impact on groundwater because of its location on the water and no construction related impacts. The additional parking spaces under Alternative 4 would result in slightly more acres of coverage than coverage associated with Alternative 1 (10.5 acres of impervious coverage) (see Tables 3.7-6, 3.7-7, and 3.7-9 in Section 3.7, "Geology and Soils"). Alternative 4 would result in 2.27 acres less coverage than compared to existing conditions (Table 3.7-9). This impact would be **less than significant** for the same reasons discussed under Alternative 1.

Mitigation Measures

No mitigation is required for this impact.

3.6.4 Cumulative Impacts

Cumulative impacts to hydrology and water quality are considered in the context of the Meeks Creek watershed with implications for the Lake Tahoe Basin. Development in the Basin has altered the natural hydrologic regimes of many of the Basin's watersheds, including the Meeks Creek watershed. These changes, combined with runoff from urban and recreational development, have degraded the water quality of the watershed, resulting in an existing cumulative adverse condition. Many restoration projects, including the Meeks Creek Restoration Project, have been implemented and are being planned to address this situation. Cumulative projects, including those listed in Table 3-2 have the potential to affect hydrology and water quality in the Meeks Creek watershed. However, proactive restoration efforts under the Environmental Improvement Program (which is implemented consistent with the Tahoe Regional Plan and the Lahontan RWQCB Basin Plan), best construction practices and other environmental programs would prevent or avoid further adverse effects on water quality and hydrology in the watershed as well as in the context of the Lake Tahoe Basin (TRPA 2018). Cumulative forest management and restoration projects as well as all grading projects would be required to comply with TRPA and Lahontan RWQCB regulatory requirements that would prevent significant effects on hydrology and water quality in the watershed and in the context of the Lake Tahoe Basin. Furthermore, the cumulative forest management and restoration projects would result in a net beneficial effect on water quality by restoring hydrologic processes and reducing the potential for erosion associated with high-intensity wildfire.

All action alternatives would require active construction adjacent to and in Meeks Creek and Lake Tahoe. Although temporary BMPs would be implemented, short-term risk of water quality degradation during construction could occur in the Meeks Creek watershed. Implementation of BMPs to protect disturbed areas and minimize soil erosion, prevent interaction of surface runoff with disturbed surfaces, and limit the potential for release of sediment, nutrient, or otherwise contaminated water from entering water bodies in the watershed would minimize potential short-term water quality degradation. BMPs would be implemented for all projects adjacent to and in tributaries in the watershed, therefore the project's contribution would not make a considerable contribution to a cumulative adverse condition related to construction and maintenance impacts to water quality.

Alternatives 1 through 4 propose structures adjacent to Meeks Creek and within Lake Tahoe that have the potential to affect lake currents, littoral processes, and shoreline erosion. The cumulative projects would not include project components that would affect lake currents, littoral processes, and shoreline erosion in the Meeks Creek watershed. Cumulative impacts in Lake Tahoe could result from other structures proposed within and adjacent to Lake Tahoe. All structures would be required to comply with the design standards in TRPA Code Chapter 80.3.2.A, which require analyses demonstrating that a proposed structure will not adversely affect littoral processes and backshore stability. Permanent BMPs would be installed for the entire project area resulting in a long-term benefit to water quality. The proposed shoreline features would be engineered to provide an increased level of erosion prevention, thereby decreasing sediment loading, which would improve water quality (Balance Hydrologics 2021) (see Impact 3.6-1). Restoration of Meeks Creek and lagoon would have a beneficial effect on littoral processes and decrease shoreline erosion (see Impact 3.6-2). For this reason, the project would not cumulatively combine with the cumulative projects to make a considerable contribution to a cumulative adverse condition related to the alteration of lake currents, littoral processes, and shoreline erosion.

For Alternative 1, cumulative impacts could also result from the hydrodynamic effects of motorized boating, which can disturb and resuspend lakebed sediment through propeller wash and boat wake, potentially leading to increased turbidity and reductions in nearshore clarity. Water quality effects from propeller wash and boat wake are generally limited to shallower areas, with no effects for water depths greater than 10 feet (Beachler and Hill 2003). TRPA Code Section 84.17.1 requires a no-wake zone within 600 feet of the shore with 5-mile-per-hour (mph) speed limit. The Meeks Creek Restoration Project is located within the existing no-wake zone. Alternative 1 would result in less boating activity that under existing conditions when the marina is operational; thus, this alternative would have minimal effects on water quality related to propeller wash, wake, and hydrocarbon contamination (see Impact 3.6-3). Alternatives 2, 3, and 4 would have a beneficial effect on sediment resuspension and turbidity affects from motorized boating (see Impact 3.6-3). Thus, the Meeks Creek Restoration Project would not make a considerable contribution to a cumulative adverse condition related to the hydrodynamic effects of motorized boating.

As described above, the Meeks Creek Restoration Project action alternatives would have a beneficial effect on stormwater runoff due to the implementation of BMPs and restoration of Meeks Creek and lagoon. The restored creek and lagoon would reduce sources of sedimentation by revegetating banks and reducing active erosion, and it would restore natural floodplain processes that would promote deposition of sediment prior to reaching Lake Tahoe. Also, as described above the action alternatives would improve the quantity and quality of groundwater. Cumulative projects, in particular the Mayala Wata Restoration at Meeks Creek project, would also implement project components that would restore ecological function of the meadow containing Meeks Creek upstream of the project area and would result in reducing sources of sedimentation and erosion and restoring floodplain processes. Thus, the project and cumulative projects would not result in a cumulative adverse impact on groundwater.

For these reasons, the alternatives would have a **less than cumulatively considerable** impact related to hydrology and water quality in the Meeks Creek watershed.

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3.7 GEOLOGY AND SOILS

This section describes current conditions relative to geology and soils at the Meeks Bay Restoration Project area. It includes a description of soils and mineral resources, analysis of environmental impacts, and recommendations for mitigation measures for any significant or potentially significant impacts.

3.7.1 Regulatory Setting

TAHOE REGIONAL PLANNING AGENCY

TRPA was designated as an areawide planning agency under Section 208 of the CWA in 1974. Under the Tahoe Regional Planning Compact, TRPA has established environmental threshold standards, goals and policies, and ordinances directed at protecting and improving land coverage and soils in Lake Tahoe and the Tahoe region.

Thresholds

TRPA has established threshold standards and indicators for nine resource areas including soil conservation. TRPA threshold standards are minimum standards of environmental quality to be achieved in the Tahoe Region. Every 4 years, TRPA evaluates the attainment status of all TRPA threshold standards. There are two TRPA threshold indicator reporting categories related to soil conservation which direct development towards less sensitive lands and establish restoration goals to reverse impacts of existing development in SEZs: Land Coverage and SEZs.

<u>Land Coverage</u>

Impervious cover, or land coverage, is an indicator of land disturbance. Impervious coverage alters surface hydrology and modifies groundwater recharge regimes. There are two types of coverage defined by TRPA: hard and soft coverage, which are distinguished by their degree of imperviousness. Hard coverage is completely impervious to infiltration of water into the soil (e.g., roofs, asphalt pavement, concrete sidewalks). Soft coverage is defined as disturbed or degraded soils not covered by a structure or paved surface that have water infiltration rates that are up to 75 percent of their natural value. Examples of soft coverage include soil compacted by vehicles, unpaved roads, dirt walking trails, and unpaved dirt driveways. The TRPA impervious cover threshold is guided by the Land Capability classification system for the Lake Tahoe Basin, California-Nevada (Bailey 1974). Land capability districts (LCDs) are defined based on their Bailey classification, which is a function of soil type, erosional hazard, soil drainage, position in the landscape, and other features. The nine separate LCDs reflect the amount of development an area can support without soil or water quality degradation. Under this system, TRPA allows landowners to cover 1, 5, 20, 25, or 30 percent of their parcel with impervious surfaces, depending on its environmental sensitivity as defined by the Bailey classification system (Table 3.7-1).

Table 3.7-1 Description, Allowable Cover, and Status of Bailey Land Capability Districts

Land Capability District	Description	Allowable Cover	Status
1a	steep uplands (> 30%, very shallow soil)	1%	Considerably better than target
1b	streams, marshes, floodplains, meadows	1%	Considerably worse than target
1c	Mountainous uplands, no soil	1%	At or somewhat better than target
2	soil mantled (slope > 30%)	1%	Somewhat worse than target
3	low elevation moderately steep slopes (9-30%)	5%	Considerably better than target
4	moderately steep mountain slopes	20%	Considerably better than target
5	flat areas around Lake Tahoe	25%	Considerably better than target
6	gently sloping north side of Lake Tahoe	30%	Considerably better than target
7	dense forest, little erosion potential	30%	At or somewhat better than target

Note: Land Capability District and Bailey Land Capability Class are identical.

Source: LT Info 2022a.

For the 2019 Threshold Evaluation, estimates of impervious coverage were produced by land capability type using high-resolution Light Detection and Ranging (LiDAR) data compared with the TRPA land capability map (LT Info 2022b).

Stream Environment Zones

Hydrology, soil, and water-associated vegetation define SEZ areas. SEZs only constitute a small portion of the total land area in the Lake Tahoe Region but perform many ecosystem services such as nutrient cycling and sediment retention, flood attenuation, infiltration and groundwater recharge, open space, scenic and recreational enjoyment, wildlife habitat, and wildfire abatement (Roby et al. 2015). The SEZ threshold includes preserving existing functioning SEZ lands in their natural hydrologic condition and restoring 25 percent of the SEZ lands that have been identified as disturbed, developed, or subdivided, to attain a five percent total increase in naturally functioning SEZ lands.

Tahoe Regional Plan

Goals and policies of the Regional Plan that are related to soil erosion and land coverage are located in the Conservation Element. Goals and policies for water quality are located in the Land Use Element. Relevant excerpts are included below.

GOAL S-1: Minimize soil erosion and the loss of soil productivity.

- **Policy S-1.1:** Allowable impervious land coverage shall be consistent with the Threshold Standard for impervious land coverage.
- **Policy S-1.6:** Maintain seasonal limitations on ground disturbing activities during the wet season (October 15 to May 1) and identify limited exceptions for activities that are necessary to preserve public health and safety or for erosion control.

GOAL SEZ-1: Provide for the long-term preservation and restoration of stream environment zones (SEZs).

- **Policy SEZ-1.1:** Restore all disturbed stream environment zone lands in undeveloped, unsubdivided lands, and restore 25 percent of the SEZ lands that have been disturbed, developed, or subdivided.
- **Policy SEZ-1.2:** SEZ lands shall be protected and managed for their natural values.
- **Policy SEZ-1.5:** No new land coverage or other permanent land disturbance shall be permitted in stream environment zones with some exceptions described in the regional plan.

GOAL WQ-2: Reduce or eliminate point sources of pollutants which affect, or potentially affect, water quality in the Tahoe region.

- **Policy WQ-3.1:** Reduce loads of sediment, nitrogen, and phosphorus to Lake Tahoe; and meet water quality thresholds for tributary streams, surface runoff, and groundwater.

Code of Ordinances

The TRPA Code of Ordinances implements the Regional Plan Goals and Policies. The following TRPA ordinances are most relevant to the geology, soils, and land capability and coverage aspects of the proposed project.

Chapter 30: Land Coverage Standards

The chapter sets forth regulations for the permissible amount of land coverage in the region. It implements provisions of the Goals and Policies concerning the land capability system, land capability districts, prohibition of additional land coverage in certain land capability districts, and transfer and mitigation of land coverage.

30.4.1 Base Allowable Land Coverage

The base allowable land coverage shall be determined by using the coefficients set forth in Land Capability Classifications of the Lake Tahoe Basin (Bailey 1974). The backshore area is treated as LCD 1b, high hazard land, which has a base allowable coverage percent of one percent.

30.5. Prohibition of Additional Land Coverage in LCDs 1a, 1c, 2, 3, And 1b (Stream Environment Zones)
No additional land coverage or other permanent land disturbance shall be permitted in Land Capability Districts 1a, 1c, 2, 3, and Land Capability District 1b (Stream Environment Zone), with some exceptions provided for public recreation and public service facilities.

Chapter 33: Grading and Construction
Chapter 33 of the TRPA Code describes the various standards and regulations that protect the environment against significant adverse effects from excavation, filling, and clearing, because of such conditions as exposed soils, unstable earthworks, or groundwater interference.

Chapter 83: Shorezone Tolerance Districts
The shorezone tolerance district classification was developed based on evaluation of the shorezone's sensitivity to physical, biological, and visual disturbance, specifically focusing on how human activities have altered the shorezone (Orme 1972). Eight shorezone tolerance districts are defined in Chapter 83 of the TRPA Code of Ordinances. The districts reflect the physical ability of the shorezone to support use and development. District 1 is the most sensitive to use and development and district 8 is the least sensitive. Table 3.7-2 provides a definition for each of the eight districts.

Table 3.7-2 Shorezone Tolerance Districts

Shorezone Tolerance District	Characteristics
1	Barrier beach shorezone with low, narrow ridges of mobile sand backed by wetlands. This District is considered SEZ in the TRPA Code.
2	Volcanic and morainic shorezone with slopes over 30 percent and alluvial shorezone of 9–30 percent slope.
3	Armored granite shorezone with slopes exceeding 30 percent.
4	Volcanic and morainic shorezone with 15–30 percent slopes and alluvial shorezone with slope of 0–9 percent.
5	Armored granite shorezone with slopes of 15–30 percent.
6	Shorezone of volcanic rock and morainic debris with 5–15 percent slopes.
7	Shorezone of morainic and alluvial materials of 0–9 percent slope.
8	Gently sloping (0–9 percent) armored granite shorezone.

Source: TRPA 2004.

STATE

Additional appliable regulations are discussed in Section 3.6, "Hydrology and Water Quality." These include National Pollutant Discharge Elimination System Permits and Stormwater Pollution Prevention Plans and the Water Quality Control Plan for the Lahontan Region.

Alquist-Priolo Earthquake Fault Zoning Act (PRC Section 2621 et seq.)
This act provides policies and criteria to assist cities, counties, and state agencies in the exercise of their responsibilities to prohibit the location of developments and structures for human occupancy across the trace of active faults. The act also requires site-specific studies by licensed professionals for some types of proposed construction within delineated earthquake fault zones.

Seismic Hazards Mapping Act
The intention of the Seismic Hazards Mapping Act of 1990 (PRC Section 2690–2699.6) is to reduce damage resulting from earthquakes. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including ground shaking, liquefaction, and seismically induced landslides. The act's provisions are similar in concept to those of the Alquist-Priolo Act: The State is charged with identifying and mapping areas at risk of strong ground shaking, liquefaction, landslides, and other corollary hazards, and cities and counties are required to regulate development within mapped Seismic Hazard Zones. Under the Seismic Hazards Mapping Act, permit review is the primary mechanism for local regulation of development.

California Building Code

The California Building Code (CBC) (California Code of Regulations, Title 24) is based on the International Building Code. The CBC has been modified from the International Building Code for California conditions, with more detailed and/or more stringent regulations. Specific minimum seismic safety and structural design requirements are set forth in Chapter 16 of the CBC. The CBC identifies seismic factors that must be considered in structural design. Chapter 18 of the CBC regulates the excavation of foundations and retaining walls, while Chapter 18A regulates construction on unstable soils, such as expansive soils and areas subject to liquefaction. Appendix J of the CBC regulates grading activities, including drainage and erosion control. The CBC contains a provision that provides for a preliminary soil report to be prepared to identify "…the presence of critically expansive soils or other soil problems which, if not corrected, would lead to structural defects." (CBC Chapter 18 Section 1803.1.1.1).

3.7.2 Environmental Setting

REGIONAL GEOLOGY

The Tahoe Basin is located in the northern Sierra Nevada geomorphic province, between the Sierra crest to the west and the Carson Range to the east, and is one of the most prominent mountain ranges in California. Faulting and volcanism created the Tahoe Basin over 2 million years ago, and as a result, the basin contains granitic, metamorphic, and volcanic rock (Saucedo 2005). The predominant bedrock in the Tahoe Basin is Cretaceous granodiorite of the Sierra Nevada batholith. Cretaceous rock formed during the later period of the Mesozoic Era, characterized by the development of flowering plants and ending with the sudden extinction of the dinosaurs and many other forms of life. Pre-Cretaceous metamorphic rocks are found in localized areas.

Over the past 1.5 million years, the Tahoe Region has been altered by glacial activity, and most of the landforms surrounding the lake are a result of glaciation. During glacial activities, valley glaciers dammed the Truckee River Canyon, raising the water level of Lake Tahoe. Lakebed sediments were deposited in the bays and canyons around the lake as a result of the rising lake levels. The faulting, folding, and in some cases overturning of rock formations that has taken place during various periods of geologic activity, in combination with erosion, deposition, and subsequent cementation of rock materials that occurred during relatively quiet periods, have left a complex arrangement of geologic rock types and structures in the area. However, the extraordinary clarity of Lake Tahoe is related to the prevalence of resistant granitic bedrock in the Tahoe Basin and the unusually small drainage basin relative to the size of Lake Tahoe.

LOCAL GEOLOGY

The Meeks Creek Watershed in its current drainage pattern formed over the past two million years during the two most recent periods of glaciation. During both of these periods, glacial ice accumulated in the high western side of the watershed (in present day Desolation Wilderness) and flowed eastward toward Lake Tahoe. The glaciers carved deep into the bedrock, leaving a canyon in the upper watershed with numerous lakes, and a wide flat valley floor in the lower watershed, underlain by glacial till and a variety of outwash deposits and lake deposits. The upper watershed is primarily underlain by exposed granitic rock with patches of glacial till and recent stream deposits. The valley floor in the lower two miles of the watershed is a complex of glacial sediments, fine texture lake sediments deposited in glacial lakes, peat soils formed in organic marshes, and cobble and boulder deposits. This variety of sediments and landforms has created a diverse set of soil and hydrologic conditions. This diversity is reflected in the mosaic of vegetation communities found throughout the lower watershed, including conifer uplands, peat marshes, riparian areas, and variously seasonally and perennially wet meadow systems (Swanson 2006).

TOPOGRAPHY AND DRAINAGE

The project area is located in the lowest reaches of the Meeks Bay Watershed immediately adjacent to Lake Tahoe. The topography is nearly level but slopes gently toward Lake Tahoe. Meeks creek has incised into the meadow surface upstream from the SR 89 bridge. Below the SR 89 bridge, Meeks creek has been channelized and modified to accommodate the development of the resort and marina.

GROUNDWATER

Meeks creek is located within the Tahoe City/West Shore groundwater aquifer, which extends from Dollar Point on the north to Rubicon Point on the south. Glacial processes have dissected the west shore portion of the aquifer into eight watersheds, each underlain by glacial outwash and stream deposits (mostly sands and gravels) that overlay volcanic rocks. Ridges separating the watersheds consist of intrusive volcanic rocks (such as granite) capped by glacial moraines. Aquifer depths range from 56 to 805 feet and the pumping capacity of wells in the aquifer ranges from 0.1 to 30 gallons per minute per foot (Plume, Tumbusch, and Welborn 2009).

Above SR 89, most of Meeks Creek remains connected to its floodplain and shallow groundwater levels maintain wetlands, meadows and riparian vegetations. Below SR 89, Meeks Creek is highly degraded due to channel incision induced by the dredging of Meek Bay Marina in 1960 (Swanson 2006). The presence of fixed structures and marina dredging combined with placement of up to four feet of fill over former marsh areas has exacerbated channel incision and lowered groundwater levels so that the area no longer supports wetland and marsh habitats (Swanson 2006).

SOILS

Mapped soil units within the project area consist of the Celio loamy coarse sand, Marla loamy coarse sand, Meeks gravelly loamy coarse sand, the Tahoe complex, and beaches. Additionally, some of the project area near Meeks creek was covered with imported fill material during the development of the resort and construction of the Marina (Swanson 2006). Figure 3.7-1 shows the distribution of soil mapping units within the project area. Table 3.7-3 provides information on the properties of soils discussed in the following topics.

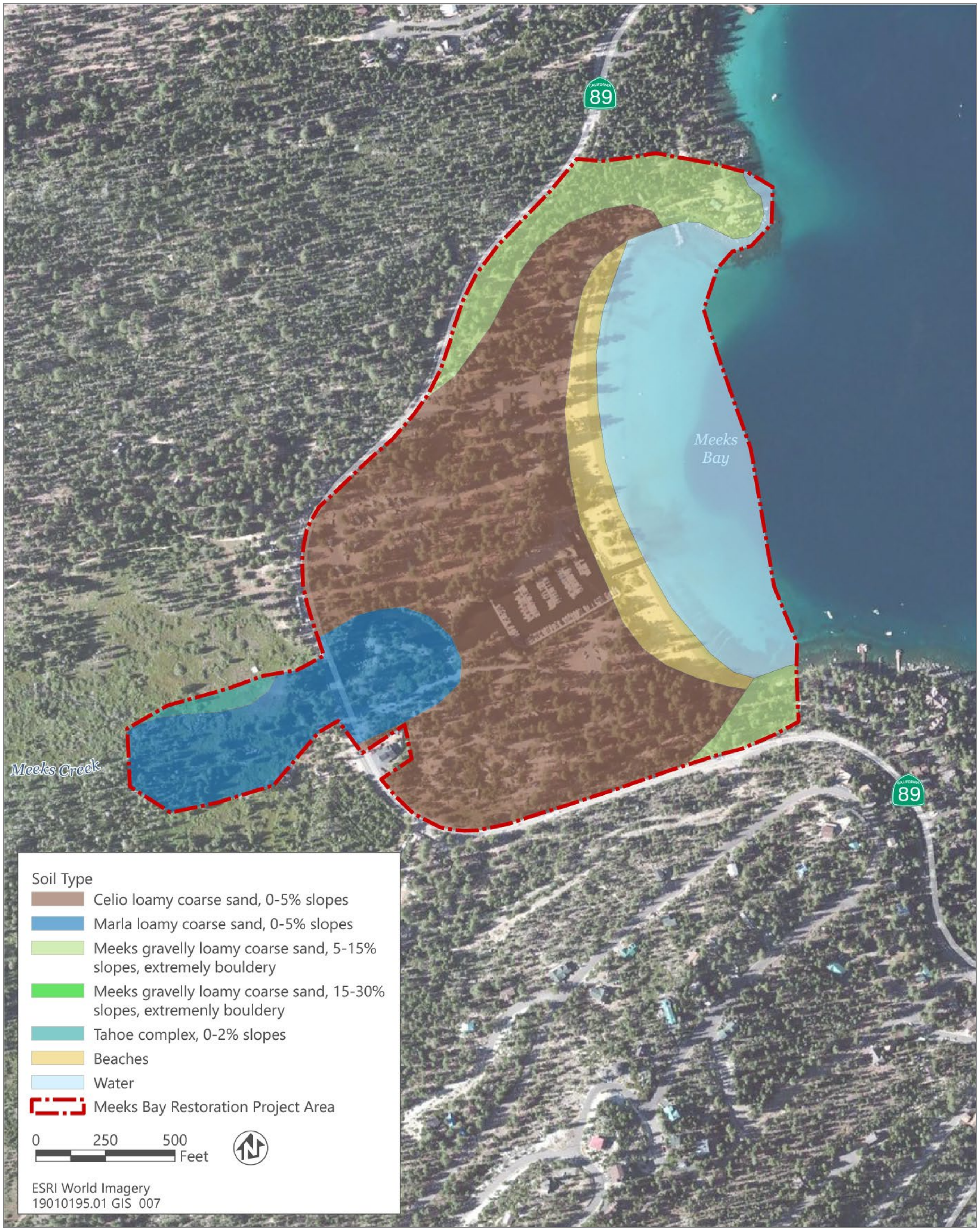
Table 3.7-3 Properties of Project Area Soils

Soil Name	Erosion Potential	Linear Extensibility	Area within the Project Area
Celio loamy coarse sand, 0-5% slopes	Slight	1.5	36.6 acres (53.4% of project area)
Marla loamy coarse sand, 0-5% slopes	Slight	0.6	8.8 acres (12.8% of project area)
Meeks gravelly loamy coarse sand, 5-15% and 15-30% slopes, extremely bouldery	Severe	1.5	5.4 acres (7.9% of project area)
Tahoe complex, 0-2% slopes	Slight	1.5	0.6 acres (0.9% of project area)
Beaches	Slight	0	5.2 acres (7.5% of project area)

Source: NRCS 2007.

EROSION POTENTIAL AND HAZARD RATING

The NRCS soil surveys provide a rating of Erosion Hazard resulting from disturbance of non-road areas. This rating is based on slope and soil erosion factor (K). The predicted soil loss is caused by sheet or rill erosion (which occurs when shallow flows of water causing sheet erosion to coalesce into rills and thus increase both in velocity and scouring capacity) in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed by some kind of disturbance. The hazard is described as “slight,” “moderate,” “severe,” or “very severe.” A rating of “slight” indicates that erosion is unlikely under ordinary conditions; “moderate” indicates that some erosion is likely and that erosion-control measures may be needed; “severe” indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and ”very severe” indicates that significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion-control measures are costly and generally impractical (NRCS 2007). The erosion potential for the soils within the project area is rated as “Slight” with the exception of the Meeks gravelly loamy coarse sand, which has an erosion hazard rating of severe. No ground disturbing project components are located in the Meeks gravelly loamy coarse sand.



Source: data downloaded from NRCS in 2019.

Figure 3.7-1 Soils in the Project Area

EXPANSIVE SOILS

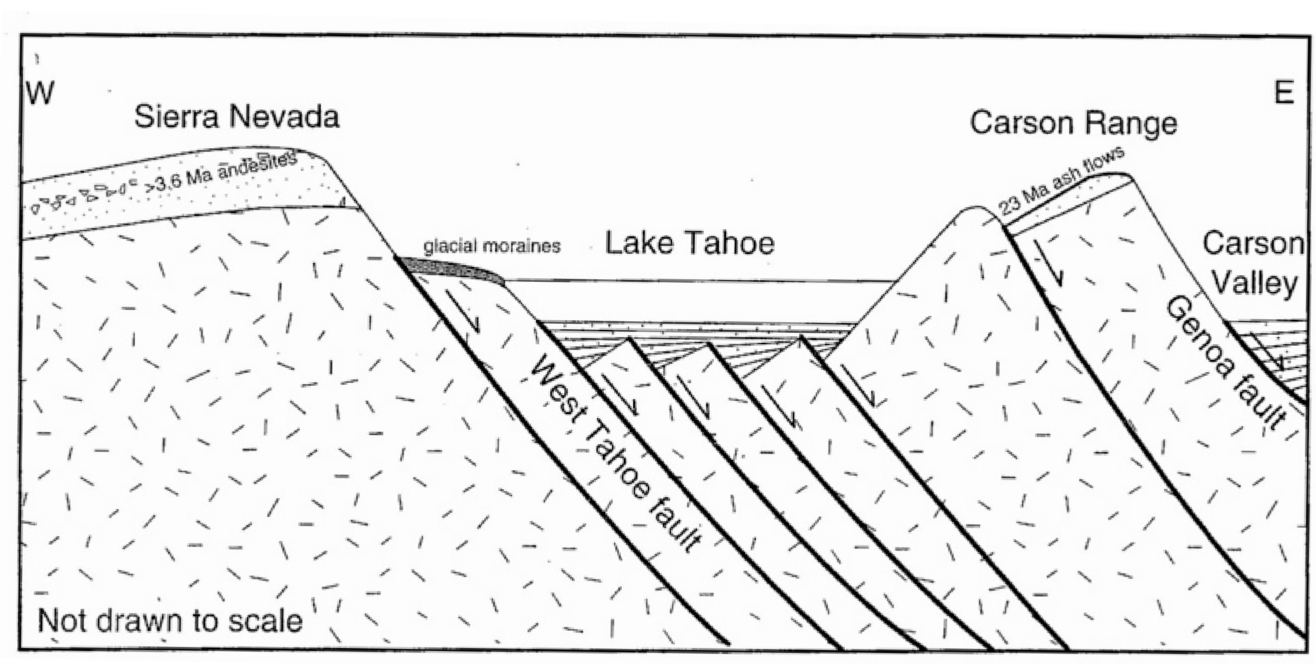
Expansive soils contain shrink-swell clays that are capable of absorbing water. As water is absorbed the clays increase in volume. This change in volume is capable of exerting enough force on buildings and other structures to damage foundations and walls. Damage can also occur as these soils dry out and contract. One measure of the shrink-swell potential of soils is linear extensibility. Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. The volume change is reported as percent change for the whole soil. The amount and type of clay minerals in the soil influence volume change. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent, moderate if 3 to 6 percent, high if 6 to 9 percent, and very high if more than 9 percent. Table 3.7-1 lists the linear extensibility of the dominant soil component for the soil mapping units within the project area as determined by the NRCS soil survey of the Lake Tahoe Basin (NRCS 2007). As shown, all mapped soils in the project area have low shrink-swell potential.

SEISMICITY

An earthquake is classified by the amount of energy released, which traditionally has been quantified using the Richter scale. Recently, seismologists have begun using a moment magnitude (M) scale because it provides a more accurate measurement of the size of large earthquakes. For earthquakes of less than M 7.0, the moment and Richter magnitude scales are nearly identical. For earthquakes greater than M 7.0, readings on the moment magnitude scale are slightly higher than the corresponding Richter magnitude.

The intensity of seismic shaking, or strong ground motion, during an earthquake is dependent on the distance and direction from the epicenter of the earthquake, the magnitude of the earthquake, and the geologic conditions of the surrounding area. Ground shaking could potentially result in the damage or collapse of buildings and other structures. Most earthquakes occur along faults, which are fractures or geological areas of weakness, along which rocks on one side have been displaced with respect to those on the other side. Most faults are the result of repeated displacement that may have taken place suddenly and/or by slow creep (Bryant and Hart 2007:3).

Faulting was a key element in the formation of Lake Tahoe. The Tahoe Basin lies in a graben (a trench between two faults) between the Sierra Nevada and the Carson Range (as shown in Figure 3.7-2). The outlet of the Tahoe Basin was repeatedly dammed by volcanic eruptions and glacial ice dams (Schweickert et al. 2000).



Source: Schweickert et al. 2000.

Figure 3.7-2 Model of Lake Tahoe Basin Half-Graben

The nature of the seismic hazard in the Tahoe Region was not appreciated for many years because the active faults within the Tahoe Basin are covered by the lake itself. The portions of the Tahoe Basin faults that show the greatest activity and strain are underwater, with activity diminishing as they move on-shore (Seitz and Kent 2004). Additionally, recent work analyzing sediment cores from the bottom of Lake Tahoe show that local earthquakes trigger landslides in the Lake (Seitz 2013). It is likely that many of the landslides evident with the Tahoe Basin (including the ancient, catastrophic, 5-mile-wide landslide that formed McKinney Bay) were triggered by earthquakes (Dingler 2007).

The State Mining and Geology Board defines an active fault as one that has had surface displacement within the last 11,000 years (CGS 2008). Three active faults occur within the Tahoe Basin: The West Tahoe-Dollar Point Fault (the longest at 45 km long); the Stateline-North Tahoe Fault; and the Incline Village Fault (Brothers et al. 2009). Recent studies indicate that all three of these faults have experienced large rupture events within recent geologic time (Dingler 2007; Seitz and Kent 2004). Of the three faults, the West Tahoe-Dollar Point Fault (located 1.3 miles east of the project area) has the fastest slip rate (the rate at which two faults pass each other or build tension) and its most recent confirmed rupture event was approximately 4,000 years ago (Brothers et al. 2009). The high slip rate, the height of scarps (earthquake generated breaks in topography) and the length of time since the last event indicate that the West Tahoe-Dollar Point Fault could generate an earthquake with a magnitude greater than 7 (Brothers et al. 2009). The height of scarps along the Incline Village fault show that this fault has experienced several magnitude 7 events and that it last ruptured approximately 575 years ago (Schweickert et al. 2000; Seitz et al. 2005).

East of the Tahoe Basin, the Carson Range fault system, one of the Region’s largest, runs for 60 miles along the east face of the Carson Range from Reno to Markleeville. The probability of at least one magnitude ≥6.0 event occurring in the Reno-Carson City urban corridor over a 50-year period is estimated to be between 34 percent and 98 percent, the probability of a magnitude ≥6.6 event between 9 percent and 64 percent, and the probability of a magnitude ≥7.0 event between 4 percent and 50 percent. These probabilities are relatively high and are similar to many parts of California (dePolo et al. 1997:3).

The nearest mapped Alquist-Piolo Earthquake Fault Zone is located in the Minden-Gardnerville, NV area, approximately 15 miles east of the project area (CGS 2010).

Liquefaction and Lateral Spreading

Liquefaction is a phenomenon in which loose, saturated, granular soil deposits lose a significant portion of their shear strength because of excess pore water pressure buildup. An earthquake typically causes the increase in pore water pressure and subsequent liquefaction. These soils are behaving like a liquid during seismic shaking and re-solidify when shaking stops. The potential for liquefaction is highest in areas with high groundwater and loose, fine, sandy soils at depths of less than 50 feet. The project area is underlain by fine lake sediments and sandy river outwash and contains areas of high groundwater. Although no terrestrial liquefaction events have been documented in the Lake Tahoe basin in recent history, over the last 11,000 years multiple large earthquakes (magnitude 7 or greater) have triggered liquefaction of lake sediments and associated terrestrial landslides (Brothers et al 2009). Therefore, a large earthquake along the West Tahoe fault or another fault in the Basin could result in liquefaction of sediments in and adjacent to the project area.

Liquefaction may also lead to lateral spreading. Lateral spreading (also known as expansion) is the horizontal movement or spreading of soil toward an “open face,” such as a streambank, the open side of fill embankments, or the sides of levees. It often occurs in response to liquefaction of soils in an adjacent area. The potential for failure from lateral spreading is highest in areas where there is a high groundwater table, where there are relatively soft and recent alluvial deposits, and where creek banks are relatively high. The potential for lateral spreading may exist in the project area along the steep and eroding banks of Meeks creek and the marina lagoon.

Tsunami and Seiche

A tsunami is a wave or series of waves that may result from a major seismic event that involved the displacement of a large volume of water (such as rupture of a major fault) and may occur in any large body of water. A seiche is a periodic oscillation of an enclosed or restricted water body, typically a lake or reservoir, produced by seismic shaking. The action of a seiche is similar to the sloshing of a bathtub, with waves bouncing back and forth across the water body. Seiche waves can continue for hours following a tsunami inducing earthquake, causing extensive damage. Modeling of potential earthquakes occurring beneath Lake Tahoe indicate that a fault rupturing seismic event of magnitude 7.0 could trigger a tsunami, followed by seiche with waves of up to 30 feet high along the shoreline of Lake Tahoe (Ichinose et al. 2000).

LAND CAPABILITY AND COVERAGE

Since the late 1970s, TRPA has used a land capability classification system based on the ability of areas of soil to tolerate use without resulting in environmental damage (Bailey 1974). The Bailey map was based, primarily, on the best available soil, slope, and geomorphic hazard information available in 1974, when the classification system was created. The soil survey used to create the Bailey map was intended for use at a minimum scale of 1:24,000, which is suitable for comparing large areas for general land uses. This level of detail is not appropriate for planning the management of small sites or the locations of roads, buildings, or other structures (NRCS 2007). For this reason, TRPA uses the Bailey map as the starting point to determine the land capability and allowable coverage for a site on which a project is proposed. The actual land capability is determined through a land capability verification or challenge process, which uses an on-the-ground assessment and other available information to adjust the land capability districts as shown in the Bailey map. A land capability verification confirms and/or adjusts the soil type and LCD presented in the Bailey map, whereas a land capability challenge may allow for the identification of an entirely different soil type and LCD than presented in the Bailey map.

Land capability and coverage in the northern portion of the project area (above Meeks Creek) was verified by TRPA in 2005 while the areas south of Meeks Creek have not been verified and will need to be prior to project implementation. The following assessment of land capability and coverage relies on the combination of the TRPA LCD verification and Bailey LCD mapping, as shown in Figure 3.7-3. The LCD mapping developed by Bailey will be adjusted and refined during LCD verification completed as part of project permitting.

The Bailey Land Capability system assigns LCDs based primarily on soil characteristics and slope. The LCDs reflect the amount of development the site can support without experiencing soil or water quality degradation. The LCDs range from 1 to 7, with 1 being the most environmentally sensitive and 7 being most suitable for supporting development. LCD 1b is applied to land that is influenced by surface water or high groundwater and is also referred to as “Stream Environment Zone” or SEZ. The amount of compacted or impervious surface, known as Coverage, allowed with a given parcel is limited by its LCD. The amount of existing and allowable land coverage within the Plan Area is shown in Table 3.7-4 below. Existing coverage categories includes impervious areas such as campsites, bike trail, boat ramp, cabins, day use areas, parking, roads, structures, and soft coverage (i.e., compacted dirt parking areas). Existing land coverage as show in Table 3.7-4 was estimated using a combination of TRPA verified land coverage where available and TRPA’s 2010 high resolution LiDAR data set and high-resolution aerial imagery in areas where coverage has not yet been verified.

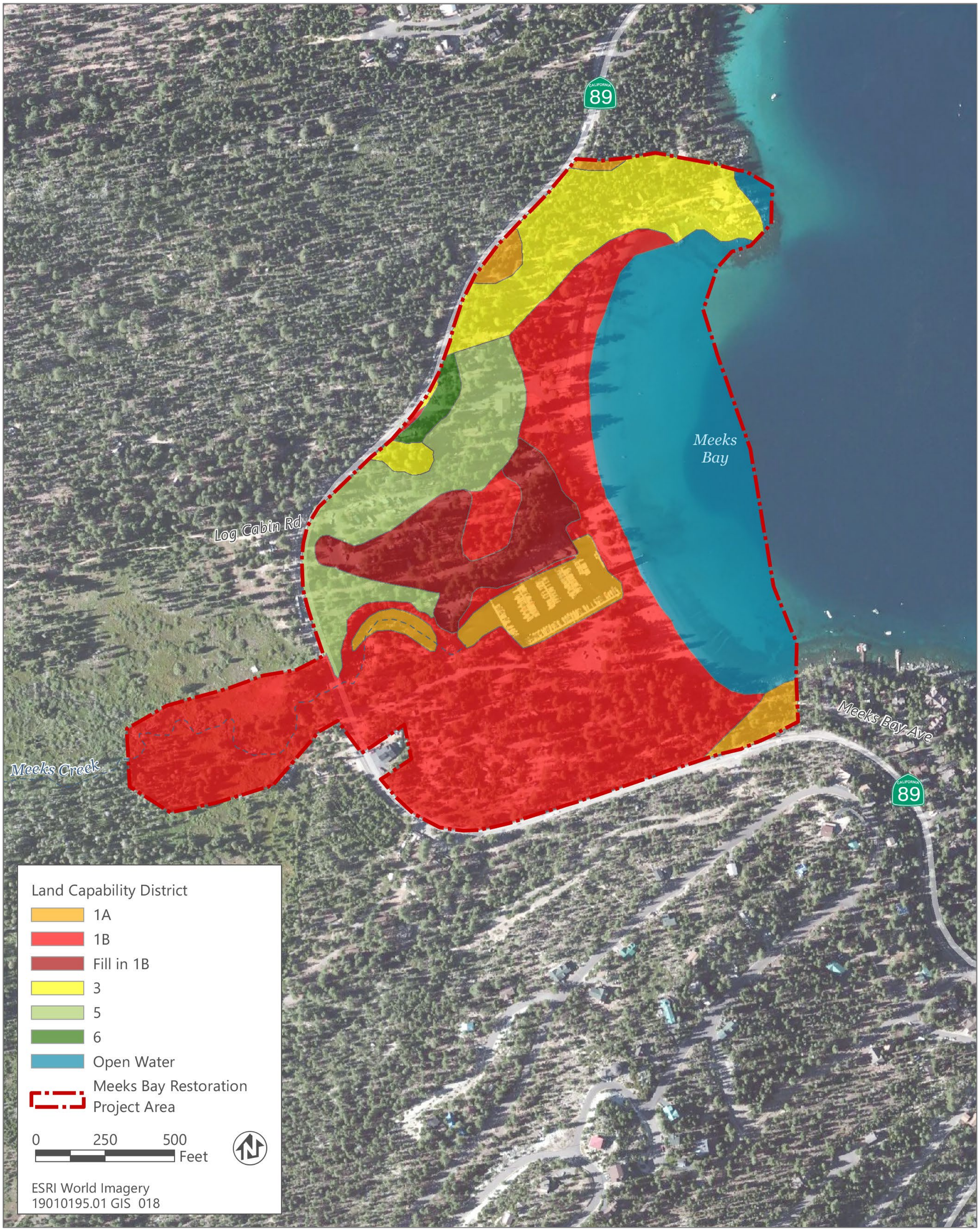
Table 3.7-4 Existing Approximate Land Capability and Coverage within the Project Area

Land Capability District[1]	Total Area (acres)	Base Allowable Coverage	Allowable Coverage (acres)	Existing Coverage (acres)	Available Coverage (acres)
1a	4.49	1%	0.04	0.13	-0.09
1b	32.06	1%	0.32	5.05	-4.72
Fd (1b)[2]	5.38	1%	0.05	2.82	-2.77
3	7.25	5%	0.36	2.16	-1.79
5	6.76	25%	1.69	2.30	-0.61
6	0.61	30%	0.18	0.30	-0.12
Total	**56.55**		**2.66**	**12.76**	**-10.10**

[1] Land capability districts and existing land coverage has not been field verified for the entire project area. Field verification will be required prior to issuance of a permit from TRPA.

[2] Fd soil in the project area are native 1b soils covered by fill material. This area was designated as 1b by the TRPA coverage verification.

Source: prepared by Ascent Environmental in 2021.



Source: data downloaded from TRPA in 2021.

Figure 3.7-3 Mapped Land Capability Districts in the Project Area

3.7.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

The evaluation of coverage and potential geologic and soil impacts is based on a review of documents pertaining to the project study area including CGS and USGS technical guides, the NRCS Soil Survey, TRPA regulations and planning documents, environmental impact reports, background reports prepared for plans and projects in the vicinity, and published and unpublished geologic literature. This analysis also incorporates portions of the Meek Bay Restoration Project, Hydrology and Geomorphology Specialist Report (Balance Hydrologics 2021). The information obtained from these sources was reviewed and summarized to understand existing conditions and to identify potential environmental effects, based on the thresholds of significance. In determining the level of significance, the analysis assumes that the proposed project would comply with relevant, federal, state, and local laws, regulations, and ordinances.

Potential soil and geologic effects associated with the project alternatives can be classified as temporary or permanent. Temporary impacts generally include effects associated with construction activities, such as ground disturbance and short term increases in turbidity. Permanent impacts would be associated with proposed facilities, such as new impervious land coverage and deep soil and geologic disturbance.

THRESHOLDS OF SIGNIFICANCE

The thresholds of significance were developed in consideration of the State CEQA Guidelines, TRPA Thresholds, TRPA Initial Environmental Checklist, LTBMU Forest Plan, and other applicable policies and regulations. Under NEPA the significance of an effect must consider the context and intensity of the environmental effect. The factors that are taken into account under NEPA to determine the context and intensity of its effects are encompassed by the thresholds of significance. An alternative would have a significant effect on geology, soils, and mineral resources if it would:

- compact or cover soil beyond the limits allowed in the land capability districts;
- cause a substantial change in the topographic features of a site in a manner inconsistent with the natural surrounding conditions;
- substantially change undisturbed soil or native geologic substructures;
- cause a substantial increase in wind or water erosion of soils; or
- expose people or property to geologic hazards such as earthquakes, landslides, backshore erosion, avalanches, mud slides, ground failure, or similar hazards.

ISSUES NOT DISCUSSED FURTHER

As discussed in Section 3.7.2, no expansive soils are found within the project area. This analysis does not evaluate the potential for the proposed project to create instability in the underlying geologic materials, resulting in off-site landslides or subsidence. The project area is located on an alluvial fan with low slope angles that does not have the potential to generate landslides. Furthermore, the types of human activities proposed by the action alternatives do not have the potential to create subsidence. Therefore, these issues are not discussed further.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.7-1: Compact or Cover Soil with Impervious Surfaces Beyond the Limits Allowed by the Land Capability Districts

Based on planning level estimates of coverage changes, all of the action alternatives would result in a decrease in land coverage in LCD 1b and a net decrease in coverage across the site due to the removal of soft coverage near the marina and other dispersed parking areas as well as the reconfiguration of parking and roads. Alternative 1 would result in the greatest decrease in coverage and Alternative 3 would result in the smallest decrease in coverage. In addition, the action alternatives would meet all TRPA requirements for coverage management, resource protection, and land coverage mitigation. For these reasons, Alternatives 1, 2, 3, and 4 would have a **beneficial** effect related to compaction and land coverage. Implementation of the No Action Alternative would result in **no impact**.

No Action Alternative

Table 3.7-5 provides a summary of land coverage for the No Action Alternative. There is an estimated 9.84 acres of excess land coverage in the project area under existing conditions. The majority of this excess coverage (7.47 acres) occurs in LCD 1b, which is the most protected and sensitive LCD. However, the No Action Alternative would be a continuation of existing conditions and would not result changes in soil compaction or TRPA regulated land coverage. Therefore, the No Action Alternative would have **no impact** relative to compaction and land coverage.

Table 3.7-5 Summary of Land Coverage for the No Action Alternative

Land Capability District	Existing Conditions (No Action) Allowable Coverage (%)	Existing Conditions (No Action) Allowable Coverage (Acres)	Existing Conditions (No Action) Existing Impervious Area (Acres)	Existing Conditions (No Action) Exempt Coverage (Acres)[2]	Existing Conditions (No Action) Excess Coverage (Acres)
1a	1%	0.04	0.13	0.05	0.04
1b[1]	1%	0.37	7.87	0.03	7.47
3	5%	0.36	2.16	0.18	1.62
5	25%	1.69	2.30	0.02	0.59
6	30%	0.18	0.30	-	0.12
Total		**2.66**	**12.76**	**0.28**	**9.84**

[1] Includes Fd (fill) areas identified as LCD 1b

[2] Exempt Coverage includes the existing bike trail

Source: prepared by Ascent Environmental in 2021.

Alternative 1: Full Restoration with Boating Pier

As described in the existing condition discussion, precise coverage and LCD data is not yet available for the project area. Planning level data derived from illustrative drawings combined with conservative assumptions regarding the amount of land coverage that could be created by each alternative, was used to develop the following analysis of changes in TRPA regulated land coverage. For coverage purposes, the land-based portions of the proposed boating pier are included in this coverage analysis. Land coverage is not calculated below the high-water mark of Lake Tahoe. A land capability verification that determines the exact coverage verification will be required by the TRPA prior to permit approval.

Implementation of Alternative 1 would result in removal of soft coverage near the marina and other dispersed parking areas as well as the reconfiguration of parking and roads. Based on a planning level estimate of coverage changes, Alternative 1 would decrease impervious coverage in LCDs 1a and 1b while small increases in coverage could occur in LCDs 3, 5, and 6 (see Table 3.7-6). Overall, Alternative 1 would decrease impervious areas by 2.49 acres when compared to the No Action Alternative.

Table 3.7-6 Land Coverage Changes for Alternative 1

Land Capability District	Alternative 1 Change in Impervious Area (Acres)	Alternative 1 Exempt Coverage (Acres)[2]
1a	-0.04	0.04
1b[1]	-2.99	1.01
3	0.03	0.03
5	0.49	0.25
6	0.02	0.02
Total	**-2.49**	**1.35**

1 Includes Fd (fill) areas identified as LCD 1b

2 Exempt coverage includes only the proposed interpretive trail and the proposed multi-use path

Source: prepared by Ascent Environmental in 2021.

In accordance with TRPA Code Section 30.4.6.D.3, non-motorized public trails are exempt from the calculation of land coverage, subject to siting and design requirements. Specifically, these design requirements call for minimization of disturbance to low capability lands (LCDs 1a, 1b, 1c, 2, and 3). Alternative 1 includes 1.35 acres of exempt coverage from the construction of the non-motorized trail connection between the south campground and the north campground. Because the trail would cross the restored Meeks Creek, the majority of the exempt coverage would be in LCD 1b.

Preliminary coverage data indicates that Alternative 1 would result in a small increase (0.49 acres) of land coverage in LCD 5. As permitted by TRPA Code Section 30.4.4, existing land coverage within LCD 1b would be relocated to LCD 5 to allow for this increase in LCD 5.

The implementation of Alternative 1 would result in the removal of approximately 3 acres of land coverage from LCD 1b and a net reduction in compaction and impervious area of 2.49 acres, when compared to existing conditions. In addition, the project would meet all TRPA requirements for coverage management, resource protection, and land coverage mitigation. For these reasons, Alternative 1 would have a **beneficial** effect related to compaction and land coverage.

Alternative 2: Full Restoration with Pedestrian Pier

Alternative 2 would create similar changes in land coverage patterns as Alternative 1. A summary of estimated land coverage changes associated with Alternative 2 is provided in Table 3.7-7. Overall, Alternative 2 would remove 0.54 acres less coverage than Alternative 1. Alternative 2 would remove less coverage because it would not relocate the beachfront cabins and would remove a smaller area of road than Alternative 1.

Table 3.7-7 Land Coverage Changes for Alternative 2

Land Capability District	Alternative 2 Change in Impervious Area (Acres)	Alternative 2 Exempt Coverage (Acres)[2]
1a	-0.04	0.04
1b[1]	-2.38	0.79
3	0.03	0.03
5	0.42	0.26
6	0.02	0.02
Total	**-1.95**	**1.14**

1 Includes Fd (fill) areas identified as LCD 1b

2 Exempt coverage includes only the proposed interpretive trail and the proposed multi-use path

Source: prepared by Ascent Environmental in 2021.

Similar to Alternative 1, Alternative 2 would include a multi-use path that would be exempt from coverage in accordance with TRPA Code Section 30.4.6.D.3. However, Alternative 2 would make a small alteration to the alignment of the non-motorized trail north of Meeks Creek, which would eliminate 0.22 acres of exempt 1b land coverage when compared to Alternative 1.

Although Alternative 2 would remove less coverage than Alternative 1, the implementation of Alternative 2 would result in the removal of approximately 2.38 acres of land coverage from LCD 1b and a net reduction in compaction and impervious area of 1.95 acres, when compared to existing conditions. In addition, the project would meet all TRPA requirements for coverage management, resource protection, and land coverage mitigation. For these reasons, Alternative 2 would have a **beneficial** effect related to compaction and land coverage.

Alternative 3: Full Restoration with No Pier

Alternative 3 would create similar changes in land coverage patterns as Alternative 1. A summary of land coverage changes associated with Alternative 3 is provided in Table 3.7-8. Overall, Alternative 3 would remove 2.04 acres less coverage than Alternative 1. This is due to the expansion of the north and south campground areas, retaining the beachfront cabins in their current location, and the addition of an expanded parking area.

Table 3.7-8 Land Coverage Changes for Alternative 3

Land Capability District	Alternative 3 Change in Impervious Area (Acres)	Alternative 3 Exempt Coverage (Acres)[2]
1a	-0.04	0.04
1b[1]	-0.88	0.76
3	0.03	0.03
5	0.43	0.26
6	0.02	0.02
Total	-0.45	1.11

[1] Includes Fd (fill) areas identified as LCD 1b

[2] Exempt coverage includes only the proposed interpretive trail and the proposed multi-use path

Source: prepared by Ascent Environmental in 2021.

Like Alternative 1, Alternative 3 would include an interpretive and multi-use path that would be exempt from coverage in accordance with TRPA Code Section 30.4.6.D.3. Of the four action alternatives, Alternative 3 would remove the least amount of coverage. However, Alternative 3 would result in the removal of approximately 0.88 acres of land coverage from LCD 1b and a net reduction in compaction and impervious area of 0.45 acres, when compared to existing conditions. In addition, the project would meet all TRPA requirements for coverage management, resource protection, and land coverage mitigation. For these reasons, Alternative 3 would have a **beneficial** effect related to compaction and land coverage.

Alternative 4: Preferred Alternative

Alternative 4 would create similar changes in land coverage patterns as Alternative 1, including relocation of the motel-style cabins, but without a pier. A summary of land coverage changes associated with Alternative 4 is provided in Table 3.7-9.

Table 3.7-9 Land Coverage Changes for Alternative 4

Land Capability District	Alternative 4 Change in Impervious Area (Acres)	Alternative 4 Exempt Coverage (Acres)
1a	-0.04	0.04
1b[1]	-2.74	1.01
3	0.03	0.03
5	0.49	0.25
6	0.02	0.02
Total	-2.27	1.35

[1] Includes Fd (fill) areas identified as LCD 1b

Source: prepared by Ascent Environmental in 2021.

Overall, Alternative 4 would remove the second most coverage of any of the action alternatives. It would remove 0.26 acres less coverage than Alternative 1. This is due to the expansion of the parking area on the south side. Alternative 4 would result in the removal of approximately 2.74 acres of land coverage from LCD 1b and a net reduction in compaction and impervious area of 2.27 acres, when compared to existing conditions. For the same reasons discussed under Alternative 1, Alternative 4 would have a **beneficial** effect related to compaction and land coverage.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.7-2: Result in Substantial Soil Erosion or Loss of Topsoil

Implementation of the action alternatives would require extensive areas of ground disturbance and excavation for restoration of Meeks Creek, replacement of SR 89 bridge, as well as ground disturbance required for reconfiguring of campgrounds, and recreation facilities. Restoration of Meeks Creek would include partially filling the marina and reconstructing the lagoon, which would result in the largest area of soil disturbance proposed in the project area. Grading, earth moving, and excavation would require permits in accordance with TRPA, Lahontan RWQCB, and El Dorado County regulations. With adherence to existing standard regulations and permit requirements, the potential for substantial soil erosion or loss of topsoil would be **less than significant** for Alternatives 1, 2, 3, and 4. Implementation of the No Action Alternative would not result in construction and would reduce some sources of erosion through the installation of BMPs. This would be a **less-than-significant** impact.

No Action Alternative

The No Action Alternative would be a continuation of existing conditions and would not result in ground disturbance and no increase in soil erosion or loss of topsoil is expected. Existing sources of erosion in the creek channel would remain. The No Action Alternative would have a **less-than-significant** impact relative to soil erosion.

Alternative 1: Full Restoration with Boating Pier

Alternative 1 would include excavation for removal of the motel-style cabins, existing SR 89 bridge, and asphalt paving, a boating pier, as well as minor grading and paving for the reconfiguration of the campgrounds. In addition to disturbance in the upland areas, implementing the restoration design elements would require major ground disturbance in close proximity to Lake Tahoe, as well as a large-scale diversion and dewatering system to temporarily lower lagoon water levels and manage inflow from Meeks Creek during construction. Temporary access routes and staging areas would be required to allow construction equipment and materials to reach stream restoration area. Access routes would be designed to avoid large trees and sensitive resources; however, some vegetation removal would be required. Access routes would be established by driving over the existing terrain with blading, scraping, and ramp building allowed only where it is needed. Staging areas would be delineated in existing disturbed areas and would be located as close to SR 89 as practicable.

The construction activities described above would result in temporary disturbance of soil and would expose disturbed areas to storm events. Rain of sufficient intensity and duration could dislodge soil particles, generate runoff, and cause localized erosion. Soil disturbance during the summer months could result in loss of topsoil due to wind erosion and runoff from thunderstorm events. Additionally, ground disturbance in or adjacent to Meeks Creek and Lake Tahoe, associated with SR 89 bridge construction, multi-use path bridge construction, and restoration elements could lead to accelerated erosion and sediment transport within the stream channel.

Disturbance in Upland Areas (Outside of the Stream Corridor)

The NRCS Erosion Hazard rating estimates the risk of soil loss from sheet and rill erosion (erosion caused by overland flow of water) for disturbed soils where 50 to 75 percent of the soil surface has been exposed (NRCS 2007). Because the soils of the project area have low to moderate runoff potential and the topography (with the exception of the immediate riverbank and channel) is gently sloped, the NRCS described the Erosion Hazard rating at "Slight" for all soil map units within the disturbance area of Alternative 1. This means that substantial erosion would be unlikely under normal conditions.

For areas outside of the stream corridor, this characterization of erosion potential is appropriate. The BMPs required by TRPA and LRWQCB as conditions of construction and grading permits would minimize the potential for soil erosion and protect water bodies and SEZ areas. One condition in the LRWQCB NPDES permit is a storm water pollution prevention plan (SWPPP), prepared by a qualified SWPPP developer. This plan would detail the BMPs that would be implemented to minimize erosion, reduce sediment transport, and control stormwater flow from the project area. In addition, the SWPPP would address grading and slope stabilization methods, as well as construction waste disposal methods. Typical temporary BMPs include properly installed silt fences, sediment logs, detention basins, and inlet protection. Temporary BMPs would be installed prior to beginning site grading and would be maintained throughout construction until permanent erosion control features are functioning. The required elements of a SWPPP are discussed in greater detail in section 3.6 "Hydrology and Water Quality." After construction is completed, temporarily disturbed areas (including access roads and staging areas) would be stabilized and revegetated in accordance with TRPA Code of Ordinances Section 61.4.

Disturbance within the Stream Corridor, Lagoon, and Shorezone

Restoration and bridge replacement/construction activities that take place on the stream bank would have a higher potential of causing soil erosion due to the exposure of steeper slopes and proximity to the creek. Excavation work would expose the soil profile to wind and water erosion. Additionally, removal of the box culvert/bridge, boulders or large cobble would affect the structure of the directly adjacent soil areas, which could result in sloughing or small areas of slope failure. In addition, extensive excavation work would be required for the removal of fill material and boulder banks in the lagoon area, as well as the installation of the multi-use path crossing of the restored creek. Soil erosion could also occur during construction of the shoreline stabilization features as well as the land side of the boating pier.

The final construction documents and SWPPP would include a detailed diversion and dewatering plan and would outline strategies and methods for controlling destabilized soil during construction periods. In general, diversion would likely be necessary for the SR 89 bridge replacement, marina removal, multi-use path bridge construction, and creek restoration work. Depending on the number of project features that are constructed concurrently, diversion would occur in portions of the channel between one and three times. For marina removal, and creek and lagoon restoration, Meeks Creek would be captured upstream of the SR 89 bridge and diverted around the lagoon in a pipe to discharge at a point that eventually drains to Lake Tahoe, a total distance of approximately 1,300 feet (Balance Hydrologics 2021). A temporary cofferdam would be constructed near the SR 89 bridge to direct Meeks Creek away from the bridge opening and into the diversion pipe. Another cofferdam (or bulkhead) at the downstream end of the project (likely at the lagoon mouth) would also be installed to prevent turbid water generated at the project area from directly entering Lake Tahoe (Balance Hydrologics 2021). If the SR 89 bridge replacement and/or multi-use path bridge are not constructed concurrently with the restoration actions, separate diversions would be needed for bridge removal and construction. In these cases, cofferdams would be placed upstream and downstream of the SR 89 bridge and multi-use path bridge to isolate the work areas. Creek flows would be diverted into pipes to bypass the bridge work areas. In all diversions, ground water would be pumped from construction areas, as necessary, and would be infiltrated or otherwise disposed of consistent with measures identified in the SWPPP and approved by Lahontan RWQCB.

The diversion and dewatering system would be an important component in containing pollutants within the construction site, and the Project SWPPP would detail a full suite of BMPs (consistent with the guidelines of the Lahontan RWQCB and the TRPA BMP Handbook) to prevent pollutants from entering surface and ground waters. Construction BMPs would include structural measures (e.g., fencing and fiber rolls) as well as operational prescriptions (e.g., corrective grading and proper equipment fueling procedures). In addition to standard BMPs that are required of most construction projects, the project would need to include additional provisions of the TRPA BMP Handbook specific to the shoreline geomorphic zone. The project will be required to regularly inspect and maintain BMPs, and keep logs of the monitoring and corrective measures.

Conclusion

Because the soils of the disturbance area are not highly susceptible to erosion, temporary and permanent BMPs would be installed as requirements of the necessary TRPA and LRWQCB permits, and areas of temporary disturbance would be revegetated and regraded to match the natural topography of the site, the potential for Alternative 1 to increase erosion or adversely affect the topography of the area would be **less than significant**.

Alternative 2: Full Restoration with Pedestrian Pier

The ground disturbance associated with Alternative 2 would be similar to the disturbance described above for Alternative 1, however the parking area in the southern campground would be reconfigured and construction of an additional multi-use path bridge crossing of the newly restored creek and floodplain would occur adjacent to the SR 28 bridge. In addition, Alternative 2 would create new road segments in the campgrounds. This would require an additional 0.75 acres of ground disturbance compared to Alternative 1. As described for Alternative 1, the soils within the disturbance area are not highly susceptible to erosion, temporary and permanent BMPs would be installed as requirements of the necessary TRPA and LRWQCB permits, and areas of temporary disturbance would be revegetated and regraded to match the natural topography of the site. Therefore, the potential for Alternative 2 to increase erosion or adversely affect the topography of the area would be **less than significant.**

Alternative 3: Full Restoration with No Pier

The ground disturbance associated with Alternative 3 would be similar to the disturbance described above for Alternative 1, with three exceptions. First, the north and south campgrounds would be expanded resulting in an additional acre of ground disturbance. Second, an accessible moveable, universally accessible paddlecraft launch facility would be constructed on the south end of the project area, which would create ground disturbance. Third, Alternative 3 would involve construction of an additional multi-use path bridge crossing of the newly restored creek and floodplain adjacent to the SR 28 bridge. As described for Alternative 1, the soils within the disturbance area are not highly susceptible to erosion, temporary and permanent BMPs would be installed as requirements of the necessary TRPA and LRWQCB permits, and areas of temporary disturbance would be revegetated and regraded to match the natural topography of the site. Therefore, the potential for Alternative 3 to increase erosion or adversely affect the topography of the area would be **less than significant**.

Alternative 4: Preferred Alternative

The ground disturbance associated with Alternative 4 would be similar to Alternative 1 except that Alternative 4 would include a nonmotorized launch instead of a pier, and it would include a slightly expanded parking area. Alternative 4 would include a similar amount of ground disturbance than Alternative 1. Because the soils of the disturbance area are not highly susceptible to erosion, temporary and permanent BMPs would be installed as requirements of the necessary TRPA and LRWQCB permits, and areas of temporary disturbance would be revegetated and regraded to match the natural topography of the site, the potential for Alternative 4 to increase erosion or adversely affect the topography of the area would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.7-3: Substantially Increase Exposure of People or Property to Geologic Hazards Such as Earthquakes, Landslides, Backshore Erosion, Avalanches, Mud Slides, Ground Failure, Seiche, or Similar Hazards

The project area is located in a seismically active area which could experience strong seismic shaking in the event of a large earthquake. Additionally, the project area is located within the inundation area of a potential seiche wave generated by seismic shaking or an earthquake triggered landslide. The risk to people and structures from geologic hazards would be reduced through compliance with the current seismic design requirements of the California Building Standards Code. Additionally, implementation of the action alternatives would not alter the exiting threat to life and property from a seismically induced seiche on Lake Tahoe. Therefore, the potential for the project to expose people and structures to seismic and geologic hazards would be a **less-than-significant** impact for Alternatives 1, 2, 3, and 4. Implementation of the No Action Alternative would result in **no impact**.

<u>No Action Alternative</u>

The No Action Alternative would be a continuation of existing conditions. No facilities would be removed or constructed. Therefore, the No Action Alternative would not change geologic risks or exposure and would have **no impact** relative to geologic hazards.

<u>Alternative 1: Full Restoration with Boating Pier</u>

The project area is located in a seismically active area which could experience strong seismic shaking in the event of a large earthquake. Alternative 1 includes the reconstruction of the SR 89 bridge, construction of a multi-use path bridge over Meeks Creek, demolition/reconstruction of beachfront cabins, construction of day use facilities, and the construction of a boating pier. These structures and their users could be susceptible to earthquake damage. Additionally, Meek Bay is underlain by beach sands could be susceptible to liquefaction during seismic events. The risk to people and structures would be reduced through compliance with the current seismic design requirements of the California Building Standards Code.

Seismic damage to piers typically results from liquefaction of marine sediments and failure is usually related to economic loss and loss of functionality rather than structural collapse (SGH 2014). Piers that are accessible to the general public are subject to the seismic design criteria included in American Society of Civil Engineers (ASCE) Standard 61-14, Seismic Design of Piers and Wharves. These standards incorporate soil structure, geotechnical parameters, and earthquake hazard levels to minimize a piers risk of structural damage or failure during a predictable seismic event.

Piers are resilient structures and are not likely to collapse during an earthquake (SGH 2014). Additionally, the proposed pier would not include a superstructure (pier mounted building) that could place users at risk during a large seismic event.

The project area is located within the inundation area of a potential seiche wave generated by seismic shaking or an earthquake triggered landslide. While the potential for a seiche is low in any given year, the damage and loss of life should a seiche occur would be significant. The El Dorado County Local Hazard Mitigation Plan (El Dorado County 2018) recognizes the potential for seiche, acknowledges the significant damage that would occur, but provides no specific action or funding to address the vulnerability. For the purposes of this analysis, implementation of Alternative 1 would not alter the existing threat to life and property from a seismically induced seiche on Lake Tahoe.

The risk to people and structures from geologic hazards would be reduced through compliance with the current seismic design requirements of the California Building Standards Code. Additionally, Alternative 1 would not alter the exiting threat to life and property from a seismically induced seiche on Lake Tahoe. Therefore, the potential for the project to expose people and structures to seismic and geologic hazards would be a **less-than-significant** impact.

<u>Alternative 2: Full Restoration with Pedestrian Pier</u>

The risks related to geologic hazards would be similar for Alternatives 1 and 2. However, Alternative 2 does not include relocation of two beachfront cabins or the subsequent stabilization of the cabin footprints. As described for Alternative 1, the risk to people and structures from geologic hazards would be reduced through compliance with the current seismic design requirements of the California Building Standards Code. Additionally, Alternative 2 would not alter the exiting threat to life and property from a seismically induced seiche on Lake Tahoe. Therefore, the potential for the project to expose people and structures to seismic and geologic hazards would be a **less-than-significant** impact.

Alternative 3: Full Restoration with No Pier

The risks related to geologic hazards would be similar for Alternatives 1 and 3. However, Alternative 3 does not include relocation of two beachfront cabins or the subsequent stabilization of the cabin footprints. Additionally, Alternative 3 would construct a moveable, universally accessible paddlecraft launch facility rather than a boating pier. As described for Alternative 1, the risk to people and structures from geologic hazards would be reduced through compliance with the current seismic design requirements of the California Building Standards Code. Additionally, Alternative 2 would not alter the exiting threat to life and property from a seismically induced seiche on Lake Tahoe. Therefore, the potential for the project to expose people and structures to seismic and geologic hazards would be a **less-than-significant** impact.

Alternative 4: Preferred Alternative

Similar to Alternative 1, the risk to people and structures from geologic hazards would be reduced through compliance with the current seismic design requirements of the California Building Standards Code. Additionally, Alternative 4 would not alter the exiting threat to life and property from a seismically induced seiche on Lake Tahoe. Therefore, the potential for the project to expose people and structures to seismic and geologic hazards would be a **less-than-significant** impact.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.7-4: Substantially Disturb Native Soils and Geologic Structures or Change Topography in a Manner Inconsistent with the Natural Surroundings

The action alternatives would substantially change topography in the restoration areas of the site; however, these changes would involve the restoration of native topography and removal imported fill materials. Additionally, any topography changes associated with upland recreational developments (such as reconfiguring the southern campground and alignment of pedestrian paths) would be minor. Therefore, the implementation of Alternatives 1, 2, 3, and 4 would have a **beneficial** effect on native soils, geologic structures, and topography. Implementation of the No Action Alternative would result in **no impact**.

No Action Alternative

The No Action Alternative would be a continuation of existing conditions and would not result in ground disturbance or changes to existing topography. Native soils and topographies would remain buried beneath imported fill materials and restoration of Meeks Creek would not occur. Therefore, the No Action Alternative would have **no impact** relative to disturbance of native soils, geologic structures, and topography.

Alternative 1: Full Restoration with Boating Pier

The project area is heavily disturbed, and a return to a condition closer to pre-disturbance topography is needed to return healthy ecological function to the creek and lagoon. The restoration design would not be able to fully restore topography of the early 1900s since there are parallel project goals to continue to provide for recreation, existing infrastructure that cannot be disturbed, and an incomplete record of pre-disturbance conditions. However, the project would make a significant move toward returning the site to pre-disturbance topography.

Topographic changes in the areas outside of the stream channel and lagoon areas would be negligible. Minor grading may occur for development of access roads and staging areas, and adjustments to the south side of the campground.

The Meeks Creek channel would be regraded to accommodate the bridge replacement, restore pre-disturbance topography to improve sediment transport, encourage deposition of fine sediment in overbank areas, provide passage for aquatic organisms, and improve long-term stability of the channel and banks. The channel would be raised to transition from the new SR 89 bridge so that there is no drop and no barrier to aquatic organism passage. A weir structure would be incorporated into the channel bed near the bridge to control aquatic organism passage to support recovery of native species. Buried rows of boulders may be included to control the grade of the channel and/or protect underground utility crossings. Bio-engineered bank stabilization treatments would be incorporated to stabilize banks, and may consist of vegetated soil lifts, log cribwalls, willow mattresses, or similar. It should also be noted that downstream portions of the channel reach are intended to be dynamic and may evolve and migrate within the floodplain over time.

Alternative 1 would also include one multi-use path bridge across Meeks Creek. Per the design criteria listed in the project description, the multi-use path should span over the entire Meeks Creek channel (i.e., no abutments on the bank or support piers in channel) and be above the FEMA 100-year flood elevation. The hydraulics of the flow area under the bridge should have velocities that do not exceed those in adjacent reaches upstream or downstream. Biotechnical bank protection should be used in preference to exposed rip rap rock wherever possible. Additionally, the causeway west of the bridge should be elevated to allow for the free flow of overbank flow. This would eliminate the deep fill found along the current alignment, allow for better overbank flow conveyance, and increase meadow area. Various design options including boardwalks, multiple bridge spans and/or multiple culvert openings could be used to provide for floodplain flow conveyance.

Restoring pre-marina topography to the lagoon and barrier beach is anticipated to restore littoral processes that would offer self-maintaining qualities to the beach by helping to replenish beach sand lost to erosion. The lagoon would be restored by removing the remaining marina infrastructure (boat ramp, sheet piling, and maintenance building) and restoring pre-disturbance topography. Historical dredging of the lagoon would be undone by filling with gravel and sand to approximate elevation of 6,224 feet—the elevation of the natural rim of Lake Tahoe. Fill and boulders around the perimeter of the marina would be removed, and the lagoon shoreline would be regraded with variable backfill elevations throughout the new floodplain to support diverse marsh and wetland vegetation. With the sheet piling for the marina inlet removed, the mouth of Meeks Creek would be allowed to interact with backwater from Lake Tahoe and the mouth is expected to periodically close at the barrier beach. The mouth would also be able to migrate laterally within a confined section of the barrier beach.

The rock gabion and concrete shoreline revetment on the north side of the project area would be removed and the steep slope between the access road and the beach would be stabilized with a combination of grading (slope layback), native plantings, and stacked boulders. One or more stairways may be incorporated within the shoreline stabilization features to provide beach access during periods of low water levels in Lake Tahoe. Alternative 1 would also remove two beachfront cabins and replace them with three smaller cabins farther inland. The footprint of the existing cabin areas would be stabilized with a similar slope layback and boulder treatment.

The steep gradient in the vicinity of the shoreline protection features cannot be discerned from historical photos, perhaps because the beach has eroded vertically to create the steep slope that exists today. Assuming the dimensions of the proposed shoreline protection features are similar to the existing features, there would be no changes in topography. If the beach begins to replenish after several years of littoral process recovery, the toe of the shoreline protection features could become buried and the topography would more closely resemble pre-disturbance landforms. However, the protection features would still represent a hardened barrier that could limit the degree of beach replenishment. Shoreline processes would not be fully restored without the full removal of the stabilization structures.

Although Alternative 1 would substantially change topography in the restoration areas of the site, these changes would involve the restoration of native topography and removal imported fill materials. Additionally, any topography changes associated with upland recreational developments (such as reconfiguring the southern campground and alignment of pedestrian paths) would be minor. Therefore, the implementation of Alternative 1 would have a **beneficial** effect on native soils, geologic structures, and topography.

Alternative 2: Full Restoration with Pedestrian Pier

The ground disturbance and topography changes associated with Alternative 2 would be similar to those described above for Alternative 1. However, Alternative 2 does not include relocation of two beachfront cabins or the subsequent stabilization of the cabin footprints. Alternative 2 includes two multi-use path bridges providing multi-use path crossings of Meeks Creek in the project area. As described for Alternative 1, the major topography changes associated with Alternative 2 would be caused by the restoration of Meeks Creek and removal of imported fill materials. Because Alternative 2 would make a significant move toward returning the site to pre-disturbance topography, the implementation of Alternative 2 would have a **beneficial** effect on native soils, geologic structures, and topography.

Alternative 3: Full Restoration with No Pier

The ground disturbance and topography changes associated with Alternative 3 would be similar to those described above for Alternative 1. However, Alternative 3 does not include relocation of two beachfront cabins or the subsequent stabilization of the cabin footprints. Alternative 3 also includes two pedestrian bridges providing multi-use path crossings of Meeks Creek in the project area. Additionally, while Alternative 2 would include a moveable, universally accessible paddlecraft launch rather than a pier, this change would not result in a meaningful difference in site topography. As described for Alternative 1, the major topography changes associated with Alternative 3 would be caused by the restoration of Meeks Creek and removal of imported fill materials. Because Alternative 3 would make a significant move toward returning the site to pre-disturbance topography, the implementation of Alternative 3 would have a **beneficial** effect on native soils, geologic structures, and topography.

Alternative 4: Preferred Alternative

The ground disturbance and topography changes associated with Alternative 4 would be similar to those described above for Alternative 1 except for the pier which is not proposed under Alternative 4 and the addition of an expanded parking area. Therefore, there would be similar ground disturbance and topography changes associated with Alternative 4. Because Alternative 4 would make a significant move toward returning the site to pre-disturbance topography, the implementation of Alternative 4 would have a **beneficial** effect on native soils, geologic structures, and topography.

Mitigation Measures

No mitigation is required for this impact.

3.7.4 Cumulative Impacts

Cumulative impacts related to land coverage, erosion, geologic hazards, soil disturbance and changes to natural topography are considered in the context of the Lake Tahoe watershed. Seismic effects are localized by nature and are not cumulative. Past projects have degraded conditions related to land coverage. Erosion, and soil disturbance through historic development and land use decisions. With TRPA's adoption of soil thresholds and a regional plan to achieve the thresholds, regulations and environmental improvement projects have improved conditions related to land coverage, erosion, and soil disturbance. As a result, all of the TRPA Threshold standards related to soil conservation are either in attainment or have made progress towards attainment in the past several years (TRPA 2021). The cumulative projects described in Table 3-2, as well as the Meeks Bay Restoration Project, would adhere to TRPA and Lahontan RWQCB regulations that would prevent increases in land coverage that exceed land capability limits, require temporary and permanent erosion control BMPs, and protect natural topographic features. Furthermore, as described in Impact 3.7-1, the action alternatives would result in a beneficial impact related to compaction and land coverage resulting from implementation of BMPs, the removal of soft coverage near the marina and dispersed parking areas, and removal of coverage associated with reconfiguration of parking and roads. Because regulations are in place to safeguard geologic and soil resources for all cumulative projects within the Lake Tahoe watershed, the combined cumulative impact associated with the project's incremental effect and the effects of other projects is not significant. Therefore, the alternatives would have a **less than cumulatively considerable** impact on geology and soils.

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3.8 AIR QUALITY

This section includes a discussion of existing air quality conditions, a summary of applicable regulations, and an analysis of potential construction and operational air quality impacts caused by proposed development of the proposed Meeks Bay Restoration Project alternatives.

3.8.1 Regulatory Setting

Air quality in the project area is regulated through the efforts of various federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, planning, policy making, education, and a variety of programs. These agencies include, but are not limited to, at the federal level, the U.S. Environmental Protection Agency (EPA); at the state level, California Air Resources Board (CARB); and at the local level, the El Dorado Air Quality Management District (EDCAQMD).

FEDERAL

U.S. Environmental Protection Agency

EPA has been charged with implementing national air quality programs. EPA's air quality mandates draw primarily from the federal Clean Air Act (CAA), which was enacted in 1970. The most recent major amendments made by Congress in 1990.

Criteria Air Pollutants

The CAA required EPA to establish national ambient air quality standards (NAAQS) for six common air pollutants found all over the U.S. referred to as criteria air pollutants (i.e., ozone, nitrogen dioxide [NO_2], sulfur dioxide, respirable particulate matter with an aerodynamic diameter of 10 microns or less [PM_{10}], fine particulate matter with an aerodynamic diameter of 2.5 or less [$PM_{2.5}$], and lead). The NAAQS are periodically updated; the most recent update occurred in 2015 to the 8-hour ozone standard of 0.70 parts per million (ppm), which superseded the previous 2008 standard of 0.75 ppm average over an 8-hour period. The most recent iteration of the NAAQS is shown in Table 3.8-1.

The CAA requires each state to prepare a State implementation plan (SIP) for attaining and maintaining the NAAQS. The federal Clean Air Act Amendments of 1990 added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. California's SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. EPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and whether implementation will achieve air quality goals. If EPA determines a SIP to be inadequate, EPA may prepare a federal implementation plan that imposes additional control measures. If an approvable SIP is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and stationary air pollution sources in the air basin.

In October 2012, EPA and the National Highway Traffic Safety Administration, on behalf of the U.S. Department of Transportation, issued final rules to reduce air pollution and improve corporate average fuel economy (CAFE) standards for light-duty vehicles for model years 2017 and beyond (77 Federal Register [FR] 62624). These rules would increase fuel economy to the equivalent of 53.8 miles per gallon (mpg) for the fleet of cars and light-duty trucks by model year 2025 (77 FR 62630).

Table 3.8-1 National, TRPA, and California Ambient Air Quality Standards

Pollutant	Averaging Time	TRPA Thresholds	California (CAAQS)[a,b]	National (NAAQS)[c] Primary[b,d]	National (NAAQS)[c] Secondary[b,e]
Ozone	1-hour	0.08 ppm	0.09 ppm (180 μg/m^3)	—	Same as primary standard
	8-hour	—	0.070 ppm (137 μg/m^3)	0.070 ppm (137 μg/m^3)	
Carbon monoxide (CO)	1-hour	—	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	Same as primary standard
	8-hour	6 ppm	9 ppm[f] (10 mg/m^3)	9 ppm (10 mg/m^3)	
Nitrogen dioxide (NO_2)	Annual arithmetic mean	—	0.030 ppm (57 μg/m^3)	53 ppb (100 μg/m^3)	Same as primary standard
	1-hour	—	0.18 ppm (339 μg/m^3)	100 ppb (188 μg/m^3)	—
Sulfur dioxide (SO_2)	24-hour	—	0.04 ppm (105 μg/m^3)	—	—
	3-hour	—	—	—	0.5 ppm (1300 μg/m^3)
	1-hour	—	0.25 ppm (655 μg/m^3)	75 ppb (196 μg/m^3)	—
Respirable particulate matter (PM_{10})	Annual arithmetic mean	20 μg/m^3 in CA, 50 μg/m^3 in NV	20 μg/m^3	—	Same as primary standard
	24-hour	50 μg/m^3 in CA, 150 μg/m^3 in NV	50 μg/m^3	150 μg/m^3	
Fine particulate matter ($PM_{2.5}$)	Annual arithmetic mean	12 μg/m^3 in CA, 15 μg/m^3 in NV	12 μg/m^3	12.0 μg/m^3	15.0 μg/m^3
	24-hour	35 μg/m^3	—	35 μg/m^3	Same as primary standard
Lead [f]	Calendar quarter	—	—	1.5 μg/m^3	Same as primary standard
	30-Day average	—	1.5 μg/m^3	—	—
	Rolling 3-Month Average	—	—	0.15 μg/m^3	Same as primary standard
Hydrogen sulfide	1-hour	—	0.03 ppm (42 μg/m^3)	No national standards	
Sulfates	24-hour	—	25 μg/m^3		
Vinyl chloride [f]	24-hour	—	0.01 ppm (26 μg/m^3)		
Visibility-reducing particulate matter	8-hour	Regional: Extinction coefficient of 25 Mm-1 (157 km, 97 miles) 50 percent of the year, 34 Mm-1 (115 km, 71 miles) 90 percent of the year. Subregional: 50 Mm-1 (48 miles) 50 percent of the year, 125 Mm-1 (19 miles) 90 percent of the year.	Extinction of 0.23 per km		

Notes: μg/m^3 = micrograms per cubic meter; km = kilometers; ppb = parts per billion; ppm = parts per million

[a] California standards for ozone, carbon monoxide, SO_2 (1- and 24-hour), NO_2, particulate matter, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[b] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25 degrees Celsius (°C) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[c] National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over three years, is equal to or less than the standard. The PM_{10} 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 μg/m^3 is equal to or less than one. The $PM_{2.5}$ 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. Environmental Protection Agency for further clarification and current federal policies.

[d] National primary standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

[e] National secondary standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[f] The California Air Resources Board has identified lead and vinyl chloride as toxic air contaminants with no threshold of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Source: CARB 2016.

On April 2, 2018, however, the EPA administrator announced a final determination that the current standards should be revised. On that date, the U.S. Department of Transportation and EPA proposed the Safer Affordable Fuel-Efficient Vehicles Rule (SAFE Rule), which would amend existing CAFE standards for passenger cars and light-duty trucks by increasing the stringency of the standards by 1.5 percent per year from models 2021 through 2026. With a change in federal administrations in early 2021, the SAFE Rule is now being reconsidered. On April 26, 2021, as directed in Executive Order 13990, "Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis," EPA announced plans to reconsider Part One of the SAFE Rule. At the time of preparing this EIS/EIS/EIR, EPA is seeking public input on its reconsideration of the action. Public comments to the Notice of Reconsideration closed on June 6, 2021 and a public hearing was held on June 2, 2021 (EPA 2021a). Nevertheless, at the time this EIS/EIS/EIR was prepared, the SAFE Rule Part One is in place and it is unclear whether the SAFE Rule Part One will be revoked by EPA.

SAFE Rule Part Two was finalized on March 31, 2020 and went into effect on June 29, 2020. Part Two of the SAFE Rule sets the CAFE standards to increase in stringency by 1.5 percent per year above Model Year (MYs) 2020 levels for MYs 2021–2026. These standards are lower than the previous CAFE standards, which required that MYs 2021–2026 increase in stringency by 5 percent per year.

The CAA grants California the ability to enact and enforce more strict fuel economy standards through the acquisition of an EPA-issued waiver. Each time California adopts a new vehicle emission standard, the state applies to EPA for a preemption waiver for those standards. However, Part One of the SAFE Rule, which became effective on November 26, 2019, revokes California's existing waiver to implement its own vehicle emission standard and also established a standard to be adopted and enforced nationwide (84 FR 51310). At the time of preparing this EIS/EIS/EIR, the implications of the SAFE Rule on California's future emissions are contingent upon a variety of unknown factors, including legal challenges by California and other states to the revocation of California's waiver, direction provided by federal leadership, and future cabinet and administration appointments. However, the impact analysis included in this chapter assumes that the SAFE Rule would continue to be implemented, and uses emissions factors developed by CARB that account for the potential for a less fuel-efficient future vehicle fleet as a result of the SAFE Rule (CARB 2020a).

Hazardous Air Pollutants and Toxic Air Contaminants

Toxic air contaminants (TACs), or in federal parlance, hazardous air pollutants (HAPs), are a defined set of airborne pollutants that may pose a present or potential hazard to human health. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

A wide range of sources, from industrial plants to motor vehicles, emit TACs. The health effects associated with TACs are quite diverse and generally are assessed locally, rather than regionally. TACs can cause long-term health effects such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage; or short-term acute affects such as eye watering, respiratory irritation (a cough), running nose, throat pain, and headaches.

For evaluation purposes, TACs are separated into carcinogens and non-carcinogens based on the nature of the physiological effects associated with exposure to the pollutant. Carcinogens are assumed to have no safe threshold below which health impacts would not occur. This contrasts with criteria air pollutants for which acceptable levels of exposure can be determined and for which the NAAQS and California ambient air quality standards (CAAQS) have been established (Table 3.8-1). Cancer risk from TACs is expressed as excess cancer cases per one million exposed individuals, typically over a lifetime of exposure.

TAHOE REGIONAL PLANNING AGENCY

Thresholds

TRPA has adopted environmental threshold carrying capacities (environmental thresholds) related to air quality and other resources for the Tahoe region. Every 4 years, TRPA evaluates the environmental thresholds to determine whether each threshold standard is being achieved and/or maintained, makes specific recommendations to address problem areas, and directs general planning efforts for the next 4-year period.

TRPA threshold standards address CO, ozone, regional and subregional visibility, respirable (PM_{10}) and fine ($PM_{2.5}$) particulate matter, and nitrate deposition. Numerical standards have been established for each of these parameters, and management standards have been developed that are intended to assist in attaining the threshold standards. Environmental thresholds for air quality are listed below. As of the 2019 Threshold Evaluation, air quality-related threshold standards are in attainment (Lake Tahoe Info 2022).

In addition, the TRPA compact between California and Nevada states that the Regional Plan shall provide for attaining and maintaining federal, state, or local air quality standards, whichever are strictest, in the respective portions of the Tahoe region for which the standards are applicable.

Carbon Monoxide

Numerical Standard:

- Maintain CO concentrations at or below 6 ppm averaged over 8 hours.

Management Standard:

- Reduce traffic volumes on the U.S. 50 Corridor by 7 percent during the winter from the 1981 base year between 4:00 p.m. and 12:00 midnight, provided that those traffic volumes shall be amended as necessary to meet the respective state standards.

Ozone

Numerical Standards:

- Maintain ozone concentration below 0.08 ppm averaged over 1 hour.
- Maintain oxides of nitrogen (NO_X) emissions at or below the 1981 level.

Regional Visibility and Subregional Visibility

Numerical Standards:

- Achieve an extinction coefficient of 25 inverse mega meters (Mm^{-1}) at least 50 percent of the time as calculated from aerosol species concentrations measured at the Bliss State Park monitoring site (visual range of 97 miles). Calculations will be made during 3-year running periods using the existing monitoring data as the performance standards to be met or exceeded 156 kilometers (97 miles) at least 50 percent of the year as measured by aerosol concentrations measured at the Bliss State Park monitoring site.
- Achieve an extinction coefficient of 34 Mm^{-1} at least 90 percent of the time as calculated from aerosol species concentrations measured at the Bliss State Park monitoring site (visual range of 71 miles).
- Achieve an extinction coefficient of 34 Mm^{-1} at least 50 percent of the time as calculated from aerosol species concentrations measured at the South Lake Tahoe monitoring site (visual range of 48 miles).
- Achieve an extinction coefficient of 125 Mm^{-1} at least 90 percent of the time as calculated from aerosol species concentrations measured at the South Lake Tahoe monitoring site (visual range of 19 miles).

Subregional Visibility

Numerical Standards:

- Achieve 78 kilometers (48 miles) at least 50 percent of the year as measured by particulate concentrations measured at the South Lake Tahoe monitoring site.

- Achieve 31 kilometers (19 miles) at least 90 percent of the year as measured by particulate concentrations measured at the South Lake Tahoe monitoring site.

Management Standards:

- Reduce suspended soil particles by 30 percent of the 1981 base values through technology, management practices, and educational programs.
- Reduce wood smoke emissions by 15 percent of the 1981 base values through technology, management practices, and educational programs.
- Reduce vehicle miles of travel by 10 percent of the 1981 base values.

<u>Respirable and Fine Particulate Matter</u>

Numerical Standards:

- Maintain PM_{10} at or below 50 micrograms per cubic meter (μg/m^3) measured over a 24-hour period in the portion of the Tahoe region within California, and maintain PM_{10} at or below 150 μg/m^3 measured over a 24-hour period in the portion of the region within Nevada.
- Maintain PM_{10} at or below annual arithmetic average of 20 μg/m^3 in the portion of the Tahoe region within California, and maintain PM_{10} at or below annual arithmetic average of 50 μg/m^3 in the portion of the region within Nevada.
- Maintain $PM_{2.5}$ at or below 35 μg/m^3 measured over a 24-hour period using gravimetric or beta attenuation methods or any equivalent procedure that can be shown to provide equivalent results at or near the level of air quality standard.
- Maintain $PM_{2.5}$ at or below annual arithmetic average of 12 μg/m^3 in the portion of the Tahoe region within California, and maintain $PM_{2.5}$ at or below annual arithmetic average of 15 μg/m^3 in the portion of the region within Nevada.

<u>Nitrate Deposition</u>

Management Standards:

- Reduce the transport of nitrates into the [Tahoe] Basin, and reduce NO_X produced in the [Tahoe] Basin consistent with the water quality thresholds.

Tahoe Regional Plan

The goals and policies of the Tahoe Regional Plan are designed to achieve and maintain adopted environmental thresholds and are implemented through the TRPA Code of Ordinances (TRPA Code), the Environmental Improvement Program, and the Transportation Improvement Plan (with the Tahoe Metropolitan Planning Organization). The Land Use Element of the goals and policies document consists of seven subelements, including the air quality subelement. The air quality subelement includes the following two goals:

GOAL AQ-1: Attain and maintain air quality in the region at levels that are healthy for humans and the ecosystem, achieve and maintain environmental thresholds and do not interfere with residents' and visitors' visual experience.

GOAL AQ-2: Maintain an effective air quality mitigation program for the region.

Code of Ordinances

Applicable provisions of Chapter 33, "Grading and Construction," and Chapter 65, "Air Quality and Transportation," of the TRPA Code are described below.

<u>Chapter 33.3.1—Grading and Construction</u>

Chapter 33 includes requirements about grading and construction activity, which include limiting grading and earth disturbance activity to the portion of the calendar year between May 1 and October 15 unless approval is granted by TRPA and TRPA-approved dust control measures are implemented.

<u>Chapter 65.1—Air Quality Control</u>

The provisions of Chapter 65.1 apply to direct sources of air pollution in the Tahoe region, including certain on-road motor vehicles registered in the region, combustion heaters installed in the region, open burning and stationary sources of air pollution, and idling combustion engines. The following provisions are potentially applicable to the proposed project and alternatives:

- Section 65.1.3, "Vehicle Inspection and Maintenance Program," states that to avoid duplication of effort in implementation of an inspection/maintenance program for certain vehicles registered in the CO nonattainment area, TRPA shall work with the affected state agencies to plan for applying state inspection/maintenance programs to the Tahoe region.
- Section 65.1.8, "Idling Restrictions," states that no person shall cause a combustion engine in a parked auto, truck, bus, or boat to idle for more than 30 consecutive minutes in the designated plan areas (with limited exemptions). It also states that no person shall cause a diesel engine in a vehicle exceeding 10,000 pounds gross vehicle weight or a diesel engine in off-road self-propelled equipment exceeding 25 horsepower to idle more than 15 minutes within the portions of the region in Nevada, or to idle longer than 5 minutes within the portions of the region in California.

<u>Chapter 60.1—Water Quality Control</u>

Chapter 60 includes the following requirements related to the attainment and maintenance of water quality standards:

- Section 60.1.3.E, "Prohibition of Certain Watercraft," prohibits the launching, mooring, or operation of all two-stroke engine–powered watercraft within the Tahoe region is prohibited, except as follows:
  1. Any two-stroke engine–powered watercraft whose fuel is directly injected into the cylinder shall be exempt from the prohibition.
  2. Any two-stroke engine–powered watercraft whose fuel is directly injected into the crankcase prior to entering the cylinder and the fuel injection engine and that was purchased before January 27, 1999, shall be prohibited commencing October 1, 2001.
  3. Any watercraft powered by a two-stroke engine whose engine is certified as meeting the EPA 2006 standard or the CARB 2001 standard shall be exempt from the prohibition.
  4. Sailboats utilizing two-stroke engines as auxiliary power shall be prohibited commencing October 1, 2001.
  5. Any watercraft powered by a two-stroke engine rated at 10 horsepower or less shall be prohibited commencing October 1, 1999.
  6. Any watercraft powered by an engine that has been certified as meeting EPA's 2001–2005 emission standard shall be prohibited commencing October 1, 2001.

TRPA Standard Conditions of Approval

TRPA is committed to continue to monitor and adaptively manage construction emissions through existing permit compliance programs. Pregrade inspections occur for every permitted project prior to any ground-disturbing activities. These inspections verify that all required permit conditions, such as the location of staging areas and the use of approved power sources, are in place prior to intensive construction activities. In addition, compliance inspections occur throughout the period of construction activity to verify compliance with all permit requirements. These compliance inspections are a core function of TRPA and local jurisdiction building departments. If an inspection determines that a project is not in compliance with permit conditions, then enforcement actions are taken, which can include stopping activity at the construction site and monetary fines.

In addition to existing permit limits, TRPA's Standard Conditions of Approval for Shorezone and for Grading Projects (TRPA Permit Attachments S and Q) include the following air quality-related measures:

- All existing disturbed areas and areas disturbed as a result of construction activity authorized by the permit, or otherwise occurring on the subject project during the time period when the permit is valid, shall be revegetated using only those species contained on TRPA's list of acceptable species. All required vegetation shall be completed by completion of the project.
- All material obtained from excavation work shall be contained within the foundations, retaining walls, or by a similar means approved by TRPA, or the excavated material shall be disposed of at a site approved by TRPA.
- Soil and construction materials shall not be tracked off-site. Grading operations shall cease in the event a danger of violating this condition exists. The site shall be cleaned and the road right-of-way shall be swept clean when necessary.
- The length of open trenches (excluding foundations) shall not exceed 50 feet at the end of each working day, unless approved by TRPA.
- Loose soil mounds or surfaces shall be protected from wind and water erosions by being appropriately covered or contained when active construction is not occurring.
- Replanting of all exposed surfaces, as shown on the revegetation and slope stabilization plans, shall be completed within 1 year following the commencement of construction, unless the approved construction schedule establishes otherwise.
- At all times during construction, environmental protection and erosion control devices shall be maintained in a functioning state. Such devices include, but are not limited to, sediment barriers, dust control devices, and vegetative protection.

STATE

CARB is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA). The CCAA, which was adopted in 1988, required CARB to establish the CAAQS (Table 3.8-1).

Criteria Air Pollutants

CARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned criteria air pollutants. In most cases the CAAQS are more stringent than the NAAQS. Differences in the standards are generally explained by the health effects studies considered during the standard-setting process and the interpretation of the studies. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals.

The CCAA requires that all local air districts in the state endeavor to attain and maintain the CAAQS by the earliest date practical. The CCAA specifies that local air districts should focus particular attention on reducing the emissions from transportation and area-wide emission sources. The CCA also provides air districts with the authority to regulate indirect sources.

Toxic Air Contaminants

TACs in California are regulated primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807, Chapter 1047, Statutes of 1983) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588, Chapter 1252, Statutes of 1987). AB 1807 sets forth a formal procedure for CARB to designate substances as TACs. Research, public participation, and scientific peer review are required before CARB can designate a substance as a TAC. To date, CARB has identified more than 21 TACs and adopted EPA's list of HAPs as TACs. Most recently, particulate matter (PM) exhaust from diesel engines (diesel PM) was added to CARB's list of TACs.

After a TAC is identified, CARB then adopts an airborne toxics control measure for sources that emit that particular TAC. If a safe threshold exists for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If no safe threshold exists, the measure must incorporate best available control technology for toxics to minimize emissions.

The Hot Spots Act requires that existing facilities that emit toxic substances above a specified level prepare an inventory of toxic emissions, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures.

CARB has adopted diesel exhaust control measures and more stringent emissions standards for various transportation-related mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). Over time, the replacement of older vehicles will result in a vehicle fleet that produces substantially lower levels of TACs than under current conditions. Mobile-source emissions of TACs (e.g., benzene, 1-3-butadiene, diesel PM) have been reduced significantly over the last decade and will be reduced further in California through a progression of regulatory measures (e.g., Low Emission Vehicle/Clean Fuels and Phase II reformulated gasoline regulations) and control technologies. With implementation of CARB's Risk Reduction Plan and other regulatory programs, it is estimated that emissions of diesel PM will be less than half of those in 2010 by 2035 (CARB No Date). Adopted regulations are also expected to continue to reduce formaldehyde emissions emitted by cars and light-duty trucks. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced.

LOCAL

El Dorado Air Quality Management District

Criteria Air Pollutants

EDCAQMD is the primary agency responsible for planning to meet NAAQS and CAAQS in the portion of the Lake Tahoe Air Basin (LTAB), in which the project area is located. EDCAQMD works with CARB and EPA to maintain the region's portion of the SIP for PM_{10}. The SIP is a compilation of plans and regulations that govern how the region and state will comply with the federal CAA requirements to attain and maintain the NAAQS for PM_{10}. The LTAB has been designated as nonattainment with respect to the NAAQS and CAAQS for PM_{10} (Table 3.8-1) (CARB 2020b). Notably, EDCAQMD also regulates air quality in the portion of El Dorado County that exists within the Sacramento Valley Air Basin, which is in nonattainment for several of the NAAQS and CAAQS.

All projects are subject to adopted EDCAQMD rules and regulations in effect at the time of construction. Specific rules applicable to the project may include but are not limited to the following:

- **Rule 205 – Nuisance.** This rule prohibits the discharge from any source such as quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons, or to the public, or which endanger the comfort, repose, health or safety of any such persons, or the public, or which cause to have a natural tendency to cause injury or damage to business or property.
- **Rule 223 – Fugitive Dust.** This rule governs the amount of particulate matter entrained in the ambient air as a result of anthropogenic (man-made) fugitive dust sources by requiring actions to prevent, reduce, or mitigate fugitive dust emissions. It applies to any construction or construction related activities including but not limited to, land clearing, grubbing, scraping, travel on site, and travel on access roads.
- **Rule 223-1 – Fugitive Dust – Construction.** This rule requires a Fugitive Dust Control Plan be submitted to the Air Pollution Control Officer prior to the start of any construction activity for which a grading permit was issued by El Dorado County.
- **Rule 224 – Cutback and Emulsified Asphalt Paving Materials.** This rule governs the use of asphalt and limits the VOC content in asphalt.

Toxic Air Contaminants

At the local level, air districts may adopt and enforce CARB control measures. Under EDCAQMD Rule 501, ("General Permit Requirements"), Rule 523, ("New Source Review"), and Rule 526 ("Toxics New Source Review: Federal Clean Air Act"), all sources that possess the potential to emit TACs are required to obtain permits from EDCAQMD. EDCAQMD may issue permits to these operations if they are constructed and operated in accordance with applicable regulations, including New Source Review standards and air toxics control measures. EDCAQMD limits emissions and public exposure to TACs through multiple programs. EDCAQMD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors. Sensitive receptors are people, or facilities that generally house people (e.g., residences, schools, hospitals), that may experience adverse effects from unhealthful concentrations of air pollutants.

Odors

Although offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable stress among the public and often generating citizen complaints to local governments and EDCAQMD. EDCAQMD Rule 205 ("Nuisance") regulates odorous emissions.

3.8.2 Environmental Setting

The proposed project is located within the LTAB in El Dorado County, California. The ambient concentrations of air pollutant emissions are determined by the amount of criteria air pollutants and precursors emitted by the sources and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Therefore, existing air quality conditions in the LTAB are determined by such natural factors as topography, meteorology, and climate.

CLIMATE, METEOROLOGY, AND TOPOGRAPHY

The LTAB comprises portions of Placer and El Dorado counties in California, and Washoe and Douglas counties and the Carson City Rural District in Nevada. Lake Tahoe lies in a depression between the crests of the Sierra Nevada and Carson ranges at a surface elevation of 6,260 feet above sea level. The mountains surrounding Lake Tahoe are approximately 8,000 to 9,000 feet high, with some reaching beyond 10,000 feet. The bowl shape of the LTAB has significant air quality implications. There are two meteorological regimes that affect air quality in the basin.

First, thermal inversions occur when a warm layer of air traps a cold layer of air at the surface of the land and lake. Locally generated air pollutants are often trapped in the "bowl" by frequent inversions that limit the amount of air mixing, which allows pollutants to accumulate. Inversions most frequently occur during the winter in the LTAB, however are common throughout the year. Often, wintertime inversions result in a layer of wood smoke, mostly from residential heating, which can be seen over the Lake.

The second meteorological regime affecting air quality in the LTAB is the atmospheric transportation of pollutants from the Sacramento Valley and San Francisco Bay Area. Lake Tahoe's location directly to the east of the crest of the Sierra Nevada mountain range allows prevailing easterly winds, combined with local mountain upslope winds, to bring air from populated regions west of the Sierra to the LTAB. The strength of this pattern depends on the amount of heat, usually strongest in summer beginning in April and ending in late October.

CRITERIA AIR POLLUTANTS

Concentrations of criteria air pollutants are used to indicate the quality of the ambient air. A brief description of key criteria air pollutants in the LTAB is provided below and summarized effects associated with in Table 3.8-2. Table 3.8-3 shows the portion of El Dorado County located within the LTAB's attainment status for the CAAQS and the NAAQS.

Table 3.8-2 Sources and Health Effects of Criteria Air Pollutants

Pollutant	Sources	Acute[1] Health Effects	Chronic[2] Health Effects
Ozone	Secondary pollutant resulting from reaction of reactive organic gases (ROG) and oxides of nitrogen (NO_X) in presence of sunlight. ROG emissions result from incomplete combustion and evaporation of chemical solvents and fuels; NO_X results from the combustion of fuels	Increased respiration and pulmonary resistance; cough, pain, shortness of breath, lung inflammation	Permeability of respiratory epithelia, possibility of permanent lung impairment
Carbon monoxide (CO)	Incomplete combustion of fuels; motor vehicle exhaust	Headache, dizziness, fatigue, nausea, vomiting, death	Permanent heart and brain damage
Nitrogen dioxide (NO_2)	Combustion devices (e.g., boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines)	Coughing, difficulty breathing, vomiting, headache, eye irritation, chemical pneumonitis or pulmonary edema; breathing abnormalities, cough, cyanosis, chest pain, rapid heartbeat, death	Chronic bronchitis, decreased lung function
Sulfur dioxide (SO_2)	Coal and oil combustion, steel mills, refineries, and pulp and paper mills	Irritation of upper respiratory tract, increased asthma symptoms	Insufficient evidence linking SO_2 exposure to chronic health impacts
Respirable particulate matter (PM_{10}), Fine particulate matter ($PM_{2.5}$)	Fugitive dust, soot, smoke, mobile and stationary sources, construction, fires and natural windblown dust, and formation in the atmosphere by condensation and/or transformation of SO_2 and ROG	Breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, premature death	Alterations to the immune system, carcinogenesis
Lead	Metal processing	Reproductive/developmental effects (fetuses and children)	Numerous effects including neurological, endocrine, and cardiovascular effects

1 Acute health effects refer to immediate illnesses caused by short-term exposures to criteria air pollutants at fairly high concentrations. An example of an acute health effect includes fatality resulting from short-term exposure to carbon monoxide levels in excess of 1,200 parts per million.

2 Chronic health effects refer to cumulative effects of long-term exposures to criteria air pollutants, usually at lower, ambient concentrations. An example of a chronic health effect includes the development of cancer from prolonged exposure to particulate matter at concentrations above the national ambient air quality standards.

Source: EPA 2021b.

Ozone

Ozone is a photochemical oxidant (a substance whose oxygen combines chemically with another substance in the presence of sunlight) and the primary component of smog. Ozone is not directly emitted into the air but is formed through complex chemical reactions between precursor emissions of reactive organic gases (ROG) and NO_X in the presence of sunlight. ROG are volatile organic compounds that are photochemically reactive. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NO_X are a group of gaseous compounds of nitrogen and oxygen that result from the combustion of fuels.

Acute health effects of ozone exposure include increased respiratory and pulmonary resistance, cough, pain, shortness of breath, and lung inflammation. Chronic health effects include permeability of respiratory epithelia and possibility of permanent lung impairment (EPA 2021b). Emissions of the ozone precursors ROG and NO_X have decreased over the past two decades because of more stringent motor vehicle standards and cleaner burning fuels and are projected to continue decreasing from 2010 to 2035 (CARB 2013).

Table 3.8-3 Attainment Status Designations for El Dorado County[1]

Pollutant	National Ambient Air Quality Standard	California Ambient Air Quality Standard
Ozone	—	Attainment (1-hour)[2]
	Unclassified/Attainment (8-hour)[3]	Attainment (8-hour)
Respirable particulate matter (PM_{10})	Attainment (24-hour)	Nonattainment (24-hour)
	—	Nonattainment (Annual)
Fine particulate matter ($PM_{2.5}$)	Unclassified/Attainment (24-hour)	—
	Unclassified/Attainment (Annual)	Attainment (Annual)
Carbon monoxide (CO)	Unclassified/Attainment (1-hour)	Attainment (1-hour)
	Unclassified/Attainment (8-hour)	Attainment (8-hour)
Nitrogen dioxide (NO_2)	Unclassified/Attainment (1-hour)	Attainment (1-hour)
	Unclassified/Attainment (Annual)	Attainment (Annual)
Sulfur dioxide (SO_2)[4]	Unclassified/Attainment (1-Hour)	Attainment (1-hour)
	Unclassified/Attainment (1-Hour)	Attainment (24-hour)
Lead (Particulate)	Unclassified/Attainment (3-month rolling average)	Attainment (30-day average)
Hydrogen Sulfide	No Federal Standard	Hydrogen Sulfide
Sulfates	No Federal Standard	Sulfates
Visibly Reducing Particles	No Federal Standard	Visibly Reducing Particles
Vinyl Chloride	No Federal Standard	Vinyl Chloride

1 El Dorado County is located within three air basins (i.e., Mountain Counties Air Basin, Sacramento Valley Air Basin, and Lake Tahoe Air Basin). This table summarizes the attainment status for the portion of El Dorado County that exists within the Lake Tahoe Air Basin.

2 Per Health and Safety Code (HSC) Section 40921.5(c), the classification is based on 1989–1991 data, and therefore does not change.

3 2015 Standard.

4 2010 Standard.

Sources: CARB 2020b.

Nitrogen Dioxide

NO_2 is a brownish, highly reactive gas that is most present in urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devices emit, primarily, nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2. The combined emissions of NO and NO_2 are referred to as NO_X and are reported as equivalent NO_2. Because NO_2 is formed and depleted by reactions associated with photochemical smog (ozone), the NO_2 concentration in a particular geographical area may not be representative of the local sources of NO_X emissions (EPA 2021b).

Acute health effects of exposure to NO_X includes coughing, difficulty breathing, vomiting, headache, eye irritation, chemical pneumonitis, or pulmonary edema, breathing abnormalities, cough, cyanosis, chest pain, rapid heartbeat, and death. Chronic health effects include chronic bronchitis and decreased lung function (EPA 2021b).

Particulate Matter

Respirable particulate matter (PM_{10}) consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires and natural windblown dust, and particulate matter formed in the atmosphere by reaction of gaseous precursors (CARB 2013). Respirable particulate matter includes a subgroup of smaller particles, fine particulate matter ($PM_{2.5}$). PM_{10} emissions in the SJVAB are dominated by emissions from area sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, farming operations, construction and demolition, and particles from residential fuel combustion. Emissions of $PM_{2.5}$ in the SJVAB are dominated by the same sources as emissions of PM_{10} (CARB 2013).

Acute health effects of exposure to PM_{10} include breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases including asthma and chronic obstructive pulmonary disease, and premature death. Chronic health effects include alternations to the immune system and carcinogenesis (EPA 2021b). For $PM_{2.5}$, short-term exposures (up to 24-hours duration) have been associated with premature mortality, increased hospital admissions for heart or lung causes, acute and chronic bronchitis, asthma attacks, emergency room visits, respiratory symptoms, and restricted activity days. These adverse health effects have been reported primarily in infants, children, and older adults with preexisting heart or lung diseases. Long-term (months to years) exposure to $PM_{2.5}$ has been linked to premature death, particularly in people who have chronic heart or lung diseases, and reduced lung function growth in children (EPA 2021b).

TOXIC AIR CONTAMINANTS

According to the 2013 Edition of the California Almanac of Emissions and Air Quality, health risks from TACs can largely be attributed to relatively few compounds, the most important being diesel PM (CARB 2013). Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel-fueled internal combustion engines emit diesel PM by, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emissions control system is being used. Unlike the other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, CARB has made preliminary concentration estimates based on a PM exposure method. This method uses the CARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of diesel PM. In addition to diesel PM, the TACs for which data are available that pose the greatest existing ambient risk in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene.

Diesel PM poses the greatest health risk among these 10 TACs mentioned. Based on receptor modeling techniques, CARB estimated the average cancer risk associated with diesel PM concentrations in the SVAB to be 360 excess cancer cases per million people in the year 2000. Overall, levels of most TACs, except para-dichlorobenzene and formaldehyde, have decreased since 1990 (CARB 2013).

ODORS

Odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals can smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; an odor that is offensive to one person may be perfectly acceptable to another (e.g., fast food restaurant). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity. Typical odor sources of concern include wastewater treatment plants, sanitary landfills, composting facilities, recycling facilities, petroleum refineries, chemical manufacturing plants, painting operations, rendering plants, food packaging plants, and cannabis (OPR 2017). EDCAQMD lists common types of facilities known to produce odors in their CEQA guidance (EDCAQMD 2002). Based on this list, none of these odorous land uses are within proximity to the project area.

SENSITIVE RECEPTORS

Sensitive receptors generally include those land uses where exposure to pollutants could result in health-related risks to sensitive individuals, such as children or the elderly. Residential dwellings, schools, hospitals, playgrounds, and similar facilities are of primary concern because of the presence of individuals particularly sensitive to pollutants and/or the potential for increased and prolonged exposure of individuals to pollutants. Residences south of the project area comprise nearby sensitive receptors.

3.8.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

The following resources were used for this analysis:

- The California Emissions Estimator Model (CalEEMod) 2020.4.0 Computer Program (CAPCOA 2021), and
- EDCAQMD's *Guide to Air Quality Assessment* (EDCAQMD 2002).

Regional and local criteria air pollutant emissions and associated impacts, as well as impacts from TACs, CO concentrations, and odors were assessed in accordance with EDCAQMD-recommended methodologies and then evaluated against EDCAQMD-adopted thresholds.

Construction emissions of criteria air pollutants and precursors associated with the project were calculated using CalEEMod, as recommended by EDCAQMD. Modeling was based on project-specific information (e.g., construction activity, estimated hauling trips, worker trips) where available; assumptions based on typical construction activities; and default values in CalEEMod that are based on the project's location and land use type. Construction for the project was assumed to occur over an approximately 5-year period commencing in 2024 and ending in 2028 with construction emissions presented in daily mass emissions.

For the reasons listed below under the heading, "Thresholds of Significance," operational modeling of ROG, NO_X, and PM_{10} was not conducted, rather, operational emissions were evaluated qualitatively using screening criteria established by EDCAQMD (EDCAQMD 2002).

Specific model assumptions and inputs for these calculations can be found in Appendix C.

The level of health risk from exposure to construction-related TAC emissions was assessed qualitatively. This assessment was based on the proximity of TAC-generating construction activity to off-site sensitive receptors, the number and types of diesel-powered construction equipment being used, and the duration of potential TAC exposure.

THRESHOLDS OF SIGNIFICANCE

The thresholds of significance were developed in consideration of the State CEQA Guidelines, TRPA Thresholds, TRPA Initial Environmental Checklist, LTBMU Forest Plan, and other applicable policies and regulations. Under NEPA the significance of an effect must consider the context and intensity of the environmental effect. The factors that are taken into account under NEPA to determine the context and intensity of its effects are encompassed by the thresholds of significance. An alternative would have a significant effect on air quality if it would:

- conflict with or obstruct implementation of an applicable air quality plan;
- violate any air quality standard, including the NAAQS, CAAQS, and TRPA's numeric thresholds or contribute substantially to an existing or projected exceedance of these standards;
- result in a cumulatively considerable net increase of any criteria pollutant for which the LTAB is nonattainment with respect to the applicable NAAQS, CAAQS, or TRPA numeric threshold standard;
- expose sensitive receptors to substantial pollutant concentrations; or
- cause a substantial increase in pollutant emissions or a deterioration of ambient air quality; or create substantial, objectionable odors.

As stated in Appendix G of the State CEQA Guidelines, the significance criteria established by the applicable air district may be relied on to make the above determinations. In 2002, EDCAQMD adopted a fuel-based screening threshold for criteria pollutant emissions where projects with equipment (1996 engine year or newer) that consume less than 402 gallons of fuel per day are considered to have a less-than-significant impact with respect to construction emissions (Resolution 079-2002). Modeling indicates that the proposed project would exceed this screening threshold. Accordingly, the EDCAQMD's quantitative threshold of 82 pounds per day (lb/day) is used to evaluate ROG and NO_X emissions. This threshold is combined to obtain a total ozone threshold of 164 lb/day. With the combined threshold, emissions of one pollutant may be in excess of 82 lb/day; however, if the combined total is below 164 lb/day, the EDCAQMD considers the impact to be less than significant. For example, a project with NO_X emissions of 100 lb/day and ROG emissions of 20 lb/day would be considered to have a less-than-significant impact because the combined total would be 120 lb/day, which is below the combined threshold of 164 lb/day.

According to the EDCAQMD CEQA Guidelines, emissions of fugitive dust PM_{10} need not be quantified and may be assumed to be not significant if the proposed project includes mitigation measures that will prevent visible dust beyond the property lines (EDCAQMD 2002). This is because mitigation measures that control fugitive dust emissions can reduce fugitive dust emissions by approximately 50–75 percent. However, without mitigation, uncontrolled construction dust could contribute to exceedances of the CAAQS and would be considered a significant impact. Use of the PM_{10} standard as a surrogate for the assessment of $PM_{2.5}$ impacts is considered appropriate because $PM_{2.5}$ is a substituent of PM_{10}.

EDCAQMD has adopted size thresholds for various land uses to identify projects that would result in operational emissions in excess of the EDCAQMD's threshold of 82 lb/day for ROG and NO_X (EDCAQMD 2002). EDCAQMD recommends that a detailed operational analysis be performed for projects that are within 10 percent of the sizes identified in Table 5.2 of EDCAQMD's CEQA Guide. The closest land use resembling the project would be motel as the project would provide transient lodging with electrical hookups. According to modeling conducted by EDCAQMD, a motel with fewer than 480 rooms would not generate a significant volume of ROG and NO_X. The project would be smaller in size by comparison. While the project would result in ROG and NO_X emissions from increase vehicular activity (as described in Section 3.12, "Transportation and Circulation"), the level of project-generated vehicle miles traveled (VMT) would not be comparable to the VMT that would be generated by a project listed in Table 5.2 of the EDCAQMD CEQA Guide (EDCAQMD 2002). As such, consistent with EDCAQMD guidance and based on the project's size, operational emissions of ROG and NO_X would not exceed EDCAQMD's 82 lb/day significance criteria.

EDCAQMD has adopted a fuel-based screening threshold for DPM in which projects that consume less than 37,000 gallons of fuel over the construction period are considered to have a less-than-significant impact (Resolution 079-2002). Modeling indicates that the proposed project would exceed this screening threshold.

EDCAQMD considers health risks from projects that exceed this screening level to be significant if the lifetime probability of contracting cancer is greater than ten in one million or if ground-level concentration of non-carcinogenic toxic air contaminants would result in a hazard index (HI) of greater than 1.

Thus, as identified by EDCAQMD, an air quality impact also is considered significant if implementation of the project would result in:

- construction-generated criteria air pollutants that would exceed the EDCAQMD-recommended threshold of 82 lb/day (lb/day) for ROG and NO_X, or a combined threshold of 164 lb/day for both pollutants if either ROG or NO_X exceed 82 lb/day;
- operation-generated criteria air pollutants that would exceed EDCAQMD-recommended threshold of 82 lb/day for ROG and NO_X for projects larger than the size defined in Table 5.2 of EDCAQMD's CEQA Guide; and
- exposure of sensitive receptors to TAC emissions would exceed 10 in 1 million for the carcinogenic risk (i.e., the risk of contracting cancer) or a noncarcinogenic Hazard Index of 1 for the maximally exposed individual.

ISSUES NOT DISCUSSED FURTHER

Carbon Monoxide Emissions

EDCAQMD considers CO emissions significant if they would cause or contribute to violations of the CAAQS or NAAQS (EDCAQMD 2002). EDCAQMD does have a recommended screening criteria for evaluating mobile-source CO emissions, other air districts, such as the Sacramento Metropolitan Air Quality Management District, have performed mobile-source CO dispersion modeling using the California Line Source Dispersion Model that may be used to screen CO impacts. Based on their modeling, a CO hotspot could occur at intersections that support 31,600 vehicles per hour. As discussed in greater detail in Section 3.12, "Transportation and Circulation," the maximum number of trips generated by the project would occur under Alternative 3 totaling 23 new trips per day. This level of vehicle activity is substantially less than 31,600 vehicles per hour at one intersection. Additionally, mobile-source CO emissions have historically decreased since the advent of catalytic converters, which decrease mobile-source exhaust emissions, and there have been improvements in fuel economy since 2006 through regulatory compliance implemented by EPA and CARB (e.g., the Corporate Average Fuel Economy standards and Advanced Clean Cars program). Thus, mobile-source carbon monoxide emissions are not discussed further.

Odors

EDCAQMD recommends that, for projects locating near a source of odors where there is currently no nearby development and for odor sources locating near existing receptors, the determination of significance should be based on the distance and frequency of odor complaints from the public regarding a similar facility. The project is not located within the vicinity of a stationary source of odors. Moreover, operation of the project would entail similar activities that are a component of existing conditions in the project area (e.g., campfires, cook stoves). Thus, operation of the project would not introduce new activities that would produce odors and odors are dismissed from consideration.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.8-1: Short-Term Impacts From Construction-Generated Emissions of Criteria Air Pollutants and Precursors

Alternatives 1 through 4 would result in construction-related emissions of ROG, NO_X, CO, PM_{10}, and $PM_{2.5}$ from use of off-road heavy-duty construction equipment; however, these emissions would not exceed the applicable daily significance thresholds for construction. This would be a **less-than-significant** impact for Alternatives 1, 2, 3, and 4. Under the No Action Alternative, no construction activity would occur. This would result in **no impact**.

<u>No Action Alternative</u>

Under the No Action Alternative, no physical improvements or changes to the project area or any substantial changes in management approaches. Existing operation and maintenance of the existing facilities in the project area would continue. As such, no construction-related activities would occur in the project area as a result of implementation of Alternative 1. There would be no short-term, construction-generated emissions of ROG, NO_X, and PM_{10} associated with Alternative 1. There would be **no impact**.

<u>Alternative 1: Restoration with Boat Pier</u>

Construction activity would result in emissions of ROG, NO_X, CO, PM_{10}, and $PM_{2.5}$ from use of off-road heavy-duty construction equipment for various stages of construction. Specifically, construction-related emissions would result from the use of off-road equipment during site preparation (e.g., excavation, clearing); trenching; restoration efforts; replacement of the SR 89 bridge; demolition and reconstruction of cabins; reconfiguration of day-use areas, circulation, and campgrounds; and construction of a new boat pier. Fugitive dust (e.g., PM_{10} and $PM_{2.5}$) emissions would be generated primarily during the demolition and site preparation phases of project construction. Ozone precursor emissions of ROG and NO_X are associated primarily with construction equipment and on-road mobile exhaust. Alternative 1 would also result in criteria air pollutant emissions from construction worker commute trips during various phases of project construction as well as vendor trips carrying materials to the project area.

Table 3.8-4 provides a summary of criteria air pollutant emissions that would be generated as a result of Alternative 1 construction activity. See Appendix C for full details and information regarding emissions modeling.

Table 3.8-4 Summary of Modeled Emissions of Criteria Air Pollutants and Precursors from Alternative 1[1]

Construction Year	ROG (lb/day)	NO_X (lb/day)	CO (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
2024	3	33	24	20	11
2025	3	30	27	8	4
2026	3	30	27	8	4
2027	3	20	27	8	4
2028	1	9	15	1	<1
EDCAQMD Daily Thresholds (lb/day)	82	82	None	BMPs	BMPs
Exceeds Thresholds?	No	No	–	–	–

Notes: lb/day = pounds per day; EDCAQMD = El Dorado County Air Quality Management District; ROG = reactive organic gases; NO_X = oxides of nitrogen; CO = carbon monoxide; PM_{10} = particulate matter with aerodynamic diameter of 10 micrometers or less; $PM_{2.5}$ = particulate matter with aerodynamic diameter of 2.5 micrometers or less; BMPs = best management practices.

1 Consistent with TRPA requirements, earth moving activities would only occur from May 1 through October 15.

Source: Modeled by Ascent Environmental in 2021.

As shown above, construction emissions from Alternative 1 would not exceed EDCAQMD's daily mass emissions thresholds of 82 lb/day for ROG and NO_X. However, as discussed under the heading, "Thresholds of Significance," EDCAQMD considers PM_{10} and $PM_{2.5}$ emissions to be significant unless BMPs to reduce fugitive dust are implemented. These emissions could conflict with an applicable air quality plan or contribute to the violation of an ambient air quality standard. Therefore, construction-generated PM_{10} and $PM_{2.5}$ emissions would be **significant**.

Alternative 2: Restoration with Pedestrian Pier

Alternative 2 would entail similar construction activity to Alternative 1; however, Alternative 2 would include a pedestrian pier instead of a boating pier, and it would not involve demotion and reconstruction of cabins. Table 3.8-5 provides a summary of criteria air pollutant emissions that would be generated as a result of Alternative 2 construction activity. See Appendix C for full details and information regarding emissions modeling.

Table 3.8-5 Summary of Modeled Emissions of Criteria Air Pollutants and Precursors from Alternative 2[1]

Construction Year	ROG (lb/day)	NO_X (lb/day)	CO (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
2024	3	31	22	20	11
2025	3	30	28	8	4
2026	3	30	27	8	4
2027	3	29	27	8	4
2028	1	7	15	1	<1
EDCAQMD Daily Thresholds (lb/day)	82	82	None	BMPs	BMPs
Exceeds Thresholds?	No	No	–	–	–

Notes: lb/day = pounds per day; EDCAQMD = El Dorado County Air Quality Management District; ROG = reactive organic gases; NO_X = oxides of nitrogen; CO = carbon monoxide; PM_{10} = particulate matter with aerodynamic diameter of 10 micrometers or less; $PM_{2.5}$ = particulate matter with aerodynamic diameter of 2.5 micrometers or less; BMPs = best management practices.

1 Consistent with TRPA requirements, earth moving activities would only occur from May 1 through October 15.

Source: Modeled by Ascent Environmental in 2021.

Similar to Alternative 1, construction of Alternative 2 would not generate construction emissions in exceedance of EDCAQMD's daily mass emissions thresholds of significance of 82 lb/day for ROG and NO_X. However, as discussed under the heading, "Thresholds of Significance," EDCAQMD considers PM_{10} and $PM_{2.5}$ emissions to be significant unless BMPs to reduce fugitive dust are implemented. These emissions could conflict with an applicable air quality plan or contribute to the violation of an ambient air quality standard. Therefore, construction-generated PM_{10} and $PM_{2.5}$ emissions would be **significant**.

Alternative 3: Restoration with No Pier

Alternative 3 would entail similar construction activity to Alternative 2; however, Alternative 3 would include the relocation and expansion of a parking area, and the expansion of the campgrounds. Alternative 3 would not include construction of a pier, but instead would involve the construction of a moveable, universally accessible paddlecraft launch. Table 3.8-6 provides a summary of criteria air pollutant emissions that would be generated as a result of Alternative 3 construction activity. See Appendix C for full details and information regarding emissions modeling.

Similar to Alternative 1, construction of Alternative 3 would not generate construction emissions in exceedance of EDCAQMD's daily mass emissions thresholds of significance of 82 lb/day for ROG and NO_X. However, as discussed under the heading, "Thresholds of Significance," EDCAQMD considers PM_{10} and $PM_{2.5}$ emissions to be significant unless BMPs to reduce fugitive dust are implemented. These emissions could conflict with an applicable air quality plan or contribute to the violation of an ambient air quality standard. Therefore, construction-generated PM_{10} and $PM_{2.5}$ emissions would be **significant**.

Table 3.8-6 Summary of Modeled Emissions of Criteria Air Pollutants and Precursors from Alternative 3[1]

Construction Year	ROG (lb/day)	NO_X (lb/day)	CO (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
2024	2	29	19	20	11
2025	3	30	27	8	5
2026	3	29	27	8	4
2027	3	29	27	8	4
2028	1	8	15	1	<1
EDCAQMD Daily Thresholds (lb/day)	82	82	None	BMPs	BMPs
Exceeds Thresholds?	No	No	–	–	–

Notes: lb/day = pounds per day; EDCAQMD = El Dorado County Air Quality Management District; ROG = reactive organic gases; NO_X = oxides of nitrogen; CO = carbon monoxide; PM_{10} = particulate matter with aerodynamic diameter of 10 micrometers or less; $PM_{2.5}$ = particulate matter with aerodynamic diameter of 2.5 micrometers or less; BMPs = best management practices.

[1] Consistent with TRPA requirements, earth moving activities would only occur from May 1 through October 15.

Source: Modeled by Ascent Environmental in 2021.

Alternative 4: Preferred Alternative

Alternative 4 would entail similar construction activity as Alternative 1; however, Alternative 4 would include construction of a nonmotorized launch platform instead of a boating pier. Alternative 4 would also include expansion of a parking area in its current location. Table 3.8-7 provides a summary of criteria air pollutant emissions that would be generated as a result of Alternative 4 construction activity. See Appendix C for full details and information regarding emissions modeling.

Similar to Alternative 1, construction of Alternative 4 would not generate construction emissions in exceedance of EDCAQMD's daily mass emissions thresholds of significance of 82 lb/day for ROG and NO_X. However, as discussed under the heading, "Thresholds of Significance," EDCAQMD considers PM_{10} and $PM_{2.5}$ emissions to be significant unless BMPs to reduce fugitive dust are implemented. These emissions could conflict with an applicable air quality plan or contribute to the violation of an ambient air quality standard. Therefore, construction-generated PM_{10} and $PM_{2.5}$ emissions would be **significant**.

Table 3.8-7 Summary of Modeled Emissions of Criteria Air Pollutants and Precursors from Alternative 4[1]

Construction Year	ROG (lb/day)	NO_X (lb/day)	CO (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
2024	3	29	19	20	11
2025	3	30	27	8	5
2026	3	29	27	8	4
2027	3	29	27	8	4
2028	1	8	15	1	<1
EDCAQMD Daily Thresholds (lb/day)	82	82	None	BMPs	BMPs
Exceeds Thresholds?	No	No	–	–	–

Notes: lb/day = pounds per day; EDCAQMD = El Dorado County Air Quality Management District; ROG = reactive organic gases; NO_X = oxides of nitrogen; CO = carbon monoxide; PM_{10} = particulate matter with aerodynamic diameter of 10 micrometers or less; $PM_{2.5}$ = particulate matter with aerodynamic diameter of 2.5 micrometers or less; BMPs = best management practices.

1 Consistent with TRPA requirements, earth moving activities would only occur from May 1 through October 15.

Source: Modeled by Ascent Environmental in 2021.

Mitigation Measures

Mitigation Measure 3.8-1: Implement El Dorado County Air Quality Management District-Approved Fugitive Dust Control Measures During Construction

This mitigation measure will apply to Alternatives 1, 2, 3, and 4.

As required by EDCAQMD Rule 223-1, USDA Forest Service shall implement all feasible and practicable fugitive dust control measures during construction. Emission reduction measures will include the EDCAQMD Rule 223-1 Best Management Practices as well as any additional measures deemed appropriate. The following feasible measures have been deemed appropriate for this project and will be implemented to reduce vehicle or equipment emissions.

- All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, or vegetative ground cover.
- All onsite unpaved construction roads and offsite unpaved construction access roads shall be effectively stabilized of dust emissions using water or wood chips.
- All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.
- During demolition of buildings, building surfaces shall be wetted as necessary to control fugitive dust.
- Keep soil or bulk materials with the potential to generate fugitive dust sufficiently wet when handling and storing.
- When materials are transported offsite, all material shall be covered, effectively wetted to limit visible dust emissions, or at least 6 inches of freeboard space from the top of the container shall be maintained.
- All construction operations shall limit or expeditiously remove the accumulation of mud or dirt from SR 89 and roadways within the project area when operations are occurring. (Rotary brushes may be used to remove mud or dirt when it is preceded or accompanied by sufficient wetting to limit the visible dust emissions.)
- Following the addition of materials to, or the removal of materials from, the surfaces of outdoor storage piles, piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or other dust control measures.
- Onsite vehicle speeds on unpaved roads shall be limited to 15 mph.
- Erosion control measures shall be installed to prevent silt runoff to public roadways from adjacent project areas.
- Wheel washers shall be installed for all exiting trucks and equipment, or wheels shall be washed to remove accumulated dirt before leaving the site.

- Shaker racks (also referred to as rumble strips) shall be installed at vehicle exits from the construction site to remove material from vehicle tire prior to entering a paved roadway.
- Excavation and grading activities shall be suspended when winds exceed 20 mph, or when visible emissions exceed 20 percent opacity at point-of-origin or if visible emissions extend more than 50 feet from point-of-origin, whichever is less.
- The overall area subject to excavation and grading at any one time shall be limited to the fullest extent possible.
- Onsite equipment shall be maintained and properly tuned in accordance with manufacturers' specifications.
- Incentivize the use of on-highway vehicles that meet, or exceed, EPA exhaust emissions standards for model year 2010 and newer heavy-duty on-highway compression-ignition engines (e.g., drayage trucks, long haul trucks, refuse haulers, shuttle buses, etc.).
- Incentivize the use of off-road vehicles and equipment that meet, or exceed, EPA Tier 4 exhaust emissions standards for heavy-duty nonroad compression-ignition engines (e.g., nonroad trucks, construction equipment, cargo handlers, etc.).
- When not in use, onsite equipment shall not be left idling for more than 5 minutes.
- Use existing power sources (e.g., power poles) or clean fuel (e.g., gasoline, biodiesel, natural gas) generators rather than temporary diesel power generators and use electrified equipment when feasible.
- Idling of construction-related equipment and construction-related vehicles is not permitted within 1,000 feet of any sensitive receptor (i.e., house, hospital, or school).
- Locate construction staging areas as far as feasible from sensitive air pollution receptors.
- Plant vegetative ground cover in disturbed areas as soon as feasible. Water appropriately until vegetation is established.

Additional measures may be identified by USDA Forest Service, TRPA, EDCAQMD, Lahontan RWQCB, or a contractor as appropriate.

Significance after Mitigation

Implementation of Mitigation Measure 3.8-1 would reduce emissions of fugitive dust PM_{10} and $PM_{2.5}$ through the application of recognized fugitive dust control measures. EDCAQMD's guidance states that projects that implement fugitive dust control measures would have less-than-significant PM impacts. Thus, application of Mitigation Measure 3.8-1 would be sufficient to reduce this impact to a **less-than-significant** level.

Impact 3.8-2: Long-Term Impacts From Operational-Related Emissions of Regional Criteria Air Pollutants and Precursors

Removal of the marina and implementation of other project area changes (e.g., change in number of campsites and parking spaces) associated with Alternatives 1 through 4 would result in a decrease in average daily trips and average daily vehicle miles traveled. Based on EDCAQMD guidance, the alternatives would generate vehicle activity well below the amount of VMT that would be generated by any development project listed in EDCAQMD's screening table (EDCAQMD 2002). Implementation of Alternatives 1 through 4 would include the removal of the existing Meeks Bay Marina, which would also result in less emissions from boat activity than under existing conditions. Emissions of criteria air pollutants generated by operation of Alternatives 1, 2, 3, and 4 would result in a **less-than-significant** impact. Under the No Action Alternative, the project area would continue to operate as it does currently, and no new emissions would be generated above baseline conditions. This would result in **no impact**.

No Action Alternative

The No Action Alternative would involve no physical improvements or changes to the project area or any substantial changes in management approaches. Existing operation and maintenance of the existing facilities on the project area would continue. As such, the operational-related emissions that would occur in the project area as a result of implementation of the No Action Alternative would be the same as those currently occurring. There would be no additional long-term operational-generated emissions of ROG, NO_X, and PM_{10} associated with the No Action Alternative, above those which occur today. This impact would be **less than significant**.

<u>Alternative 1: Restoration with Boat Pier</u>
Operation of Alternative 1 would not generate additional vehicle trips to the project area (see Impact 3.12-2 in Section 3.12, "Transportation and Circulation"), and would therefore not increase vehicle emissions. The existing motel-style cabins would be removed and reconstructed farther inland; however, the visitor capacity and, thus, electrical demand would not increase. The supportive infrastructure of Meeks Bay Marina including the marina office would be removed, eliminating any electrical demand generated by its operation. This would result in an overall decrease in the project area's total electrical demand as compared to existing conditions.

While Alternative 1 would, similar to Alternatives 2, 3, and 4, result in the removal of the existing Meeks Bay Marina, Alternative 1 would also include the construction and operation of a centrally located pier to accommodate recreational boaters and an emergency services boat. As described under Impact 3.10-3 in Section 3.10, "Public Safety and Hazards," Alternative 1 would result in approximately 2,000 boat trips per year, which is 1,940 fewer trips than under baseline conditions with the operation of the marina. This level of boating activity would result in less emissions than under existing conditions.

For these reasons, operation of Alternative 1 would generate a **less-than-significant** level of criteria air pollutants.

<u>Alternative 2: Restoration with Pedestrian Pier</u>
Like Alternative 1, Alternative 2 would not increase vehicle trips or electrical demand on site. However, unlike Alternative 1, Alternative 2 would not replace the existing Meeks Bay Marina with a pier that could support boat activity. Rather, Alternative 2 would include a pedestrian pier, which would not generate operational emissions of criteria air pollutants. Operation of Alternative 2 would decrease overall operational emissions from the project area by removing boating activity and vehicle trips associated with the marina that would generate exhaust emissions. As described in Table 3.1-3 in Section 3.1, "Recreation," approximately 1,970 boats are launched from the Meeks Bay Marina per year, which equates to approximately 3,940 boat trips through Meeks Bay per year, assuming two trips per launch (i.e., one trip leaving the marina and one returning). Thus, emissions from approximately 3,940 boat trips would be avoided in the project area under Alternative 2. For these reasons, operation of Alternative 2 would generate a **less-than-significant** level of criteria air pollutants.

<u>Alternative 3: Restoration with No Pier</u>
Alternative 3 would result in expansion and reconfiguration of the Meeks Bay Resort and Meeks Bay campgrounds for a total increase of 7-22 campsites in the project area. This increase in campsites may generate indirect emissions from electrical combustion from the nonrenewable portion of Liberty Utilities' energy portfolio; however, as described under Alternative 2, the removal of the marina would eliminate the emissions from approximately 3,940 boat trips per year, which would greatly outweigh any increase in emissions from increased energy usage. Additionally, by 2029 (the assumed first full year of operation), Liberty Utilities would be required to meet the standards of the Renewable Portfolio Standard for that year, which would be nearly 60 percent and would be on a trajectory to become even more renewable as the state progresses to meet its emissions reduction targets. Thus, emissions from the indirect combustion of natural gas and other nonrenewable energy sources would progressively go down into the future.

Alternative 3 would increase the capacity for day visitors (i.e., add up to 14 parking spaces) and increase campsites by 7-22 campsites. Like Alternative 2, Alternative 3 would not replace the existing Meeks Bay Marina with a pier that could support boat activity. As discussed in Impact 3.12-2 in Section 3.12, "Transportation and Circulation," the reduction in average daily VMT associated with removal of the marina and boat ramp would be greater than the increase in VMT associated with the capacity for day visitors and maximum additional campsites such that there would be an overall net decrease in average daily VMT. Based on EDCAQMD guidance, with removal of the marina and boat launch and addition of campsites and day visitor capacity, Alternative 3 would generate vehicle activity well below the amount of VMT that would be generated by any development project listed in EDCAQMD's screening table (EDCAQMD 2002).

This would result in an overall decrease in operational emissions from the operation of the project area by eliminating the operation of boats that would generate exhaust emissions. For these reasons, operation of Alternative 3 would generate a **less-than-significant** level of criteria air pollutants.

Alternative 4: Preferred Alternative

Alternative 4 would involve similar facilities as Alternative 1, except that it would include a moveable, universally accessible paddlecraft launch instead of a pier. Similar to Alternative 3, this alternative would expand capacity for day visitors (i.e., adding 14 parking spaces). Because Alternative 4 would not support any motorized boating, unlike the boating pier proposed for Alternative 1, this alternative would result in fewer additional VMT than Alternative 1. Thus, this alternative would result in VMT well below the amount of VMT that would be generated by any development project listed in EDCAQMD's screening table (EDCAQMD 2002).

Like Alternatives 2 and 3, Alternative 4 would not replace the existing Meeks Bay Marina with a pier that could support boat activity. This would result in an overall decrease in operational emissions from the project area by eliminating an estimated 3,940 boat trips per year that would generate exhaust emissions. For these reasons, operation of Alternative 4 would generate a **less-than-significant** level of criteria air pollutants.

Mitigation Measures

No mitigation measures are required.

Impact 3.8-3: Expose Sensitive Receptors to Emissions of Toxic Air Contaminants

Construction-related emissions of TACs associated with the implementation of the alternatives would not result an incremental increase in cancer risk greater than 10 in one million or a hazard index greater than 1.0 at existing or future sensitive receptors. Therefore, this impact would be **less than significant** for Alternatives 1, 2, 3, and 4. Under the No Action Alternative, no construction would occur and therefore no diesel PM would be generated. Under the No Action Alternative, there would be **no impact**.

No Action Alternative

The No Action Alternative would involve no physical improvements or changes to the project area or any substantial changes in management approaches. Existing operation and maintenance of the existing facilities in the project area would continue. There would be no increase in TAC emissions associated with Alternative 1 as compared to baseline conditions. There would be **no impact**.

Alternative 1: Restoration with Boat Pier

Existing sensitive receptors are located within 1,000 feet south of the project area. Operation of Alternative 1 would not introduce any new stationary sources of TACs; therefore, construction-generated TACs comprise the bulk of this analysis.

Particulate exhaust emissions from diesel-fueled engines (i.e., diesel PM) were identified as a TAC by CARB in 1998. The potential cancer risk from the inhalation of diesel PM outweighs the potential for all other health impacts (i.e., non-cancer chronic risk, short-term acute risk) and health impacts from other TACs (CARB 2003:K-1). With regard to exposure of diesel PM, the dose to which receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher level of health risk for any exposed receptor. Thus, the risks estimated for an exposed individual are higher if a fixed exposure occurs over a longer period. According to the Office of Environmental Health Hazard Assessment, when a Health Risk Assessment is prepared to project the results of exposure of sensitive receptors to selected compounds, exposure of sensitive receptors to TAC emissions should be based on a 70- or 30-year exposure period; however, such assessments should be limited to the duration of activities associated with the proposed project if emissions occur for shorter periods (OEHHA 2015:5-23, 5-24).

Construction-related activities that would result in temporary, intermittent emissions of diesel PM would be from the exhaust of off-road equipment used during site preparation and construction and on-road heavy-duty trucks. On-road diesel-powered haul trucks traveling to and from the construction area to deliver materials and equipment are less of a concern because they do not operate at any one location for extended periods of time such that they would expose a single receptor to excessive diesel PM emissions.

Based on the construction-related emissions modeling conducted (see Appendix C), maximum daily emissions of exhaust PM_{10} would be less than 2 lb/day during construction. A portion of these emissions would be due to haul trucks traveling to and from the site and would not occur in the project area. In addition, all construction activities would occur during daytime hours, which is when many residents who are employed or are students typically would not be at home, thus limiting exposure from construction-related emissions to these receptors.

Construction-related TAC emissions would not expose sensitive receptors to an incremental increase in cancer risk greater than 10 in 1 million or a hazard index greater than 1.0. The low exposure level reflects the (i) relatively low mass of diesel PM emissions that would be generated by construction activity in the project area; (ii) the relatively short duration of diesel PM-emitting construction activity at the project area; and (iii) the highly dispersive properties of diesel PM. This impact would be **less than significant**.

Alternative 2: Restoration with Pedestrian Pier

Alternative 2 would include similar restoration and construction efforts as Alternative 1, which would produce similar levels of diesel PM during the construction period. For the reasons discussed above under Alternative 1, Alternative 2 would not expose any sensitive receptors to harmful levels of diesel PM. This impact would be **less than significant**.

Alternative 3: Restoration with No Pier

Alternative 3 would include similar restoration and construction efforts as Alternative 1, which would produce similar levels of diesel PM during the construction period. For the reasons discussed above under Alternative 1, Alternative 3 would not expose any sensitive receptors to harmful levels of diesel PM. This impact would be **less than significant**.

Alternative 4: Preferred Alternative

Alternative 4 would include similar restoration and construction efforts as Alternative 1, which would produce similar levels of diesel PM during the construction period. For the reasons discussed above under Alternative 1, Alternative 4 would not expose any sensitive receptors to harmful levels of diesel PM. This impact would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

3.8.4 Cumulative Impacts

The LTAB is currently in nonattainment for the 1-hour and 8-hour CAAQS for ozone and PM_{10}; unclassified for the CAAQS for hydrogen sulfide and visibility-reducing PM; and listed as unclassified for the NAAQS for ozone, CO, NO_2, PM_{10}, fine PM ($PM_{2.5}$), and lead. Construction-generated and operational-generated emissions of criteria air pollutants from related projects could violate or contribute substantially to an existing or projected air quality violation, and/or expose sensitive receptors to substantial pollutant concentrations. However, many of the cumulative projects generating emissions (see Table 3-2) are forest fuel management projects intended to reduce the risk of catastrophic wildfire and associated emissions, which would have long-term beneficial effects on air quality. Additionally, because the LTAB is currently designated as nonattainment for the CAAQS for ozone, construction- and operation-generated emissions of ROG and NO_X could contribute on a cumulative basis to pollutant concentrations that exceed the ambient air quality standards because of growth in the area. That is, the results of past, present, and reasonably foreseeable projects, including the Meeks Bay Restoration Project, could combine to result in a significant cumulative air quality impact. However, construction-related emissions of ROG and NO_X from project implementation were determined to be less than significant because project emissions would not exceed the applicable mass emissions thresholds set by EDCAQMD of 82 lb/day. Also, as discussed under Impact 3.8-2, the alternatives would generate a less-than-significant level of operational criteria air pollutants.

Generally, thresholds of significance are tied to long-term air quality planning in consideration of the construction and operation of multiple past, present, and future projects to accommodate growth within an air basin. Because the alternatives would not produce emissions substantial enough to exceed these thresholds of significance, construction- and operation-related emissions of ROG and NO_X, and other criteria air pollutants, **would not make a considerable contribution** to a significant cumulative impact with respect to ozone, PM_{10}, and $PM_{2.5}$.

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3.9 CLIMATE CHANGE AND ENERGY

This section presents a summary of regulations applicable to greenhouse gas (GHG) emissions, climate change science and GHG sources, quantification of project-generated GHGs and their impacts, and analysis of the project's resiliency to climate change-related risks. Mitigation measures are recommended to reduce potential impacts relative to contribution to climate change.

This section also contains an energy analysis pursuant to Appendices F and G of the State CEQA Guidelines, which require that EIRs include a discussion of the potential energy impacts of projects. The analysis considers whether the project would result in an environmental impact from the inefficient, wasteful, and unnecessary consumption of energy, and/or would conflict with a plan to promote renewable energy and energy efficiency.

3.9.1 Regulatory Setting

FEDERAL

Lake Tahoe Basin Management Unit Land Management Plan

Management of the Lake Tahoe Basin Management Unit (LTBMU) is guided by the USDA Forest Service LTBMU Land Management Plan (also known as the Forest Plan). The Forest Plan identifies the following strategies to address climate change:

- Collaborate on local and regional vulnerability assessments. Participate in a Regional vulnerability assessment for the Sierra Nevada.
- Incorporate vulnerability assessments related to climate change into management on the LTBMU as information is synthesized. Consider and prioritize adaptation activities recommended for vulnerable resources based on funding.
- Consider restoration of species and/or habitat identified as vulnerable to climate change during project planning.
- Consider restoration of individual species during habitat restoration, especially for vulnerable resources.
- Minimize management impacts to species that are vulnerable to climate change. Reduce stress (e.g., human activities, invasive species) related to management in order to reduce the additive effects of non-climate stress.
- Incorporate adaptation actions into management to increase resiliency and adaptive capacity of vulnerable resources.

2023 CEQ National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change

On January 9th, 2023, the Council on Environmental Quality published the National Environmental Policy Act Guidance on Consideration of Greenhouse Gas (GHG) Emissions and Climate Change. The interim guidance is effective immediately while CEQ seeks public comment. This Forest Service document provides information on key content from the guidance as well as Frequently Asked Questions (FAQs). The FAQs will be frequently reviewed and updated by Ecosystem Management Coordination and the Office of Sustainability and Climate.

Summary of Key Content:

The bullets below come from CEQ's interim guidance.

- Recommends that agencies use early planning processes to integrate GHG emissions and climate change considerations into the identification of proposed actions, reasonable alternatives, and potential mitigation and resilience measures;

- Recommends that agencies quantify a proposed action's projected GHG emissions or reductions for the expected lifetime of the action, considering available data and GHG quantification tools that are suitable for the proposed action;
- Recommends that agencies provide additional context for GHG emissions, including through the use of the best available social cost of GHG (SC–GHG) estimates to translate climate impacts into the more accessible metric of dollars;
- Discusses methods to appropriately analyze reasonably foreseeable direct, indirect, and cumulative GHG emissions;
- Discusses methods to appropriately analyze reasonably foreseeable direct, indirect, and cumulative GHG emissions;
- Guides agencies in considering reasonable alternatives and mitigation measures;
- Advises agencies to use the best available information and science when assessing the potential future state of the affected environment in NEPA analyses;
- Recommends that agencies use the information developed during the NEPA review to consider reasonable alternatives that would make the actions and affected communities more resilient to the effects of a changing climate;
- Outlines unique considerations for agencies analyzing biogenic carbon dioxide sources and carbon stocks associated with land and resource management actions under NEPA;
- Advises agencies that the "rule of reason" inherent in NEPA and the CEQ Regulations should guide agencies in determining, based on their expertise and experience, how to consider an environmental effect and prepare an analysis based on the available information; and
- Reminds agencies to incorporate environmental justice considerations into their analyses of climate-related effects.

Frequently Asked Questions: What type of NEPA reviews does the interim guidance apply to?

The CEQ guidance applies to environmental assessments (EAs) and environmental impact statements (EISs) initiated after January 9, 2023. CEQ encourages agencies to apply the guidance to the establishment of new categorical exclusions. For ongoing NEPA reviews, the CEQ guidance gives the Forest Service discretion on whether to apply it to the extent practicable. For example, if an environmental analysis is in early planning stages and climate change was raised as a concern during scoping, or is an issue pertinent to the specific project, units could consider following the guidance.

This project was initiated prior to January 9, 2023 and therefore the project is not beholden to the new interim guidance. However, because this document is a joint NEPA/CEQA analysis, and CEQA has specific requirements for climate change analysis, this document addresses greenhouse gas emissions and climate change to a level that meets the intent of the new interim guidance.

TAHOE REGIONAL PLANNING AGENCY

Regional Transportation Plan and Sustainable Communities Strategy

As the Lake Tahoe region's federally designated metropolitan planning organization, TRPA completed the latest update to its RTP in 2021 (TRPA 2021). The plan seeks to improve mobility and safety for the commuting public while at the same time delivering environmental improvements throughout the transportation network in the Tahoe Basin. Important directions of the plan are to reduce the overall environmental impact of transportation in the region, create walkable, vibrant communities, and provide real alternatives to driving. The plan met the challenge of California's Senate Bill (SB) 375 (2008, summarized below) and qualifies as an SCS by presenting an integrated land use and transportation strategy that will reduce vehicle miles traveled and make it possible for the California side of

Lake Tahoe region to reduce its GHG emission generated by passenger cars and light duty trucks from 2005 levels 8.8 percent by 2020 and 5 percent by 2035. A smaller GHG reduction is forecast for 2035 based on the projections of increased population growth in metropolitan areas surrounding Lake Tahoe and the related increases in visitation from those areas (TRPA 2021).

Lake Tahoe Sustainability Action Plan

The Sustainability Action Plan (SAP), released in 2013, provides tools to assist local governments, agencies, businesses, residents, visitors, and community groups with prioritizing and adopting consistent sustainability actions throughout the Tahoe region. The SAP represents an integrated approach to reducing GHG emissions and striving toward zero-impact in all aspects of sustainability. The SAP includes a GHG emissions inventory and reduction targets, and climate change and adaptation strategies vetted through the Lake Tahoe Sustainability Collaborative and the Tahoe Basin Partnership for Sustainable Communities. Within the SAP, TRPA established a GHG reduction goal for the Tahoe region of 5 percent and 49 percent below the 2005–2010 average baseline by 2020 and 2035, respectively. The SAP identifies actions that have the potential to reduce GHG emissions during construction and operation of land uses and protect against the effects of climate change. Identified actions include expanding the bicycle and pedestrian network, improving transit, supporting alternative fueled vehicles, increasing solid waste diversion, and urban forestry. None of the GHG reduction measures identified in the SAP pertain to boating activity. The recommended actions have not been officially adopted and thus are not currently required by TRPA or Tahoe Metropolitan Planning Organization (TMPO) (TRPA 2013).

STATE

Statewide GHG Emission Targets and Climate Change Scoping Plan

Reducing GHG emissions in California has been the focus of the state government for approximately two decades. GHG emission targets established by the state legislature include reducing statewide GHG emissions to 1990 levels by 2020 (Assembly Bill [AB] 32 of 2006) and reducing them to 40 percent below 1990 levels by 2030 (SB 32 of 2016). Executive Order S-3-05 calls for statewide GHG emissions to be reduced to 80 percent below 1990 levels by 2050. Executive Order B-55-18 calls for California to achieve carbon neutrality by 2045 and achieve and maintain net negative GHG emissions thereafter. These targets are in line with the scientifically established levels needed in the U.S. to limit the rise in global temperature to no more than 2 degrees Celsius, the warming threshold at which major climate disruptions, such as super droughts and rising sea levels, are projected; these targets also pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius.

California's 2017 Climate Change Scoping Plan (2017 Scoping Plan), prepared by the California Air Resources Board (CARB), outlines the main strategies California will implement to achieve the legislated GHG emission target for 2030 and "substantially advance toward our 2050 climate goals" (CARB 2017). It identifies the reductions needed by each GHG emission sector (e.g., transportation, industry, electricity generation, agriculture, commercial and residential, pollutants with high global warming potential, and recycling and waste). CARB and other state agencies also released the *January 2019 Draft California 2030 Natural and Working Lands Climate Change Implementation Plan* consistent with the carbon neutrality goal of Executive Order B-55-18 (CalEPA et al. 2019).

The state has also passed more detailed legislation addressing GHG emissions associated with transportation, electricity generation, and energy consumption, as summarized below.

Transportation-Related Standards and Regulations

As part of its Advanced Clean Cars program, CARB established more stringent GHG emission standards and fuel efficiency standards for fossil fuel–powered on-road vehicles than EPA. In addition, the program's zero-emission vehicle (ZEV) regulation requires battery, fuel cell, and plug-in hybrid electric vehicles (EVs) to account for up to 15 percent of California's new vehicle sales by 2025 (CARB 2018a). When the rules are fully implemented by 2025, GHG emissions from the statewide fleet of new cars and light-duty trucks will be reduced by 34 percent and cars will emit 75 percent less smog-forming pollution than the statewide fleet in 2016.

Executive Order B-48-18, signed into law in January 2018, requires all state entities to work with the private sector to have at least 5 million ZEVs on the road by 2030, as well as 200 hydrogen-fueling stations and 250,000 EV-charging stations installed by 2025. It specifies that 10,000 of these charging stations must be direct-current fast chargers.

The CCA requires that a waiver be provided by EPA for states to enact more stringent emissions standards for new cars, which was granted to CARB by EPA on June 14, 2011; however, in addition to the SAFE Rule, but as a separate action, on September 19, 2019, EPA issued a final action entitled the "One National Program Rule" which would institute a nationwide, uniform fuel economy and GHG standard for all automobiles and light-duty trucks. The action would include the revocation of California's waiver under the CCA which would affect the enforceability of CARB's ZEV programs. While EPA has issued an action to revoke the waiver, the outcome of any related lawsuits and how such lawsuits could delay or affect the SAFE Rule implementation or CARB's ZEV programs is unknown at this time.

CARB adopted the Low Carbon Fuel Standard (LCFS) in 2007 to reduce the carbon intensity (CI) of California's transportation fuels. Low-CI fuels emit less CO2 than other fossil fuel–based fuels such as gasoline and fossil diesel. The LCFS applies to fuels used by on-road motor vehicles and off-road vehicles, including construction equipment (Wade, pers. comm., 2017).

In addition to regulations that address tailpipe emissions and transportation fuels, the state legislature has passed regulations to address the amount of driving by on-road vehicles. Since passage of SB 375 in 2008, CARB requires metropolitan planning organizations to develop and adopt sustainable communities strategies as a component of the federally prepared regional transportation plans to show reductions in GHG emissions from passenger cars and light-duty trucks in their respective regions for 2020 and 2035. These plans link land use and housing allocation to transportation planning and related mobile-source emissions. The Tahoe Regional Planning Agency (TRPA) serves as the metropolitan planning organization for portions of Placer and El Dorado counties located in the Tahoe Basin. The project area is in El Dorado County. Under SB 375, TRPA adopted its RTP in 2021 (TRPA 2021). TRPA was tasked by CARB to achieve a 7-percent per capita reduction compared to 2012 emissions by 2020 and a 5-percent per capita reduction by 2035, both of which CARB confirmed the region would achieve by implementing the MTP/SCS. In March 2018, CARB promulgated revised targets tasking TRPA to achieve an 8-percent and a 5-percent per capita reduction by 2020 and 2035, respectively (CARB 2018b). CARB has not yet reviewed TRPA's newest RTP.

Legislation Associated with Electricity Generation

The state has passed legislation requiring the increasing use of renewables to produce electricity for consumers. California's Renewable Portfolio Standard (RPS) Program was established in 2002 (SB 1078) with the initial requirement to generate 20 percent of their electricity from renewable by 2017, 33 percent of their electricity from renewables by 2020 (SB X1-2 of 2011), 52 percent by 2027 (SB 100 of 2018), 60 percent by 2030 (also SB 100 of 2018), and 100 percent by 2045 (also SB 100 of 2018).

Building Energy Efficiency Standards (Title 24, Part 6)

The energy consumption of new residential and nonresidential buildings in California is regulated by the California Code of Regulations Title 24, Part 6, Building Energy Efficiency Standards (California Energy Code). The California Energy Commission (CEC) updates the California Energy Code every 3 years with more stringent design requirements for reduced energy consumption, which results in the generation of fewer GHG emissions. The current California Energy code will require builders to use more energy-efficient building technologies for compliance with increased restrictions on allowable energy use. CEC estimates that the 2019 California Energy Code will result in new commercial buildings that use 30 percent less energy than those designed to meet the 2016 standards, primarily through the transition to high-efficacy lighting (CEC 2018).

LOCAL

El Dorado County Air Quality Management District

The El Dorado County Air Quality Management District (EDCAQMD) has not adopted specific thresholds of significance for analyzing GHG emissions under CEQA. At present, the Sacramento Metropolitan Air Quality

Management District (SMAQMD) along with a committee of EDCAQMD and other regional air districts (i.e., Placer County Air Pollution Control District (PCAPCD), Feather River Air Quality Management District, and Yolo-Solano Air Quality Management District) use guidance from the California Air Pollution Control Officers Association to develop draft threshold concepts for evaluating project-level GHG emissions. The goal of the thresholds is to capture at least 90 percent of GHG emissions from new stationary sources and land development projects. The nearby PCAQMD has developed thresholds of significance for analyzing climate change impacts in consideration of this strategy. As discussed in greater detail in Section 3.9.3, "Environmental Impacts and Mitigation Measures," PCACPD has adopted a 10,000 and 1,100 metric tons of carbon dioxide equivalent ($MTCO_2e$) bright line thresholds of significance for analyzing construction and operational emissions, respectively. In lieu of adopted thresholds of significance governed by EDCAQMD and TRPA, these thresholds of significance will be applied to the project. These thresholds are discussed further under Section 3.9.3, "Environmental Impacts and Mitigation Measures."

3.9.2 Environmental Setting

GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the atmosphere from space. A portion of the radiation is absorbed by the earth's surface, and a smaller portion of this radiation is reflected toward space. The absorbed radiation is then emitted from the earth as low-frequency infrared radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth.

Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Human-caused emissions of these GHGs in excess of natural ambient concentrations are found to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth's climate, known as global climate change or global warming. It is "extremely likely" that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in GHG concentrations and other anthropogenic forcing (IPCC 2014).

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. Whereas most pollutants with localized air quality effects have relatively short atmospheric lifetimes (approximately 1 day), GHGs have long atmospheric lifetimes (1 year to several thousand years). GHGs persist in the atmosphere long enough to be dispersed around the globe. Although the lifetime of any GHG molecule depends on multiple variables and cannot be determined with any certainty, it is understood that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO_2 emissions, approximately 55 percent are estimated to be sequestered through ocean and land uptake every year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused CO_2 emissions remain stored in the atmosphere (IPCC 2013).

The quantity of GHGs in the atmosphere responsible for climate change is not precisely known, but it is considered to be enormous. No single project alone would measurably contribute to an incremental change in the global average temperature or to global or local climates or microclimates. From the standpoint of CEQA, GHG impacts relative to global climate change are inherently cumulative.

GREENHOUSE GAS EMISSION SOURCES

As discussed previously, GHG emissions are attributable in large part to human activities. The total GHG inventory for California in 2018 was 425 million metric tons of carbon dioxide equivalent ($MMTCO_2e$) (CARB 2020b). This is less than the 2020 target of 431 $MMTCO_2e$. Table 3.9-1 summarizes the statewide GHG inventory for California by percentage.

Table 3.9-1 Statewide GHG Emissions by Economic Sector

Sector	$MMTCO_2e$	Percent
Transportation	174	41
Industrial	102	24
Electricity generation (in state)	38	9
Agriculture	34	8
Residential	30	7
Electricity generation (imports)	26	6
Commercial	21	5
Total	**425**	**100**

Notes: $MMTCO_2e$ = million metric tons of carbon dioxide equivalent

Source: CARB 2020b.

As shown in Table 3.9-1, transportation, industry, and in-state electricity generation are the largest GHG emission sectors.

Emissions of CO_2 are byproducts of fossil fuel combustion. Methane, a highly potent GHG, primarily results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices, landfills, and forest fires. Nitrous oxide is also largely attributable to agricultural practices and soil management. CO_2 sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through sequestration and dissolution (CO_2 dissolving into the water) and are two of the most common processes for removing CO_2 from the atmosphere.

Lake Tahoe GHG Emissions Inventory

According to the Lake Tahoe Greenhouse Gas Inventory Update Final Report, GHG emissions in 2018 for the Lake Tahoe region totaled 795,793 metric tons of carbon dioxide equivalent per year ($MTCO_2e$/year) (TRPA 2021). Breakdowns by sector are presented in Table 3.9-2. These emissions are the result of activity associated with residents and businesses operating in the Lake Tahoe region.

Table 3.9-2 Lake Tahoe GHG Emissions by Sector

Sector	$MTCO_2e$	Percent
Energy	469,379	59.0
Transportation	288,207	36.2
Solid Waste	37,244	4.7
Wastewater	963	0.1
Total	**795,793**	**100**

Notes: $MTCO_2e$ = metric tons of carbon dioxide equivalent

Source: TRPA et al. 2021.

The largest source of GHG emissions in the Lake Tahoe region was from the energy sector (59 percent), followed by the transportation sector (36 percent) (TRPA 2021).

EFFECTS OF CLIMATE CHANGE ON THE ENVIRONMENT

According to the Intergovernmental Panel on Climate Change, which was established in 1988 by the World Meteorological Organization and the United Nations Environment Programme, global average temperature will increase by 3.7 to 4.8 degrees Celsius (6.7 to 8.6 degrees Fahrenheit [°F]) by the end of the century unless additional efforts to reduce GHG emissions are made (IPCC 2014:10). According to *California's Fourth Climate Change Assessment*, with global GHGs reduced at a moderate rate California will experience average daily high temperatures that are warmer than the historic average by 2.5°F from 2006 to 2039, by 4.4°F from 2040 to 2069, and by 5.6°F from

2070 to 2100; and if GHG emissions continue at current rates then California will experience average daily high temperatures that are warmer than the historic average by 2.7°F from 2006 to 2039, by 5.8°F from 2040 to 2069, and by 8.8°F from 2070 to 2100 (OPR et al. 2018).

Since the previous climate change assessment in 2012, California has experienced several of the most extreme natural events in its recorded history: a severe drought from 2012–2016, an almost non-existent Sierra Nevada winter snowpack in 2014-2015, increasingly large and severe wildfires, and back-to-back years of the warmest average temperatures (OPR et al. 2018). According to CNRA's *Safeguarding California Plan: 2018 Update*, California experienced the driest 4-year statewide precipitation on record from 2012 through 2015; the warmest years on average in 2014, 2015, and 2016; and the smallest and second smallest Sierra snowpack on record in 2015 and 2014 (CNRA 2018). According to the National Oceanic and Atmospheric Administration and the National Aeronautics and Space Administration, 2016, 2017, 2018, 2019, and 2020 were the hottest recorded years in history (NOAA 2022). In contrast, the northern Sierra Nevada experienced one of its wettest full years on record during the 2016-2017 water year (CNRA 2018). The changes in precipitation exacerbate wildfires throughout California through a cycle of high vegetative growth coupled with dry, hot periods that lower the moisture content of fuel loads. As a result, the frequency, size, and devastation of forest fires increases. In November 2018, the Camp Fire destroyed the town of Paradise in Butte County and caused 85 fatalities, becoming the state's deadliest fire in recorded history. Moreover, changes in the intensity of precipitation events following wildfires can also result in devastating landslides. In January 2018, following the Thomas Fire, 0.5 inches of rain fell in 5 minutes in Santa Barbara causing destructive mudslides formed from the debris and loose soil left behind by the fire. These mudslides resulted in 21 deaths.

As temperatures increase, the amount of precipitation falling as rain rather than snow also increases, which could lead to increased flooding because water that would normally be held in the snowpack of the Sierra Nevada and Cascade Range until spring would flow into the Central Valley during winter rainstorm events. This scenario would place more pressure on California's levee/flood control system (CNRA 2018). Furthermore, in the extreme scenario involving the rapid loss of the Antarctic ice sheet and the glaciers atop Greenland, the sea level along California's coastline is expected to rise 54 inches by 2100 if GHG emissions continue at current rates (OPR et al. 2018).

The following key climate impacts are projected for the Tahoe Basin (California Tahoe Conservancy 2020):

- Both minimum and maximum daily average temperatures will continue to increase by the end of the century.
- Interannual variability in precipitation will increase, leading to more extreme droughts and storms.
- Increased temperatures will lead to reduced precipitation falling as snow and will ultimately reduce snowpack.
- Drought stress will increase significantly by the end of the century.
- The timing of peak runoff will shift one to five months earlier in the year.
- By the end of the century, the total area burned by wildfires each decade will be 61 percent larger than in the beginning of the century.
- The surface level of Lake Tahoe will be more frequently outside of the operable range of the Lake Tahoe Dam, including an increase in amount of years being above the dam's maximum legal elevation limit of 6,299.1 feet.

Temperature increases and changes to historical precipitation patterns will likely affect ecological productivity and stability. Existing habitats may migrate from climatic changes where possible, and those habitats and species that lack the ability to retreat will be severely threatened. Altered climate conditions will also facilitate the movement of invasive species to new habitats thus outcompeting native species. Altered climatic conditions dramatically endanger the survival of arthropods (e.g., insects, spiders) which could have cascading effects throughout ecosystems (Lister and Garcia 2018). Conversely, a warming climate may support the populations of other insects such as ticks and mosquitos, which transmit diseases harmful to human health such as the Zika virus, West Nile virus, and Lyme disease (European Commission Joint Research Centre 2018).

Changes in temperature, precipitation patterns, extreme weather events, wildfires, and sea-level rise have the potential to threaten transportation and energy infrastructure, crop production, forests and rangelands, and public health (CNRA 2018; OPR et al. 2018). The effects of climate change will also have an indirect adverse impact on the economy as more severe natural disasters cause expensive, physical damage to communities and the state.

Additionally, adjusting to the physical changes associated with climate change can produce mental health impacts such as depression and anxiety.

ENERGY

Electricity and Natural Gas Use

California relies on a regional power system composed of a diverse mix of natural gas, renewable, hydroelectric, and nuclear generation resources. One-third of energy commodities consumed in California is natural gas. In 2019, approximately 43 percent of natural gas consumed in the state was used to generate electricity. Large hydroelectric powered approximately 17 percent of electricity and renewable energy from solar, wind, small hydroelectric, geothermal, and biomass combustion totaled 32 percent (CEC 2021a).

Liberty Utilities

Electric and natural gas services are provided to the project area through Liberty Utilities. In 2019, Liberty Utilities provided its customers with 25 percent eligible renewable energy (i.e., biomass combustion, geothermal, small scale hydroelectric, solar, and wind) and the remaining power from unspecified sources of power (electricity that has been purchased through open market transactions and is not traceable to a specific generation source) (CEC 2020).

The proportion of Liberty Utilities-delivered electricity generated from eligible renewable energy sources is anticipated to increase over the next three decades to comply with the RPS and Senate Bill (SB) 100 goals described in Section 3.9.1.

Energy Use for Transportation

In 2019, the transportation sector comprised the largest end-use sector of energy in the state totaling 39.4 percent, followed by the industrial sector totaling 23.1 percent, the commercial sectors at 18.8 percent, and the residential sector of 18.7 percent (EIA 2022). On-road vehicles use about 90 percent of the petroleum consumed in California. CEC reported retail sales of 74 and 10 million gallons of gasoline and diesel, respectively, in El Dorado County in 2019 (the most recent data available) (CEC 2021b). The California Department of Transportation (Caltrans) projects that 118 million gallons of gasoline and diesel will be consumed in El Dorado County in 2025 (Caltrans 2008).

3.9.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

Greenhouse Gas Emissions

GHG emissions associated with the project would be generated during project construction and by operation of the Meeks Bay Marina, Meeks Bay Resort, and Meeks Campground.

Construction-related emissions of GHGs were calculated using the California Emissions Estimator Model (CalEEMod) Version 2020,41 computer program, in accordance with recommendations by EDCAQMD. Modeling was based on project-specific information (e.g., area to be disturbed) by alternative, where available; reasonable assumptions based on typical construction activities; and default values in CalEEMod that are based on the project's location and land use type. As discussed in Chapter 2, "Description of the Proposed Action and Alternatives," construction is anticipated to occur over an up to 10-year period commencing as early as 2024. All excavation, filling and clearing of vegetation, or other disturbance of the soil would be limited to the May 1–October 15 timeframe. For the purposes of this analysis, it was conservatively assumed that all construction would occur over a 5-year period, which would result in greater annual emissions than would occur if construction occurred over a greater period of time.

Operation-related emissions of GHG were estimated using CalEEMod. Project-related operational emissions of GHGs were estimated for the following sources: area sources (e.g., landscaping-related fuel combustion sources), water use, solid waste, and mobile sources. Operational mobile-source GHG emissions were modeled based on the estimated level of daily VMT per capita by visitors and employees to the project area and extrapolated to an annual value by multiplying daily VMT by 365 days. Project-specific VMT estimates were available in the traffic impact analysis conducted for the project (See Section 3.12, "Transportation and Circulation"). Mobile-source emissions were calculated using EMFAC 2017 emissions factors with trip generation rates that would match the project's projected annual VMT.

Refer to Appendix C for detailed assumptions and modeling results.

Energy

Energy consumed by the project during construction and operation would include gasoline and diesel fuel, measured in gallons. Fuel use estimates were calculated using the mobile-source emissions factors generated using CARB's EMFAC 2017 program and the estimated level of VMT associated with the project.

Refer to Appendix C for detailed assumptions and modeling results.

THRESHOLDS OF SIGNIFICANCE

Greenhouse Gases

The thresholds of significance were developed in consideration of the State CEQA Guidelines, TRPA Thresholds, TRPA Initial Environmental Checklist, LTBMU Forest Plan, and other applicable policies and regulations. Under NEPA the significance of an effect must consider the context and intensity of the environmental effect. The factors that are taken into account under NEPA to determine the context and intensity of its effects are encompassed by the thresholds of significance. An alternative would have a significant effect on climate change if it would:

- generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

As discussed above, SMAQMD, along with a committee of EDCAQMD and other regional air districts, have issued guidance for addressing GHG emissions in CEQA documents. The guidance outlines a numeric threshold for construction activities of 1,100 $MTCO_2e$, which has been adopted by SMAQMD and is recommended by EDCAQMD staff. Accordingly, annual construction emissions would be considered significant if they exceeded 1,100 $MTCO_2e$.

EDCAQMD has not adopted a threshold of significance for evaluating operational emissions of GHGs within El Dorado County. PCAPCD governs air pollution in nearby Placer County. PCAPCD recommends a de minimis threshold of significance of 1,100 $MTCO_2e$/year to determine whether a project would have significant GHG impact. According to the PCAPCD, this level of emissions was developed in consideration of the state's SB 2030 goal of reducing statewide GHG emissions to 40 percent below 1990 levels by 2030. Because the project's first full year of operation would occur before 2030 (i.e., 2028), emissions below 1,100 $MTCO_2e$ would be consistent with longer term statewide reduction goals according to PCAPCD. Using this threshold of significance, operational emissions of GHGs would be considered significant if they exceeded 1,100 $MTCO_2e$ for the first full year of operation.

Based on these parameters, the project would have a significant impact on climate change if it would:

- generate GHG emissions during construction that would exceed 1,100 $MTCO_2e$/year, or
- generate GHG emissions during operation that would exceed 1,100 $MTCO_2e$/year.

Energy

The thresholds of significance were developed in consideration of the State CEQA Guidelines, TRPA Thresholds, TRPA Initial Environmental Checklist, LTBMU Forest Plan, and other applicable policies and regulations. Under NEPA the significance of an effect must consider the context and intensity of the environmental effect. The factors that are taken into account under NEPA to determine the context and intensity of its effects are encompassed by the thresholds of significance. An alternative would have a significant effect on energy if it would:

- result in the wasteful, inefficient, or unnecessary consumption of energy during project construction or operation; or
- conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.9-1: Project-Generated GHG Emissions

Alternatives 1 through 4 would generate construction emissions to reconfigure the campground and associated roads and parking areas; replace the SR 89 bridge; remove the marina; restore Meeks Creek, lagoon, and barrier beach; and construct new piers and cabins under certain alternatives. Each alternative, including the No Action Alternative, would generate operational emissions from vehicles accessing the project area, electricity consumption, solid waste generation, and wastewater treatment. However, these levels of emissions would be less than under existing conditions or would not exceed that applicable 1,100 $MTCO_2e$ threshold of significance applied to each alternative. This impact would be **less than significant** for all alternatives.

<u>No Action Alternative</u>

Though no construction activities would occur with the no action alternative, continued maintenance of the marina would require the use of heavy-duty equipment and maintenance vehicles. The marina would continue to operate and would be accessed by motorized boats. Additionally, the upland features would remain in their current configuration, which includes cabins, 76 campsites in two campgrounds, and two day-use areas. These recreational areas would continue to support automobiles and recreational vehicles and would be maintained with landscaping and maintenance equipment. Under the No Action Alternative, no GHG emissions would be generated from construction activities associated with the various alternatives discussed below. Operational levels of emissions would be similar to baseline levels as operation of the recreational facilities under the No Action Alternative would not be expected to increase. Because construction-related GHG emissions would not occur and operational emissions would not be greater than the existing level of emissions at the project area, the No Action Alternative's contribution to climate change would be **less than significant**.

<u>Alternative 1: Restoration with Boating Pier</u>

Construction

Alternative 1-related construction activities would result in the generation of GHG emissions. Alternative 1 would involve construction activities such as removal of Meeks Bay Marina and restoration of Meeks Creek, replacement of SR 89 bridge, demolition and reconstruction of cabins, realignment of the roads, relocation of the utility infrastructure, and stabilization of the shoreline. In addition, a new boating pier would be constructed. Heavy-duty off-road construction equipment, materials transport, and worker commute during construction of the project would result in exhaust emissions of GHGs. Construction activities would require the use of various types of equipment, such as a loader, dozer/tractor, scraper, excavator, backhoe, grader, pump, generator, trucks (haul and passenger), and pile drivers. Based on modeling conducted with CalEEMod, it is estimated that project-related construction would generate an approximate total of 1,546 $MTCO_2e$, respectively, over the construction period (2024–2028). See Appendix C for detailed input parameters and modeling results.

Operation

Operation of Alternative 1 would result in mobile-source GHG emissions associated with vehicle trips to and from the project area (i.e., project-generated VMT); area-source emissions from operation of landscape maintenance equipment; water-source emissions from water use and the conveyance and treatment of wastewater; and waste-source emissions from the transport and disposal of solid waste. Alternative 1 would also result in the removal of the existing Meeks Bay Marina, which would eliminate emissions from boats that currently launch or moor at the marina. This would result in an overall decrease in emissions from the consumption of fossil fuels by boats. Based on modeling performed for Alternative 1 and shown in Table 3.9-3, emissions generated from operation of Alternative 1 would result in a total of 99 $MTCO_2e$/year, which is below the threshold of significance of 1,100 $MTCO_2e$.

As shown above in Table 3.9-3 and described above, Alternative 1 would not generate construction or operation emissions in exceedance of the 1,100 $MTCO_2e$ threshold for any year. This impact would be **less than significant**.

Table 3.9-3 Construction- and Operation-Generated GHG Emissions for Alternative 1

Year	$MTCO_2e$
2024 (Construction)	298
2025 (Construction)	374
2026 (Construction)	373
2027 (Construction)	372
2028 (Construction)	129
2029 (Operation)	99
Threshold of Significance	1,100
Exceeds Thresholds?	**No**

Notes: $MTCO_2e$ = metric tons of carbon dioxide equivalent

See Appendix C for detailed input parameters and modeling results.

Source: Modeled by Ascent Environmental in 2021.

Alternative 2: Restoration with Pedestrian Pier

Construction

Similar to Alternative 1, Alternative 2 would generate emissions during construction of restoration features, infrastructure improvements, and recreation facilities. These actions would entail the use of similar construction equipment identified above under the discussion of Alternative 1. Table 3.9-4 summarizes the emissions associated with construction of Alternative 2 over the 5-year construction period. Total emissions were estimated to be 1,543 $MTCO_2e$.

Table 3.9-4 Construction- and Operation-Generated GHG Emissions for Alternative 2

Construction Year	$MTCO_2e$
2024 (Construction)	297
2025 (Construction)	373
2026 (Construction)	372
2027 (Construction)	371
2028 (Construction)	130
2029 (Operation)	112
Threshold of Significance	1,100
Exceeds Thresholds?	**No**

Notes: $MTCO_2e$ = metric tons of carbon dioxide equivalent

See Appendix C for detailed input parameters and modeling results.

Source: Modeled by Ascent Environmental in 2021.

Operation

Alternative 2 would result in similar operational activities generating emissions from vehicles accessing the project area, maintenance activities, wastewater treatment, and solid waste generation. Like Alternative 1, Alternative 2 would result in the removal of the existing Meeks Bay Marina, which would eliminate emissions from boats that currently launch or moor at the Marina. This would result in an overall decrease in emissions from the consumption of fossil fuels by boats. As shown in Table 3.9-4, operational emissions associated with these activities would generate approximately 112 $MMTCO_2e$/year, which is below the 1,100 $MTCO_2e$ threshold of significance.

As shown above, Alternative 2 would not generate construction or operational emissions exceeding the 1,100 $MTCO_2e$ threshold of significance for any year. This impact would be **less than significant**.

Alternative 3: Restoration with No Pier

Construction

Similar to Alternatives 1 and 2, Alternative 3 would generate emissions during construction of restoration features, infrastructure improvements, and recreation facilities, including the expanded campgrounds. Alternative 3 would expand the existing parking by 14 spaces, would add up to 22 campsites, and would not entail the construction of a boat or pedestrian pier or the demolition and reconstruction of cabins. Table 3.9-5 summarizes the emissions associated with construction of Alternative 3 over the 5-year construction period. Total emissions were estimated to be 1,493 $MTCO_2e$.

Table 3.9-5 Construction-Generated GHG Emissions for Alternative 3

Construction Year	$MTCO_2e$
2024 (Construction)	246
2025 (Construction)	374
2026 (Construction)	373
2027 (Construction)	371
2028 (Construction)	129
2029 (Operation)	115
Threshold of Significance	1,100
Exceeds Thresholds?	**No**

Notes: $MTCO_2e$ = metric tons of carbon dioxide equivalent

Source: Modeled by Ascent Environmental in 2021.

Operation

Alternative 3 would result in similar operational activities generating emissions from vehicles accessing the project area, wastewater treatment, and solid waste generation. Alternative 3 would also result in the removal of the existing Meeks Bay Marina. This would result in an overall decrease in emissions from the consumption of fossil fuels by boats. As shown in Table 3.9-5, operational emissions associated with these activities would generate approximately 115 $MMTCO_2e$/year, which is below the 1,100 $MTCO_2e$ threshold of significance.

As shown above, Alternative 3 would not generate construction or operational emissions exceeding the 1,100 $MTCO_2e$ threshold of significance for any year. This impact would be **less than significant**.

Alternative 4: Preferred Alternative

Construction

Similar to Alternatives 1, 2, and 3, Alternative 4 would generate emissions during construction of restoration features, infrastructure improvements, and recreation facilities, including reconstructed cabins. Alternative 3 would expand the existing parking by 14 spaces and would not entail the construction of a boat or pedestrian pier. These actions would entail the use of similar construction equipment identified above under the discussion of Alternative 1. Table 3.9-6 summarizes the emissions associated with construction of Alternative 4 over the 5-year construction period. Total emissions were estimated to be 1,493 $MTCO_2e$.

Operation

Alternative 4 would result in similar operational activities generating emissions from vehicles accessing the project area, maintenance activities, wastewater treatment, and solid waste generation. Alternative 4 would also result in the removal of the existing Meeks Bay Marina. The removal of the marina would eliminate emissions from boats that currently access the project area through the marina. This would result in an overall decrease in emissions from the consumption of fossil fuels by boats. As shown in Table 3.9-6, operational emissions associated with these activities would generate approximately 100 $MMTCO_2e$/year, which is below the 1,100 $MTCO_2e$ threshold of significance.

As shown above, Alternative 4 would not generate construction or operational emissions exceeding the 1,100 $MTCO_2e$ threshold of significance for any year. This impact would be **less than significant**.

Table 3.9-6 Construction-Generated GHG Emissions for Alternative 4

Construction Year	$MTCO_2e$
2024 (Construction)	246
2025 (Construction)	373
2026 (Construction)	373
2027 (Construction)	372
2028 (Construction)	129
2029 (Operation)	100
Threshold of Significance	1,100
Exceeds Thresholds?	**No**

Notes: $MTCO_2e$ = metric tons of carbon dioxide equivalent

See Appendix C for detailed input parameters and modeling results.

Source: Modeled by Ascent Environmental in 2021.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.9-2: Wasteful, Inefficient, or Unnecessary Consumption of Energy during Project Construction or Operation

Implementation of Alternatives 1 through 4 would result in the short-term consumption of energy during project construction. Additionally, gasoline and diesel fuel would be consumed by vehicles accessing the project area. The gasoline and diesel fuel consumed during project construction and operation would facilitate the project meeting its primary objectives to restore the ecology of Meeks Bay Creek and provide recreational opportunities to visitors to the project area. As such, energy consumption from construction and operation of the alternatives would not be considered wasteful, inefficient, or unnecessary. This impact would be **less than significant**. With the No Action Alternative, continued maintenance and operation of the marina and upland recreational facilities would consume energy. However, this energy would be consistent with existing conditions and would be necessary to achieve the project area's purpose as a recreation site. This would not be considered wasteful, inefficient, or unnecessary use of energy and the No Action Alternative would have a **less-than-significant** impact.

<u>No Action Alternative</u>

Though no construction activities would occur with the No Action Alternative, continued maintenance of the marina would require the use of heavy-duty equipment and maintenance vehicles. The marina would continue to operate and would be accessed by motorized boats. Additionally, the upland features would remain in their current configuration, which includes cabins, 76 campsites in two campgrounds, and two day-use areas. These recreational areas would continue to support automobiles and recreational vehicles and would be maintained through landscaping and maintenance equipment. Under the No Action Alternative, additional gasoline or diesel fuel would not be consumed from construction activities associated with the various alternatives discussed below. Operational levels of gasoline and electricity consumption would be similar to baseline levels as operation of the recreational facilities under the no project alternative would not be expected to increase. For these reasons, the No Action Alternative would not result in the wasteful, inefficient, or unnecessary consumption of energy during project construction or operation. This impact would be **less than significant**.

<u>Alternative 1: Restoration with Boating Ramp</u>

Most of the construction-related energy consumption for Alternative 1 would be associated with off-road equipment and the transport of equipment and materials using on-road haul trucks. An estimated 23,000 gallons of gasoline and 115,000 gallons of diesel fuel would be used during construction of this alternative (see Appendix C for a summary of construction calculations). The energy needs for project construction would occur over up to 10 years and are not anticipated to require additional capacity or substantially increase peak or base period demands for electricity and other forms of energy. Gasoline and diesel would also be consumed during worker commute trips. Energy would be required to transport demolition waste and excavated materials. The one-time energy expenditure required to construct the project (spread over the buildout period) would be nonrecoverable. There is no atypical construction-related energy demand associated with the project. Nonrenewable energy would not be consumed in a wasteful, inefficient, or unnecessary manner when compared to other construction activity in the region. Additionally, as shown in Appendix C, on-road gasoline and diesel fuel consumption associated with construction activity would go down every year as the vehicle fleet becomes more fuel-efficient over time.

Alternative 1 would result in the consumption of gasoline and diesel fuel from visitors accessing the project area. In total, Alternative 1 would generate vehicle activity that would consume 2,755 and 635 gallons of gasoline and diesel fuel, respectively. This level of gasoline and diesel fuel consumption would facilitate access to the project area for the recreational enjoyment of visitors which is an objective of the project. Therefore, energy consumption would not be considered wasteful, inefficient, or unnecessary. Additionally, the removal of the marina would result in decreased boating activity, as described under Impact 3.9-1, above. This would reduce the overall fuel consumption associated with operation of boats in the project area. This impact would be **less than significant**.

<u>Alternative 2: Restoration with Pedestrian Pier</u>

An estimated 27,000 gallons of gasoline and 1,121,000 gallons of diesel fuel would be used during construction of Alternative 2. Alternative 2 would generate the same level of VMT as Alternative 1, which would consume the same number of gallons of gasoline and diesel fuel. Additionally, the removal of the marina would result in decreased boating activity, thus reducing the overall fuel consumption associated with operation of boats. For the reasons listed above under Alternative 1, Alternative 2 would not result in the wasteful, inefficient, or unnecessary consumption of energy. This impact would be **less than significant**.

<u>Alternative 3: Restoration with No Pier</u>

An estimated 26,000 gallons of gasoline and 1,117,000 gallons of diesel fuel would be used during construction of Alternative 3. Alternative 3 would generate a similar level of VMT as Alternative 1, which would consume a similar number of gallons of gasoline and diesel fuel. Additionally, the removal of the marina would result in decreased boating activity, thus reducing the overall fuel consumption associated with operation of boats. For the reasons listed above under Alternative 1, Alternative 3 would not result in the wasteful, inefficient, or unnecessary consumption of energy. This impact would be **less than significant**.

<u>Alternative 4: Preferred Alternative</u>

An estimated 24,000 gallons of gasoline and 1,111,000 gallons of diesel fuel would be used during construction of Alternative 4. Alternative 4 would generate a similar level of VMT as Alternative 1, which would consume a similar number of gallons of gasoline and diesel fuel. Additionally, the removal of the marina would result in decreased boating activity, thus reducing the overall fuel consumption associated with operation of boats. For the reasons listed above under Alternative 1, Alternative 4 would not result in the wasteful, inefficient, or unnecessary consumption of energy. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.9-3: Conflict with or Obstruct a State or Local Plan for Renewable Energy or Energy Efficiency

Energy would be consumed during construction of Alternatives 1 through 4, as well as in the form of gasoline and diesel fuel combustion from construction vehicle trips. Renewable energy and energy efficiency plans generally target operational forms of energy from electricity and natural gas consumption, which would not occur from operation of the alternative. Implementation of the alternatives would not preclude the implementation of efficacy of transportation-related energy measures, such as those that may be included in an RTP/SCS. For these reasons, implementation of all alternatives would not obstruct a state or local plan for renewable energy or energy efficiency. This impact would be **less than significant** for all alternatives.

<u>No Action Alternative</u>

Under the No Action Alternative, the existing facilities would continue to function at current levels. Boats that currently access the marina would continue to operate and consume fossil fuel and vehicles would continue to access the campground and other recreational features at the project area. The continued operation of the project area would not impede or obstruct the deployment of mechanisms contained in a state or local plan for renewable energy or energy efficiency. Under the No Action Alternative, the heavy-duty equipment required to construct facilities on the project area and facilitate restoration efforts, as proposed under each alternative, would not operate and would thus not consume gasoline or diesel fuel. Because the No Action Alternative would not result in a conflict with a state or local plan that promotes renewable energy or energy efficiency, this impact would be **less than significant**.

<u>Alternative 1: Restoration with Boating Pier</u>

The primary energy that would be used to implement Alternative 1 would be expended during project construction. Statewide plans, policies, and initiatives that support the use of renewable energy or efficient energy use, such as the 2017 California Climate Change Scoping Plan (2017 Scoping Plan) or the triennial updates to Part 6 of the Title 24 California Building Code (California Energy Code), inherently target operational forms of energy, which would not apply to the project, nor would implementing the project affect the goals and policies contained therein.

Energy would be consumed during project construction; however, this one-time energy expenditure would not impede or conflict with an applicable renewable energy or energy efficiency plan. Applicable plans, such as the 2017 Scoping Plan, address renewable energy and energy efficiency from an operational perspective with the understanding that construction-related energy consumption is inherently short term. Therefore, projects for which construction activities comprise the bulk of energy consumption, such as Alternative 1, are not the focus of such plans. While Alternative 1 would result in consumption of gasoline and diesel fuel, such products would be governed by local, regional, and statewide mechanisms such as the low carbon fuel standard and various transportation strategies implemented throughout the Lake Tahoe region by the Tahoe Metropolitan Planning Organization (TMPO) as components of its existing and future RTP/SCSs. Alternative 1 would not prevent TMPO or other agencies from addressing gasoline and diesel fuel consumption.

Because the use of gasoline and diesel fuel during project implementation would be short term and project implementation would not generate notable new operational energy demand, implementing the project would not conflict with a renewable energy or energy efficiency plan. This impact would be **less than significant**.

<u>Alternative 2: Restoration with Pedestrian Pier</u>

Similar to Alternative 1, the greatest amount of energy consumed from implementation of Alternative 2 would occur during construction and restoration activities. For the reasons listed above under Alternative 1, implementation of Alternative 2 would not conflict with a renewable energy or energy efficiency plan. This impact would be **less than significant**.

<u>Alternative 3: Restoration with No Pier</u>

Similar to Alternative 1, the greatest amount of energy consumed from implementation of Alternative 3 would occur during construction and restoration activities. For the reasons listed above under Alternative 1, implementation of Alternative 3 would not conflict with a renewable energy or energy efficiency plan. This impact would be **less than significant**.

Alternative 4: Preferred Alternative

Similar to Alternative 1, the greatest amount of energy consumed from implementation of Alternative 4 would occur during construction and restoration activities. For the reasons listed above under Alternative 1, implementation of Alternative 4 would not conflict with a renewable energy or energy efficiency plan. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

3.9.4 Cumulative Impacts

The issue of global climate change is inherently a cumulative issue because the GHG emissions of individual projects cannot be shown to have any material effect on global climate. Thus, the project's impact on climate change, described above, is addressed as a cumulative impact. The cumulative effects of all alternatives would be the same as those described in Impacts 3.9-1 through 3.9-3, above. Because the action alternatives would not result in a significant impact related to climate change and energy, the alternatives **would not make a considerable contribution** to cumulative impacts associated with climate change and energy.

3.10 PUBLIC SAFETY AND HAZARDS

This section describes the potential impacts of the proposed Meeks Bay Restoration Project related to public safety and hazards. Geologic hazards, including natural hazards associated with landslides, faulting, tsunamis, and seiches, are discussed in Section 3.7, "Geology and Soils." Risks associated with flooding are discussed in Section 3.6, "Hydrology and Water Quality."

3.10.1 Regulatory Setting

Section 3.6.1, "Regulatory Setting," in Section 3.6, "Hydrology and Water Quality," includes discussions of applicable Clean Water Act regulations, TRPA Code of Ordinances regulations related to water quality and hazards, and applicable state regulations related to the Porter-Cologne Water Quality Control Act of 1970, Lahontan RWQCB Basin Plan, and the National Pollutant Discharge Elimination System permit program.

FEDERAL

LTBMU Land Management Plan

The Land Management Plan for LTBMU (also known as the Forest Plan) provides strategic guidance to LTBMU for forest management (USFS 2016). The plan provides a framework for informed decision making, while guiding resource management programs, practices, uses, and projects. It does not include specific project and activity decisions but does include standards and guidelines that set mandatory limits and constraints on management activities to help achieve or maintain the desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements. The Land Management Plan includes the following standard and guidelines that are applicable to public safety and hazards:

- **SG5.** Apply current version of the Pacific Southwest Region Best Management Practices as described in Forest Service Handbook direction for Soil and Water Conservation, Water Quality Management, and Forest Service National Core BMP Technical Guide to all management activities. [Standard]
- **SG7.** Store fuel and other toxic materials only at designated sites. Prohibit storage of fuel and other toxic materials within SEZs except at designated administrative sites and sites covered by a Special Use Authorization. Refuel outside of SEZs unless there are no other alternatives. [Guideline]
- **SG22.** Where possible, provide a 100-foot radius of defensible space around all structures on all USFS structures or USFS permitted structures as well as for non-federal structures adjacent to National Forest System lands. More than 100 feet of defensible space may be needed, depending on site conditions. [Guideline]
- **SG138.** Ensure that facilities comply with health and safety codes. [Guideline]

The Forest Plan directs projects to comply with applicable regulations that protect public health and safety (e.g., Clean Water Act, etc.) and acknowledges that there are dedicated agencies that govern public health and safety issues (e.g., El Dorado County Environmental Management Department).

Boating Safety

Section 10 of the Rivers and Harbors Act of 1899 requires that regulated activities conducted below the ordinary high-water elevation of navigable waters of the United States be approved/permitted by the U.S. Army Corps of Engineers (USACE). Regulated activities include the placement/removal of structures, work involving dredging, disposal of dredged material, filling, excavation, or any other disturbance of soils/sediments or modification of a navigable waterway. Lake Tahoe is considered a navigable waterway.

The Federal Boat Safety Act was enacted by Congress in August 1971 and provides authority for the U.S Coast Guard to establish comprehensive boating safety programs, authorizes the establishment of national construction and performance standards for boats and associated equipment and creates a more flexible regulatory authority concerning the use of boats and associated equipment.

The U.S. Code of Federal Regulations (CFR) contains regulations governing the safe operation of boats in Title 33: Navigation and Navigable Waters. This includes regulations about the carriage and use of personal floatation devices (33 CFR 175.11 et seq.), visual distress signals (33 CFR 175.101 et seq.), and proper ventilation systems (33 CFR 175.201).

Management of Hazardous Materials

Various federal laws address the proper handling, use, storage, and disposal of hazardous materials, as well as requiring measures to prevent or mitigate injury to health or the environment if such materials are accidentally released. The U.S. Environmental Protection Agency (EPA) is the agency primarily responsible for enforcement and implementation of federal laws and regulations pertaining to hazardous materials. Applicable federal regulations pertaining to hazardous materials are primarily contained in Code of Federal Regulations (CFR) Titles 29, 40, and 49. Hazardous materials, as defined in the Code, are listed in 49 CFR 172.101. Management of hazardous materials is governed by the following laws.

- The Toxic Substances Control Act of 1976 (15 U.S. Code [USC] Section 2601 et seq.) regulates the manufacturing, inventory, and disposition of industrial chemicals, including hazardous materials. Section 403 of the Toxic Substances Control Act establishes standards for lead-based paint hazards in paint, dust, and soil.
- The Resource Conservation and Recovery Act of 1976 (42 USC 6901 et seq.) is the law under which EPA regulates hazardous waste from the time the waste is generated until its final disposal ("cradle to grave").
- The CFR contains regulations regarding the discharge of fuel, oil, oily wastes, and hazardous substances into navigable waters of the United States (40 CFR 110.3).
- The U.S. Department of Transportation (USDOT) regulates transport of hazardous materials between states and is responsible for protecting the public from dangers associated with such transport. The federal hazardous materials transportation law (49 USC Section 5101 et seq.; formerly the Hazardous Materials Transportation Act, 49 USC Section 1801 et seq.) is the basic statute regulating transport of hazardous materials in the United States. Hazardous materials regulations are enforced by the Federal Highway Administration, the U.S. Coast Guard, the Federal Railroad Administration, and the Federal Aviation Administration.

Transport of Hazardous Materials

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Worker Safety

The federal Occupational Safety and Health Administration (OSHA) is the agency responsible for assuring worker safety in the handling and use of chemicals identified in the Occupational Safety and Health Act of 1970 (Public Law 91-596, 9 USC 651 et seq.). OSHA has adopted numerous regulations pertaining to worker safety, contained in CFR Title 29. These regulations set standards for safe workplaces and work practices, including standards relating to the handling of hazardous materials and those required for excavation and trenching.

TAHOE REGIONAL PLANNING AGENCY

Tahoe Regional Plan

The TRPA Regional Plan contains goals and polices intended to help the region achieve and maintain adopted environmental threshold carrying capacities while providing for orderly growth and development consistent with such capacities. There are a variety of goals and policies related to public health and safety within the TRPA Regional Plan. Chapter 2, "Land Use Element," of the Goals and Policies document sets forth fundamental land use philosophies, which include the maintenance of the environmental, economic, social, and physical well-being of the Region. The Natural Hazards Subelement aims to minimize risks from natural hazards such as earthquakes, and seiches. The Water Quality Subelement aims to maintain thresholds for water quality by addressing point and non-point sources of pollution. Relevant polices include the following:

- Policy WQ-2.5. TRPA shall cooperate with other agencies with jurisdiction in the Lake Tahoe region in the preparation, evaluation, and implementation of toxic and hazardous spill control plans.
- Policy WQ-2.6. Liquid or solid wastes from recreational vehicles and boats shall be discharged at approved pump-out facilities. Pump-out facilities will be provided by public utility districts, marinas, campgrounds, and other relevant facilities in accordance with standards set forth in the Best Management Practices Handbook.

Chapter 4, "Conservation Element," plans for the preservation, development, utilization, and management of the scenic and other natural resources within the region. The Shorezone Subelement contains goals and policies that govern development in the shorezone area of Lake Tahoe. Relevant policies include the following:

- Policy SZ-1.9. The Agency shall regulate the placement of new piers, buoys, and other structures in the foreshore and nearshore to avoid degradation of fish habitats, creation of navigation hazards, interference with littoral drift, interference with the attainment of scenic thresholds, and other relevant concerns.
- Policy SZ-1.11. The Agency shall regulate the maintenance, repair, and modification of piers and other structures in the nearshore and foreshore.

Chapter 6, "Public Services and Facilities Element," includes goals and policies related to the provision of adequate public services to meet the needs of existing and new development. Relevant policies include the following:

- Policy PS-1.1. Public services and facilities should be allowed to upgrade and expand consistent with the land use element of the Regional Plan and federal, state, and local standards.
- Policy PS-4.1. The impact on educational and public safety services shall be considered when reviewing projects and plan amendments proposed within the region. To the extent feasible, adverse impacts should be mitigated as part of the review process.
- Policy PS-4.2. Educational and emergency service organizations should anticipate and plan for projected demands and needs consistent with the regional plan and are encouraged to advise the agency when development potentials exceed current or anticipated service capabilities or capacities.

Code of Ordinances

The TRPA Code of Ordinances compiles all the laws and ordinances needed to implement the Tahoe Regional Plan goals and policies. In addition to the applicable TRPA Code sections related to water quality summarized in Section 3.6, "Hydrology and Water Quality," the Code section applicable to public health and safety for the project is summarized in Table 3.10-1.

Table 3.10-1 Applicable TRPA Code Requirements Related to Public Safety and Hazards

Code Section	Summary of Requirements
Section 84.10	Identifies the requirements applicable to other activities and uses in the shorezone, including operation of watercraft, no-wake zones (within 600 feet of the waterline of the lake, 200 feet of shorezone structures, and 100 feet of swimmers and non-motorized watercraft), and water-oriented outdoor recreation concessions.

Source: TRPA 2021.

State Route 89 Corridor Management Plan

The SR 89 Recreation Corridor Management Plan (CMP) consists of a series of corridor-wide strategies and recommendations along SR 89 on Tahoe's west shore that would help resolve corridor issues, such as challenges for emergency access and evacuation, and address opportunities developed in coordination with plan partners, stakeholders, and public (TRPA et al. 2020). The CMP summarizes current plan recommendations, core strategies, and actions to implement projects and move the corridor towards its goals. The CMP includes the goals and objectives that are relevant to enhancing facilities and utilizing management strategies that enhance emergency access and evacuation routes. Overall, the desired conditions for the SR 89 Recreation Corridor require an increase in operational capacity to effectively administer visitor management strategies and reduce impacts on natural and cultural resources. It is recognized that more coordinated management approaches that control how people arrive to recreation destinations are needed, which includes support for transit and opportunities for traveling by bicycle. The desire is for managing travel to achieve an even distribution of visitors throughout the day and a more organized transportation approach that eliminates the chaos caused from visitors parking and walking along the highway that results in safety, emergency access, and evacuation issues.

STATE

Uniform Fire Code

The Uniform Fire Code includes regulations relating to construction, maintenance, and use of buildings. Topics addressed in the Uniform Fire Code include fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, hazardous materials storage and use, provisions intended to protect and assist fire responders, industrial processes, and many other general and specialized fire-safety requirements for new and existing buildings and premises. The Uniform Fire Code includes specialized technical regulations related to fire and life safety.

California Fire Code

The California Fire Code is Part 9 of the California Code of Regulations (CCR), Title 24, also referred to as the California Building Standards Code. The California Fire Code incorporates the Uniform Fire Code with necessary California amendments. It prescribes regulations consistent with nationally recognized good practices for the safeguarding to a reasonable degree of life and property from the hazards of fire, explosion, and dangerous conditions arising from the storage, handling, and use of hazardous materials and devices and from conditions hazardous to life or property in the use or occupancy of buildings or premises and provisions to assist emergency response personnel.

Management of Hazardous Materials

In California, both federal and state community right-to-know laws are coordinated through the Governor's Office of Emergency Services. The federal law, SARA Title III or EPCRA, described above, encourages and supports emergency planning efforts at the state and local levels and to provide local governments and the public with information about potential chemical hazards in their communities. Because of the community right-to-know laws, information is collected from facilities that handle (e.g., produce, use, store) hazardous materials above certain quantities. The provisions of EPCRA apply to four major categories:

- emergency planning,
- emergency release notification,
- reporting of hazardous chemical storage, and
- inventory of toxic chemical releases.

The corresponding state law is Chapter 6.95 of the California Health and Safety Code (Hazardous Materials Release Response Plans and Inventory). Under this law, qualifying businesses are required to prepare a Hazardous Materials Business Plan, which would include hazardous materials and hazardous waste management procedures and emergency response procedures, including emergency spill cleanup supplies and equipment. At such time as the applicant begins to use hazardous materials at levels that reach applicable state and/or federal thresholds, the plan is submitted to the administering agency.

The California Department of Toxic Substances Control (DTSC), a division of the California Environmental Protection Agency, has primary regulatory responsibility over hazardous materials in California, working in conjunction with EPA to enforce and implement hazardous materials laws and regulations. As required by Section 65962.5 of the California Government Code, DTSC maintains a hazardous waste and substances site list for the State, known as the Cortese List. Individual regional water quality control boards (RWQCBs) are the lead agencies responsible for identifying, monitoring, and cleaning up leaking underground storage tanks (USTs). The Lahontan RWQCB has jurisdiction over the Meeks Restoration project area.

Demolition of buildings that contain asbestos is regulated as an Asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP) Regulated Facility. An Asbestos NESHAP Regulated Facility is subject to a thorough asbestos inspection of the facility and testing of materials to determine whether asbestos is present that must be conducted by a Cal/OSHA-certified asbestos consultant (Cal/OSHA regulations, California Labor Code, Sections 9021.5 through 9021.8). Demolition projects require a NESHAP Notification even if there is found to be no asbestos present after testing.

Transport of Hazardous Materials and Hazardous Materials Emergency Response Plan

The State of California has adopted USDOT regulations for the movement of hazardous materials originating within the state and passing through the state; state regulations are contained in 26 CCR. State agencies with primary responsibility for enforcing state regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol and the California Department of Transportation (Caltrans). Together, these agencies determine container types used and license hazardous waste haulers to transport hazardous waste on public roads.

California has developed an emergency response plan to coordinate emergency services provided by federal, state, and local governments and private agencies. Response to hazardous materials incidents is one part of the plan. The plan is managed by the Governor's Office of Emergency Services, which coordinates the responses of other agencies in the project area.

Worker Safety

The California Occupational Safety and Health Administration (Cal/OSHA) assumes primary responsibility for developing and enforcing workplace safety regulations within the state. Cal/OSHA standards are typically more stringent than federal OSHA regulations and are presented in Title 8 of the CCR. Cal/OSHA conducts onsite evaluations and issues notices of violation to enforce necessary improvements to health and safety practices.

Title 8 of the CCR also includes regulations that provide for worker safety when blasting and explosives are utilized during construction activities. These regulations identify licensing, safety, storage, and transportation requirements related to the use of explosives in construction.

LOCAL

El Dorado County Local Hazard Mitigation Plan

The County developed its Local Hazard Mitigation Plan to reduce or eliminate long-term risk to people and property from natural hazards consistent with the Disaster Mitigation Act of 2000. The Plan identifies actions associated with wildfire that are summarized below (El Dorado County 2018:4-33 through 4-36). This Plan does not establish designated evacuation routes. Direction regarding evacuation routes is provided as part of evacuation orders issued by the El Dorado County Sheriff through the El Dorado County Sheriff's Office-Office of Emergency Services Alert Notification System.

- Action 14. Defensible Space Programs: Manage properties and infrastructure through the management of fuels.
- Action 15. Large Strategic Fuel Break: Provision of large strategic fuel breaks to provide landscape scale community protection.
- Action 16. Fuel Breaks in the Wildland Urban Interface: Establishment of "Shaded Fuel" breaks for dense vegetation areas approximately 300 feet wide for communities with a wildland urban interface.

El Dorado County Code

Chapter 8.09 (Vegetation Management and Defensible Space) of Title 8 of the County Code requires the removal or abatement of all hazardous vegetation and combustible material, which constitutes a fire hazard which may endanger or damage neighboring property. Section 8.09.070(F) establishes defensible space requirements for parcels in, upon, or adjoining land that is covered with flammable material.

Chapter 17 of Title 14 contains El Dorado County's SRA Fire Safe Regulations, which apply to construction within an SRA that is approved after January 1, 1991, including activities such as permitting new parcels, applying for a building permit for new construction, and road construction.

El Dorado County Environmental Management Department

El Dorado County Environmental Management Department (EDCEMD) is responsible for promoting a safe and healthy environment in the county and for enforcing hazardous waste laws and regulations at a local level. EDCEMD, as the local Certified Unified Program Agency, monitors the proper use, storage, and cleanup of hazardous materials; monitoring wells; removal of leaking USTs; and permits for the collection, transport, use, or disposal of refuse.

3.10.2 Environmental Setting

For purposes of this section, the term "hazardous materials" refers to both hazardous substances and hazardous wastes. A "hazardous material" is defined in the CFR as "a substance or material that … is capable of posing an unreasonable risk to health, safety, and property when transported in commerce" (49 CFR 171.8). California Health and Safety Code Section 25501 defines a hazardous material as follows:

> "Hazardous material" means any material that, because of its quantity, concentration, or physical, or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. "Hazardous materials" include, but are not limited to, hazardous substances, hazardous waste, and any material which a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

"Hazardous wastes" are defined in California Health and Safety Code Section 25141(b) as wastes that:

> … because of their quantity, concentration, or physical, chemical, or infectious characteristics, [may either] cause, or significantly contribute to an increase in mortality or an increase in serious illness [or] pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

HAZARDOUS MATERIALS IN THE PROJECT AREA

Hazardous materials in or near the project area are generally associated with the potential risk of accidents from the transport and use of hazardous materials and waste to support construction activities and various commercial and industrial land uses. Many chemicals used for household cleaning, construction, landscaping, and automotive or motorized boating maintenance and repair are considered to generate hazardous materials and waste.

Marina Operations

Boat repair and maintenance activities at marinas create wastes that are considered hazardous and require proper handling. Typical wastes which are classified as hazardous include: oil, grease, diesel fuel, and oily bilge water; contaminated soil; gasoline and water; solvents, such as acetone, kerosene, mineral spirits; strong acids and alkalines; and paint chips or leftover paint.

The original marina included a fueling dock, and a gas station was located near the site of the existing visitor's center (Ascent Environmental 2022). However, Lahontan RWQCB records indicate that there are no fueling pumps at the marina, there is no sale of fuel at the marina, and rental boat fueling at the marina was conducted from a fuel tank located on the back of the manager's pickup truck (Lahontan RWQCB 2017).

The SWRCB maintains the Geotracker database, which lists sites containing recorded hazardous materials releases and provides information regarding status of clean-up activities. DTSC maintains the Envirostor database, which is the data management system for tracking cleanup, permitting, enforcement and investigation efforts at hazardous waste facilities and sites with known contamination or sites where there may be reasons to investigate further. A search of these databases resulted in the identification of one site, a leaking underground storage tank cleanup site at the marina at Meeks Bay (SWRCB 2021, DTSC 2021). The records indicate that there was a release related to gasoline associated with an underground storage tank, but the cleanup was completed, and the case was closed in 1996. For this reason, this incident is not discussed further. Other leaking underground storage tank cleanup sites identified nearest the project area are over 1 mile to the north and to the south and these sites have been cleaned up and the cases were closed (SWRCB 2021).

Aerially Deposited Lead

Aerially deposited lead (ADL) refers to lead deposited along highway shoulders from past vehicle emissions. ADL is the result of tailpipe emissions during the years that lead was used as an additive in gasoline. Even though leaded fuel has been prohibited in California since the 1980s, ADL can still be found along the unpaved areas adjacent to highways that were in use before that time. ADL concentrations along highways can be high enough to cause the soil to be defined as a California hazardous waste. Hazardous waste law requires that this material is managed, transported, and disposed of at a Class I disposal facility (DTSC 2016).

Given the completion of roadway stormwater drainage improvements along SR 89 through 2015, ADL is not likely to remain along SR 89 at the bridge over Meeks Creek (LT Info 2021a, 2021b).

Asbestos-Containing Materials

Asbestos, a naturally occurring fibrous material, was used as a fireproofing and insulating agent in buildings constructed prior to 1979 (California Department of Industrial Relations 2021). Because it was widely used before the discovery of its health effects, asbestos is found in a variety of building materials, including sprayed-on acoustic ceiling texture, floor tiles, and pipe insulation.

Asbestos exposure is a human respiratory hazard when the asbestos becomes friable (easily crumbled) because inhalation of airborne fibers is the primary mode of asbestos entry into the body. Asbestos-related health problems include lung cancer and asbestosis. Asbestos-containing building materials are considered hazardous by Cal/OSHA when bulk samples contain more than 0.1 percent asbestos by weight. Asbestos can be evaluated only by sampling, performed by a certified technician, followed by laboratory analysis. These materials must be handled by a qualified contractor.

Construction of buildings at Meeks Bay Resort began in the 1920s (LTBMU 2011). Historic information related to the resort buildings are included in Section 3.3, "Cultural and Tribal Cultural Resources." For the purposes of the analysis in this section, changes would only be made to up to three structures in the resort depending on the action alternative: the two motel cabin buildings closest to the shoreline in the northern portion of the project area and the marina office located next to the boat ramp. The motel cabins were constructed in 1962 (LTBMU 2011). Construction on the marina began in 1962 and the marina office was built by 1969 (LTBMU 2011, Google 1969). The motel cabins along the shoreline and the marina office have a high likelihood of containing asbestos-containing building materials.

Lead-Based Paint

Lead is a potentially hazardous material that can result in cardiovascular effects, increased blood pressure and incidence of hypertension; decreased kidney function; reproductive problems; and nervous system damage. Lead can be found in old water pipes, solder, paint, and in soils around structures painted with lead-based paints. Lead-based paints are likely present on buildings constructed prior to 1978 (EPA 2019), when the quantity of lead in paints became regulated. Potentially hazardous exposures to lead can occur when lead-based paint is improperly removed from surfaces by dry scraping, sanding, or open-flame burning. Lead-based paints and coatings used on the exterior of buildings may have also flaked or oxidized and deposited into the surrounding soils.

The motel cabins along the shoreline and the marina office have a high likelihood of containing lead-based paint.

EMERGENCY PREPAREDNESS AND EVACUATION

Emergency evacuation routes from the project area are limited to State Route (SR) 89 (NTFPD and MBFPD 2021) with the evacuation direction either to the north or to the south depending on the location of the incident (e.g., wildfire). The project area is in El Dorado County approximately 3 miles south of the El Dorado-Placer County line. The Placer Operational Area Eastside Emergency Evacuation Plan, which covers the eastern portion of Placer County, acknowledges that the limited number of roads in the area makes evacuations problematic.

The need to quickly execute a rapid evacuation requires detailed planning, de-confliction of response actions, and cooperation between first responders and supporting agencies alike (Placer County 2015). Evacuation procedures and processes are always incident driven and will vary based on the nature and location of a given incident. Evacuation routes are determined based on situational analysis with the information available at the time. The El Dorado County Sheriff's Office utilizes Code Red alerts and Integrated Public Alert & Warning System, a local alerting system that provides emergency and life-saving information to the public through mobile phones, radio, and television to notify the public and Law Enforcement will respond accordingly (Brown, pers. comm., 2021).

The nearest evacuation shelters to the project area include the following (City of South Lake Tahoe 2021, Placer County 2015):

- Noel Porter Retreat Center, Tahoe City, 10 miles north of the project area;
- Fairway Community Center, Tahoe City, 11 miles north of the project area;
- Tahoe Lake Elementary School, Tahoe City, 11.5 miles north of the project area;
- South Tahoe High School, South Lake Tahoe, 16 miles south of the project area; and
- South Tahoe Middle School, South Lake Tahoe, 18 miles south of the project area.

A description of the local plans for emergency preparedness in El Dorado and Placer counties is provided below.

El Dorado County Local Hazard Mitigation Plan

The purpose of the *El Dorado County Local Hazard Mitigation Plan* (LHMP) is to reduce or eliminate long-term risk to people and property from natural hazards and their effects in Placer County (El Dorado County 2018). The plan includes strategies, in the form of goals and actions, which the county and participating jurisdictions will use to decrease vulnerability and increase resiliency and sustainability. Under the LHMP, the County is responsible for implementing actions and programs that would help reduce wildfire hazards including, but not limited to, public education, defensible space programs, large strategic fuel breaks, and fuel breaks in the wildland urban interface (WUI).

The LHMP also summarizes the systems and procedures established to protect its residents and visitors to plan for, avoid, and respond to a hazard event including those associated with floods and wildfires. This includes pre-disaster public awareness and education information. Specific warning and evacuation systems and procedures include information relative to warning systems, Code Red alert system, dam protocols, evacuation recommendations, and sheltering in place.

Placer Operational Area East Side Emergency Evacuation Plan

Although the project area is located in El Dorado County, its proximity to Placer County warrants summarizing the *Placer Operational Area East Side Emergency Evacuation Plan* (Placer County 2015), which could influence evacuation of the project area and vicinity. This plan was developed to increase preparedness and facilitate the efficient and rapid evacuation of threatened communities in the far eastern end of the county in the event of an emergency, most likely a forest fire or flood. The plan provides details regarding evacuation alerts, evacuation emergency medical services and public information, traffic control, transportation, communication, and animal services. Interstate 80 (I-80) and State Routes (SR) 28, 89, and 267 comprise the major evacuation routes in eastern Placer County.

FIRE PROTECTION AND EMERGENCY SERVICES

Meeks Bay Fire Protection District

The Meeks Bay area is served by Meeks Bay Fire Protection District (MBFPD), which provides service to an area that covers 14 square miles. The service area contains a mix of residential, recreational, and commercial properties. The MBFPD service area includes extensive state park lands (approximately 840 acres) and federal lands (approximately 1,240 acres) (NTFPD and MBFPD 2018). Station 67 is located directly adjacent to the project area and is staffed with one fire captain and one firefighter/paramedic at all times. MBFPD also includes Station 68, which is an unstaffed station located in Tahoma that stores a water tender. The project area includes a fire hydrant located near the entrance of the Meeks Bay Resort.

MBFPD Station 67 is located on SR 89, adjacent to Meeks Bay Campground and Meeks Bay Resort. The station has one Type 1 fire engine, one rescue truck, and one ambulance. MBFPD has a contract with North Tahoe Fire Protection District (NTFPD) for NTFPD to provide a full-time chief officer and management of MBFPD's firefighters and staff for fire protection, training, and administrative duties.

From 2017-2019, MBFPD responded to an average annual 227 emergency incidents (MBFPD and NTFPD 2020). MBFPD also provided 2017-2020 response data for emergency calls within the shoreline areas of the MBFPD and NTFPD service areas. A summary of locations of these emergency calls is provided in Table 3.10-2.

Table 3.10-2 General Locations of Emergencies near the Shoreline Area[1] from Emerald Bay to Kings Beach (2017-2020)

General Area (Reported Zip Code)	2017 # of Emergency Calls	2017 Proportion of Calls	2018 # of Emergency Calls	2018 Proportion of Calls	2019 # of Emergency Calls	2019 Proportion of Calls	2020 # of Emergency Calls	2020 Proportion of Calls
Carnelian Bay (96140)	1	6%	1	3%	6	12%	2	4%
Tahoma to Tahoe Pines (96141)	3	18%	7	18%	6	12%	3	6%
Tahoma to Emerald Bay (96142) (includes Meeks Bay)	2	12%	4	10%	6	12%	5	9%
Kings Beach (96143)	3	18%	17	43%	14	28%	25	46%
Tahoe City to Dollar Point (96145)	6	35%	5	13%	11	22%	11	20%
Olympic Valley to Alpine Meadows (96146)	1	6%	0	0%	0	0%	1	2%
Tahoe Vista to Kings Beach (96148)	1	6%	5	13%	5	10%	5	9%
Emerald Bay to South Lake Tahoe (961540)	0	0%	1	3%	2	4%	2	4%
Total	**17**	**100%**	**40**	**100%**	**50**	**100%**	**54**	**100%**

[1] This table includes areas within the MBFPD and NTFPD service areas limited to the lake and beach, dock, or marina areas.

Sources: McNamara, pers. comm., 2020; compiled by Ascent Environmental in 2021.

The area identified as "Tahoma to Emerald Bay" in Table 3.10-2, includes Meeks Bay. From 2017-2020 this area was the source of 9 percent to 12 percent of emergency calls near the shoreline area that were responded to by MBFPD and NTFPD.

North Tahoe Fire Protection District

NTFPD is the sole ambulance and advanced level paramedic provider in both El Dorado County and Placer County throughout the north and west shore areas of the Tahoe Basin. NTFPD's 70 uniformed and support personnel protects an area of 32 square miles on the north and west shores of Lake Tahoe (NTFPD 2021). NTFPD also responds to all fire, rescue, emergency medical, hazardous material emergencies that occur or are brought to shore from Lake Tahoe in the north and west shore areas (MBFPD and NTFPD 2020).

From 2017 through 2019, NTFPD responded to an average annual 2,241 incidents (MBFPD and NTFPD 2020). Table 3.10-2 provides a summary of emergency calls that MBFPD or NTFPD responded to from 2017-2020.

USDA Forest Service Wildland Fire Services

The USDA Forest Service has a fire station located next to the entrance to Meeks Bay Resort. This station is staffed seasonally and provides wildland fire response for the west and north shore areas. When in operation, the station could provide fire response to the project area, but all other incidents are responded to by local police and emergency response (Sibr, pers. comm., 2021).

WATERBORNE SAFETY AND EMERGENCY RESPONSE

The region's fire agencies have developed a comprehensive system for sharing resources. Regional fire agencies rely on mutual and automatic aid agreements for major structure fires, other higher risk incidents, and during periods of high incident activity. Other agencies, including law enforcement, also provide support for emergencies at Meeks Bay.

When needed, MBFPD receives mutual aid for emergency services on land and in the lake from several nearby agencies. Tahoe Douglas Fire Protection District (TDFPD) and North Lake Tahoe Fire Protection District provide the only emergency boats with firefighting and water rescue capability (NLTFPD 2021, TDFPD 2021). South Lake Tahoe Fire Department and North Lake Tahoe Fire Protection District provide emergency boats with emergency medical/water rescue. The U.S. Coast Guard, El Dorado County Sheriff, Placer County Sheriff, and Washoe County also provide law enforcement boats and water rescue with their primary responsibility being law enforcement/search and rescue (McNamara, pers. comm., 2021a).

The U.S. Coast Guard is the overall search and rescue lead on Lake Tahoe, with the U.S. Coast Guard Station Lake Tahoe located at 2500 Lake Forest Road. The U.S. Coast Guard also has resources from Sacramento and the Bay Area to respond to any and all emergencies and large environmental spills. The U.S. Coast Guard is operational year-round and has two 29-foot patrol boats that regularly conduct patrols and respond to emergencies. They operate 24 hours per day, seven days a week. The mission of the Tahoe station is search and rescue only. All environmental spill responses would be coordinated through the U.S. Coast Guard's National Response Center (Bieber, pers. comm., 2018).

The request for any marine resource could come through a number of agencies depending on how the call was routed through the public safety answer point that received the initial 911 call. As Lake Tahoe is a large area with no real landmarks except the shore or GPS coordinates, an incident may start with one resource and then involve other agencies based upon need, jurisdiction, response zone or location. Many lake-based incidents are also reported over USCG maritime radio systems as well and not necessarily 911 or cellular 911. So, often USCG might be the first agency to be made aware of the incident (McNamara, pers. comm., 2021b).

For incidents where MBFPD staff are on scene or while enroute and recognize the need for additional resources (including fire/rescue/law boats), they would request the resource through the MBFPD Emergency Command Center (i.e., Grass Valley ECC). The MBFPD communications plan mandates that their requests go through a single point resource ordering process through the Grass Valley ECC (McNamara, pers. comm., 2021b).

From 2018-2020, MBFPD responded to 14 incidents that utilized a boat from other fire agencies for lake-based emergencies (see Table 3.10-2). The response times from these other agencies are often a minimum of 1 hour due to the location of their boats (McNamara, pers. comm., 2020). The nearest emergency boat with fire response capabilities is docked at Zephyr Cove pier, approximately 9 miles southeast of Meeks Bay. The El Dorado County sheriff boat, City of South Lake Tahoe police department boat, and City of South Lake Tahoe Fire Rescue emergency boat are located at Tahoe Keys, approximately 9 miles southeast of Meeks Bay. Any emergency boat on the lake could respond depending on which one is closest to the incident.

LAW ENFORCEMENT

Law enforcement near the project area is provided at the federal, state, county, and city levels. At the community level, law enforcement and protection services are provided by the El Dorado County Sheriff's Office. In addition to local law enforcement agencies, the project area is served by USDA Forest Service law enforcement personnel.

The El Dorado County Sheriff has a dedicated deputy assigned to the west shore portion of El Dorado County four days a week but patrol deputies from the south shore supplement to provide around-the-clock coverage. On holidays or special events, more personnel is added as the situation dictates (Brown, pers. comm., 2021).

Waterborne Safety and Law Enforcement

Eight government agencies share law enforcement and emergency response duties on Lake Tahoe. Local agencies that patrol the lake include:

- U.S. Coast Guard: USCG has one station on Lake Tahoe located just east of the Lake Forest Boat Ramp and approximately 10.5 miles from Meeks Bay. USCG Station Lake Tahoe is a small boat station that is operational year-round. The station utilizes two 25-foot Defender Class Boats to provide maritime law enforcement and search and rescue services to boaters on Lake Tahoe. USCG Station Lake Tahoe does not provide fire, emergency medical, or hazardous material response (MBFPD and NTFPD 2020).
- El Dorado County Sheriff: The El Dorado County Sheriff provides law enforcement services within the El Dorado County portion of the region, from the California-Nevada state line to Tahoma. Rescue equipment consists of jet skis and boats, which are housed at the Tahoe Keys Marina. They are one of the only operations on the south shore that operate 24 hours per day (Almos, pers. comm., 2018).
- Placer County Sheriff: The Placer County Sheriff provides law enforcement services on the northwest corner of the lake, from Stateline Point south to Tahoma. They have a patrol boat on the lake that is staffed from mid-May through mid-September (Thursday-Sunday). The boat operates out of the Sierra Boat Company (Baxter, pers. comm., 2018).
- South Lake Tahoe Police Department: The South Lake Tahoe Police Department provides law enforcement services in the City of South Lake Tahoe, from Stateline on the east to Emerald Bay on the west. They have one boat for use during lake-related emergencies (Dougherty, pers. comm., 2018).
- Douglas County Sheriff: The Douglas County Sheriff provides law enforcement services in Douglas County, from Stateline on the south to Glenbrook on the north. They operate one boat out of a slip in the Tahoe Keys during the months of May through October. In the offseason, the boat is stored in a warehouse off of the water (Skibinski, pers. comm., 2018).
- Washoe County Sheriff: The Washoe County Sheriff provides law enforcement services in Washoe County, from Stateline Point south to Glenbrook. They have one boat for use during lake-related emergencies, which is manned on weekends from Memorial Day through October 1. The boat operates out of the Thunderbird Lodge (Bello, pers. comm., 2018).
- Lahontan Regional Water Quality Control Board (Lahontan RWQCB): Lahontan RWQCB is responsible for investigating the release of hazardous materials on the California side of Lake Tahoe.

The Sheriff's Offices also have other resources to respond to emergencies such as County Search and Rescue Teams and Air Search and Rescue.

WILDLAND FIRE HAZARDS

The California Department of Forestry and Fire Protection (CAL FIRE) has mapped fire hazard severity zones (FHSZs) for the entire state, including the Tahoe region. FHSZ delineations are based on an evaluation of fuels, fire history, terrain, housing density, and occurrence of severe fire weather. They are intended to identify areas where urban conflagrations could result in catastrophic losses. FHSZs are categorized as: Moderate, High, and Very High, which are defined as follows (CAL FIRE 2007):

- Moderate: Wildland areas supporting areas of typically low fire frequency and relatively modest fire behavior or developed/urbanized areas with a very high density of non-burnable surfaces including roadways, irrigated lawn/parks, and low total vegetation cover (greater than 30 percent) that is highly fragmented and low in flammability (e.g., irrigated, manicured, managed vegetation).
- High: Wildland areas that support medium to high hazard fire behavior and roughly average burn probabilities or developed/urban areas typically with moderate vegetation cover and more limited non-burnable cover. Vegetation cover typically ranges from 30 to 50 percent and is only partially fragmented.
- Very High: Wildland areas that support high to extreme fire behavior or developed/urban areas with high vegetation density (greater than 70 percent cover) and associated high fuel continuity.

The majority of the project area, excluding the beach area and area containing the marina, is located within a Very High FHSZ (CAL FIRE 2009).

Ongoing Forest Management

The isolated nature of the project area and surrounding communities with limited access could present challenges to fire suppression efforts when they are needed. Land management and fire protection agencies are addressing this problem by completing fuels reduction projects around most of the at-risk communities and by assisting with the creation of defensible space. Other efforts to reduce fire hazards include defensible space evaluations required as part of the building permit process, residential curbside chipping programs, and private property fuels reduction projects (TFFT 2015). The *Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy* (Fuel Reduction Strategy) identifies ongoing forest management planning and implementation of fuel reduction projects.

Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy for the Lake Tahoe Region

Sixteen local, state, and federal agencies collaboratively plan and implement fuels reduction treatments to protect Lake Tahoe's California and Nevada communities and environment. In 2007, the Fuel Reduction Strategy was developed from combining all existing fire plans for the various agencies that had been developed within the Tahoe Basin, incorporating by reference the Community Wildfire Protection Plan (CWPP) for the California portion of the Lake Tahoe Basin. The Fuel Reduction Strategy facilitates the strategic decisions that must be made by land management, fire, and regulatory agencies to reduce the probability of a catastrophic fire in the Basin.

The Tahoe Fire and Fuels Team (TFFT) was formed in 2008 to implement the Fuel Reduction Strategy and consists of representatives from 22 fire districts, land management agencies, universities, and regulatory agencies with a role in managing wildfire fuel in the Lake Tahoe Basin. The TFFT partners have worked for years to create fire-adapted communities, restore forest resilience, and achieve other objectives consistent with the Fuel Reduction Strategy (CAL FIRE et al. 2014, 2017) and the CWPP. TFFT partners have treated 57,000 acres in the WUI since 2008. These multiple-benefit thinning and prescribed fire treatments connect to form continuous areas where fire behavior is reduced and forest health is improved (California Tahoe Conservancy 2019). The 2017 update to the Fuel Reduction Strategy included incorporating landscape-scale fuels reduction and restoration plans into the 2014 Strategy (CAL FIRE et al. 2017). The USDA Forest Service, California Department of Parks and Recreation (State Parks), California Tahoe Conservancy, and Liberty Utilities have ongoing and planned fuels reduction and defensible space projects and programs in the vicinity of the project area. These projects and programs include:

- California State Parks WUI Fuel Reduction and Prescribed Fire Program,
- Urban Forest Defense Zone Fuels Reduction and Healthy Forest Project,
- Lake Tahoe West Restoration Project,
- Liberty Utilities Resilience Corridors Project,
- Meeks Creek Meadow Ecosystem Restoration Project,

- Tahoe Program Timberland EIR, and
- West Shore Wildland Urban Interface (WUI) Hazardous Fuels Reduction and Forest Health Project.

3.10.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

Methods for the impact analysis included a review of applicable laws and regulations pertaining to public safety, hazards, and hazardous materials generally, wildfire risk, and as applicable to the action alternatives and the project area. Within this framework, potential for navigational hazards, emergency response capacity, known locations of hazardous materials, and the potential for other safety or hazardous conditions were reviewed based on regulations, planning documents, goals, and policies. The impact analysis considered potential for changes in the nature, extent, or presence of hazardous conditions to occur as a result of construction and operation of the project alternatives, including increased potential for exposure to hazardous materials and conditions and increased boating accidents due to increased boating activity and navigation hazards. Compliance with applicable federal, state, and local health and safety laws and regulations would generally protect the health and safety of the public.

Potential effects associated with the project alternatives would be temporary or permanent. Temporary impacts generally include effects associated with construction activities, including the transport, storage, and use of potentially hazardous chemicals and the potential to encounter hazardous wastes during construction. Permanent impacts generally include effects associated with increased navigational hazards in the bay, which could lead to increased accidents and a corresponding need for emergency services and access to the lake.

THRESHOLDS OF SIGNIFICANCE

The thresholds of significance were developed in consideration of the State CEQA Guidelines, TRPA Thresholds, TRPA Initial Environmental Checklist, LTBMU Forest Plan, and other applicable policies and regulations. Under NEPA the significance of an effect must consider the context and intensity of the environmental effect. The factors that are considered under NEPA to determine the context and intensity of its effects are encompassed by the thresholds of significance. An alternative would have a significant effect on public safety and hazards if it would:

- impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan;
- impair or result in a decrease in emergency access to the shoreline;
- create a substantial need within the region for new or altered public services related to fire protection, law enforcement and protection, or other emergency response services;
- result in a substantial increase in the risk for watercraft accidents;
- generate new human health and safety risks;
- involve a risk of the accidental release of hazardous substances;
- expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires;
- due to slope, prevailing winds, and other factors, exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire; or
- expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

ISSUES NOT DISCUSSED FURTHER

The alternatives are not located within one-quarter mile of an existing or proposed school. The closest school to the project area is Tahoe Lake Elementary School, located over 9 miles to the north in Tahoe City. Implementation of the action alternatives would not emit or handle hazardous materials, substances, or wastes within one-quarter mile of an existing or proposed school.

The alternatives are not located close enough to a public airport or a private airstrip to create a conflict or safety hazard. The South Lake Tahoe Airport is located over 11 miles southeast of the project area. The project area is not within the designated approach or departure routes of any airports or airstrips. The location of the project area so far from the nearest public airstrip would not result in a safety hazard for people visiting or working at the project area.

These issues have been dismissed from further consideration in this EIS/EIS/EIR.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.10-1: Interfere with Implementation of an Adopted Emergency Response Plan or Emergency Evacuation Plan

Alternatives 1, 2, 3, and 4 would not include construction activities or any new facilities that would interfere with implementation of an adopted emergency response plan or emergency evacuation plan. Development and implementation of a traffic management plan would include measures to minimize traffic disruption and maintain emergency and evacuation access across Meeks Creek. Implementation of Alternatives 1 and 2 would not result in an increase in visitor capacity. Alternatives 3 and 4 would result in an increase in parking and Alternative 3 would increase the number of campsites. This increase in vehicles needing evacuation would not substantially reduce emergency evacuation times. The potential impact on interference with implementation of an adopted emergency response plan or emergency evacuation plan from implementation of Alternatives 1, 2, and 3 would be **less than significant**.

The No Action Alternative would result in no change to access, visitor capacity, or land uses in the project area. Emergency evacuation and implementation of emergency plans would continue as they do under existing conditions. This would be **a less-than-significant** impact related to interference with implementation of an adopted emergency response plan or emergency evacuation plan.

No Action Alternative

With the No Action Alternative, there would be no change to the project area and therefore no conflict with emergency plans would result. Demand for emergency response and response operations would continue as they do under existing conditions. This impact would be **less than significant**.

Alternative 1: Restoration with Boating Pier

Implementation of Alternative 1 would require access by workers and heavy equipment, delivery and stockpiling of materials, demolition and removal of debris, removal and reconstruction of the SR 89 bridge, and other operations that, depending on the exact timing and nature of construction activities, could limit vehicular access on roads adjacent to the project area. However, most construction activities and staging areas would be located within the project area and would not be substantial (e.g., would not require substantial numbers of large earthmovers or excavators); thus, impairment of emergency routes, traffic delays, or potentially preventing access to calls for service or delays in evacuation via routes identified in the Placer Operational Area Eastside Emergency Evacuation Plan would be minimal.

Replacement of the SR 89 bridge would involve demolition of the existing approximately 40-foot-long bridge, however access for emergency vehicles or evacuation of vehicles would be maintained during construction to comply with the resource protection measures established for the project, and a traffic management plan would be developed and implemented to minimize traffic disruption during construction and maintain continual emergency access across Meeks Creek (see Appendix A, "Resource Protection Measures"). The traffic management plan would identify strategies to maintain access across the bridge such as constructing the multi-use path bridge prior to any potential closure of the SR 89 bridge and diverting emergency vehicles across the multi-use path bridge, requiring construction work (including demolition) to only occur along one lane of the bridge at one time, or constructing a temporary bridge upstream or downstream of the existing bridge (see Section 2.5.2, "State Route 89 Bridge Replacement"). Although the construction duration for the bridge replacement is unknown at this time, the bridge is relatively short (approximately 40 feet long, which is roughly equal to the length of three or four vehicles) resulting in only a short section of SR 89 being closed at one time. Emergency response and evacuation capacity across the bridge would be diminished during construction of the bridge replacement; however, because the length of the section of one lane of the roadway that would be closed would be approximately 40 feet, the bridge replacement construction would not result in interference with emergency response and evacuation that would result in a substantial delay. Because of the short-term nature of the construction activities and access near the project area would be maintained during construction, construction activities would not interfere with use of evacuation centers identified in the Placer Operational Area Eastside Emergency Evacuation Plan and City of South Lake Tahoe evacuation plans, with use of SR 89 as an evacuation route, or implementation of evacuation communication procedures and systems. Additionally, the project would support implementation of components of the SR 89 Corridor Management Plan (i.e., multi-use paths through the project area and support for transit), which addresses corridor issues, like emergency access and evacuation, through administering visitor management strategies that would help improve traffic flow for evacuation needs and minimize delays for emergency response.

Within the project area, circulation patterns would change on the site, but would not be substantially different from existing circulation and in some ways circulation throughout the project area would be improved and more efficient. Upland features would comport with existing plans during final planning stages. As discussed under Impact 3.1-1 in Section 3.1, "Recreation," implementation of this alternative would not result in an increase in visitor capacity, thus, there would not be an anticipated change in people traveling to the project area as a result of Alternative 1. Thus, Alternative 1 would have a **less-than-significant** impact related to interference with implementation of an adopted emergency response plan or emergency evacuation plan.

<u>Alternative 2: Restoration with Pedestrian Pier</u>

Implementation of Alternative 2 would result in similar construction activities as Alternative 1. For the reasons described above, construction of this alternative would not interfere with implementation of an adopted emergency response plan or emergency evacuation plan. Alternative 2 would result in similar improvements in circulation patterns within the project area as Alternative 1 and would not result in an increase in visitor capacity and, therefore, there would be no change in the number people traveling to the project area as a result of this alternative. For the reasons described above for Alternative 1, the impact related to interference with implementation of an adopted emergency response plan or emergency evacuation plan from implementation of Alternative 2 would be **less than significant**.

<u>Alternative 3: Restoration with No Pier</u>

Implementation of Alternative 3 would result in similar construction activities as Alternative 1, which would not interfere with implementation of an adopted emergency response plan or emergency evacuation plan for the reasons described above. Alternative 3 would result in similar improvements in circulation patterns within the project area as Alternative 1. Implementation of Alternative 3 would result in an increase in visitor capacity allowing an increase in the number of vehicles traveling to the project area. Alternative 3 would result in an increase of up to 14 parking spaces and up to 22 campsites in the project area and would result in additional vehicles that would require evacuation from the project area in the event of an emergency. As described in the *SR 89 Corridor Management Plan Existing Conditions Summary Report*, annual visitors to the portion of the corridor from Sugar Pine Point State Park to Emerald Bay was estimated at approximately 962,430 visitors (note that this number represents 2016 visitation data for the Sugar Pine Point State Park segment of the SR 89 corridor and 2017 visitation data for the Emerald Bay through Meeks Bay portion of the corridor) (TRPA et al. 2019). The increase in visitors associated with 14 parking spaces and 22 campsites associated with Alternative 3 would be a very small proportion of the existing visitors traveling near the project area.

The evacuation routes in the vicinity of the project area are limited to two routes; however, because the increase in vehicles under Alternative 3 needing evacuation would be very small (estimated to be 36 vehicles; an 8 percent increase in the number of vehicles at the project area at one time under existing conditions during peak periods), Alternative 3 would not substantially reduce emergency evacuation times or interfere with implementation of an emergency evacuation plan over existing conditions. For these reasons, and those described above for Alternative 1 related to construction activities and circulation, the impact related to interference with implementation of an adopted emergency response plan or emergency evacuation plan from implementation of Alternative 3 would be **less than significant**.

Alternative 4: Preferred Alternative

Alternative 4 would result in similar construction activities as Alternative 1, which would not interfere with implementation of an adopted emergency response plan or emergency evacuation plan for the reasons described above. Alternative 4 would also result in similar improvements in circulation patterns within the project area as Alternative 1. The expanded parking area proposed in Alternative 4 would result in an increase in visitor capacity of 14 parking spaces, allowing an increase in the number of vehicles traveling to the project area. The increase in visitors associated with 14 parking spaces (i.e., up to 14 vehicles) would be a very small proportion of the existing visitors traveling near the project area (see discussion of corridor visitation under Alternative 3).

The evacuation routes in the vicinity of the project area are limited to two routes. Because the increase in vehicles under Alternative 4 needing evacuation is very small (estimated to be 14 vehicles; a 3 percent increase in the number of vehicles at the project area at one time compared to existing conditions during peak periods), this alternative would not substantially reduce emergency evacuation times or interfere with implementation of an emergency evacuation plan as compared to existing conditions. For these reasons, and those described above for Alternative 1 related to construction activities and circulation, the impact related to interference with implementation of an adopted emergency response plan or emergency evacuation plan from implementation of Alternative 4 would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.10-2: Emergency Access to and from Lake Tahoe

The boating pier included in Alternative 1 would include a mooring location for an emergency services boat that would retain emergency access to and from the lake similar to existing conditions under which an emergency services boat could be launched at the boat ramp. Alternative 1 would also improve circulation in the project area. For all action alternatives, removal of the marina and boat ramp would reduce emergency access to and from the lake during periods of high lake levels. However, due to its protected location, Meeks Bay would continue to provide a safe harbor from wind or storm conditions. During emergencies, boats could beach directly on the shore to unload passengers. Implementation of Alternatives 2, 3, and 4 would result in similar circulation improvements that would enhance emergency access through the project area to and from the lake. Because of improved upland circulation, the impact on emergency access to and from the lake from Alternatives 1, 2, 3, and 4 would be **less than significant**.

Because the No Action Alternative would result in no changes to the project area. Emergency access to and from the lake could continue to function as it does under existing conditions. This would be a **less-than-significant** impact related to emergency access to and from Lake Tahoe.

No Action Alternative

With the No Action Alternative, there would be no change to the project area. Emergency access to and from Lake Tahoe would remain the same as existing conditions. This impact would be **less than significant**.

Alternative 1: Restoration with Boating Pier

Alternative 1 would involve removal of the marina and boat ramp as part of restoration of Meeks Creek. The marina and boat ramp provide an opportunity for emergency responders to easily access the lake from the shoreline or for responders to easily access the shoreline from the lake. However, in recent years the marina and boat ramp were only open in 2010-2015, during periods of high lake levels. Removal of the marina could reduce emergency access (by removing the boat launch), but this would only be the case for years when the marina is operational. Also, the marina could provide a safe harbor for motorized boaters in the event of sudden storm events; however, these are typically during winter when there are fewer boaters on the lake. Access to safe harbor would also only be a benefit during operational years (i.e., high lake level) and could prove problematic if boaters are not aware of the marina's closure in a given year. There have been no documented incidents of boats accessing the Meeks Marina as a safe harbor during a sudden storm. Meeks Bay, due to its protected location, would continue to provide a safe harbor from wind or storm conditions. During emergencies, boats could beach directly on the shore to unload passengers. For these reasons, the importance of the marina as a safe harbor is limited.

Implementation of Alternative 1 would result in circulation improvements by reducing the number of internal roadways near the entrance and day-use area at Meeks Bay Resort. Existing roadways may also be realigned and/or widened in select locations to improve access for transit. These changes in the project area would result in more efficient access in the project area for emergency responders to access the lake.

In addition, TRPA and emergency service providers along the west shore have initiated a planning process to identify a public safety boat access point on the west shore of Lake Tahoe. Through this process, emergency service providers are considering opportunities and constraints for various locations to identify an ideal site to provide a public safety pier along the west shore, which would further improve emergency access to and from the lake in the vicinity of Meeks Bay.

The boating pier included in Alternative 1 would include a mooring location to dock an emergency services boat. Although this alternative would result in removal of the marina and boat ramp, a potential access point to and from the lake for emergency responders during high lake levels, the addition of a boating pier with the emergency services boat would retain emergency access to and from the lake by providing a readily available emergency boat that could be launched anytime during the year, even during periods of low lake levels. Thus, this alternative would result in a **less-than-significant** impact related to emergency access to and from the lake.

Alternative 2: Restoration with Pedestrian Pier

Alternative 2 would involve removal of the marina and boat ramp as part of restoration of Meeks Creek, resulting in similar loss of access to and from the lake for emergency responders to that described above for Alternative 1. Additionally, like under Alternative 1, this alternative would result in removal of an area that could provide safe harbor to motorized boaters during sudden storm events. However, as described for Alternative 1, above, the marina provides limited benefit as a safe harbor.

Implementation of Alternative 2 would result in similar circulation improvements that would improve emergency access through the project area to and from the lake similar to that described above for Alternative 1. Alternative 2 would result in a 100-foot-long pedestrian pier.

Although removal of the marina and boat ramp would reduce emergency access to and from the lake, it is currently only accessible during periods of high lake levels. Meeks Bay, due to its protected location, would continue to provide a safe harbor from wind or storm conditions. During emergencies, boats could beach directly on the shore to unload passengers.

Emergency access to the lake would be maintained on the west shore, including the planning process described above under Alternative 1 for a public safety boat access point on the west shore, and because of upland circulation improvements, the impact on emergency access to and from the lake from Alternative 2 would be **less than significant**.

Alternative 3: Restoration with No Pier

Alternative 3 would result in the same changes related to removal of the marina and boat ramp and associated loss of a ramp that could be used by emergency providers similar to Alternatives 1 and 2. Additionally, Alternative 3 would result in similar circulation improvements that would improve emergency access through the project area to and from the lake similar to that described above for Alternative 1. For the same reasons described above for Alternatives 1 and 2, emergency access to the lake would be maintained on the west shore, and because of upland circulation improvements, the impact on emergency access to and from the lake from Alternative 3 would be **less than significant**.

Alternative 4: Preferred Alternative

Alternative 4 would result in the same changes related to removal of the marina and boat ramp and associated loss of a ramp that could be used by emergency providers similar to Alternatives 1 and 2. Alternative 4 would result in circulation improvements that would improve emergency access through the project area to and from the lake. For the same reasons described above for Alternatives 1 and 2, emergency access to the lake would be maintained on the west shore, and because of upland circulation improvements, the impact on emergency access to and from the lake from Alternative 4 would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.10-3: Increased Demand for Emergency Response Resources

The action alternatives would include a number of enhancements to safety (e.g., additional designated swim area, removal of grills in the day-use areas). Alternatives 1 and 2 would not increase visitor capacity that could potentially increase demand for emergency services. Alternatives 3 and 4 would result in a minor increase in visitor capacity that could be serviced by existing emergency service resources. Alternatives 1, 2, 3, and 4 would result in a **less-than-significant** impact related to demand for emergency services.

Because the No Action Alternative would result in no changes to the project area, there would be no change in demand for emergency response resources and **no impact** related to demand for emergency resources.

No Action Alternative

With the No Action Alternative, there would be no change to the project area; therefore, there would be no change in demand for emergency resources. Thus, there would be **no impact**.

Alternative 1: Restoration with Boating Pier

Alternative 1 would result in changes in the project area that would include removal of the marina and boat ramp and restoration of Meeks Creek, circulation improvements, campground improvements, expanding the day-use areas and removing grills from these areas, utility improvements (including potentially undergrounding electric lines, if feasible), and a boating pier. Capacity for recreational fires would not change and would be subject to seasonal fire restrictions during periods of high fire risk. Because the number of parking spaces in the project area would be retained and the number of campsites could decrease by four sites or increase up to two sites (up to eight visitors could be accommodated), implementation of this alternative would result in a minimal increase in capacity for visitors or an associated increase in visitors to the project area.

Although the boating pier would attract boats to Meeks Bay, this alternative would remove the marina and boat ramp. The increases in motorized boating associated with the boating pier would generally be offset by a reduction in motorized boats and personal watercraft devices resulting from removal of the marina and boat ramp. As described in Table 3.1-4 in Section 3.1, “Recreation,” approximately 1,970 boats are launched from the Meeks Bay Marina per year, which equates to approximately 3,940 boat trips through Meeks Bay per year, assuming two trips per launch (i.e., one trip leaving the marina and one returning). Under this alternative, a boat pier would be constructed. Even though it is not possible to know how many boats would access the new boating pier, based on anecdotal observations at other public piers around Lake Tahoe, it is assumed that an average of five to 10 boats would access the pier per day during the approximately 100-day boating season that generally lasts from Memorial Day weekend through Labor Day weekend (California State Parks et al. 2018). This would result in approximately 500–1,000 boats accessing the pier over the season and a total of 1,000–2,000 boat trips (assuming one trip to the pier and one trip from the pier for each boat accessing the pier). Compared to baseline conditions, implementing Alternative 1 would reduce boat trips by approximately 1,940–2,940 boat trips per year. To be conservative, this analysis assumes that implementing Alternative 1 would result in approximately 2,000 boat trips per year, which is 1,500 fewer trips than under baseline conditions with the operation of the marina. Other incidental boat trips, such as boats beaching outside of swim areas or boat anchoring in Meeks Bay, would be unchanged under all the alternatives. Thus, the pier would not substantially increase boating activity at Meeks Bay.

Alternative 1 would continue to include designated swim areas that would be demarcated by buoys, and motorized boats would not be allowed to access the swim area. This alternative would not result in a substantial change in conflicts between these recreation users because of reductions in motorized boating in Meeks Bay and protections for swimmers and non-motorized watercraft would be in place (e.g., removal of the marina and boat ramp, designated swim areas, no-wake zone requirements). Thus, there would not be an increase in demand for emergency response resources related to the proposed boating pier.

The MBFPD and El Dorado County Sheriff's Office have limited capacity. However, as described above under the "Fire Protection and Emergency Services" and "Law Enforcement" sections, these emergency response providers operate under mutual aid agreements and coordinate closely so that sufficient emergency response capabilities are provided during emergencies, including fire and law enforcement boats on the lake. Because implementation of Alternative 1 would not substantially increase visitor capacity resulting in a minimal increase in visitation (up to eight visitors per day) to the area, this alternative would result in a **less-than-significant** impact related to demand for emergency response resources.

<u>Alternative 2: Restoration with Pedestrian Pier</u>

Alternative 2 would result in similar construction activities and project area improvements, including those related to circulation, utilities, the day-use areas, and a pier as Alternative 1. Capacity for recreational fires would not change and would be subject to seasonal fire restrictions during periods of high fire risk. However, because the number of parking spaces and campsites in the project area would be retained, implementation of this alternative would not result in an increase in capacity for visitors or an associated increase in visitors to the project area.

Alternative 2 would remove the marina and boat ramp and would not provide any additional facilities that would attract boaters to Meeks Bay. Thus, there would be an overall reduction in motorized boating in Meeks Bay. Most of the bay is located within the 600-foot no-wake zone and designated swim areas demarcated by buoys would continue to be implemented with this alternative. The no-wake zone and designated swim areas further minimize potential conflicts between swimmers and motorized boats. Because of the designated swim area, requirements of the no-wake zone, and because the removal of the marina and boat ramp would reduce motorized boating activity in Meeks Bay, this alternative would reduce the potential for conflicts between motorized boaters and nonmotorized watercraft and swimmers.

The MBFPD and El Dorado County Sheriff's Office have limited capacity. However, as described above under the "Fire Protection and Emergency Services" and "Law Enforcement" sections, these emergency response providers operate under mutual aid agreements and coordinate closely so that sufficient emergency response capabilities are provided during emergencies, including fire and law enforcement boats on the lake.

Because implementation of Alternative 2 would not increase visitor capacity resulting in an associated increase in visitation to the area, and because there would continue to be designated swim areas, and motorized boating activity would decrease in Meeks Bay, this alternative would not increase demand for emergency response resources. This impact would be **less than significant**.

<u>Alternative 3: Restoration with No Pier</u>

Alternative 3 would result in similar construction activities and project area improvements, including those related to circulation, utilities, and the day-use areas as Alternative 1. This alternative would also expand the campgrounds, adding up to 22 campsites, and would expand parking capacity, adding up to 14 spaces. These proposed changes would result in an estimated increase in up to 280 visitors per day during the busiest periods of the summer. Although capacity for recreational fires would slightly increase, recreational fires would be subject to seasonal fire restrictions during periods of high fire risk.

Based on the increase in daily visitors estimated in Table 3.1-9 in Section 3.1, "Recreation," the estimated annual increase in visitors to the project area would be approximately 27,910 visitors, which would be approximately 3 percent of the estimated annual visitors to the corridor (see Alternative 3 discussion under Impact 3.10-1). The calls for emergency services in the shoreline area containing the project area is relatively low (i.e., 2 to 6 calls per year from 2017-2020 in zip code 96142; see Table 3.10-2) and the average annual number of emergency incidents responded to by MBFPD in their service area from 2017-2019 was 227 incidents (an average of 76 incidents per year) (MBFPD and NTFPD 2020).

Based on visitation to the corridor as described above under Impact 3.10-1 and the average annual number of emergency incidents, the rate of incidents requiring emergency response per 1,000 visitors is estimated to be 0.08 incidents. Thus, the addition of an estimated 27,910 visitors for Alternative 3 would result in an estimated additional 2.2 incidents per year.

The Meeks Bay Fire Protection District indicated that an increase in the number of visitors at Meeks Bay would increase the potential for emergencies and call volume (McNamara, pers. comm., 2021a). The annual increase in visitors to the project area would be a small increase over the number of existing annual visitors to the corridor, the associated increase in demand for emergency response resources would not be substantial (estimated to be an additional 2.2 incidents per year) and would not render the current services inadequate.

The El Dorado County Sheriff's Office also indicated that the potential increase in the number of campsites in the project area would not result in an increase in demand such that additional patrol resources would be needed (Brown, pers. comm., 2021). This impact would be **less than significant**.

Alternative 4: Preferred Alternative

Alternative 4 would result in similar construction activities and project area improvements, including those related to circulation, utilities, and the day-use areas as Alternative 1. This alternative would also expand parking capacity, adding up to 14 spaces, resulting in an estimated increase in up to 190 visitors per day during the busiest periods of the summer.

Based on the increase in daily visitors estimated in Table 3.1-7 in Section 3.1, "Recreation," the estimated annual increase in visitors to the project area would be approximately 17,030 visitors, which would be approximately 2 percent of the estimated annual visitors to the corridor (see Alternative 3 discussion under Impact 3.10-1). As described in the discussion of Alternative 3 above, based on visitation to the corridor in 2016 and the average annual number of emergency incidents, the rate of incidents requiring emergency response per 1,000 visitors is estimated to be 0.08 incidents. Thus, the addition of an estimated 17,030 visitors for Alternative 4 would result in an estimated additional 1.4 incidents per year. The annual increase in visitors to the project area would be a small increase over the number of existing annual visitors to the corridor, the associated increase in demand for emergency response resources would not be substantial and would not render the current services inadequate. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.10-4: Navigational Hazards to Motorized and Nonmotorized Recreation

All action alternatives would decrease motorized boating traffic in Meeks Bay. The designated swim areas would continue to be included in all action alternatives, which would affect navigation for nonmotorized watercraft; however, these are a continuation of existing conditions. Alternatives 1 and 2 would include piers that could affect navigation, but because the piers would be located within the no-wake zone, there would not be a substantial change in navigation hazards or conflicts between recreation users. The impact from implementing Alternatives 1, 2, 3, and 4 on navigational hazards to motorized and nonmotorized boaters would be **less than significant**.

Because the No Action Alternative would result in no change to the project area, existing hazards associated with marina boat traffic would continue. There would be **less-than-significant** impact related to navigational hazards.

No Action Alternative

With the No Action Alternative, there would be no change to the project area; therefore, there would be no change in navigational hazards. Existing navigational hazards related to boat traffic associated with the marina would continue as it does under existing conditions. This impact would be **less than significant**.

Alternative 1: Restoration with Boating Pier

Implementation of Alternative 1 would result in removal of the marina and boat ramp and construction of a boating pier. The proposed 300-foot-long boating pier would be a new structure north of the Meeks Creek outlet that would attract boats to Meeks Bay.

Although the boating pier would attract boats to Meeks Bay, removal of the marina and boat ramp would reduce the number of boats traveling to and from the marina and boat ramp (the general travel route for boats going to and from the marina is shown on Figure 3.1-4 in Section 3.1, "Recreation"); thus, boating traffic in the bay would be shifted to the pier instead of the marina. The new pier would require nonmotorized watercraft to navigate around the end of the pier as they travel along the shoreline in Meeks Bay. Although there may be periods when nonmotorized watercraft could travel under the pier, the presence of motorized boats docked on the pier may limit this access. Nonmotorized watercraft may encounter motorized boats as they navigate around the pier; however, the 600-foot no-wake zone is located approximately 260-390 feet beyond the end of the pier (depending on lake levels; see Figure 3.1-5) and motorized boats would be required to travel at 5 mph. By traveling at slow speeds, motorized boaters would have the ability to more easily see and travel around nonmotorized watercraft users and swimmers and would reduce wake, which would help to maintain the safety of swimmers and nonmotorized watercraft users.

Nonmotorized watercraft users would also be required to travel outside of the swim areas to the north and south of the new pier. The designated swim areas would be demarcated by buoys, and nonmotorized watercraft (e.g., kayaks and paddleboards) would not be allowed access to the swim area. The designated swim areas would not encompass the entire beach areas so that there would be sufficient room for paddlecraft to launch onto the lake outside of the swim areas. As described above for navigation around the pier, there would be ample space around the swim buoy areas within the no-wake zone allowing for safe navigation in the bay for nonmotorized watercraft.

Because the boating pier and designated swim area would be well within the no-wake zone that essentially encompass the entire bay and because the pier would not increase overall boating levels, the changes in navigation for nonmotorized watercraft and motorized watercraft would not result a substantial change in conflicts between these recreation users or substantially increase hazards for these recreation users. Thus, the impact from implementing Alternative 1 on navigational hazards to motorized and nonmotorized boaters would be **less than significant**.

Alternative 2: Restoration with Pedestrian Pier

As described in Alternative 1, a new pier and additional designated swim area would represent a potential new navigational hazard for motorized and nonmotorized boaters. However, with implementation of Alternative 2, the new pier would be 100 feet long and could not be used by motorized boaters; thus nonmotorized boaters would have more space to travel around the pier between the end of the pier and the no-wake zone boundary. The pedestrian pier would also not be an attractant for motorized boaters to Meeks Bay. With Alternative 2, the removal of the marina and installation of a pedestrian pier would reduce the number of motorized boats in the bay, removing navigational hazards between motorized and nonmotorized boaters. Alternative 2 would result in similar navigational hazards to nonmotorized watercraft users from the additional designated swim area as described above for Alternative 1.

For these reasons, Alternative 2 would result in a **less-than-significant** impact related to navigational hazards to motorized and nonmotorized boaters.

Alternative 3: Restoration with No Pier

Alternative 3 would result in a 30-foot-long moveable, universally accessible paddlecraft launch at the south end of the project area. Because of the short length of the launch facility and location at the south end of the project area, the launch facility would not obstruct navigation or introduce a structure that would require navigation around it as nonmotorized watercraft travel around the bay. As described for Alternative 1, removal of the marina and boat ramp would reduce the number of boats traveling to and from the marina and boat ramp, thus removing navigational hazards between motorized and nonmotorized boaters. Alternative 3 would result in similar navigational hazards to nonmotorized watercraft users from the additional designated swim area as described above for Alternative 1. Alternative 3 would result in a **less-than-significant** impact related to navigational hazards to motorized and nonmotorized boaters.

Alternative 4: Preferred Alternative

As with Alternative 3, Alternative 4 would result in a 30-foot-long moveable, universally accessible paddlecraft launch at the south end of the project area. Because of the short length of the launch facility and location at the south end of the project area, the launch facility would not obstruct navigation or introduce a structure that would require navigation around it as nonmotorized watercraft travel around the bay. As described for Alternative 1, removal of the marina and boat ramp would reduce the number of boats traveling to and from the marina and boat ramp, thus removing navigational hazards between motorized and nonmotorized boaters. Alternative 4 would result in similar navigational hazards to nonmotorized watercraft users from the additional designated swim area as described above for Alternative 1. Alternative 4 would result in a **less-than-significant** impact related to navigational hazards to motorized and nonmotorized boaters.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.10-5: Accidental Release of Hazardous Substances

Alternatives 1, 2, 3, and 4 would temporarily increase the regional transportation, use, storage and disposal of hazardous materials and petroleum products commonly used at construction sites (such as diesel fuel, lubricants, paints and solvents, and cement products), which could result in accidents or upset conditions in the project area that could create hazards to people and the environment. Operation and maintenance of these alternatives would result in continued use of the same types of hazardous materials that are currently used in the project area. With mandatory compliance with federal, state, and local regulatory requirements related to hazardous materials, implementation of BMPs, and testing of soils for hazardous materials prior to excavation, the potential for exposure of the public or environment to hazards resulting from routine use, storage, or transport of hazardous materials or from accidental release or upset would be reduced. This impact for Alternatives 1, 2, 3, and 4 would be **less than significant**.

Because the No Action Alternative would result in no change to the project area, there would be **no impact** related to the potential for new or different accidental release of hazardous substances.

No Action Alternative

With the No Action Alternative there would be no change to the project area; therefore, there would be no change in the potential for new or different accidental release of hazardous substances. Thus, there would be **no impact.**

Alternative 1: Restoration with Boating Pier

Alternative 1 would result in a number of improvements throughout the project area, including restoration of Meeks Creek; removal of the marina, boat ramp, and marina office; construction of a boating pier; circulation improvements; multi-use paths; expansion of day use facilities; campground improvements; parking improvements; upgrading or relocating utilities infrastructure; relocation and replacement of motel units along the shoreline in the northern portion of the project area; and replacement of the SR 89 bridge. Construction and operation of these improvements could pose a risk for accidental release of hazardous materials during construction and operation of these facilities.

Construction

Construction of upland improvements, marina and boat ramp removal and creek restoration, removal of the SR 89 bridge, and the boating pier would temporarily increase the transportation, use, storage, and disposal of hazardous materials and petroleum products commonly used at construction sites (e.g., diesel fuel, lubricants, paints and solvents, and cement products containing strong basic or acidic chemicals), which could result in accidents or upset conditions that could create hazards to people and the environment. Accidental spills and leakage from construction equipment may involve fuel, lubricants, hydraulic fluids and coolants. These are typical construction activities requiring the use of hazardous materials that are typical of such activities and would be required to handle hazardous materials in accordance with applicable federal, state, and local laws. Excavation activities, in particular near the marina and boat ramp where fueling activities may have occurred or previously unknown release of petroleum products could have been released, could result in accidental exposure to construction workers to hazardous materials. As described in Section 2.5.1, "Restoration of Meeks Creek and Lagoon," anthropogenic fill would be removed from the marina area and tested for soil chemical contamination and the presence of invasive vegetation and, if contamination is present, disposed of in an appropriately licensed facility.

Impact 3.6-1 in Section 3.6, "Hydrology and Water Quality," provides a detailed discussion of the water quality protection requirements the project would be required to comply with and how they would minimize or avoid potential impacts on water quality that could occur with accidental release of hazardous materials during construction. Some of these requirements and measures that would be implemented include installation of temporary construction BMPs as a condition of project approval as required by TRPA Code Chapters 33 and 60 and identified in the TRPA Best Management Practices Handbook (TRPA 2014), which are summarized in Section 3.6.1, "Regulatory Setting," of Section 3.6, "Hydrology and Water Quality." Applicable BMPs would include removal of surplus or waste earthen materials from the project area, limiting the area and extent of all excavation to avoid unnecessary soil disturbance, stabilizing and protecting stockpiled material, implementation of spill prevention plans to capture and contain pollutants from fueling operations, designated fuel storage areas, and regular inspection and maintenance of temporary BMPs. Lahontan RWQCB also requires the development and implementation of a project-specific stormwater pollution prevention plan (SWPPP), which would address the means of waste disposal, management controls for potential pollutant sources other than stormwater runoff, and hazardous materials spill response plan (see "NPDES Construction General Permit for Stormwater Discharges Associated with Construction Activity in the Lake Tahoe Hydrologic Unit" in Section 3.6.1). Project construction and operation would also be required to implement and comply with standards and guidelines contained in the LTBMU Forest Plan, state and TRPA regulatory requirements (see Section 3.10.1, "Regulatory Setting"), and manufacturer's instructions related to hazardous materials to reduce the potential for exposure of the public or environment to hazards resulting from routine use, storage, or transport of hazardous materials or from accidental release or upset.

Hazards and hazardous materials are also regulated by a number of federal, state, and local agencies that address hazards related to transportation of hazardous materials and potential hazards to employees. These include the regulations of the agencies summarized above in Section 3.10.1, "Regulatory Setting," including for OSHA, USDOT, Cal/OSHA, DTSC, SWRCB, CHP, Caltrans, and EDCEMD. Additionally, project construction would comply with USDA Forest Service Land Management Plan Standard SG5 and Guideline SG7 listed above under the "LTBMU Land Management Plan" section, which are related to implementation of BMPs and storage of fuel and other hazardous materials.

As described above under the "Hazardous Materials in the Project Area" section, given the completion of roadway stormwater drainage improvements along SR 89 through 2015, ADL is not likely to remain along SR 89 at the bridge over Meeks Creek; thus, implementation of the SR 89 bridge replacement would not expose construction workers to ADL during construction.

Boating Pier

The pier would be constructed by a floating or amphibious barge. Amphibious barges can be driven out of the lake to refuel equipment. If a floating barge is used, fuel would be transferred in containers for refueling. Construction of the boating pier would be required to prepare and implement a SWPPP that would identify all spill prevention plans, means of waste disposal, and other BMPs (as described above and in Impact 3.6-1) that would reduce the potential of directly and indirectly effecting water quality through construction-related hazardous material spills. The SWPPP would also identify measures for maintaining a spill kit that would minimize the extent of any accidental release of hazardous materials in the lake.

If drilling is required for pile installation, a caisson would be used to isolate the drilling site and protect water quality (see Impact 3.6-1). (A caisson is a BMP that is defined as a retaining structure in which the water can be pumped out to create a dry work environment.) Turbidity curtains would only be used if necessary during installation of pier piles to minimize water quality impacts from suspended sediment, but are not typically required for pile driving in coarse sediment. Turbidity curtains are a standard BMP requirement for construction or operational activity conducted in the backshore, foreshore, and some nearshore areas of Lake Tahoe. Marine BMPs would be incorporated into the project design and would be enforced through the CWA Section 401 certification process. These BMPs would minimize the potential for the release of hazardous substances.

Removal of the Marina Office Building and Motel Unit Buildings

To expand the useable beach space on the north end of the bay, implementation of Alternative 1 would remove the two motel style cabin units in the Meeks Bay Resort and replace them with three smaller cabin units farther inland. These existing cabin units were constructed in 1962. Removal of the marina and boat ramp and restoration of the creek would include removal of the marina office, which was built between 1962 and 1969. As described above under the "Hazardous Materials in the Project Area" section, buildings constructed prior to 1979 may contain asbestos and buildings constructed prior to 1978 may contain lead-based paint and the motel units and marina building to be demolished could contain lead-based paint or asbestos-containing material. Thus, if not handled properly, construction workers could be exposed to lead-based paint or asbestos-containing material when these buildings are demolished.

Federal and state regulations govern the renovation and demolition of structures where materials containing lead and asbestos could be present. Asbestos and lead abatement must be performed and monitored by contractors with appropriate certifications from the California Department of Health Services. Demolition of structures containing asbestos would be a NESHAP Regulated Facility subject to a thorough asbestos inspection and testing of materials to determine whether asbestos is present.

Section 1532.1 in Title 8 of the CCR addresses construction work where an employee may be occupationally exposed to lead. In compliance with Cal/OSHA regulations, surveys for indicators of lead-based coatings, and flakes in soil, would be conducted before demolition of the buildings under Alternative 1 to further characterize the presence of lead in the project area. Loose or peeling paint may be classified as a hazardous waste if concentrations exceed total threshold limits. Cal/OSHA regulations require air monitoring, special work practices, and respiratory protection during demolition and paint removal where even small amounts of lead have been detected. Agency notification and compliance with California Department of Health Services and Cal/OSHA regulations would require that the presence of these materials be verified and remediated, which would eliminate potential health risks associated with exposure to asbestos or lead during building demolition associated with Alternative 1.

Meeks Creek Restoration and Removal of the Marina and Boat Ramp

The marina in the project area has been in operation since the early 1960s. Past uses have included a fueling dock and recent operations at the marina included fueling rental boats from a fuel tank in the back of a truck. Additionally, past boat repair and maintenance activities that could have occurred at or adjacent to the marina could have resulted in accidental release of hazardous materials or waste. Thus, excavation activities associated with the creek restoration or removal of the marina and boat ramp could result in inadvertently exposing workers to hazardous materials. However, as described in Section 2.5.1, "Restoration of Meeks Creek and Lagoon," in Chapter 2, the soils in these areas would be sampled and evaluated for the presence of hazardous materials and, if contamination is found then the soils would be removed in accordance with all applicable federal, state, and local regulations and disposed of at a permitted hazardous waste disposal facility, which would minimize the potential for release of hazardous substances.

Operations and Maintenance

Hazardous materials similar to those used during construction could also be used periodically as part of operation, maintenance, and repair of infrastructure, equipment, and facilities under Alternative 1. Implementation of Alternative 1 would not introduce new types of uses to the project area such that new types of hazardous materials are introduced. Thus, operation of Alternative 1 would continue to use and store hazardous materials, such as household cleaners and fertilizers and pesticides, similar to that which occurs under existing conditions. Overall, although the boating pier would attract motorized boaters to the bay, because the marina and boat ramp would be removed and thereby reducing that source of motorized boaters, there would be reduced potential for accidental release of hazardous materials associated with motorized boats (e.g., oil, grease, diesel fuel, and oily bilge water).

Operations and maintenance under Alternative 1 would be required to implement and comply with the federal, state, and local regulatory requirements described above in Section 3.10.1 and use hazardous materials consistent with manufacturer's instructions related to hazardous materials to reduce the potential for exposure of the public or environment to hazards resulting from routine use, storage, or transport of hazardous materials or from accidental release or upset.

Conclusion

Alternative 1 would temporarily increase the regional transportation, use, storage and disposal of hazardous materials and petroleum products commonly used at construction sites, which could result in accidents or upset conditions in the project area, including during construction of the boating pier, that could create hazards to people and the environment.

Construction of some project components could result in inadvertent exposure of construction workers to hazardous materials contamination or hazardous building materials (e.g., asbestos, lead). However, prior to soil disturbance for the creek restoration and marina and boat ramp removal, soils would be tested and, if found to be contaminated, would be properly handled and disposed. Demolition of the marina office and motel unit buildings would occur after testing for asbestos-containing materials and lead-based paint in accordance with federal and state laws.

Operation of the project would result in continued use of hazardous materials in the project area that are typically used for household cleaning and landscaping activities.

The project's compliance with federal, state, and local regulatory requirements related to hazardous materials would reduce or avoid the potential for exposure of the public or environment to hazards resulting from routine use, storage, or transport of hazardous materials or from accidental release or upset. This impact would be **less than significant**.

Alternative 2: Restoration with Pedestrian Pier

Implementation of Alternative 2 would result in a number of improvements throughout the project area, including restoration of Meeks Creek; removal of the marina, boat ramp, and marina office; construction of a pedestrian pier; circulation improvements; multi-use paths; expansion of day use facilities; campground improvements; parking improvements; upgrading or relocating utilities infrastructure; and replacement of the SR 89 bridge. Construction and operation of these improvements could pose a risk for accidental release of hazardous materials during construction and operation of these facilities.

As discussed above for Alternative 1, construction of Alternative 2 would include soils testing and proper removal and disposal of any contaminated soils encountered. Implementation of Alternative 2 would not introduce new types of uses to the project area such that new types of hazardous materials are introduced. Alternative 2 would comply with federal, state, and local regulatory requirements related to hazardous materials that would reduce or avoid the potential for exposure of the public or environment to hazards resulting from routine use, storage, or transport of hazardous materials or from accidental release or upset. This impact would be **less than significant**.

Alternative 3: Restoration with No Pier

Implementation of Alternative 3 would result in a number of improvements throughout the project area, including restoration of Meeks Creek; removal of the marina, boat ramp, and marina office; construction of a moveable, universally accessible paddlecraft launch; circulation improvements; multi-use paths; expansion of day use facilities; campground expansion; parking improvements; upgrading or relocating utilities infrastructure; and replacement of the SR 89 bridge. Construction and operation of these improvements could pose a risk for accidental release of hazardous materials during construction and operation of these facilities.

As discussed above for Alternative 1, construction of Alternative 3 would also include soils testing and proper removal and disposal of any contaminated soils encountered. Although implementation of this alternative would add parking spaces and campsites, these are the same as existing uses in the project area, and implementation of Alternative 3 would not introduce any new types of uses to the project area such that new types of hazardous materials are introduced. Alternative 3 would comply with federal, state, and local regulatory requirements related to hazardous materials that would reduce or avoid the potential for exposure of the public or environment to hazards resulting from routine use, storage, or transport of hazardous materials or from accidental release or upset. This impact would be **less than significant**.

Alternative 4: Preferred Alternative

Alternative 4 would result in a number of improvements throughout the project area, including restoration of Meeks Creek; removal of the marina, boat ramp, and marina office; construction of a moveable, universally accessible paddlecraft launch; circulation improvements; multi-use paths; expansion of day use facilities; campground reconfiguration; parking improvements; upgrading or relocating utilities infrastructure; and replacement of the SR 89 bridge. Construction and operation of these improvements could pose a risk for accidental release of hazardous materials during construction and operation of these facilities.

As discussed above for Alternative 1, construction of Alternative 4 would also include soils testing and proper removal and disposal of any contaminated soils encountered. Although implementation of this alternative would add parking spaces, these are the same as existing uses in the project area, and implementation of Alternative 4 would not introduce any new types of uses to the project area such that new types of hazardous materials are introduced. Alternative 4 would comply with federal, state, and local regulatory requirements related to hazardous materials that would reduce or avoid the potential for exposure of the public or environment to hazards resulting from routine use, storage, or transport of hazardous materials or from accidental release or upset. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.10-6: Potential Changes in Wildfire Risk

Implementation of Alternatives 1, 2, 3, and 4 would not exacerbate wildfire risks because capacity for recreational fires would not substantially change and would be subject to seasonal fire restrictions during periods of high fire risk. Additionally, grills in the day-use areas would be removed, defensible space would be maintained in the project area, and construction would comply with all applicable fire-related codes and regulations. Alternative 1 would retain emergency response access with construction of the boating pier with dock space for an emergency services boat. Although Alternatives 3 and 4 would slightly increase visitor capacity, the number of visitors that could cause or be exposed to wildfire risk would not be a substantial increase over existing conditions and use of recreational fires would continue to be carefully managed as described above. Additionally, fuels management projects and programs near the project area would help to reduce forest fuels in surrounding areas, reducing the potential wildfire risk and risk of catastrophic wildfires. For these reasons, implementation of Alternatives 1, 2, 3, and 4 would result in a **less-than-significant** impact related to potential changes to wildfire risk.

Because the No Action Alternative would result in no change to the project area, there would be no change in wildfire risk or in the number of people exposed to such risks. The project areas would continue to be exposed to the same level of wildfire risk as under existing conditions. This would be a **less-than-significant** impact.

No Action Alternative

With the No Action Alternative, there would be no change to the project area. Facilities would continue to operate as they do under existing conditions and there would be no change in wildfire risk or exposure as a result of the project. Continued exposure to existing wildfire risk would be a **less-than-significant** impact.

Alternative 1: Restoration with Boating Pier

Exposure to Wildland Fires

As described above, the project area is located within a Very High FHSZ as designated by CAL FIRE. Implementation of Alternative 1 would result in changes in the project area that would include removal of the marina and boat ramp and restoration of Meeks Creek, circulation improvements, reconstruction of the SR 89 bridge, campground improvements, expanding the day-use areas and removing grills from these areas, utility improvements (including potentially undergrounding electric lines, if feasible), and construction of a boating pier with a lift for an emergency services boat. This alternative would also relocate the motel style cabin units in the Meeks Bay Resort farther inland and replace them with three cabin units. Alternative 1 would not increase capacity for visitors, and thus would not increase the potential number of visitors that could cause a wildfire or be exposed to wildfire risk.

Consistent with guidelines in the Forest Plan, Alternative 1 would provide a 100-foot radius of defensible space around all USFS structures and would ensure that facilities comply with health and safety codes (Guidelines SG22 and SG138). Construction of the new cabin units and utilities improvements would be built to meet the standards of the Uniform Fire Code, California Fire Code, and MBFPD Fire Code, including standards for building construction related to fire hazards, automatic interior fire sprinklers, onsite fire hydrants, and adequate emergency and fire apparatus access. The project area would also maintain defensible space of at least 100 feet. As described under "Ongoing Forest Management," above, the wildfire risk in the surrounding forested areas is actively managed by land management agencies with ongoing fuel management being conducted and a number of fuel management projects and programs are being implemented; thus, the potential wildfire risk and risk of catastrophic wildfires is being reduced.

Large group grills would be provided that could be used for events, but no additional small individual grills would be included, and existing grills would be removed to reduce wildfire risk and associated litter. Existing metal fire rings would be retained in the campsites and visitors would continue to be prohibited from building their own fire rings (e.g., rock fire rings). The USDA Forest Service would continue to ban campfires during periods of high fire risk. Because the number of campsites (and associated metal fire rings) would not change with this alternative and the number of grills reduced, there would be a slight reduction in risk of fire.

Because construction would comply with all applicable fire-related codes and regulations and no feature of the alternative would render it fire prone, Alternative 1 would not increase potential exposure to wildland fires.

Fire Risks Associated with Installation or Maintenance of Project Infrastructure

Alternative 1 would include improvements to existing utility services within the project area. If feasible, electric lines would be moved underground. Thus, wildfire risks associated with project infrastructure would be the same as or slightly reduced under existing conditions or the No Action Alternative.

Downslope or Downstream Risks Associated with Wildfires

The analyses discussed in Sections 3.6, "Hydrology and Water Quality," and 3.7, "Geology and Soils," do not indicate that substantial flooding or landslide events would occur in the project area (see Impacts 3.6-4 and 3.7-3). The project area and adjacent areas have not been subject to wildfire such that the people or structures within the project area or in downslope areas would be exposed to significant risks (e.g., downslope or downstream flooding or landslides) as a result of runoff, post-fire slope instability, or drainage changes.

Conclusion

Alternative 1 would not exacerbate wildfire risks because capacity for recreational fires would not change and would be subject to seasonal fire restrictions during periods of high fire risk and the grills in the day-use areas would be removed, defensible space would be maintained in the project area, construction would comply with all applicable fire-related codes and regulations. This alternative would not increase capacity for visitors, and thus would not increase the potential number of visitors that could cause a wildfire or be exposed to wildfire risk. This alternative would result in retaining emergency response access with construction of the boating pier with an emergency services boat. Because this alternative would not result in substantial flooding or landslide events and the project area and adjacent areas have not been subject to wildfire, Alternative 1 would not expose people or structures within the project area or in downslope areas to significant risks (e.g., downslope or downstream flooding or landslides) as a result of runoff, post-fire slope instability, or drainage changes. Additionally, there are separate projects and activities that are reducing forest fuels in the areas surrounding the project area. For these reasons, implementation of Alternative 1 would result in a **less-than-significant** impact related to potential changes to wildfire risk.

<u>Alternative 2: Restoration with Pedestrian Pier</u>

Implementation of Alternative 2 would result in similar construction activities and project area improvements, including those related to circulation and utilities, as Alternative 1; however, this alternative would only include a pedestrian pier. This alternative would not remove the motel units along the beach and construct new cabin units farther inland. For the reasons described above for Alternative 1, Alternative 2 would not expose people or structures within the project area or in downslope areas to significant risks (e.g., downslope or downstream flooding or landslides) as a result of runoff, post-fire slope instability, or drainage changes and, thus, implementation of Alternative 2 would result in a **less-than-significant** impact related to potential changes to wildfire risk.

<u>Alternative 3: Restoration with No Pier</u>

Alternative 3 would result in similar construction activities and project area improvements, including those related to circulation and utilities, as Alternative 1; however, this alternative would only include a moveable, universally accessible paddlecraft launch. This alternative would not remove the motel units along the beach and construct new cabin units farther inland.

This alternative would result in adding up to 22 new campsites that would include metal fire rings, which would increase visitor capacity in the project area and increase opportunities for recreational fires. Like Alternatives 1 and 2, this alternative would remove individual grills in the day-use areas and instead provide large grills for special events and the project area would continue to be subject to seasonal fire restrictions during periods of high fire risk. Visitor capacity and the number of metal fire rings in the campgrounds would increase and visitors would be prohibited from building their own fire rings. The average number of day-use and overnight visitors per day that could cause a wildfire or be exposed to wildfire risk would increase by 5-8 percent with an approximately 2-4 percent increase associated with additional overnight visitors, which would not be a substantial increase over existing conditions (see Table 3.1-9 under Impact 3.1-1 in Section 3.1, "Recreation"). The Meeks Bay Campground would continue to provide a campground host that is on-site 24 hours per day and Meeks Bay Resort would also continue to have staff on-site 24 hours per day; thus, the use of recreational fires would continue to be carefully managed. For these reasons in addition to those described above for Alternative 1, implementation of Alternative 3 would not expose people or structures within the project area or in downslope areas to significant risks (e.g., downslope or downstream flooding or landslides) as a result of runoff, post-fire slope instability, or drainage changes. Thus, this alternative would result in a **less-than-significant** impact related to potential changes to wildfire risk.

<u>Alternative 4: Preferred Alternative</u>

Alternative 4 would result in similar construction activities and project area improvements as Alternative 1, including those related to circulation and utilities, and relocation of cabins. However, like Alternative 3, this alternative would only include a moveable, universally accessible paddlecraft launch. This alternative would not include the campsite expansion proposed under Alternative 3 and would not increase the number of metal fire rings for recreational fires. The approximately 3-5 percent increase in day-use visitors (see Table 3.1-10 under Impact 3.1-1 in Section 3.1, "Recreation") that could cause a wildfire or be exposed to wildfire risk would not be a substantial increase over existing conditions and use of recreational fires would continue to be carefully managed. For these reasons in addition to those described above for Alternative 1, Alternative 4 would not expose people or structures within the project area or in downslope areas to significant risks (e.g., downslope or downstream flooding or landslides) as a result of runoff, post-fire slope instability, or drainage changes. This alternative would result in a **less-than-significant** impact related to potential changes to wildfire risk.

Mitigation Measures

No mitigation is required for this impact.

3.10.4 Cumulative Impacts

The geographic area considered for assessing cumulative impacts related to public health and safety is the west shore area of Lake Tahoe. The cumulative effects of each aspect of public safety and hazards are discussed below.

Interfere with Implementation of an Adopted Emergency Response Plan or Emergency Evacuation Plan

In the west shore area, SR 89 is the primary evacuation route, providing two routes for emergency access and evacuation (northbound SR 89 and southbound SR 89). Emergency response along the west shore is guided by the *El Dorado County Local Hazard Mitigation Plan* and the *Placer Operational East Side Emergency Evacuation Plan*, which provide details regarding evacuation alerts, evacuation emergency medical services and public information, traffic control, transportation, communication, and animal services.

The cumulative projects listed in Section 3.2.3, “Related Projects and Plans,” include forest fuel reduction projects, a multi-use path project (Tahoe Trail from Meeks Bay to Emerald Bay), and the CMP. Implementation of forest fuel reduction treatments would temporarily introduce work vehicles and trucks carrying equipment or biomass that could add to vehicles and people that need to evacuate along SR 89; however, with completion of the treatments, the risk of wildfire would be reduced thereby reducing the potential for catastrophic wildfire and need for evacuation. The CMP identifies a list of projects that would achieve a number of goals including the following goal related to emergency access and evacuation and managing congestion:

- Advance Safety. Enhance facilities and utilize management strategies that reduce the potential for traffic incidents and enhance emergency access and evacuation routes.

During construction of projects identified in the CMP, such as bike lanes, the Tahoe Trail, widening shoulders, utility undergrounding, transit stops, and emergency turnouts, there would be additional construction equipment and workers along the highway that would add to congestion along SR 89, including during evacuation. However, it is unlikely that all of the fuel treatment activities and construction of cumulative projects would occur simultaneously. Undergrounding of utilities could result in temporary, short stretches of single-lane road closures that could reduce traffic flow, including for emergency access and evacuation, but this analysis of cumulative projects assumes there would not be any total road closures for emergency access or evacuation. The additional vehicles associated with construction of a few of these projects at one time would not result in a substantial number of vehicles that would result in physical interference with implementation of an emergency response plan or evacuation plan or substantially increase the time it takes to evacuate the area because none of these projects would involve road closures hauling a substantial amount of materials over a short period of time such that a sudden influx of haul truck traffic would occur.

As described in Impact 3.10-1, Alternatives 1 and 2 would not result in an increase in visitation to the project area and would not contribute additional vehicles that could interfere with emergency response or an emergency evacuation plan during operations. Replacement of the SR 89 bridge for all action alternatives would interfere with vehicle travel across the bridge during construction activities, including emergency vehicle access and evacuation access. As described in Section 2.10.2, “State Route 89 Bridge Replacement,” a traffic management plan would be developed and implemented to minimize traffic disruption during construction and maintain continual emergency access across Meeks Creek by either constructing the multi-use path bridge first and diverting emergency vehicles and evacuating vehicles across the multi-use path bridge, 2) cutting the bridge in half with one lane in operation at all times, or 3) constructing a temporary bridge on the upstream or downstream side of the existing bridge to provide continuous access. Because of the short-term nature of the construction activities and access near the project area would be maintained during construction, construction activities would not interfere with use of evacuation centers and would not interfere with use of SR 89 as an evacuation route. Other construction activities for the action alternatives would occur within the project area and, while such activities would add vehicle traffic associated with equipment and workers, none of the cumulative projects envision construction of major new facilities or the import or export of substantial volumes of material such that they would result in a substantial number of vehicles that would result in physical interference with implementation of an emergency response plan or evacuation plan or substantially increase the time it takes to evacuate the area.

Implementation of Alternatives 3 and 4 would result in an increase in parking by up to 14 spaces and Alternative 3 would also increase campsites by up to 22 sites, which would increase the number of visitors to the project area. Alternative 3 would result in an estimated 27,910 total visitors to the project area annually, which would be approximately 3 percent of the estimated annual visitors to the corridor. This alternative would also result in an estimated additional 280 visitors per day during the busiest months. The change in visitation for Alternative 3 would result in an increase of up to an estimated 5-8 percent increase in the average number of daily vehicles at the project area at one time compared to existing conditions during peak periods. Alternative 4 would result in fewer additional visitors than Alternative 3, but more than Alternatives 1 and 2. The increase in visitors to the project area during the busiest months would not physically interfere with emergency response or implementation of an emergency evacuation plan for the reasons described above. Implementation of projects in the CMP would achieve the CMP's goals to enhance emergency access and evacuation routes and reduce congestion. For this reason and because the cumulative projects would not result in full road closures, the temporary reduction in access across the SR 89 bridge that may occur during construction of any of the action alternatives would not combine with the cumulative projects to result in a significant cumulative impact on implementation of an adopted emergency response plan or emergency evacuation plan.

Emergency Access to and from Lake Tahoe

The west shore contains existing impediments to lake access for emergency response providers from upland areas and impediments to shore access for emergency responders from the lake. The forest fuel reduction and restoration projects would not impede emergency access to and from the lake because they consist of temporary activities that thin heavily vegetated areas that are generally not adjacent to the lake. Although the Shoreline Plan could result in increased activity in the nearshore, foreshore, and backshore, which could hinder emergency responders' ability to access boaters and swimmers in the water and some existing lake access points are unavailable during low water conditions, the plan would implement low lake level adaptation strategies that would ensure sufficient shoreline emergency access during low water conditions. The CMP would not hinder emergency access to the lake because its goals include those for improving congestion and emergency access in the SR 89 recreation corridor near the lake. The Tahoe Trail would improve access along SR 89 for pedestrians and bicyclists and would not include facilities that would obstruct emergency access to adjacent areas.

As described in Impact 3.10-3, although this alternative would result in removal of the marina and boat ramp, a potential access point to and from the lake for emergency responders during high lake levels, the addition of a boating pier with the capacity to dock an emergency services boat would retain emergency access to and from the lake.

Implementation of Alternatives 2, 3 and 4 would also result in circulation improvements in the project area that would improve emergency access through the project area to and from the lake. These alternatives would remove the marina and boat ramp and would not provide any additional facilities for motorized boating access, including for emergency responders, in the project area. Although removal of the marina and boat ramp would reduce emergency access to and from the lake, it is currently only accessible during periods of high lake levels and an alternate site for emergency access on the west shore is being planned by TRPA and public safety agencies. The effects of the project on emergency access would be less than significant and would not combine with the effects of the cumulative projects to result in a significant cumulative impact related to emergency access to and from the lake.

Increased Demand for Emergency Response Resources

As described under the "Fire Protection and Emergency Services" section above, from 2017-2019, MBFPD responded to an annual average of 227 emergency incidents and NTFPD responded to an annual average of 2,241 incidents (MBFPD and NTFPD 2020). From 2017-2020, MBFPD and NTFPD have responded to 154 emergency incidents in the shoreline area of their respective districts that could have dispatched or utilized an emergency or emergency services boat present on the west shore (McNamara, pers. comm., 2020). Additionally, in this time frame MBFPD and NTFPD have responded to 12 incidents that utilized a boat from other fire agencies, which resulted in a minimum of an hour response time.

Many of the cumulative projects or plans include forest fuels reduction activities that would reduce the threat of catastrophic wildfire in the west shore (see Table 3-2), thus reducing the potential demand for emergency resources. As described above, the CMP identifies a list of projects that would achieve a number of goals including managing congestion, which would include managing the timing of visitation to the SR 89 recreation corridor. The cumulative projects would not generate capacity for more visitors in the west shore such that there would be a significant cumulative impact on demand for emergency response resources.

As described in Impact 3.10-3, the action alternatives would continue to implement or enhance existing safety measures in the project area, including retaining the designated swim areas demarcated with buoys in the bay, campfires would continue to be banned during periods of high fire risk, and the number of grills in the day-use area would be reduced. There would be no new types of uses in the project area that would result in new types of emergencies.

Alternatives 1 and 2 would not increase visitation to the project area and Alternatives 3 and 4 would result in modest increases in visitors to the project area that would be a small proportional increase in visitors to the project area. For these reasons that are further discussed under Impact 3.10-3, the action alternatives would not substantially affect demand for emergency response resources and would not combine with the effects of the cumulative projects to result in a significant cumulative impact related to demand for emergency services.

Navigational Hazards to Motorized and Nonmotorized Recreation

Because nonmotorized watercraft generally do not travel far from where they are launched (e.g., kayaks and paddleboards launched at the project area would be unlikely to travel outside of the bay), it would be unlikely that nonmotorized watercraft users in Meeks Bay would experience navigational hazards that may be posed by cumulative projects, in particular implementation of the Shoreline Plan, in addition to those they could experience with the piers under Alternatives 1 and 2 and with the additional designated swim area under all four action alternatives. Removal of the marina and boat ramp in the project area under Alternatives 1, 2, 3, and 4 would generally reduce the amount of motorized boating in the bay and would reduce the potential for motorized boaters to experience navigational hazards. The effects of the action alternatives would not combine with the effects of the cumulative projects to result in a significant cumulative impact related to navigational hazards.

Accidental Release of Hazardous Substances

Although some hazardous materials releases can cover a large area and interact with other releases (e.g., atmospheric contamination, contamination of groundwater aquifers), incidents of hazardous materials contamination are more typically isolated to a small geographic area. These relatively isolated areas of contamination typically do not combine in a cumulative manner with other sites of hazardous materials contamination. The geographic area for cumulative impacts related to accidental release of hazardous substances would be limited to the project area and areas immediately adjacent to the project area. There are no identified incidents of widespread hazardous materials contamination with different sources of contamination on the project area or in its vicinity that would combine to create a cumulative impact (SWRCB 2021). Thus, there is not an existing significant cumulative impact related to accidental release of hazardous materials. Adjacent cumulative projects that may use hazardous materials include the Meeks Meadow Restoration Project, Lake Tahoe West, Tahoe Program Timberland EIR, and Tahoe Trail (Meeks Bay to Emerald Bay). All of these projects would be implemented in compliance with federal, state, and local hazardous materials regulations, limiting the potential for releases and contamination and requiring clean-up when such events occurred. Given these conditions, the cumulative projects would not result in a significant cumulative impact related to hazardous materials.

As described in Impact 3.10-5, the action alternatives would temporarily increase the regional transportation, use, storage and disposal of hazardous materials and petroleum products commonly used at construction sites (such as diesel fuel, lubricants, paints and solvents, and cement products), which could result in accidents or upset conditions in the project area, including during construction of the boating or pedestrian pier, that could create hazards to people and the environment. Operation and maintenance of any of the action alternatives would result in continued use of the same types of hazardous materials that are currently used in the project area. The project's compliance with federal, state, and local regulatory requirements related to hazardous materials, implementation of BMPs, and testing of soils for hazardous materials prior to excavation, the potential for exposure of the public or environment to hazards resulting from routine use, storage, or transport of hazardous materials or from accidental release or upset would be reduced. For these reasons, the effects of the action alternatives would not combine with the effects of the cumulative projects to result in a significant cumulative impact related to accidental release of hazardous substances.

Potential Changes in Wildfire Risk

Table 3-2 under the "Approach to the Environmental Analysis" section, lists past, present, and reasonably foreseeable projects that have and likely will use internal combustion engines or include other construction-related types of activities and use of heavy machinery within the WUI, which have the potential to create sparks and subsequent fire and employ prescribed burning within the west shore area. These projects and plans are the Meeks Meadow Restoration Project, Lake Tahoe West, California State Parks Fuels Reduction and Understory Burning, West Shore WUI Hazardous Fuel Reduction Project, Tahoe Program Timberland EIR, and Tahoe Trail (Meeks Bay to Emerald Bay). However, most of these projects or plans include forest fuels reduction activities that would reduce the threat of catastrophic wildfire in the west shore. These projects and construction of the Tahoe Trail project would utilize best management practices typically implemented with fuel reduction and construction activities related to use of mechanized tools or equipment that have federal- or state-approved spark arresters, carrying fire extinguishers, and smoking would only be permitted in designated smoking areas. Therefore, it is unlikely that the presence and use of vehicles and equipment needed to implement the treatment and construction activities would substantially exacerbate fire risk resulting in the uncontrolled spread of wildfire. In addition, given all of the planning requirements (e.g., Smoke Management Plan and Burn Plan), ongoing monitoring and maintenance, and safety protocols, prescribed burning would not substantially exacerbate fire risk or result in the uncontrolled spread of wildfire. Thus, these cumulative projects would not result in a significant cumulative impact relative to wildfire risk and some of these projects would reduce the potential for wildfire in the west shore area, including the area surrounding the project area.

As described in Impact 3.10-6, implementation of any of the action alternatives would not exacerbate wildfire risks because capacity for recreational fires would not substantially change and would be subject to seasonal fire restrictions during periods of high fire risk. Additionally, grills in the day-use areas would be removed, defensible space would be maintained in the project area, and construction would comply with all applicable fire-related codes and regulations. Thus, the effects of the action alternatives would not combine with the effects of the cumulative projects to result in a significant cumulative impact related to wildfire risk.

For the reasons described above, the alternatives would have a **less than cumulatively considerable impact** related to public safety and hazards.

3.11 NOISE

This section includes a summary of applicable regulations related to noise and vibration, a description of ambient noise conditions, and an analysis of potential short-term construction and long-term operational noise impacts associated with the Meeks Bay Restoration Project. Additional data is provided in Appendix C, "Noise Measurement Data and Noise Modeling Calculations."

3.11.1 Regulatory Setting

COMMON TERMS

Commonly used terms in this section are defined below.

- **Equivalent Continuous Sound Level (L_{eq}):** L_{eq} represents an average of the sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level containing the same acoustical energy as the time-varying sound level that occurs during the same period (Caltrans 2013:2-48). For instance, the 1-hour equivalent sound level, also referred to as the hourly L_{eq}, is the energy average of sound levels occurring during a 1-hour period and is the basis for noise abatement criteria used by California Department of Transportation (Caltrans) and Federal Transit Administration (FTA) (Caltrans 2013:2-47; FTA 2018).
- **Maximum Sound Level (L_{max}):** L_{max} is the highest instantaneous sound level measured during a specified period (Caltrans 2013:2-48; FTA 2018).
- **Day-Night Level (L_{dn}):** L_{dn} is the energy average of A-weighted sound levels occurring over a 24-hour period, with a 10-decibel (dB) "penalty" applied to sound levels occurring during nighttime hours between 10 p.m. and 7 a.m. (Caltrans 2013:2-48; FTA 2018).
- **Community Noise Equivalent Level (CNEL):** CNEL is the energy average of the A-weighted sound levels occurring over a 24-hour period, with a 10-dB penalty applied to sound levels occurring during the nighttime hours between 10 p.m. and 7 a.m. and a 5-dB penalty applied to the sound levels occurring during evening hours between 7 p.m. and 10 p.m. (Caltrans 2013:2-48).

FEDERAL

U.S. Environmental Protection Agency Office of Noise Abatement and Control

The U.S. Environmental Protection Agency (EPA) Office of Noise Abatement and Control was originally established to coordinate Federal noise control activities. In 1981, EPA administrators determined that subjective issues such as noise would be better addressed at more local levels of government. Consequently, in 1982 responsibilities for regulating noise control policies were transferred to state and local governments. However, documents and research completed by the EPA Office of Noise Abatement and Control continue to provide value in the analysis of noise effects.

Federal Transit Administration

To address the human response to ground vibration, FTA has set forth guidelines for maximum-acceptable vibration criteria for different types of land uses. These guidelines are presented in Table 3.11-1.

Table 3.11-1 Ground-Borne Vibration Impact Criteria for General Assessment

Land Use Category	GVB Impact Levels (VdB re 1 micro-inch/second) Frequent Events[1]	GVB Impact Levels (VdB re 1 micro-inch/second) Occasional Events[2]	GVB Impact Levels (VdB re 1 micro-inch/second) Infrequent Events[3]
Category 1: Buildings where vibration would interfere with interior operations.	65 [4]	65 [4]	65 [4]
Category 2: Residences and buildings where people normally sleep.	72	75	80
Category 3: Institutional land uses with primarily daytime uses.	75	78	83

Notes: VdB = vibration decibels referenced to 1 μ inch/second and based on the root mean square (RMS) velocity amplitude. GBV = Ground-Borne Vibration.

1 "Frequent Events" is defined as more than 70 vibration events of the same source per day.

2 "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day.

3 "Infrequent Events" is defined as fewer than 30 vibration events of the same source per day.

4 This criterion is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research would require detailed evaluation to define acceptable vibration levels.

Source: FTA 2018.

TAHOE REGIONAL PLANNING AGENCY

Tahoe Regional Plan

The elements of the Tahoe Regional Planning Agency (TRPA) Regional Plan related to noise include the following: Noise Subelement of the Goals and Policies of the Regional Plan; the TRPA Code of Ordinances (TRPA Code), Chapter 68, "Noise Limitations"; plan area statements (PASs), community plans, and area plans. These elements are described below, followed by a summary of TRPA's standard conditions of approval that contain best construction practices for construction-generated noise and vibration, region-wide traffic noise mitigation program, and exterior noise policy for mixed-use development.

The Regional Plan Noise Subelement of the Goals and Policies includes a goal to attain and maintain CNEL standards that is relevant to the project (Goal N-2) (TRPA 2012:2-26 through 2-28). The underlying policy intended to help achieve that goal includes establishing specific site design criteria for projects to reduce noise from transportation corridors and which may include using earthen berms, and barriers (Policy N-2.1). The transportation corridor CNEL values override land use-based CNELs within 300 feet of the applicable roadway (TRPA 2012:2-26).

Code of Ordinances

Chapter 68, "Noise Limitations," of the TRPA Code is intended to implement the Noise Subelement of the Goals and Policies document and to attain and maintain the TRPA threshold standards (included below).

TRPA Code Section 68.4, "Community Noise Levels," states that TRPA shall use CNELs to measure community noise levels and that PASs shall set forth CNELs that shall not be exceeded by any one activity or combination of activities (see PASs below) (TRPA 2021). The CNELs set forth in the PASs are based on the land use classification, the presence of transportation corridors, and the applicable threshold standard.

Meeks Bay Plan Area Statement

The maximum community noise equivalent level for this Plan Area is 50 CNEL (TRPA 2002). The maximum community noise equivalent level for the SR 89 corridor is 55 CNEL.

Standard Conditions of Approval

TRPA requires the following standard conditions, among others, for all project construction activity that involves grading and projects in the shoreline (TRPA 2019, 2022):

- Any normal construction activities creating noise in excess of the TRPA noise standards shall be considered exempt from said standards provided all such work is conducted between the hours of 8:00 a.m. and 6:30 p.m.
- Engine doors shall remain closed during periods of operation except during necessary engine maintenance.
- Stationary equipment (e.g., generators or pumps) shall be located as far as feasible from noise-sensitive receptors and residential areas. Stationary equipment near sensitive noise receptors or residential areas shall be equipped with temporary sound barriers.
- All construction equipment, including vibration-inducing impact equipment, on construction sites shall be operated as far away from vibration-sensitive uses as reasonably possible.
- Earthmoving and ground-disturbing operations shall be phased so as not to occur simultaneously in areas close to sensitive uses, to the extent feasible. The total vibration level produced could be significantly less if each vibration source is operated at separate times.
- To prevent structural damage, minimum setback requirements for different types of ground vibration-producing activities (e.g., pile driving) for the purpose of preventing damage to nearby structures shall be established based on the proposed pile driving activities and locations, once determined. Factors to be considered include the specific nature of the vibration activity (e.g., type and duration of pile driving), local soils conditions, and the fragility/resiliency of the nearby structures. Established setback requirements (i.e., 55 feet) can be breached if a project-specific, site-specific analysis is conducted by a qualified geotechnical engineer or ground vibration specialist that indicates that no structural damage would occur at nearby buildings or structures or provides further recommendations (e.g., alternative pile driving methods, site monitoring requirements) to avoid damaging nearby structures.

Thresholds Standards

TRPA has established environmental threshold standards (thresholds) for nine resources, including noise. There are two noise threshold indicators: single noise events and cumulative noise events. Prior peer reviews of TRPA's 2011 and 2015 Threshold Evaluations suggested that TRPA's noise program is "too complex and resource intensive," and recommended that TRPA review and evaluate the noise threshold standards, particularly the single noise event evaluation criteria, which were deemed "unrealistic." Based on these reviews, limited noise monitoring resources were prioritized to noise sources that are more responsive to management actions (Lake Tahoe Info 2022). Results of the 2019 update show insufficient data to determine a trend for single-event noise and little or no change for cumulative noise.

Single Noise Events

A noise event can be defined as an unexpected increase in acoustics. Single Noise Event Threshold Standards adopted by TRPA are based on the numerical value associated with the maximum measured level in acoustical energy during an event. This threshold establishes maximum noise levels (Table 3.11-2) for aircraft, watercraft, motor vehicles, motorcycles, off-road vehicles, and snowmobiles.

Cumulative Noise Events

TRPA adopted CNEL standards for different zones within the region to account for expected levels of serenity. The standards, established in the Goals and Policies, apply to the entire Lake Tahoe region. Table 3.11-2 summarizes thresholds for single events (L_{max}) and thresholds for community noise events.

The noise limitations established in Chapter 68 of the TRPA Code, including the noise standards of individual PASs, community plans, and area plans, do not apply to noise from TRPA-approved construction or maintenance projects, or the demolition of structures, provided that such activities are limited to the hours between 8:00 a.m. and 6:30 p.m. Further, the noise limitations of Chapter 68 shall not apply to emergency work to protect life or property.

Table 3.11-2 TRPA Regional Plan Cumulative Noise Levels

Single Noise Events	Noise Measurement
Boats (not to exceed any of 3 tests)	82 dB measured at 50 feet with engine at 3,000 rpm
	SAE test J1970 or SAEJ1970, Shoreline Test, 75 dB (standard adopted 7/03)
	SAE Test J2005, Stationary Test, 88 dB if watercraft manufactured on or after 1/1/93 and 90 dB if watercraft manufactured before 1/1/93 (standard adopted 7/03)
Motor Vehicles (less than 6,000 pounds GVW)	76 dB running at <35/mph (82 dB running at >35/mph) measured at 50 feet
Motor Vehicles (greater than 6,000 pounds GVW)	82 dB running at <35/mph (86 dB running at >35/mph) measured at 50 feet
Motorcycles	77 dB running at <35/mph (86 dB running at >35/mph) measured at 50 feet
Off-road Vehicles	72 dB running at <35/mph (86 dB running at >35/mph) measured at 50 feet
Snowmobiles	82 dB running at <35/mph measured at 50 feet
[Land Use-Based] Community Noise Equivalent Levels: Background levels shall not exceed the following:[1]	
Land Use Category	CNEL, dB
High Density Residential	55
Low Density Residential	50
Hotel/motel facilities	55
Commercial area	65
Industrial	65
Urban Outdoor Recreation	55
Rural Outdoor Recreation	50
Wilderness and Roadless Areas	45
Critical Wildlife Areas	45
Policy Statement: It shall be a policy of the TRPA Governing Board in the development of the Regional Plan to define, locate, and establish CNEL levels for transportation corridors.	
Transportation [Corridor Noise Standards][2]	
U.S. 50	65[(3)] dB CNEL
State Routes 89, 207, 28, 267 and 431	55[(3)] dB CNEL
South Lake Tahoe Airport	60[(4)] dB CNEL

Notes: CNEL = community noise equivalent level measurements are weighted average of sound level gathered throughout a 24–hour period; dB = decibels; dB = A-weighted decibels; mph = miles per hour; rpm = revolutions per minute

1 The title of this table used in the TRPA Code is "TRPA Regional Plan Cumulative Noise Levels."

2 For this analysis, these standards are referred to as "land use-based CNEL thresholds."

3 For this analysis, these CNEL standards are referred to as "transportation corridor noise thresholds."

4 This transportation corridor noise threshold overrides the land use CNEL thresholds and is limited to an area within 300 feet from the edge of the road.

5 This threshold applies to those areas impacted by the approved flight paths.

Source: TRPA 2021.

STATE

California Department of Transportation

In 2020, Caltrans published the Transportation and Construction Vibration Manual (Caltrans 2020). The manual provides general guidance on vibration issues associated with construction and operation of projects in relation to human perception and structural damage. Table 3.11-3 presents recommendations for levels of vibration that could result in damage to structures exposed to continuous vibration.

Table 3.11-3 Caltrans Recommendations Regarding Levels of Vibration Exposure

PPV (in/sec)	Effect on Buildings
0.4-0.6	Architectural damage and possible minor structural damage
0.2	Risk of architectural damage to normal dwelling houses
0.1	Virtually no risk of architectural damage to normal buildings
0.08	Recommended upper limit of vibration to which ruins and ancient monuments should be subjected
0.006-0.019	Vibration unlikely to cause damage of any type

Notes: PPV= peak particle velocity; in/sec = inches per second

Source: Caltrans 2020.

3.11.2 Environmental Setting

ACOUSTIC FUNDAMENTALS

Before discussing the noise setting for the project, background information about sound, noise, vibration, and common noise descriptors is needed to provide context and a better understanding of the technical terms referenced throughout this section.

Addition of Decibels

Because decibels are logarithmic units, SPLs cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3-dB increase. In other words, when two identical sources are each producing sound of the same loudness at the same time, the resulting sound level at a given distance would be 3 dB higher than if only one of the sound sources was producing sound under the same conditions. For example, if one idling truck generates an SPL of 70 dB, two trucks idling simultaneously would not produce 140 dB; rather, they would combine to produce 73 dB. Under the decibel scale, three sources of equal loudness together produce a sound level approximately 5 dB louder than one source.

A-Weighted Decibels

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives the SPL in that range. In general, people are most sensitive to the frequency range of 1,000–8,000 Hz and perceive sounds within this range better than sounds of the same amplitude with frequencies outside of this range. To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those frequencies. Then, an "A-weighted" sound level (expressed in units of A-weighted decibels) can be computed based on this information.

The A-weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgment correlates well with the A-scale sound levels of those sounds. Thus, noise levels are typically reported in terms of A-weighted decibels. Table 3.11-4 describes typical A-weighted noise levels for various noise sources.

Table 3.11-4 Typical A-Weighted Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	— 110 —	Rock band
Jet fly-over at 1,000 feet	— 100 —	
Gas lawn mower at 3 feet	— 90 —	
Diesel truck at 50 feet at 50 miles per hour	— 80 —	Food blender at 3 feet, Garbage disposal at 3 feet
Noisy urban area, daytime, Gas lawn mower at 100 feet	— 70 —	Vacuum cleaner at 10 feet, Normal speech at 3 feet
Commercial area, Heavy traffic at 300 feet	— 60 —	
Quiet urban daytime	— 50 —	Large business office, Dishwasher next room
Quiet urban nighttime	— 40 —	Theater, large conference room (background)
Quiet suburban nighttime	— 30 —	Library, Bedroom at night
Quiet rural nighttime	— 20 —	
	— 10 —	Broadcast/recording studio
Lowest threshold of human hearing	— 0 —	Lowest threshold of human hearing

Notes: dBA = A-weighted decibels

Source: Caltrans 2013:Table 2-5.

Human Response to Changes in Noise Levels

The doubling of sound energy results in a 3-dB increase in the sound level. However, given a sound level change measured with precise instrumentation, the subjective human perception of a doubling of loudness will usually be different from what is measured.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear can discern 1-dB changes in sound levels when exposed to steady, single-frequency (“pure-tone”) signals in the mid-frequency (1,000–8,000 Hz) range. In general, the healthy human ear is most sensitive to sounds between 1,000 and 5,000 Hz and perceives both higher and lower frequency sounds of the same magnitude with less intensity (Caltrans 2013:2-18). In typical noisy environments, changes in noise of 1–2 dB are generally not perceptible. However, it is widely accepted that people can begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5-dB increase is generally perceived as a distinctly noticeable increase, and a 10-dB increase is generally perceived as a doubling of loudness (Caltrans 2013:2-10). Therefore, a doubling of sound energy (e.g., doubling the volume of traffic on a highway) that would result in a 3-dB increase in sound would generally be perceived as barely detectable.

Vibration

Vibration is the periodic oscillation of a medium or object with respect to a given reference point. Sources of vibration include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) and those introduced by human activity (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, (e.g., operating factory machinery) or transient in nature (e.g., explosions). Vibration levels can be depicted in terms of amplitude and frequency, relative to displacement, velocity, or acceleration.

Vibration amplitudes are commonly expressed in peak particle velocity (PPV) or root-mean-square (RMS) vibration velocity. PPV and RMS vibration velocity are normally described in inches per second (in/sec) or in millimeters per second. PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is typically used in the monitoring of transient and impact vibration and has been found to correlate well to the stresses experienced by buildings (FTA 2006:7-5, Caltrans 2013:6).

Although PPV is appropriate for evaluating the potential for building damage, it is not always suitable for evaluating human response. It takes some time for the human body to respond to vibration signals. In a sense, the human body responds to average vibration amplitude. The RMS of a signal is the average of the squared amplitude of the signal, typically calculated over a 1-second period. As with airborne sound, the RMS velocity is often expressed in decibel notation as vibration decibels (VdB), which serves to compress the range of numbers required to describe vibration (FTA 2018; Caltrans 2020). This is based on a reference value of 1 micro inch per second.

The typical background vibration-velocity level in residential areas is approximately 50 VdB. Ground vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels (FTA 2018, Caltrans 2020).

Typical outdoor sources of perceptible ground vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur to fragile buildings. Construction activities can generate sufficient ground vibrations to pose a risk to nearby structures. Constant or transient vibrations can weaken structures, crack facades, and disturb occupants (FTA 2018).

Vibrations generated by construction activity can be transient, random, or continuous. Transient construction vibrations are generated by blasting, impact pile driving, and wrecking balls. Continuous vibrations are generated by vibratory pile drivers, large pumps, and compressors. Random vibration can result from jackhammers, pavement breakers, and heavy construction equipment.

Table 3.11-5 summarizes the general human response to different ground vibration-velocity levels.

Table 3.11-5 Human Response to Different Levels of Ground Noise and Vibration

Vibration-Velocity Level	Human Reaction
65 VdB	Approximate threshold of perception.
75 VdB	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find that transportation-related vibration at this level is unacceptable.
85 VdB	Vibration acceptable only if there are an infrequent number of events per day.

Notes: VdB = vibration decibels referenced to 1 μ inch/second and based on the root mean square (RMS) velocity amplitude.

Source: FTA 2018.

EXISTING NOISE ENVIRONMENT

Existing Noise- and Vibration-Sensitive Land Uses

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels, and because of the potential for nighttime noise to result in sleep disruption. Additional land uses such as schools, transient lodging, historic sites, cemeteries, and places of worship are also generally considered sensitive to increases in noise levels. These land use types are also considered vibration-sensitive land uses in addition to commercial and industrial buildings where vibration would interfere with operations within the building, including levels that may be well below those associated with human annoyance.

Visitors to the project area and users of the various on-site facilities (e.g., campers, beach goers, people staying at the lodge units, etc.) would be considered noise-sensitive users as their recreational experience could be affected during project construction. The nearest off-site noise-sensitive receptors (SR) are single- and multi-family homes located along State Route 89 approximately 250 feet to the west of the project area boundary (identified as SR1 and SR4, respectively, in Figure 3.11-1) and single and multi-family homes approximately 200 feet to the south and 550 feet to the north of the project area (identified as SR2 and SR3, respectively. Figure 3.11-1 depicts the location of off-site sensitive receptors to the general locations of planned construction activities, categorized as follows:

- Vehicular bridge on State Route 89 (SR 89), including multi-use path for Alternatives 1 and 4 (CS1);
- Campgrounds, north (CS2);
- Campgrounds, south (CS3);
- Parking, multi-use paths, realignment of roads north of marina (CS4);
- Boating/Pedestrian Pier (CS5);
- Parking, multi-use path, realignment of roads south of marina (CS6);
- Universally accessible Parking (CS7);
- Removal of Meeks Bay Marina and restoration of Meeks Creek and lagoon (CS8); and
- Demolition and reconstruction of cabins and stabilization of the shoreline (CS9).

The predominant noise source in the project area is vehicle traffic on SR 89. Existing traffic noise levels on roadway segments in the project area modeled using calculation methods consistent with Federal Highway Administration (FHWA) Traffic Noise Model, Version 2.5 (FHWA 2004) and using available average daily traffic volumes (Caltrans 2017). Table 3.11-6 summarizes the modeled existing traffic noise levels at 100 feet from the centerline of each area roadway segment and lists distances from each roadway centerline to the 70, 65, and 60 L_{dn} traffic noise contours. For further details on traffic-noise modeling inputs and parameters, refer to Appendix C.

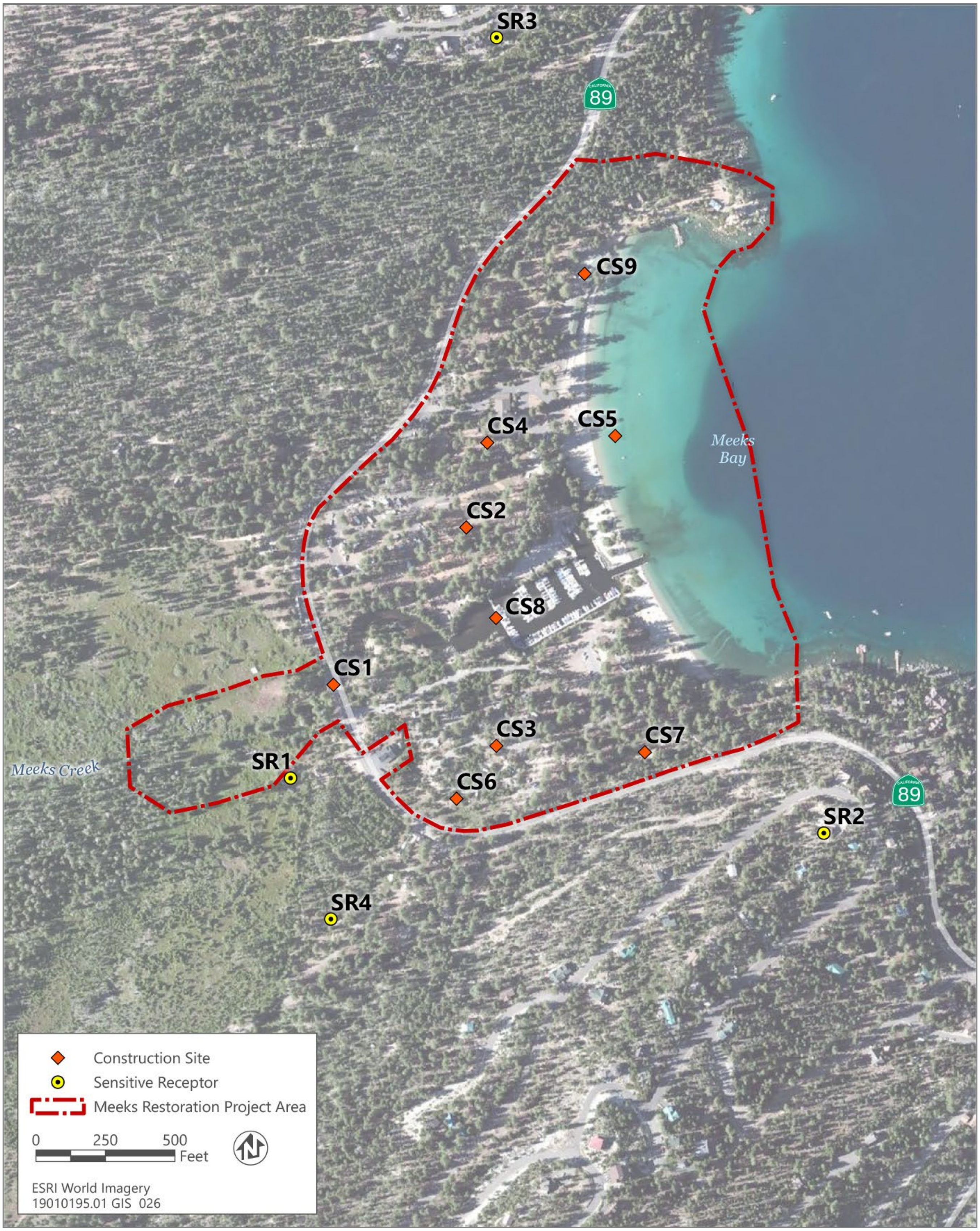
Table 3.11-6 Summary of Modeled Existing Traffic Noise Levels

Roadway Segment/Segment Description	CNEL at 100 feet from Roadway Centerline	Distance (feet) from Roadway Centerline to CNEL Contour 70 dBA	Distance (feet) from Roadway Centerline to CNEL Contour 65 dBA	Distance (feet) from Roadway Centerline to CNEL Contour 60 dBA
SR 89 - Mc Kinney Creek Road to SR 89 – El Dorado/Placer County Line	63.1	23	73	232
SR 89 - El Dorado/Placer County Line to SR 89 - Rubicon Glen Drive	62.0	18	57	180
SR 89 - Rubicon Glen Drive to SR 89 – Bliss Memorial State Park Road	62.3	20	62	197

Notes: CNEL = Community Noise Equivalent Level, dBA = A-weighted decibels

All modeling assumes average pavement, level roadways (less than 1.5 % grade), constant traffic flow, and does not account for shielding of any type or finite roadway adjustments. All noise levels are reported as A-weighted noise levels. For additional details, refer to Appendix B for detailed traffic data, and traffic-noise modeling input data and output results.

Source: Data modeled by Ascent Environmental in 2021.



Source: adapted by Ascent Environmental in 2021.

Figure 3.11-1 Construction Sites and Sensitive Receptor Locations

3.11.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

Construction Noise and Vibration

To assess potential short-term (construction-related) noise and vibration impacts, sensitive receptors and their relative exposure were identified. Project-generated construction source noise and vibration levels were determined based on methodologies, reference emission levels, and usage factors from FTA's *Guide on Transit Noise and Vibration Impact Assessment* methodology (FTA 2018) and FHWA's *Roadway Construction Noise Model User's Guide* (FHWA 2006). Reference levels for noise and vibration emissions for specific equipment or activity types are well documented and the usage thereof common practice in the field of acoustics.

Operational Noise

Operational non-transportation noise sources (e.g., boating activity noise) was evaluated qualitatively based on project-specific details, considering the location of project components, anticipated noise sources and their location, and proximity to sensitive receptors. Long-term increases in traffic noise were assessed quantitatively based on traffic noise modeling conducted in accordance with Caltrans and FHWA guidance, using project-specific trip generation data.

THRESHOLDS OF SIGNIFICANCE

The thresholds of significance were developed in consideration of the State CEQA Guidelines, TRPA Thresholds, TRPA Initial Environmental Checklist, Lake Tahoe Basin Management Unit Forest Plan, and other applicable policies and regulations. Under the National Environmental Policy Act (NEPA) the significance of an effect must consider the context and intensity of the environmental effect. The factors that are considered under NEPA to determine the context and intensity of its effects are encompassed by the thresholds of significance. An alternative would have a significant effect on noise if it would:

- increase existing CNELs beyond those permitted in the applicable Plan Area Statement, Community Plan or Master Plan; or if traffic noise levels would exceed the applicable TRPA noise threshold standards, expressed in CNEL, including the land use-based TRPA Regional Plan Cumulative Noise Level thresholds or the contour-based transportation corridor noise thresholds;
- expose people to severe noise levels (i.e., a long-term noise level increase of 3 A-weighted decibels (dBA) or greater at a noise-sensitive receptor such as a residence, hotel, or tourist accommodation unit);
- expose existing structures to levels of ground vibration that could result in structural damage (i.e., exceedance of Caltrans's recommended level of 0.2 in/sec PPV with respect to the prevention of structural damage for normal buildings or FTA's maximum acceptable level of 72 VdB with respect to negative human response for residential uses and tourist accommodation units or 83 VdB at commercial land uses [i.e., annoyance]);
- place residential or tourist accommodation uses in areas where the existing CNEL exceeds 60 dBA or is otherwise incompatible;
- place uses that would generate an incompatible noise level in close proximity to existing residential or tourist accommodation uses;
- expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- expose persons to or generate excessive ground vibration or ground noise levels;
- cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project; or
- cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

ISSUES NOT DISCUSSED FURTHER

The project is not located within 2 miles of any airport or airstrip, thus would not result in the placement of residents or workers in areas where they could be exposed to airport-related noise. In addition, the project does not propose new residential or tourist accommodation uses; thus, noise compatibility with existing noise levels is not applicable to the project. These issues are not discussed further.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.11-1: Short-Term Project-Related Construction Noise Levels

Construction activities under Alternatives 1, 2, 3, and 4 would generate short-term noise. These activities would be subject to TRPA's Standard Condition of Approval for the minimization of exposure to construction-generated noise and ground vibration, which are designed to ensure that noise-sensitive receptors are not exposed to excessive construction noise levels during noise-sensitive times of the day. However, some nighttime construction could occur to reduce overall construction duration. Thus, on-site and off-site sensitive receptors could be exposed to construction noise that exceeds applicable standards and results in a substantial temporary increase in noise. This impact would be **significant and unavoidable** under Alternatives 1, 2, 3, and 4. The No Action Alternative would not include any construction; thus, there would be **no impact**.

No Action Alternative

No construction activity would occur under the No Action Alternative; therefore, no construction with pile driving or other construction activity would occur. There would be **no impact**.

Alternative 1: Restoration with Boating Pier

Alternative 1 would involve construction and excavation activities including removal of Meeks Bay Marina and restoration of Meeks Creek (location identified in Figure 3.11-1 as CS8), realignment of parking and roads (CS4, CS6, and CS7), demolition and reconstruction of cabins (CS9), relocation of the utility infrastructure included with other project components, and stabilization of the shoreline. In addition, a new boating pier (CS5) would be constructed and the vehicular bridge on SR 89 (CS1) would be reconstructed.

Construction activities would occur throughout the project area and would generally occur during the daytime hours consistent with TRPA requirements; however, the time-critical construction activities associated with SR 89 bridge reconstruction) could occur for 24-hour periods to reduce overall construction duration. If construction activities for the SR 89 bridge would only occur during daytime hours, the overall length of the construction period for the bridge would be longer than if construction activities would continue over a 24-hour period. The decision to consider the potential for 24-hour construction periods was made to reduce the length of the overall construction period for the SR 89 bridge so that periods of traffic congestion and lane closure are minimized. Construction activities that generate the most noise typically include those associated with earth movement and pile driving because the equipment used for these activities generate the highest noise levels. Construction activities would require the use of various types of equipment, such as a loader, dozer/tractor, scraper, excavator, backhoe, grader, pump, generator, trucks (haul and passenger), and pile drivers. The noise levels of these typical construction equipment are shown in Table 3.11-7.

Construction activities may result in varying degrees of temporary noise levels, depending on the specific construction equipment used and activities involved. Bridge and pier construction typically involve pile driving, while other construction activities would not include pile driving. Based on the types of activities (e.g., restoration, cabin demolition and construction), and bridge/pier construction, worst-case noise modeling was conducted for construction activities that would not include pile driving (depicted as CS2, CS3, CS4, CS6, CS7, CS8, CS9 on Figure 3.11-1) and activities that would require pile driving (depicted as CS1 and CS5 on Figure 3.11-1).

Based on modeling conducted for construction activities without pile driving and for activities with pile driving, construction noise levels could reach, 85 dBA L_{eq} and 92 dBA L_{eq}, respectively, at 50 feet from construction activities. These levels represent maximum potential hourly noise levels during daytime construction, which would occur for the majority of construction activities. Typically, daytime construction noise levels would be exempt from adopted noise standards; however, because construction would occur during the nighttime hours, noise standards for the Meeks Bay PAS (i.e., 50 dBA CNEL) and for the rural outdoor recreational and low-density residential land uses (i.e., 50 dBA CNEL) would apply to nighttime construction activities. Thus, assuming 24 hours of construction activities, construction noise levels could range from 92 dBA CNEL to 99 dBA CNEL at 50 feet from construction activities (i.e., the reference distance used to propagate noise levels to other receptors). The nearest off-site sensitive receptors to activities involving pile driving (i.e., loudest potential noise) would be SR1, approximately 370 feet from CS1 construction activities, and the nearest receptor to activities not involving pile driving would be SR4, approximately 650 feet from construction activities CS6, depicted on Figure 3.11-1. Applying standard attenuation rates, construction activities at these distances would range from 69 dBA CNEL to 76 dBA CNEL at the nearest receptor (SR1) and from 62 dBA CNEL to 69 dBA CNEL at SR4. Modeling inputs and calculations are included in Appendix C. To avoid any additional noise impacts on off-site sensitive receptors, in compliance with TRPA standard conditions of approval (see Section 3.1.1, above), construction equipment and staging areas would be located as far as possible from noise-sensitive land uses, and stationary equipment near sensitive noise receptors or residential areas would be equipped with temporary sound barriers.

It should also be noted that construction noise could affect on-site daytime recreational users of existing campground facilities and the nearby beach, and in some cases, these receptors could be located at similar or even closer distances to construction noise than these off-site receptors, thus, be exposed to higher noise levels. However, as described in Chapter 2, "Description of Proposed Action and Alternatives," daily visitors to the project area during active construction would have received prior notification and would be aware of the potential for construction activities to disrupt daily recreational activities, or could choose not to visit during these times. Regarding noise impacts on sensitive receptors, when people are unaware of increased noise, they are more prone to be surprised, startled, or otherwise disturbed. Therefore, provided that on-site noise-sensitive receptors (i.e., project area visitors) would be fully aware of the ongoing construction activities and the fact that some portions of active construction sites would be closed during construction activities, on-site noise-sensitive receptors would not be more adversely impacted than off-site ones. Nonetheless, considering the lower range of modeled construction noise (69 dBA CNEL) in comparison to existing noise levels in the vicinity (62–63 dBA CNEL), construction noise could increase 24-hour average levels by 7 dBA, which would be noticeable and considered substantial. In addition, considering ambient hourly levels at night are much lower than daytime ambient hourly levels (typically 35–45 dBA), hourly noise levels associated with construction could result in even greater increases in noise during nighttime, which is an important distinction because the greater the increase in noise, the more likely the increase would disrupt a person's sleep. Further, modeled nighttime construction levels would exceed applicable standards of 50 dBA CNEL. For these reasons, this impact would be **significant.**

Table 3.11-7 Typical Equipment Noise Levels

Type of Equipment	Noise Level (L_{max}) at 50 feet
Pile driver	95
Blasting	94
Crane	85
Excavator	85
Dozer	85
Grader	85
Dump truck	84
Generator	82
Backhoe	80
Compactor	80
Front end loader	80
Chain saw	84
Wood chipper	75[1]

[1] The reference sound level for a wood chipper is based on sound levels provided in Berger, Neitzel, and Kladden 2010.
Source: FHWA 2006:3 unless otherwise noted.

Alternative 2: Restoration with Pedestrian Pier

Construction activities associated with Alternative 2 would be similar to Alternative 1, because similar components would be constructed, except that this alternative includes a pedestrian pier instead of a boating pier. Similar to Alternative 1, the loudest construction activities would occur near construction of the new SR 89 bridge (identified as CS1 on Figure 3.11-1) and construction of the pedestrian pier (CS5) where pile driving would occur, and lower construction noise levels would be associated with other construction areas identified in Figure 3.11-1. Alternative 2 would not include demolition and reconstruction of cabins but would construct the shoreline stabilization at CS9. Impacts to noise sensitive receptors within the project area (i.e., visitors) under Alternative 2 would be similar to those described above for Alternative 1; thus, construction noise would result in substantial increases in temporary noise that exceed applicable standards. This impact would be **significant**.

Alternative 3: Restoration with No Pier

Construction activities associated with Alternative 3 would include activities near the CS1, CS2, CS3, CS4, CS6, CS7, CS8, and CS9 (shoreline stabilization only). Similar to Alternatives 1 and 2, construction activities associated with the SR 89 Bridge replacement (CS1), that could require pile driving would represent the loudest noise levels and could occur at night to reduce overall construction duration for the SR 89 bridge. Other construction activities that do not include pile driving could also occur. Impacts to noise sensitive receptors within the project area (i.e., visitors) under Alternative 3 would be similar to those described above for Alternative 1;thus, construction noise would result in substantial increases in temporary noise that exceeds applicable standards. This impact would be **significant**.

Alternative 4: Preferred Alternative

Construction activities associated with the Alternative 4 would be similar to Alternative 3, including bridge reconstruction that could involve pile driving (CS1) and other restoration/construction activities (CS2, CS3, CS4, CS6, CS7, CS8, and CS9), including nighttime construction for the SR 89 bridge. Therefore, similar to Alternatives 1, 2, and 3, construction activities associated with the SR 89 bridge, which could require pile driving, would represent the loudest noise levels. Other construction activities that would not include pile driving could also occur. Impacts to noise sensitive receptors within the project area (i.e., visitors) under Alternative 4 would be similar to those described above for Alternative 1; thus, construction noise would result in substantial increases in temporary noise that exceed applicable standards. This impact would be **significant**.

Mitigation Measures

Mitigation Measure 3.11-1 Construction Noise Reduction

This mitigation measure will apply to Alternatives 1, 2, 3, and 4.

For construction activities related to the SR 89 bridge reconstruction, the USFS and their contractors shall implement or incorporate the following noise reduction measures into construction specifications for contractor(s) implementation during project construction:

- Minimize construction activities outside of daytime hours of 8:00 a.m. to 6:30 p.m. when feasible and consistent with other lead agency goals including minimizing overall construction duration and efficiently completing construction activities.
- Vibration-inducing construction activities (i.e., jackhammering, pile driving, crushing, vibratory compactors) shall not be used outside of the TRPA-established daytime construction hours (8:00 a.m. to 6:30 p.m.) under any circumstance.
- All construction equipment shall be properly equipped with standard manufacturer-installed noise-reduction intake and exhaust mufflers and engine shrouds.
- If TRPA or the USFS receives a noise complaint, then noise monitoring will be implemented by TRPA. If noise monitoring demonstrates that construction activities outside of noise exempt daytime hours of 8:00 a.m. to 6:30 p.m. exceed 70 dBA L_{max} at the receiving land use property line, then the measures listed below shall be implemented such that interior noise levels of 70 dBA L_{max} are not exceeded at any receiving land use. Typical residential structures with windows closed achieve a 25-30 dBA exterior-to-interior noise reduction (Caltrans 2002).

Thus, using the lower end of this range, an exterior noise level of 70 dBA L_{max} would ensure interior noise levels do not exceed 45 dBA L_{max}, which would result in an increased risk for sleep disturbance. To achieve this performance standard, additional feasible noise reduction measures shall be implemented, such as the following:

- Use of noise-reducing enclosures and techniques around stationary noise-generating equipment (e.g., concrete mixers, generators, compressors).
- Individual operations and techniques outside of daytime hours could be replaced with quieter procedures, where feasible, (e.g., using welding instead of riveting, mixing concrete off-site instead of on-site).
- Installation of temporary noise curtains installed as close as possible to the boundary of the construction site within the direct line of sight path of the nearby sensitive receptor(s) and consist of durable, flexible composite material featuring a noise barrier layer bounded to sound-absorptive material on one side. The noise barrier layer should consist of rugged, impervious, material with a surface weight of at least one pound per square foot.

Significance After Mitigation

Implementation of the above mitigation measures would reduce construction noise to the extent feasible by limiting the types of activities that occur during the sensitive times of the day. When nighttime construction would be required and in the event that noise complaints are received and monitoring demonstrates exceedance of TRPA noise standards, the use of noise barriers and use of alternative, quieter construction procedures, or other feasible approaches, would reduce noise exposure to nearby receptors. However, given that TRPA has established a 50 dBA CNEL noise standard for the project area, even considering these measures, nighttime construction activities would exceed the 50 dBA CNEL standard and this impact would remain **significant and unavoidable**.

Impact 3.11-2: Short-Term Vibration Impact from Project Construction

Construction activities under Alternatives 1, 2, 3 and 4 would generate short-term vibration levels associated with construction. This would include activities such as pile driving, which would be required for bridge construction along SR 89 under all action alternatives and pier construction for alternatives 1 and 2. However, pile driving activities would not exceed recommended maximum levels that could cause structural damage or human annoyance. This impact would be **less than significant** under all action alternatives. The No Action Alternative would not involve any construction activities, hence there would be **no impact**.

No Action Alternative

No construction activity would occur under the No Action Alternative; therefore, no vibration associated with pile driving or other construction activity would occur. There would be **no impact**.

Alternative 1: Full Restoration with Boating Pier

Under Alternative 1, the SR 89 bridge would be replaced and widened to accommodate a multi-use path, a 300-foot boating pier would be installed and removal of Meeks Bay Marina and restoration of Meeks Creek, realignment of the roads, minor improvements to the campgrounds at the Northside, relocation of the utility infrastructure, and stabilization of the shoreline would occur.

Construction activities would require the use of various types of equipment, such as a loader, dozer/tractor, scraper, excavator, backhoe, grader, pump, generator, crane, trucks (haul and passenger), and pile drivers for bridge and pier construction. Table 3.11-8 shows the maximum ground vibration levels generated by the types of equipment (and activities). The construction activities may result in varying degrees of temporary ground vibration, depending on the specific construction equipment used and activities involved, but as seen in Table 3.11-8, pile driving would result in the greatest vibration levels and therefore is the focus of this analysis.

As shown in Figure 3.11-1, bridge reconstruction would occur at location CS1 and pier construction at location CS5, both locations where pile driving could occur. The nearest sensitive receptor to bridge construction activities is located at SR1, approximately 370 feet away. Construction vibration could also affect on-site daytime recreational users of existing campground facilities and the nearby beach, and in some cases, these receptors could be located at similar or even closer distances to construction noise than off-site receptors. However, as described in Appendix A, "Resource Protection Measures," daily visitors to the project area during active construction would have received prior notification and would be aware of the potential for construction activities to disrupt daily recreational activities or could choose not to visit during these times. Regarding vibration impacts on sensitive receptors, when people are unaware of increased vibration, they are more prone to be surprised, startled, or otherwise disturbed. Therefore, provided that on-site noise-sensitive receptors (i.e., project area visitors) would be fully aware of the ongoing construction activities and the fact that some portions of active construction sites would be closed during construction activities, on-site noise-sensitive receptors would not be more adversely impacted than off-site ones.

Table 3.11-8 Representative Ground Vibration and Noise Levels for Construction Equipment

Equipment	PPV at 25 feet (in/sec)	Approximate L_v (VdB) at 25 feet[2]
Pile driver (impact) upper range	1.518	112
Typical	0.644	104
Pile driver (sonic) upper range	0.734	105
Typical	0.170	93
Blasting	1.13	109
Large dozer	0.089	87
Caisson drilling	0.089	87
Loaded trucks	0.076	86
Rock breaker	0.059	83
Jackhammer	0.035	79
Small dozer	0.003	58

Notes: PPV = peak particle velocity; L_V = the root mean square velocity expressed in vibration decibels (VdB), assuming a crest factor of 4; VdB = vibration decibels.

Source: FTA 2018.

According to FTA, vibration levels associated with typical pile drivers are 0.644 in/sec PPV and 104 VdB at 25 feet. Based on FTA's recommended procedure for applying a propagation adjustment to these reference levels, vibration levels from pile driving could exceed Caltrans-recommended level of 0.2 in/sec PPV with respect to structural damage within 55 feet of pile-driving activities and could exceed FTA's maximum acceptable level of 72 VdB (for frequent events like pile driving) with respect to human response within 292 feet of pile-driving activities. Refer to Appendix C for attenuation calculations. As discussed above and shown in Figure 3.11-1, no off-site structures or sensitive land uses (e.g., residences, tourist accommodation units) are located within 292 feet distance of the SR 89 bridge (CS1) or the pier location (CS5), where pile driving could occur. This impact would be **less than significant**.

Alternative 2: Full Restoration with Pedestrian Pier

Alternative 2, like Alternative 1, would also include reconstruction of the vehicular bridge on SR 89 and new pier, although the pier would be for pedestrians rather than for boating. Other construction activities, as discussed above for Alternative 1, would also occur under this alternative. Because this alternative would include bridge and pier construction in the same locations as for Alternative 1 (i.e., CS1 and CS5), pile driving would also be of greatest concern affecting the same receptors (SR1 located 370 feet from CS1). Vibration impacts to sensitive receptors within the project area under Alternative 2 would be similar to those described above for Alternative 1. This impact would be **less than significant**.

Alternative 3: Full Restoration with No Pier

Construction activities associated with Alternative 3 would be similar to Alternative 1 and 2, but no pier would be constructed. Similar to Alternatives 1 and 2, bridge construction that would occur for Alternative 3 would include pile driving, which would generate the highest levels of ground vibration. Thus, pile driving is the focus of this analysis, which would occur for the SR 89 bridge replacement at CS1, affecting the same receptor as described above (SR1 located 370 feet from CS1). Vibration impacts to sensitive receptors within the project area under Alternative 3 would be similar to those described above for Alternative 1. This impact would be **less than significant**.

Alternative 4: Preferred Alternative

Construction activities associated with Alternative 4 would be similar to Alternative 1 and 2, but no pier would be constructed. Similar to Alternatives 1 and 2, bridge construction that would occur for Alternative 4 would include pile driving, which would generate the highest levels of ground vibration. Thus, pile driving is the focus of this analysis, which would occur for the SR 89 bridge replacement at CS1, affecting the same receptor as described above (SR1 located 370 feet from CS1). Vibration impacts to sensitive receptors within the project area under Alternative 4 would be similar to those described above for Alternative 1. This impact would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

Impact 3.11-3: Long-Term Changes in Boat Noise

Long-term stationary sources associated with the proposed alternatives could result from new or expanded boating operations at the new boating pier associated with Alternative 1; however, this noise would be offset by a reduction in boat noise associated with removing the existing boat ramp at the Meeks Bay Marina resulting in a **less-than-significant** impact for Alternative 1. Alternative 2 would include a pedestrian pier instead of a boating pier and Alternatives 3 and 4 would not include a pier. Under Alternatives 2, 3, and 4, no boating pier would be installed so boating activity/noise would not increase in the project area. Long-term boating noise levels in Meeks Bay would decrease under Alternatives 2, 3, and 4 resulting in a **beneficial** effect. The No Action Alternative would not result in any new piers or other facilities that could increase boating activity; boating noise would be continue at existing levels. This would be a **less-than-significant** impact.

No Action Alternative

No stationary source of noise would be constructed under the No Action Alternative and the marina would continue to operate generating noise levels that are similar to existing conditions. Because there would be no increase in existing levels of boat noise, this would be a **less-than-significant** impact.

Alternative 1: Restoration with Boating Pier

Under Alternative 1, a new approximately 300-foot boating pier would be installed, which could increase localized noise levels in the vicinity of the pier (i.e., boating parking/loading/unloading). In addition, if a substantial increase in boating activity and therefore noise levels were to occur, ambient noise levels could also increase. Boat noise is regulated by TRPA's single-event noise levels (Table 3.11-2) and by the applicable PAS noise policies (i.e., 50 dBA CNEL for the Meeks Bay PAS).

Noise sources from motorized watercraft include the engine revving, exhaust noise, and the boat slapping the water. Currently, TRPA enforces a 600-foot no-wake zone, which requires boaters to limit their speed to 5 miles per hour (mph) within 600 feet of the shore, with the exception of up to 7 mph for tour boats. Limiting boat speed reduces engine noise, exhaust noise, and wake-slapping noise, thus substantially reducing boat noise levels at the shore. TRPA enforcement of the no-wake zone and noise limit tests for individual boats, would ensure compliance with single-event noise levels.

The proposed 300-foot boating pier would result in new boating activity associated with the pier; however, this noise would be offset by a reduction in boat noise associated with removing the boat ramp at the Meeks Bay Marina, which results in localized boat noise when the marina is open. As described in Table 3.1-3 in Section 3.1, "Recreation," approximately 1,970 boats are launched from the Meeks Bay Marina per year, which equates to approximately 3,940 boat trips through Meeks Bay per year, assuming two trips per launch (i.e., one trip leaving the marina and one returning). Under this alternative, a boat pier would be constructed. Even though it is not possible to know how many boats would access the new boating pier, based on anecdotal observations at other public piers around Lake Tahoe, it is assumed that an average of five to 10 boats would access the pier per day during the approximately 100-day boating season that generally lasts from Memorial Day weekend through Labor Day weekend. This would result in an estimated total of 1,000–2,000 boat trips (assuming one trip to the pier and one trip from the pier for each boat accessing the pier). To be conservative, this analysis assumes that implementing Alternative 1 would result in approximately 2,000 boat trips per year, which is fewer trips than under baseline conditions with the operation of the marina. Other incidental boat trips, such as boats beaching outside of swim areas or boat anchoring in Meeks Bay, would be unchanged under all the alternatives. Because the overall ambient noise levels experienced at any one time are determined by averaging noise levels or noise events over a 24-hour period of time, the number and duration of each noise-generating event throughout a day influence the ultimate 24-hour CNEL. Thus, provided that under Alternative 1 a reduction in boating activity in the project vicinity is anticipated, overall ambient noise levels are also not anticipated to increase. This impact would be **less than significant**.

Alternative 2: Restoration with Pedestrian Pier

Alternative 2 would be similar to Alternative 1; however, instead of a boating pier, the new pier would be for pedestrian use only. Therefore, no new boating activity or boat-related noise would occur at the new pier. Further, and similar to the discussion above for Alternative 1, there would be a reduction in boat traffic associated with the removal of the Meeks Bay Marina that would result in a reduction in overall motorized boating noise levels. TRPA would continue to enforce the no-wake zone and overall ambient noise levels would not increase. Since there would be no other new stationary noise sources under this alternative and noise levels would be reduced with the removal of the Meeks Bay Marina, Alternative 2 would have a **beneficial** effect.

Alternative 3: Restoration with No Pier

Unlike Alternatives 1 and 2, this alternative would not include the construction of a new pier. Instead, this alternative would construct a small, universally accessible nonmotorized paddle craft launch structure at the south end of the bay. The introduction of nonmotorized paddle boats would not affect the ambient noise levels near the sensitive receptors. Also, similar to Alternatives 1 and 2, there would be a reduction in boat traffic associated with the removal of the Meeks Bay Marina that would result in a reduction in motorized boating noise levels. Since there would be no other new stationary noise sources under this alternative and noise levels would be reduced with the removal of the Meeks Bay Marina, Alternative 3 would have a **beneficial** effect.

Alternative 4: Preferred Alternative

This Alternative would be similar to Alternative 3, and no pier would be constructed but a small, universally accessible nonmotorized paddle craft launch structure would be constructed at the south end of the bay. The introduction of nonmotorized paddle boats would also not affect the ambient noise levels near the sensitive receptors. Also, there would be a reduction in boat traffic associated with the removal of the Meeks Bay Marina that would result in a reduction in motorized boating noise levels. Since there would be no other new stationary noise sources under this alternative and noise levels would be reduced with the removal of the Meeks Bay Marina, Alternative 4 would have a **beneficial** effect.

Mitigation Measures

No mitigation measures are required.

Impact 3.11-4: Long-Term Traffic Noise Levels

Alternatives 1 through 4 would result in a decrease in average daily trips associated with removal of the marina and taking into consideration changes proposed in the project area (e.g., change in number of campsites and parking spaces). Thus, there would be a **less-than-significant** impact related to long-term traffic noise levels for Alternatives 1 through 4. No changes related to traffic would occur with the No Action Alternative and, thus, there would be **no impact** on long-term traffic noise levels.

<u>No Action Alternative</u>

No increase in traffic would occur under the No Action Alternative; therefore, no traffic noise impact would occur. Hence, there would be **no impact**.

<u>Alternative 1: Restoration with Boating Pier</u>

As detailed in Chapter 3.12, "Transportation and Circulation," the changes proposed under Alternative 1, including removal of the marina and development of up to two additional campsites, would likely result in a net decrease in average daily trips. Therefore, Alternative 1 would not generate an increase in traffic or associated traffic noise. There would be a **less-than-significant** impact associated with long-term traffic noise.

<u>Alternative 2: Restoration with Pedestrian Pier</u>

As detailed in Chapter 3.12, "Transportation and Circulation," the changes proposed under Alternative 2, including removal of the marina and development of up to two additional campsites, would likely result in a net decrease in average daily trips. Therefore, Alternative 2 would not generate an increase in traffic or associated traffic noise. There would be a **less-than-significant** impact associated with long-term traffic noise.

<u>Alternative 3: Restoration with No Pier</u>

As detailed in Chapter 3.12, "Transportation and Circulation," the changes proposed under Alternative 3, including removal of the marina and development of up to 22 additional campsites, would likely result in a net decrease in average daily trips. Therefore, Alternative 3 would not generate an increase in traffic or associated traffic noise. There would be a **less-than-significant** impact associated with long-term traffic noise.

<u>Alternative 4: Preferred Alternative</u>

As detailed in Chapter 3.12, "Transportation and Circulation," the changes proposed under Alternative 4, including removal of the marina and development of up to two additional campsites, would likely result in a net decrease in average daily trips. Therefore, Alternative 4 would not generate an increase in traffic or associated traffic noise. There would be a **less-than-significant** impact associated with long-term traffic noise.

Mitigation Measures

No mitigation measures are required.

3.11.4 Cumulative Impacts

For the Tahoe Basin as a whole, all CNEL threshold standards are in attainment of the TRPA threshold standard except for the standard for critical wildlife habitat areas (TRPA 2021). The predominant noise source in the project area is vehicle traffic on SR 89. Existing traffic noise levels on roadway segments in the project area are summarized in Table 3.11-6.

Noise and vibration levels associated with construction of all the action alternatives would be temporary, intermittent, and relatively minor. Construction-related noise is typically considered a localized affect, affecting the land uses closest to construction activities and TRPA requirements limit construction activities to the less-sensitive times of the day. Given that proposed construction activities would be relatively minor, localized, and would occur during the less-sensitive times of the day, construction activities associated with Alternatives 1, 2, 3, and 4 would not combine with noise from other construction activities in the area to result in a cumulative noise impact from construction.

Alternatives 1 through 4 would result in an overall decrease in average daily trips, which considers the removal of the marina with changes proposed in the project area (e.g., change in number of campsites and parking spaces). Thus, there would be no traffic noise impact for Alternatives 1 through 4. Therefore, even if traffic in the project vicinity increased under cumulative conditions, the project's contribution would not be considered substantial.

Alternative 1 would include construction of a new boating pier that would result in boating noise near the pier. However, removal of the boat ramp and marina would result in an overall net decrease in motorized boating activity and boat noise in the project vicinity. All other action alternatives would not include a boating pier, therefore, none of the action alternatives would result in a substantial increase in boating activity and associated ambient noise levels. In fact, overall boating activity and associated noise in the project vicinity would decrease compared to existing conditions, as a result of less motorized boating activity in Meeks Bay. Thus, long-term boat-related noise would not be substantial and would not combine with other noise sources in the area to result in a substantial increase in cumulative noise levels.

For these reasons, the alternatives would a have a **less than cumulatively considerable impact** related to noise.

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3.12 TRANSPORTATION AND CIRCULATION

This section identifies applicable regulatory requirements and describes the existing transportation system in the vicinity of the project area. It also evaluates impacts related to the generation of vehicle miles traveled (VMT); bicycle, pedestrian, and transit facilities; transportation hazards; emergency access; and temporary construction traffic resulting from implementation of the project.

3.12.1 Regulatory Setting

FEDERAL

Federal Highway Administration

The Federal Highway Administration (FHWA), an agency of the U.S. Department of Transportation, provides stewardship over the construction and preservation of the nation's highways, bridges, and tunnels. FHWA also conducts research and provides technical assistance to state and local agencies to improve safety, mobility, and livability and to encourage innovation in these areas. FHWA also provides regulation and guidance related to work zone safety, mobility, and temporary traffic control device implementation.

USDA Forest Service Special Use Permit

Work on transportation facilities (i.e., SR 89 bridge) that occurs on National Forest System lands outside of a highway right-of-way requires a temporary construction special use permit. If structures are proposed outside of the existing highway right-of-way, perfection of the right-of-way may occur.

TAHOE REGIONAL PLANNING AGENCY

Among its other roles as a regional planning agency, Tahoe Regional Planning Agency (TRPA) develops the Regional Transportation Plan (RTP) and establishes thresholds to meet a set of environmental goals and standards. While the RTP acts as a roadmap for achieving the thresholds, TRPA also requires compliance with the Code of Ordinances which is designed to achieve and maintain the thresholds. TRPA continues to possess a unique governance structure in the United States through the California and Nevada bi-state compact.

Thresholds

As prescribed by the Compact, TRPA adopted environmental thresholds in 1982 covering nine resources or topics including air quality which included a VMT-based standard. This standard was originally adopted to address nitrate deposition concerns which, over time improved substantially. As a result, nitrate deposition is no longer a significant contributor to lake clarity issues (TRPA 2021b). In recognition of this, in April 2021, the Governing Board removed the nitrate deposition threshold and replaced it with a new mobility-related threshold under a new category heading:

- TSC1: Reduce Annual Daily Average VMT Per Capita by 6.8% from 12.48, the 2018 baseline, to 11.63 in 2045. (TRPA 2021)

The new VMT threshold sets forth an efficiency based VMT standard that better aligns with identified polices goals and affords consistency with California and Nevada state policies with respect to greenhouse gas emissions reduction and aligns with and is responsive to meaningful change in the regional land use and the transportation system.

Tahoe Regional Plan

Chapter 3, "Transportation Element," of the Regional Plan includes goals and policies that are intended to establish a safe, efficient, and integrated transportation system that provides quality mobility options for all sectors of the population, supports the region's economic base, enhances quality of life, and maximizes opportunities for environmental benefits. The Transportation Element includes transportation goals, policies, and implementation measures that address multiple aspects of transportation planning and interact to create a successful multi-modal transportation system.

Regional Transportation Plan

TRPA developed the 2020 Regional Transportation Plan (2020 RTP) as Lake Tahoe's blueprint for a regional transportation system that enhances the quality of life in the Tahoe region, promotes sustainability, and offers improved mobility options for people and goods. The 2020 RTP includes a Sustainable Communities Strategy (SCS), in accordance with California Senate Bill 375, statutes of 2008 (Sustainable Communities and Climate Protection Act). The SCS demonstrates the region's efforts in meeting per capita greenhouse gas emission reduction targets set by the California Air Resources Board (CARB). The 2020 RTP is centered around six goals for the region's transportation system, which include:

- Protect and enhance the environment, promote energy conservation, and reduce greenhouse gas (GHG) emissions.
- Enhance and sustain the connectivity and accessibility of the Tahoe transportation system, across and between modes, communities, and neighboring regions, for people and goods.
- Increase safety and security for all users of Tahoe's transportation system.
- Support the economic vitality of the Tahoe Region to enable a diverse workforce, sustainable environment, and quality experience for both residents and visitors.
- Provide an efficient transportation network through coordinated operations, system management, technology, monitoring, and targeted investments.
- Provide for the preservation of the existing transportation system through maintenance activities that support climate resiliency, water quality, and safety.

The contextual information and strategic approach presented in the 2020 RTP is organized by three categories: Visit Tahoe (regional entry and exit travel), Discover Tahoe (recreation travel), and Everyday Tahoe (residential and workforce travel). The 2020 RTP goals and policies draw from stakeholder feedback and align with several existing plans and programs including short- and long-range transit plans of the North and South Shore transit operators, the Coordinated Human Services Plan, the 2016 Active Transportation Plan (ATP) and Safe Routes to School, the 2017 Tahoe-Truckee Plug-In Electric Vehicle Readiness Plan, the 2015 Intelligent Transportation Systems Strategic Plan, and multiple corridor and area plans. Strategies detailed within the 2020 RTP focus on projects and programs that dynamically meet the needs of all roadway users by:

- offering better travel mode options;
- creating incentives that spread out the times, places, and ways people travel to improve traffic flow;
- providing environmentally innovative infrastructure;
- improving safe and equitable access to the places people want to go; and
- prioritizing funding for projects that fulfill TRPA objectives in transit, active transportation, transportation demand management, and other programs and directly support identified TRPA transportation performance outcomes.

Goals and Policies

The 2020 RTP includes the following policies related to transportation that are applicable to the project:

GOAL 1: Environment

- Policy 1.1: Support mixed-use, transit-oriented development, and community revitalization projects that encourages walking, bicycling, and easy access to existing and planned transit stops.

GOAL 2: Connectivity

- Policy 2.2: Provide frequent transit service to recreational areas, including trailheads and shoreline access points.

- **Policy 2.17:** Construct, upgrade, and maintain pedestrian and bicycle facilities consistent with the Active Transportation Plan.
- **Policy 2.18:** Accommodate the needs of all categories of travelers by designing and operating roads for safe, comfortable, and efficient travel for roadway users of all ages and abilities, such as pedestrians, bicyclists, transit riders, motorists, commercial vehicles, and emergency vehicles.

GOAL 3: Safety

- **Policy 3.6:** Design projects to maximize visibility at vehicular, bicycle, and pedestrian conflict points. Consider increased safety signage, site distance, and other design features, as appropriate.

GOAL 5: Economic Vitality & Quality of Life

- **Policy 5.3:** Encourage collaboration between public lands managers, departments of transportation, transit providers, and other regional partners to support sustainable recreation and multi-modal access to recreation sites.

Code of Ordinances

Changes in VMT as a result of additional development and transferred development, and all changes in project operation are discussed in Section 65.2, "Air Quality, Greenhouse Gas Reduction, and Mobility Mitigation Program," of the TRPA Code of Ordinances. Fees are assessed in accordance with 65.2.4.C.1 of the TRPA Code of Ordinances and Section 10.8.5 Mitigation Fees in the TRPA Rules of Procedure (TRPA 2021a) based on an individual project basis for projects that increase VMT. The TRPA Project Impact Assessment (PIA) Guidelines (TRPA 2021b) evaluates a project using in-basin trip lengths. The purpose of the fee program is to ensure that added development contribute their fair share to promote regional mobility and reduce VMT. Temporary activities are governed by TRPA Code Section 2.3.6, and construction projects are required to comply with TRPA's standard conditions of approval.

The TRPA Code of Ordinances provides information as it relates to screening projects from further transportation analysis, standards of significance, VMT metrics, and the overall transportation impact assessment process and requirements. As outlined in TRPA Code Subparagraph 65.2.3.D, some projects are presumed to result in a less-than-significant VMT impact absent any evidence to the contrary (TRPA 2021a). The following screening criteria are potentially applicable to the project:

- Projects Generating Low VMT: Projects will be screened from further transportation analysis using the following vehicle miles traveled calculations:
  - 1,300 in-Basin VMT within town centers and the half-mile buffer around them.
  - 715 in-Basin VMT in all other areas.
- Transportation Projects: Any of the following projects: bicycle, pedestrian, and transit projects (excluding mobility hubs).
- Redevelopment Projects: For projects replacing an existing development or use, the net average daily VMT generation should be considered against the screening criteria. This requires calculating both existing average daily VMT and average daily VMT under the project.

The TRPA Code requires that projects that involve more than 650 daily VMT must describe and evaluate the significance of all impacts in the Initial Environmental Checklist. A project that is not screened out must analyze whether it meets the standard of significance.

Active Transportation Plan

TRPA adopted an update to the Linking Tahoe: Active Transportation Plan (ATP), previously known as the Bicycle and Pedestrian Plan, in March 2016. Subsequently, a technical amendment to the ATP was adopted in October 2018. The ATP presents a guide for "planning, designing, constructing, and maintaining a regional active transportation network that includes innovative infrastructure, support facilities, and awareness programs" (TRPA 2018:1-1). Through a network of complete streets, the ATP promotes safe and convenient bicycle and pedestrian movement in an effort to increase quality of life and meet environmental goals. The ATP identifies four primary goals which are listed below.

- Increase connectivity by completing the active transportation network.
- Improve safety for bicyclists and pedestrians.
- Increase and support consistent project implementation through technical assistance and funding.
- Increase encouragement and awareness through implementation of the "5 E's" (i.e., engineering, education, enforcement, encouragement, evaluation).

The ATP also provides several policies and performance measures intended to meet the goals outlined above.

State Route 89 Recreation Corridor Management Plan

The SR 89 Recreation Corridor Management Plan (SR 89 Corridor Plan) was developed by TRPA, USDA Forest Service, and Tahoe Transportation District (TTD) and adopted in September 2020 by TRPA. The SR 89 Corridor Plan sets forth a vision and coordinated set of goals for land managers to work toward (TRPA et al. 2020). The vision for the corridor emphasizes a shift in the way people travel in the area to be more transit-oriented and multi-modal. The SR 89 Corridor Plan recommends several projects across the corridor to achieve specified goals. Specifically, the SR 89 Corridor Plan calls for the development of the following projects for the Meeks Bay Segment of the Tahoe Trail:

- Develop Tahoe Trail segment within Meeks Bay with grade-separated crossing, if needed; underground powerlines and co-locate technology infrastructure.
- Develop bus stop at Meeks Bay.
- Relocate roadside parking when alternative access is provided through transit and bike options.
- Replace Caltrans bridge and incorporate capacity for wildlife crossing and pedestrian/bike use, including potential grade-separated roadway crossing.
- Formalize emergency turnouts.
- Provide winter recreation access parking.
- Increase technology infrastructure (e.g., Intelligent Transportation Systems [ITS], real-time parking management strategies).

As stated in the SR 89 Corridor Plan, the alignment of the Tahoe Trail through Meeks Bay will be considered as part of the project being analyzed herein.

STATE

California Department of Transportation

Caltrans is responsible for planning, designing, constructing, operating, and maintaining the state highway system and ramp interchange intersections. Caltrans is also responsible for highway, bridge, and rail transportation planning, construction, and maintenance.

Environmental planning for transportation improvement projects involving California state highways follow the procedures set forth in the agency's Standard Environmental Reference and Section V of Guidance for Compliance Environmental Handbook. This guidance is intended for transportation-specific improvement projects where Caltrans operates as the CEQA lead agency but can also be used by other agencies, including local agencies, for ideas supplemental to their own procedures.

Caltrans provides guidance to local agencies on assessing the performance of rural roadways to enhance safety, mobility, accessibility, and productivity under continued use. Caltrans requires transportation permits for the movement of vehicles or loads exceeding the limitations on the size and weight contained in Division 15, Chapter 5, Article 1, Section 35551, of the California Vehicle Code.

California Manual on Uniform Traffic Control Devices, Part 6: Temporary Traffic Control

The *California Manual on Uniform Traffic Control Devices (CA-MUTCD), Part 6: Temporary Traffic Control* provides principles and guidance for the implementation of temporary traffic control (TTC) to ensure the provision of reasonably safe and effective movement of all roadway users (e.g., motorists, bicyclists, pedestrians) through or around TTC zones while reasonably protecting road users, workers, responders to traffic incidents, and equipment.

California Highway Design Manual

The California Highway Design Manual was developed by the Caltrans Division of Design to establish uniform policies and procedures to carry out the state highway design functions of Caltrans. Individual chapters may be updated at different times, and design information bulletins and design memoranda may supplement, or even supersede, material within the California Highway Design Manual.

Caltrans Encroachment Permits

An "encroachment" is defined in Section 660 of the California Streets and Highways Code as “any tower, pole, pole line, pipe, pipeline, fence, billboard, stand or building, or any structure, object of any kind or character not particularly mentioned in the section, or special event, which is in, under, or over any portion of the state highway rights-of-way (Caltrans). An encroachment permit must be obtained for all proposed activities related to the placement of encroachments within, under, or over the state highway rights of way. Necessary permits will be defined and sought after bridge and restoration design is completed.

Caltrans Traffic Safety Devices, Traffic Safety Systems Guidance

The Traffic Safety Systems Guidance was updated in March 2019 and prepared by the Division of Traffic Operations to establish uniform practices and guidance for traffic safety systems of Caltrans. Traffic safety systems are highway features designed primarily to reduce the severity of run-off road collisions, prevent errant vehicles from crossing the median, and decelerate errant vehicles (Caltrans 2019). While the District Traffic Safety Office or District Traffic Operations Office is the primary district functional unit responsible for the application of standards and policies for use of traffic safety systems on state highways, the Headquarters Office of Traffic Engineering ensures quality control of those standards and policies, and the Headquarters Traffic Safety Systems Branch Chief has authority over certain standards. The Division of Maintenance ensures the most efficient use of personnel and materials resources for those applications.

Senate Bill 743

Senate Bill (SB) 743, passed in 2013, required the Governor’s Office of Planning and Research (OPR) to develop new CEQA guidelines that address transportation metrics under CEQA. As stated in the legislation, upon adoption of the new guidelines, “automobile delay, as described solely by LOS or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment pursuant to this division, except in locations specifically identified in the guidelines, if any.”

OPR published its proposal for the comprehensive updates to the CEQA Guidelines in November 2017 which included proposed updates related to analyzing transportation impacts pursuant to SB 743. These updates indicated that vehicle miles traveled (VMT) be the primary metric used to identify transportation impacts. In December of 2018, OPR published the most recent version of the *Technical Advisory on Evaluating Transportation Impacts in CEQA* (Technical Advisory) which provides guidance for VMT analysis. The Technical Advisory notes that lead agencies should not truncate any VMT analysis because of jurisdictional or other boundaries, for example, by failing to count the portion of a trip that falls outside the jurisdiction or by discounting the VMT from a trip that crosses a jurisdictional boundary (OPR 2018).

In December 2018, OPR and the California Natural Resources Agency submitted the updated CEQA Guidelines to the Office of Administrative Law for final approval to implement SB 743. The Office of Administrative Law subsequently approved the updated CEQA Guidelines, and local agencies had an opt-in period until July 1, 2020 to implement the updated guidelines. As of July 1, 2020, implementation of Section 15064.3 of the updated CEQA Guidelines apply statewide.

3.12.2 Environmental Setting

This section describes the existing environmental setting, which is the baseline scenario upon which project-specific impacts are evaluated. The environmental setting for transportation includes baseline descriptions for roadway, bicycle, pedestrian, and transit facilities.

ROADWAY SYSTEM

There are four basic types of roadways in the region which include state routes, arterials, collectors, and local/neighborhood streets.

State Highways

Most vehicular travel in the Tahoe region occurs on state highways including U.S. Route (US) 50, SR 28, SR 89, SR 207, SR 267, and SR 431. Most highways are two-lane facilities; however, portions of US 50, SR 28, and SR 89 have wider cross-sections such as four-lane roadways with center two-way left turn lanes. In the project area, SR 89, also known as Emerald Bay Road, is a north-south two-lane highway that runs east of the project area connecting to SR 28 to the north and SR 88 on the southern end. Near the project area, SR 89 has a speed limit of 40 miles per hour, shoulders between 5 and 8 feet wide on either side of the roadway, and no turn pockets or two-way-left-turn lanes.

Arterials

Arterial roadways carry moderate to high traffic volumes to and from local and collector roads to other arterials and highways. Although access to adjacent parcels is more limited from arterials than from collector and local streets, arterial roadways also provide direct access to properties, particularly in commercial areas. There are no arterial roadways within the immediate vicinity of the project area.

Collectors

Collector roadways serve as transition facilities, distributing traffic from arterials and highways to their ultimate destination, and collecting traffic from local roadways to roads higher in the street classification hierarchy, such as arterials and state highways. Collector roads serve a dual function by providing access to properties on the roadway and moving moderate traffic volumes for medium length trips. There are no collector roadways within the immediate vicinity of the project area.

Local/Neighborhood Streets

Local roadways are intended to serve as access roads to adjacent properties only. They provide connections to higher order roadways, carry little if any through traffic, and generally have low traffic volumes. Manicina Road and Forest Service Road provide access to Meeks Bay Campground, a day-use area, parking, and the existing marina in the southern portion of the project area. A series of internal roadways provide access to campsites, parking, a day-use area, and the Meeks Bay Resort and general store on the northern end of the project area.

TRANSIT SYSTEM

Transit service in the region is provided by a mix of public and private transit services. TTD and Tahoe Truckee Area Regional Transit (TART) are the region’s two transit providers. These providers operate year-round and seasonal services on the north, east, south and west shores. They also provide commute services to nearby areas such as Truckee to the north and Carson Valley to the east. Washoe Regional Transportation Commission, the Town of Truckee, state Departments of Transportation, and private entities, such as ski resorts, also partner with transit providers to offer transit service through cost sharing agreements, formula funding allotments, and private shuttles and taxi services.

TART connects the north and west shores of Tahoe to the Town of Truckee year-round and runs a free night shuttle service during summer. TART service does not extend south of the Placer County line on the west shore of Lake Tahoe in the project area. TTD provides year-round service throughout the south shore and connects to the neighboring communities of Gardnerville and Minden. The TTD has connected parts of the west and east shores during the summer with the Emerald Bay Trolley and the East Shore Express, but these services have been suspended in recent years. Some local buses also provide connections to trailheads, such as at Spooner Summit. Though many parts of the lake are served with transit, year-around connections from North to South do not exist.

TART and TTD supply on-demand services to qualified individuals with special needs who are unable to independently use the fixed-route transit system. Location-specific shuttle service is provided by private companies and public/private partnerships. Many major ski resorts also provide shuttle services. Additionally, some private shuttle companies focus on the needs of the recreational hiker and biker by providing point-to-point pick-up and drop-off. Private providers include Flume Trail Bikes and Over the Edge Tahoe.

No transit services, publicly or privately operated, are currently provided to the project area. The nearest (TART) bus stop is located north of Meeks Bay at the Sugar Pine Point State Park stop, which serves the Main Line route. No on-demand transit services or location-specific shuttle service are currently provided to the project area.

BICYCLE AND PEDESTRIAN SYSTEM

The bicycle and pedestrian transportation system in the Tahoe Region is composed of bikeways and trails. The Active Transportation Plan classifies bicycle facilities into the following three types:

- Shared-Use Path (Class I): A paved shared-use path is a completely separate trail for active transport users (i.e., for walking and cycling). The path is recommended to be 10 feet wide and provide for two direction travel.
- Bike Lane (Class II): Bike lanes are striped six feet wide lanes and provide one way travel on a shared roadway with vehicles.
- Bike Route (Class III): A bike route is a shared roadway typically located on low-volume and low-speed streets. Signs and painted “sharrows” assist with wayfinding and show the preferred location of the biker within the roadway.

As of 2018, El Dorado County’s bike and pedestrian system is comprised of 12 miles of Class I shared-use paths and 11 miles of Class II bike lanes totaling 22 miles (TRPA 2018). LTBMU also operates and maintains 350 miles of National Forest System Trails and 250 miles of National Forest System Roads. National Forest System Trails are subject to a separate classification system oriented toward the level of trail development as opposed to the allowable trail facility uses.

The region has over 80 miles in separated Class I shared-use paths and sidewalks. These routes are well connected in some areas and have gaps in others. Caltrans and local jurisdictions have constructed sidewalks along the state highway system through town centers and more are planned. Local jurisdictions are connecting Class I shared-use paths around the lake, providing links across communities and to neighboring areas. Since 2010, more than seven and a half miles of sidewalks, approximately 22 bike lanes, and over six and a half miles of shared-use paths have been constructed throughout the region (TRPA 2018).

A Class I shared use path that is part of the Tahoe Trail currently exists adjacent to SR 89 along the west shore of Lake Tahoe with its southernmost terminus at Meeks Bay Resort. The path currently connects Meeks Bay to Sugar Pine Point State Park and the northern Lake Tahoe area. The Tahoe Trail is ultimately envisioned as a multi-use path that will circle Lake Tahoe; thus, improving connectivity within and between communities and access to beaches, trails, and other recreation areas. Meeks Bay Trailhead is also located across SR 89 from the Meeks Bay Resort, offering hiking access to Meeks Meadow, Desolation Wilderness, the Tahoe Rim Trail, and the Pacific Crest Trail.

3.12.3 Environmental Impacts and Mitigation Measures

This section describes the analysis techniques, assumptions, and results used to identify potential significant impacts of the project on the transportation system. Transportation impacts are described and assessed, and mitigation measures are recommended for impacts identified as significant or potentially significant.

METHODOLOGY

NEPA and associated Council on Environmental Quality (CEQ) guidelines and regulations defer to federal lead agencies regarding the approach for transportation analysis. TRPA's standards and procedure for VMT analysis recognize and align with SB 743; however, there some differences in analytical approach. One such difference is that TRPA considers only in-basin VMT, while CEQA requires a broader analysis using full trip lengths to calculate VMT. Therefore, the transportation analysis herein addresses impacts based on both the CEQA thresholds of significance (state) and TRPA thresholds standards (regional).

State CEQA Guidelines Section 15064.3 was added December 28, 2018, to address the determination of significance for transportation impacts. The new guideline requires that the analysis be based on VMT instead of congestion (such as LOS). The change in the focus of transportation analysis is the result of legislation (SB 743) and is intended to shift the emphasis from congestion to, among other things, reducing greenhouse gas emissions, promoting a diversity of land uses, and developing multimodal transportation networks. Pursuant to CEQA Guidelines Section 15064.3(c), this change in analysis is mandated to be used beginning July 1, 2020. Therefore, VMT is included in this analysis.

TRPA developed the PIA to describe VMT analysis requirements for development projects in the Tahoe Basin, which reflect 2021 updates to the TRPA Environmental Thresholds, and that are aligned with recent California legislative changes (i.e., Senate Bill 743, Public Resources Code Section 21099, and California Code of Regulations Section 15064.3). Therefore, the VMT analysis herein primarily relies on the guidance provided in CEQA Guidelines Section 15064.3 and Section 65.2 of the TRPA Code of Ordinances. It should be noted that the approach for calculating and analyzing the project-generated VMT is dictated by the applicable documents, guidance, and requirement discussed in detail above which is specific to the transportation chapter of this document. Other resource areas within this document (e.g., Recreation) that do not have a prescribed methodology may use a slightly different and more conservative approach.

CEQA Methodology

CEQA Guidelines Section 15064.3(b) identifies four criteria for analyzing the transportation impacts of a project. To determine how the project should be considered under CEQA, each of the criteria is discussed below.

Section 15064.3(b)(1) addresses land use projects. The project includes the redevelopment of the existing site which would include land use changes and an increase in intensity of certain existing land uses (i.e., increase in number of campsites). Therefore, the project would be considered a new trip-generating land use project; thus, this section of the CEQA guidelines would apply.

Section 15064.3(b)(2) addresses transportation projects. The project includes new bicycle and pedestrian facilities as well as a bridge replacement. Therefore, this section would apply.

Section 15064.3(b)(3), Qualitative Analysis, states that if existing models or methods are not available to estimate the VMT for the particular project being considered, a lead agency may analyze the project's VMT qualitatively. Additionally, this section notes that for many projects, a qualitative analysis of construction traffic may be appropriate. This section is applicable to the construction generated VMT associated with the project.

Section 15064.3(b)(4), Methodology, explains that the lead agency has discretion to choose the most appropriate methodology to evaluate VMT subject to other applicable standards, such as CEQA Guidelines Section 15151 (standards of adequacy for EIR analyses).

The OPR Technical Advisory (OPR 2018) details that for redevelopment projects replacing existing VMT-generating land uses, if the replacement leads to a net overall decrease in VMT, the project result in a less-than-significant transportation impact. Additionally, the Technical Advisory notes that projects generating or attracting fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact, absent substantial evidence indicating otherwise. Therefore, using OPR guidance, if the project results in a net overall decrease in VMT or generates fewer than 110 net new trips per day, then it would result in a less-than-significant VMT impact.

Relevant to calculating trips is Section 15064.3, subdivision (a), which states, "For the purposes of this section, 'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to a project." Here, the term "automobile" refers to on-road passenger vehicles, specifically cars and light trucks (OPR 2018). Heavy-duty truck VMT could be included for modeling convenience and ease of calculation (for example, where models or data provide combined auto and heavy truck VMT) but need not be. Therefore, larger on-road construction vehicles that do not fall within the categories of cars and light trucks do not need to be considered in calculations of trips or VMT. Additionally, the Technical Advisory states that when evaluating impacts to multimodal transportation networks, lead agencies generally should not treat the addition of new transit users as an adverse impact.

TRPA Methodology

The project would redevelop the existing project area; and thus, would be considered a redevelopment project as described in the TRPA Code of Ordinances. For these reasons the net average daily generated VMT is considered against the screening criteria and the TRPA-based analysis herein generally relies on the recommended analysis methodology for redevelopment and recreation projects as described within the TRPA Code of Ordinances and PIA.

TRPA Code Subparagraph 65.2.3.D describes that some project types are presumed to result in a less-than-significant VMT impact absent any evidence to the contrary. These projects are exempt (or "screened") from further VMT analysis but the amount of average daily VMT generated must still be calculated and the mobility mitigation fee must still be paid (TRPA 2021a).

The TRPA Code Subparagraph 65.2.3.D.2 states that projects generating below a certain level of average daily VMT are exempted from further analysis. Based on the location of the project, the generation of up to 715 average daily VMT is considered low-VMT generating. Additionally, TRPA has developed the PIA Tool, which can be used for certain VMT analysis tasks including project screening to determine whether a project is exempt from further VMT analysis. The PIA Tool provides project-generated VMT calculations based on the land use type, size, and location of the project using location-based trip length data from the Tahoe Activity-Based model and Institute of Transportation Engineers (ITE) trip generation rates for non-residential projects. Trip generation is calculated by multiplying the applicable ITE trip generation rate by the related independent variable (e.g., acreage, number of campsites, number of employees) as defined by ITE. Some land uses within the ITE Trip Generation Manual employ parking spaces as the independent variable used to calculate trip generation; however, none of the land uses included as part of the project utilize automobile parking spaces as the independent variable. Thus, any change in the number of parking spaces proposed as part of the project would not influence the project trip generation or VMT as calculated using the TRPA PIA Tool. Additionally, TRPA Code Subparagraph 65.2.3.D.3 states that bicycle, pedestrian, and transit projects (excluding mobility hubs) are exempted from further analysis.

THRESHOLDS OF SIGNIFICANCE

The thresholds of significance (which include TRPA threshold standards) were developed based on the State CEQA Guidelines, TRPA Threshold Standards, the TRPA Initial Environmental Checklist, LTBMU Forest Plan, and other applicable policies and regulations. Under NEPA, the significance of an effect must consider the context and intensity of the environmental effect. The factors that are considered under NEPA to determine the context and intensity of its effects are encompassed by the thresholds of significance. An alternative would have a significant effect on transportation and circulation if it would:

- conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities;
- conflict or be inconsistent with CEQA Guidelines Section 15064.3, Subdivision (b) Regarding Vehicle Miles Traveled;
- substantially increase hazards because of a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- result in inadequate emergency access;
- substantially impact existing transit, highway, bicycle, or pedestrian facilities or alter present patterns of circulations;

- result in a substantial increase in new average daily VMT such that TRPA threshold standards would be exceeded as defined within Section 65.2, "Air Quality, Greenhouse Gas Reduction, and Mobility Mitigation Program," of the TRPA Code of Ordinances;
- substantially increase traffic hazards to motor vehicles, bicyclists, or pedestrians because of a design feature or incompatible uses; or
- substantially alter waterborne traffic.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.12-1: Conflict with a Program, Plan, Ordinance or Policy Addressing the Circulation System, Including Transit, Roadway, Bicycle, and Pedestrian Facilities

The Meeks Bay Restoration Project would involve removal of the marina and full restoration of Meeks Creek, lagoon, and barrier beach within the project area. All four action alternatives would make improvements to upland recreation facilities including construction of multi-use paths and bike storage, additional amenities in the day-use areas, and the reconfiguration of the Meeks Bay Resort Campground and Meeks Bay Campground. The consistency of all action alternatives with the RTP, SR 89 Corridor Plan, and ATP result in no conflicts with a program, plan, ordinance, or policy addressing bicycle and pedestrian systems. Therefore, the impacts on bicycle and pedestrian facilities under Alternatives 1, 2, 3, and 4 would be **beneficial**.

The RTP and SR 89 Corridor Plan include plans for future transit service in the area. The project includes the implementation of infrastructure consistent with those plans; and thus, would not conflict with a program, plan, ordinance, or policy addressing transit services. For this reason, impacts to transit services for Alternatives 1 through 4 would be **less than significant**.

Under the No Action Alternative, no changes to the existing facilities or project area would be made. The pedestrian and cycling circulation system would remain the same, and the demand for transit services would not change. Therefore, there would be no conflict with a program, plan, ordinance or policy addressing bicycle and pedestrian systems or transit services. Thus, the No Action Alternative would result in **no impact.**

<u>No Action Alternative</u>

Under this alternative, there would be no restoration and the marina would remain. There would be no changes to the operations of the facilities on site, which includes a total of 76 campsites and two day-use areas. The configuration of parking would not change, and the internal roadway network would remain the same. There would be no change to the project area in terms of pedestrian circulation and cycling. Therefore, the No Action Alternative would not disrupt existing or planned bicycle/pedestrian facilities, nor would it create inconsistencies with any adopted plans, guidelines, policies, or standards related to bicycle or pedestrian systems. For these reasons, there would be **no impact**.

<u>Alternative 1: Restoration with Boating Pier</u>

Bicycle and Pedestrian Facilities

Alternative 1 would involve improvements to the upland recreation facilities that includes the construction of two multi-use paths (one path combined with the SR 89 bridge replacement and one path that includes a separate bridge crossing over the creek) and bike storage. The multi-use paths would connect to an existing shared-use path which currently ends in the northern part of the project area. The multi-use paths would continue south, one through the middle of the project area, providing direct access to the day-use areas and campsites, and one along SR 89 and located on the bridge, the alignment to be determined through implementation planning from the SR 89 Corridor Plan. The separate multi-use path bridge across the restoration area would provide pedestrian access between the north and south sides of Meeks Bay. New bike parking areas and bike racks would be installed near both day-use areas to accommodate cyclists accessing the project area via the new multi-use path. The addition of the multi-use paths would be compatible with the SR 89 Corridor Plan, RTP, and ATP. Specifically, the extension of the existing multi-use path meets the following goals outlined in the SR 89 Corridor Plan:

- Provide a quality travel experience for all;
- Improve the environment;
- Advance safety; and
- Create comfortable, connected, and convenient transit and trail systems (TRPA et al. 2020).

The SR 89 Corridor Plan distinguishes the routing and construction of the Tahoe Trail through Meeks Bay as a key project for the Meeks Bay segment (TRPA et al. 2020:106). Additionally, the 2020 RTP identifies several trail improvements, including the implementation of key segments of the West Shore Tahoe Trail which would connect Spring Creek Road and Meeks Bay by 2035. The Class I shared-use path alignment would be determined from the SR 89 Trail Feasibility Study (TRPA 2021c:62). The RTP also identifies Meeks Bay Highway Corridor Improvements in its list of projects which includes formalizing and upgrading parking access to the wilderness at Meeks Bay trailhead and constructing a new multi-use path and bridge (TRPA 2021c:163). The multi-use paths planned for the Meeks Bay project would provide a connection that would satisfy and not conflict with the intent of any of the plans discussed above. Two additional campsites would result in a slight increase in visitation but would have a negligible effect on bicycle and pedestrian facilities. The planned improvements would also result in the realignment of roadways near the entrance and day-use area at Meeks Bay Resort and provide enhanced internal circulation for pedestrians and bicyclists in the project area.

Therefore, implementation of Alternative 1 would not conflict with a program, plan, ordinance, or policy addressing bicycle and pedestrian facilities. Additionally, the implementation of the multi-use paths and reconfiguration of the internal circulation network would be consistent with existing area plans. Because the alternative would implement multi-use paths identified in those plans, the impact on bicycle and pedestrian facilities would be a **beneficial** effect.

Transit Services

The RTP envisions a built-out transit system by 2045 with frequent service operating every 15 minutes in the project corridor (TRPA 2021c:53-54). Additionally, the SR 89 Corridor Plan recommends a bus stop at Meeks Bay (TRPA et al. 2020:106-107). Located along a core route and because of high rates of recreational activity in the area, recreational activities located at Meeks Bay generate demand for transit. The SR 89 Corridor Plan notes that an average of 1.8 million annual visitors used the SR 89 corridor in 2014, and the RTP Travel Demand Analysis found that 8 percent of recreational travel is taken by transit.

To support the RTP and SR 89 Corridor Plan visions for future transit service in the area, Alternative 1 would include the implementation of infrastructure to accommodate a future transit stop such as a bus pull out if such a stop is not provided along SR 89 outside of the project area. Coordination with TART would inform the appropriate location and facility type for future bus service in the area. Therefore, implementation of Alternative 1 would not conflict with a program, plan, ordinance, or policy addressing transit services. Thus, the impact on transit services would be **less than significant**.

Alternative 2: Restoration with Pedestrian Pier

Restoration and reconfiguration of the site, and campsite reorganization associated with Alternative 2 are similar to those discussed in Alternative 1. Alternative 2 would construct two multi-use paths through the project area and each would include construction of a separate bridge over the creek. One path would closely following the highway and the other path would be more centrally located through the project area. Construction of the multi-use paths onsite would connect to an existing shared-use path that currently ends in the northern part of the project area and the paths align with the intent of the SR 89 Corridor Plan, RTP, and ATP to promote non-automobile modes of transportation similar to Alternative 1 described above. Additionally, Alternative 2 includes the construction of an approximately 100-foot-long pedestrian pier which would not allow for motorized boat access. The pier would improve public recreational access to the lake for pedestrians.

Therefore, implementation of Alternative 2 would not conflict with a program, plan, ordinance, or policy addressing bicycle and pedestrian facilities. Additionally, the implementation of the multi-use paths and reconfiguration of the internal circulation network would be consistent with existing plans for the area. Because the alternative would implement multi-use paths identified in those plans, the impact on bicycle and pedestrian facilities would be a **beneficial** effect.

Alternative 2 would not conflict with plans for future transit in the project area for the reasons discussed in Alternative 1. The RTP and SR 89 Corridor Plan envision expanded transit service in the vicinity of the project, and consistent with those plans the project includes the implementation of infrastructure to accommodate a transit stop within the project area. For this reason, the impact associated with transit services would be **less than significant**.

Alternative 3: Restoration with No Pier

Restoration and reconfiguration of the site and the construction of the multi-use paths associated with Alternative 3 are similar to those in Alternative 2. As discussed above, the construction of the multi-use paths in the project area align with the intent of the SR 89 Corridor Plan, RTP, and ATP.

Therefore, implementation of Alternative 3 would not conflict with a program, plan, ordinance, or policy addressing bicycle and pedestrian facilities. Additionally, the implementation of the multi-use paths and reconfiguration of the internal circulation network would be consistent with existing area plans. Because the alternative would implement multi-use paths identified in those plans, the impact on bicycle and pedestrian facilities would be **beneficial**.

Alternative 3 would not conflict with plans for future transit in the project area as discussed in Alternatives 1 and 2. The RTP and SR 89 Corridor Plan envision expanded transit service in the vicinity of the project, and consistent with those plans the project includes the implementation of infrastructure to accommodate a transit stop within the project area. For this reason, the impact associated with transit services would be **less than significant**.

Alternative 4: Preferred Alternative

Alternative 4 would result in the same improvements related to bicycle and pedestrian systems as those described above for Alternative 1. Because the alternative would implement multi-use paths identified in those plans, the impact on bicycle and pedestrian facilities would be **beneficial**.

Implementation of Alternative 4 would result in the same improvements related to transit services as those described above for Alternative 1. Therefore, implementation of the Alternative 4 would not conflict with a program, plan, ordinance, or policy addressing transit services. Thus, the impact on transit services would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.12-2: Conflict or Be Inconsistent with CEQA Guidelines Section 15064.3, Subdivision (b) Regarding Vehicle Miles Traveled

By virtue of marina removal and other project area changes (e.g., change in number of campsites and parking spaces) associated with Alternatives 1 through 4, the action alternatives would result in a decrease in average daily trips and average daily VMT. Thus, the action alternatives would not exceed the CEQA screening threshold or the TRPA screening criteria for VMT of 110 average daily trips and 715 average daily VMT, respectively. As such, the impacts under Alternatives 1, 2, 3, and 4 would result in a **less-than-significant** impact.

The No Action Alternative would not result in an increase in average daily trips or VMT. There would be **no impact** related to VMT from the No Action Alternative.

No Action Alternative

As discussed in Chapter 2, "Description of the Proposed Action and Alternatives," the No Action Alternative would involve no physical improvements or changes to the project area or any substantial changes in management approaches. Existing operation and maintenance of the existing facilities on the project area would continue. As such, the No Action Alternative would not result in any changes in the number of trips generated or associated VMT; therefore, there would be **no impact** related to the No Action Alternative.

Alternative 1: Full Restoration with Boating Pier

As discussed in Chapter 2, Alternative 1 would result in the removal of the existing marina, 120 boat slips, and boat ramp. Additionally, it would include the construction of a centrally located pier to accommodate recreational boaters and an emergency services boat and increased capacity for day visitors (i.e., larger day-use area with better accessibility and additional picnic tables). The total number of campsites under Alternative 1 would range from 36 to 42 sites as compared to the existing 40 campsites. Although it is possible that the total number of campsites could decrease under Alternative 1, to provide a conservative analysis it is assumed that the number of campsites would increase by up to two, from 40 sites to 42 sites. Additionally, the project would accommodate a future transit stop (either within the project area or nearby on SR 89) and new proposed bike and pedestrian infrastructure as detailed in Chapter 2.

The proposed public pier is an accessory structure within a multiple-use facility (e.g., the project area which is a recreation site providing opportunities for camping, boating, picnicking, swimming, and beach use) and not the primary land use that would generate vehicular trips (e.g., public beach). Thus, the proposed public pier would function as an accessory structure that would not generate additional vehicle trips beyond those trips already generated by the campsites, public beach, or other primary land use. Consistent with TRPA Code Subparagraph 65.2.3.D.3 and the OPR Technical Advisory, the transit and active transportation infrastructure improvements proposed under Alternative 1 would generally reduce VMT and are therefore screened from further analysis.

Consistent with guidance provided in the PIA for the evaluation of redevelopment projects, the net average daily VMT generation is considered against the TRPA screening criteria. This requires a calculation of the net change in average daily VMT associated with implementation of the project. Additionally, because the PIA Tool considers only in-basin VMT and does not account for the portion of trips that may fall outside of the Tahoe Basin, the average daily VMT calculated using the PIA Tools is not utilized for the purposes of CEQA. Therefore, the number of average daily trips was also calculated using the PIA Tool for comparison against the OPR recommended 110 trips per day CEQA-based screening threshold.

Calculation of the average daily trips and existing average daily VMT for the marina, which would be removed as part of the project, and the two additional campsites as proposed under Alternative 1 was conducted using the PIA Tool. The results of the analysis conducted using the PIA Tool are shown in Table 3.12-1. For detailed data and calculations see Appendix E.

Table 3.12-1 Alternatives 1, 2, and 4 VMT Screening Analysis

Alternative 1 Components	Average Daily Trips	Average Daily VMT	Exceeds CEQA Screening Threshold of 110 net new trips per day? (Yes/No)	Exceeds TRPA Screening Criteria of 715 net new average daily VMT? (Yes/No)
Marina[1] (removal)	-290	-3,291	NA	NA
Campsites[2] (addition)	26	286	NA	NA
TOTAL	-264	-3,005	No	No

Notes: VMT = Vehicle Miles Traveled, NA = not applicable

[1] Based on the ITE Trip Rate (2.41) for average daily trips generated per marina slip documented in the PIA Tool (see Appendix E)

[2] Based on the ITE Trip Rate (12.57) for average daily trips generated per campsite documented in the PIA Tool (see Appendix E)

Source: Compiled by Ascent Environmental in 2022.

As shown in Table 3.12-1, Alternative 1 would not exceed the CEQA screening threshold or the TRPA screening criteria for VMT. The addition of infrastructure to accommodate a future transit stop and the proposed bike and pedestrian infrastructure that would provide improved internal and external multimodal connections would likely yield trip reductions; thus, there would be a reduction in the need for on-site parking.

In summary, the changes proposed under Alternative 1 (removal of the marina and development of up to two additional campsites), would result in a decrease in average daily trips and average daily VMT; and thus, would not exceed the CEQA screening threshold or the TRPA screening criteria for VMT. Therefore, Alternative 1 would result in a **less-than-significant** impact associated with VMT.

Alternative 2: Full Restoration with Pedestrian Pier

As discussed in Chapter 2, Alternative 2 would include the construction of a centrally located pier with pedestrian access, but no motorized boat access. Other aspects of the Alternative 2 including removal of the existing marina and boat ramp, increased capacity for day visitors, and the potential addition of up to two campsites would be consistent with Alternative 1, described above. As described for Alternative 1 above, the proposed pedestrian pier would function as accessory structure that would not generate additional vehicle trips beyond those trips already generated by the campsites, public beach, or other primary land use. Consistent with Alternative 1, the addition of transit, bicycle, and pedestrian infrastructure improvements planned under Alternative 2 are screened from further analysis. Similar to Alternative 1, land use changes under Alternative 2 would include removal of the marina and development of up to two additional campsites. Thus, similar to the analysis and findings in Alternative 1, Alternative 2 would result in a decrease in average daily trips and average daily VMT (see Table 3.12-1); and thus, would not exceed the CEQA screening threshold or the TRPA screening criteria for VMT. This impact would be **less than significant**.

Alternative 3: Full Restoration with No Pier

As discussed above for Alternative 1, Alternative 3 would result in the removal of the existing marina and boat ramp. Additionally, it would include increased capacity for day visitors (i.e., larger parking area) and Alternative 3 would increase capacity at the campgrounds with up to 22 additional campsites (i.e., from 76 to up to 98 total campsites). This alternative would include up to 14 additional parking spaces; however, as described above under "TRPA Methodology," this change in the number of parking spaces would not influence the trip generation or VMT of Alternative 3, as calculated using the TRPA PIA Tool.

The project would include infrastructure to accommodate a future transit stop that could be within the project area or along SR 89 and new bike and pedestrian infrastructure as detailed in Chapter 2. However, consistent with TRPA Code Subparagraph 65.2.3.D.3 and the OPR Technical Advisory, the transit and active transportation infrastructure improvements proposed under Alternative 3 would reduce VMT; and thus, are screened out from further analysis.

Consistent with guidance provided in the PIA for the evaluation of redevelopment projects, the net average daily VMT generation is considered against the screening criteria. This requires a calculation of the net change in average daily VMT associated with implementation of the project. Additionally, as described above for Alternative 1, the number of average daily trips was also calculated using the PIA Tool for comparison against the OPR recommended 110 trips per day CEQA-based screening threshold.

The PIA Tool was used to calculate the average daily trips and existing average daily VMT for the marina, which would be removed as part of the project, and up to 22 additional campsites as proposed under Alternative 3. The results of the analysis conducted using the PIA Tool are shown in Table 3.12-2. For detailed data and calculations see Appendix E.

Table 3.12-2 Alternative 3 VMT Screening Analysis

	Average Daily Trips	Average Daily VMT	Exceeds CEQA Screening Threshold of 110 net new trips per day? (Yes/No)	Exceeds TRPA Screening Criteria of 715 net new average daily VMT? (Yes/No)
Marina[1] (removal)	-290	-3,291	NA	NA
Campsites[2] (addition)	277	3,147	NA	NA
TOTAL	-13	-144	No	No

Notes: VMT = Vehicle Miles Traveled, NA = not applicable

1 Based on the ITE Trip Rate (2.41) for average daily trips generated per marina slip documented in the PIA Tool (see Appendix E)

2 Based on the ITE Trip Rate (12.57) for average daily trips generated per campsite documented in the PIA Tool (see Appendix E)

Source: Compiled by Ascent Environmental in 2022.

As shown in Table 3.12-2, Alternative 3 would not exceed the CEQA screening threshold or the TRPA screening criteria for VMT. The addition of infrastructure to accommodate a future transit stop and the proposed bike and pedestrian infrastructure that would provide improved internal and external multimodal connections would likely yield trip reductions; and thus, a reduction in the need for on-site parking.

In summary, the changes proposed under Alternative 3 (removal of the marina and development of up to 22 additional campsites), would result in a decrease in average daily trips and average daily VMT; and thus, would not exceed the CEQA screening threshold or the TRPA screening criteria for VMT. Therefore, Alternative 3 would result in a **less-than-significant** impact associated with VMT.

Alternative 4: Preferred Alternative

Alternative 4 would result in similar changes related to the marina and boat ramp, campgrounds, multi-use paths, transit facility, and other recreation facilities compared to Alternative 1. Additionally, similar to Alternative 3, this alternative would include the construction of a paddle launch facility and would include up to 14 additional parking spaces; however, as described above under "TRPA Methodology," this change in the number of parking spaces would not influence the trip generation or VMT of Alternative 3, as calculated using the TRPA PIA Tool. Consistent with TRPA Code Subparagraph 65.2.3.D.3 and the OPR Technical Advisory, the transit and active transportation infrastructure improvements proposed under Alternative 4 would generally reduce VMT; and thus, are screened from further analysis.

The net average daily VMT resulting from implementation of Alternative 4 would be similar to those described above for Alternative 1 and are shown in Table 3.12-1. For detailed data and calculations see Appendix E. As shown in Table 3.12-1, Alternative 4 would not exceed the CEQA screening threshold or the TRPA screening criteria for VMT. The addition of infrastructure to accommodate a future transit stop and the proposed bike and pedestrian infrastructure that would provide improved internal and external multimodal connections would likely yield trip reductions.

In summary, the changes proposed under Alternative 4 (removal of the marina and development of up to two additional campsites), would result in a decrease in average daily trips and average daily VMT; and thus, would not exceed the CEQA screening threshold or the TRPA screening criteria for VMT. Therefore, Alternative 4 would be considered a low-VMT generating project and is exempted from further analysis and presumed to not result in a substantial increase in VMT. Alternative 4 would result in a **less-than-significant** impact related to VMT.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.12-3: Substantially Increase Transportation Hazards due to a Design Feature or Incompatible Uses

The new SR 89 bridge proposed by Alternatives 1 through 4 would not include any design features, such as a sharp curve or new intersection, or incompatible uses that would result in transportation safety hazards. Alternatives 1 through 4 would remove the marina and boat ramp, which would eliminate trailers with motorized boats from entering and exiting the project area or traveling through the project area, thereby reducing hazards on the highway and for bicyclists and pedestrians in the project area. The project would be required to follow all Caltrans guidelines and regulations to meet all design and safety standards during construction and operations. The project also includes a resource protection measure (see Appendix A) requiring preparation and implementation of a traffic management plan to maintain safety and minimize traffic disturbance during construction activities. For these reasons, the project would not substantially increase transportation-related hazards; therefore, the impacts under Alternatives 1, 2, 3, and 4 would be **less than significant**.

Under the No Action Alternative, no construction activity would take place and the Meeks Bay recreation area, campground configuration, and operations would remain the same. There would be **no impact** relative to hazards due to a design feature or incompatible use.

<u>No Action Alternative</u>

Under this alternative, there would be no restoration and the marina would remain as is. There would be no changes to the operations of the facilities on site, which includes a total of 76 campsites and two day-use areas. The configuration of parking would not change, the internal roadway network would remain the same, and the SR 89 bridge would not be replaced. There would be no changes to the project area and construction would not take place. Therefore, the No Action Alternative would not substantially increase hazards due to a design feature or incompatible uses. For these reasons, there would be **no impact**.

<u>Alternative 1: Restoration with Boating Pier</u>

Alternative 1 would involve restoration of Meeks Creek, removal of the marina and boat ramp, construction of two multi-use paths, reconfiguration of the day-use areas and parking, reconstruction of cabins, replacement of the SR 89 bridge that would include a multi-use path, and upgrading or relocating of utility infrastructure. Circulation improvements would reduce the number of internal roadways by the Meeks Bay Resort entrance and day-use areas. Potential conflicts between bicyclists and pedestrians on the multi-use paths where they cross roadways in the project area are further addressed in Impact 3.1-2 in Section 3.1, "Recreation."

Alternative 1 includes construction of a boating pier but would remove the marina and boat ramp. Removal of the marina and boat ramp would result in no trailers for motorized boats entering and exiting the project area or traveling through the northern part of the project area, thereby reducing hazards for bicyclists and pedestrians in the parking lots. The boating pier would meet design and accessibility standards that are further discussed in Chapter 2, "Description of the Proposed Action and Alternatives."

The new SR 89 bridge would not include any design features, such as a sharp curve or new intersection, or incompatible uses that would result in transportation safety hazards.

The project is subject to USDA Forest Service and Caltrans review processes that would ensure that the project design would comply with all applicable industry roadway/driveway design standards. In accordance with Caltrans and industry-wide standards, the project would provide adequate sight distance at all access points. All daily campground operations would remain the same and the boating pier would be managed by USDA Forest Service staff or a concessionaire.

Construction

All phases of transportation infrastructure construction would comply with Caltrans standards and regulations. Construction staging would be located within the project area in paved areas or previously disturbed areas outside of the restoration areas. As discussed in Chapter 2, construction best management practices (BMPs) would be implemented in accordance with all standards and Caltrans requirements, such as those found in the CA-MUTCD, Part 6: Temporary Traffic Control and California Highway Design Manual.

Additionally, a traffic management plan would be developed as a resource protection measure that is part of the project and implemented with input from the USDA Forest Service and Caltrans. Traffic control measures would be required on site to minimize lane closures, maintain emergency access, and limit delays during the SR 89 bridge replacement (emergency access is further discussed under Impact 3.12-4). All project construction activity would follow Caltrans regulations in the following documents:

- California Manual of Uniform Traffic Control Devices (CA MUTCD): adopts uniform standards and specifications for all official traffic control devices in California.
- Caltrans Highway Design Manual: establishes uniform policies and procedures to carry out the state highway design functions of Caltrans.
- Caltrans Encroachment Permits: may need to be obtained for all proposed activities related to the placement of encroachments within, under, or over the state highway rights of way.
- Work Zone Safety Standards, Traffic Safety Devices and Traffic Safety Systems Guidance: establishes policies and procedures for traffic safety systems, including barriers, guardrail, crash attenuators, and end treatments and provides guidance for application of safety systems.
- All other applicable Caltrans regulations and documents.

Construction traffic impacts would be localized and temporary; however, during construction of the project, traffic operations could be degraded. For this reason, the project would be required to follow all Caltrans protocols, as discussed above, and develop a traffic management plan that would include measures such as maintaining continuous emergency access through the project area, temporary signage, and reduced vehicle speeds to maintain safety and minimize traffic disturbance during construction activities. Thus, the impact related to hazards because of a design feature or incompatible uses would be **less than significant**.

Alternative 2: Full Restoration with Pedestrian Pier

Restoration of Meeks Creek, removal of the marina and boat ramp, construction of two multi-use paths, reconfiguration of the day-use areas and parking, SR 89 bridge replacement, and upgrading or relocating of utility infrastructure associated with Alternative 2 are similar to those discussed in Alternative 1. Similar to Alternative 1, Alternative 2 would also result in circulation improvements for cyclists and pedestrians to reduce the number of internal roadways near the entrance and day-use area at Meeks Bay Resort.

Alternative 2 includes the construction of an approximately 100-foot-long pedestrian pier, which would not allow motorized boat access. Alternative 2 would result in the same reduction in hazards associated with motorized boating trailers as described above for Alternative 1. A universally accessible walkway would connect the pedestrian pier to the day-use and parking areas. Similar to Alternative 1, the SR 89 bridge replacement would be required to meet Caltrans design standards.

Construction

The construction activities under Alternative 2 would be similar to those discussed for Alternative 1. The SR 89 bridge replacement may require periods of lane closure, which is further discussed below under Impact 3.12-4. All phases of construction would comply with Caltrans standards and regulations for all elements of the project, as described above for Alternative 1, and develop a traffic management plan (see the description of construction details under Section 2.10.2, "State Route 89 Bridge Replacement") that would maintain safety and minimize traffic disturbance during construction activities. Thus, the project would not substantially increase hazards related to transportation for residents or visitors in the area.

Therefore, Alternative 2 would not substantially increase hazards because of a design feature or incompatible uses and the impact would be **less than significant**.

Alternative 3: Restoration with No Pier

Restoration of Meeks Creek, removal of the marina and boat ramp, construction of two multi-use paths, reconfiguration of the day-use areas and parking, SR 89 bridge replacement, and upgrading or relocating of utility infrastructure associated with Alternative 3 are similar to those discussed in Alternatives 1 and 2. Similar to Alternatives 1 and 2, Alternative 3 would result in circulation improvements for cyclists and pedestrians to reduce the number of internal roadways near the entrance and day-use area at Meeks Bay Resort.

Alternative 3 includes the expansion of parking by 14 spaces to include a total of 80 stalls in a new parking area near the entrance to the Meeks Bay campground and a 10-stall parking area that would include a universally accessible/ADA-compliant parking and a drop off area near the south day-use area. Although Alternative 3 does not include the construction of a pier, it does involve a moveable, universally accessible paddlecraft launch facility in the southern portion of the project area. Because the marina and boat ramp would be removed, Alternative 3 would result in the same reduction in hazards associated with motorized boating trailers as described above for Alternative 1.

Construction

The construction activities for Alternative 3 would be similar to those discussed in Alternatives 1 and 2. The SR 89 bridge replacement may require lane narrowing and limited full closure, which is further discussed below under Impact 3.12-4. All phases of construction would comply with Caltrans standards and regulations and develop a traffic management plan, as described above for Alternative 1, to maintain safety and minimize traffic disturbance during construction activities. Thus, the project would not substantially increase hazards related to transportation for residents or visitors in the area.

Therefore, Alternative 3 would not substantially increase hazards because of a design feature or incompatible uses and the impact would be **less than significant**.

Alternative 4: Preferred Alternative

Restoration of Meeks Creek, removal of the marina and boat ramp, construction of two multi-use paths, reconfiguration of the day-use areas and parking, SR 89 bridge replacement that would include a multi-use path, and upgrading or relocating of utility infrastructure associated with Alternative 4 are similar to those discussed in Alternatives 1, 2, and 3. Similar to Alternatives 1, 2, and 3, Alternative 4 would result in circulation improvements for cyclists and pedestrians to reduce the number of internal roadways near the entrance and day-use area at Meeks Bay Resort.

Alternative 4 includes the expansion of parking in the project area by 14 spaces. Although Alternative 4 does not include the construction of a pier, it does involve a moveable, universally accessible paddlecraft launch facility in the southern portion of the project area. Because the marina and boat ramp would be removed, Alternative 4 would result in the same reduction in hazards associated with motorized boating trailers as described above for Alternative 1.

Construction

The construction activities for Alternative 4 would be similar to those discussed for Alternatives 1, 2, and 3. The SR 89 bridge replacement may require lane narrowing and limited full closure, which is further discussed below under Impact 3.12-4. All phases of construction would comply with Caltrans standards and regulations and develop a traffic management plan to maintain safety and minimize traffic disturbance during construction activities; thus, the project would not substantially increase hazards related to transportation for residents or visitors in the area.

Therefore, Alternative 3 would not substantially increase hazards because of a design feature or incompatible uses and the impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.12-4: Result in Inadequate Emergency Access

The project would be designed and constructed in alignment with all applicable regulations including USDA Forest Service and Caltrans standards related to emergency access design guidelines and construction. Additionally, for Alternatives 1 and 4, the multi-use path that would pass through the center of the project area and across the restored Meeks Creek via a multi-use path bridge, would be designed to accommodate maintenance vehicle access and could be used for emergency vehicle access. For Alternatives 2 and 3, one of the two multi-use path bridges constructed as part of these alternatives would be vehicle-rated to allow for maintenance vehicle and emergency vehicle access across Meeks Creek within the project area. Although all action alternatives involve the replacement of the SR 89 bridge, which could potentially require lane narrowing and/or lane closures during construction, the project would develop a traffic management plan and be required to meet all Caltrans standards and regulations intended to maintain emergency access through construction and operations and would maintain continuous emergency access across Meeks Creek. The project would not result in inadequate emergency access, and impacts under Alternatives 1, 2, 3, and 4 would be **less than significant**.

Under the No Action Alternative, the project area would not change, the operations in the project area would remain as is, and no construction would take place. Therefore, emergency access would not be affected resulting in **no impact**.

No Action Alternative

Under this alternative, there would be no restoration and the marina would remain as is. There would be no changes to the operations of the facilities on site which includes a total of 76 campsites and two day-use areas. The configuration of parking would not change, the internal roadway network would remain the same, and the SR 89 bridge would not be replaced. There would be no change to the project area and construction would not take place. Therefore, the No Action Alternative would not result in inadequate emergency access. For these reasons, there would be **no impact**.

Alternative 1: Restoration with Boating Pier

Alternative 1 would restore Meeks Creek, removal of the marina and boat ramp, build two multi-use paths, reconfigure the day-use areas and parking, replace the SR 89 bridge that would include a multi-use path, and upgrade or relocate utility infrastructure. As discussed in Chapter 2, "Description of the Proposed Action and Alternatives," the multi-use path that would pass through the center of the project area and across the restored Meeks Creek via a multi-use path bridge, would be designed to accommodate maintenance vehicle access and could be used for emergency vehicle access. Alternative 1 would also construct a boating pier that would include one boat lift to accommodate a 29-foot emergency services boat that could be operated by the Meeks Bay Fire Protection District.

As discussed in detail in Impact 3.12-3 above, all transportation infrastructure improvements would meet USDA Forest Service and Caltrans design standards. The project would also be required to follow the El Dorado County Regional Fire Protection Standard related to Emergency Apparatus Access Ways (Standard #B-003), which establishes guidelines for fire access roadways required by the fire department. These standards apply to every public and private street, road, alley, and drive and access way within the boundaries served by the fire department (El Dorado County Fire Protection Officers 2009a).

Construction

Construction of the new SR 89 bridge would require construction in the highway and as such would interfere with access on the highway. As discussed in Impact 3.12-3, the project would be required to meet all Caltrans construction safety standards. Additionally, the project applicant would follow all regulations detailed in the El Dorado County Regional Fire Protection Standard related to Fire Department Access During Construction (Standard #G-001). Standard #G-001 ensures water supply and access for emergency equipment during construction of new buildings and the development of permitted projects (El Dorado County Fire Protection Officers 2009b). The replacement of the SR 89 bridge could require lane narrowing or single-lane closures and limited road closures that would occur during off peak times (i.e., weekdays after Labor Day or before Memorial Day weekends). However, emergency vehicle access would be maintained during the construction period by either: 1) constructing the multi-use path bridge downstream of the SR 89 bridge first and diverting emergency vehicles and evacuating vehicles across the multi-use path bridge, 2) constructing the bridge in halves to maintain one operational lane at all times, or 3) constructing a temporary bridge on the upstream or downstream side of the existing bridge to provide continuous emergency vehicle access. Alternative 1 would include preparation and implementation of a traffic management plan (see Section 2.10.2, "State Route 89 Bridge Replacement") that would specify how emergency services would continue to be provided during temporary lane closures, would require and identify public outreach efforts (e.g., notifying emergency service providers and other affected public agencies and members of the public), and signage. The project would result in limited disruptions to continuous emergency access across Meeks Creek and ensure all USDA Forest Service and Caltrans requirements are met to ensure any potential impacts to emergency vehicles and evacuation are minimized. Therefore, Alternative 1 would not result in inadequate emergency access and the impact would be **less than significant**.

Alternative 2: Restoration with Pedestrian Pier

Restoration of Meeks Creek, removal of the marina and boat ramp, construction of two multi-use paths, reconfiguration of the day-use areas and parking, SR 89 bridge replacement, and upgrading or relocating of utility infrastructure associated with Alternative 2 are similar to those discussed in Alternative 1. As discussed in Chapter 2, either the multi-use path that would pass through the center of the project area and across the restored Meeks Creek via a multi-use path bridge or the multi-use path bridge closest to SR 89, would be designed to accommodate maintenance vehicle access and emergency vehicle access. As detailed in Alternative 1, County Regional Fire Protection Standards #B-003 and #G-001 would be followed to meet all necessary regulations regarding emergency access.

As described above for Alternative 1, although construction activities surrounding the SR 89 bridge replacement could require lane narrowing or road closures that would affect circulation, the project would maintain continuous emergency access across Meeks Creek during construction and would ensure all USDA Forest Service and Caltrans requirements are met to ensure any potential impacts to emergency vehicles and evacuation are minimized as detailed under Impact 3.12-3. For this reason, Alternative 2 would not result in inadequate emergency access and the impact would be **less than significant**.

<u>Alternative 3: Restoration with No Pier</u>

Restoration of Meeks Creek, removal of the marina and boat ramp, construction of two multi-use paths, reconfiguration of the day-use areas and parking, SR 89 bridge replacement, upgrading or relocating of utility infrastructure, and preparation of a traffic management plan associated with Alternative 3 are similar to those discussed in Alternatives 1 and 2. For this reason, Alternative 3 would not result in inadequate emergency access and the impact would be **less than significant**.

<u>Alternative 4: Preferred Alternative</u>

Restoration of Meeks Creek, removal of the marina and boat ramp, construction of two multi-use paths, reconfiguration of the day-use areas and parking, SR 89 bridge replacement that would include a multi-use path, upgrading or relocating of utility infrastructure, and preparation of a traffic management plan associated with Alternative 4 are similar to those discussed in Alternatives 1, 2, and 3. For this reason, Alternative 4 would not result in inadequate emergency access and the impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

3.12.4 Cumulative Impacts

A number of future projects that could potentially generate VMT are proposed in the region (See Table 3-2). As described under Impact 3.12-1, all four action alternatives would make improvements to upland recreation facilities including construction of multi-use paths and bike storage, additional amenities in the day-use areas, and reconfiguration of the campgrounds. The consistency of all action alternatives with the RTP, SR 89 Corridor Plan, and ATP result in no conflicts with a program, plan, ordinance, or policy addressing bicycle and pedestrian systems. Therefore, all action alternatives would result in beneficial effects relative to bicycle and pedestrian facilities. Additionally, as described under Impact 3.12-1, the project would accommodate a future bus stop within the project site and would not conflict with existing plans for future transit service in the area.

As detailed under Impact 3.12-2, Alternatives 1 through 4 would result in a decrease in average daily trips and average daily VMT, which considers the removal of the marina with changes proposed in the project area (e.g., change in number of campsites and parking spaces). Thus, the action alternatives would not exceed the CEQA screening threshold or the TRPA screening criteria for VMT of 110 average daily trips and 715 average daily VMT, respectively. Additionally, the recreation initiatives shown in Table 3-2 would presumably reduce VMT (i.e., SR 89 Corridor Plan and Tahoe Trail) while the landscape restoration/wildfire risk reduction initiatives would not result in long-term increases in vehicular trips because the construction would be temporary and intermittent in nature and is not likely to generate new VMT each day, only redistribute it.

Cumulative impacts associated with emergency access and road design are primarily a localized effect. However, cumulative impacts from project-generated construction effects on transportation may result if other future planned construction activities were to take place close to the project site and cumulatively combine to exacerbate the construction-related transportation impacts of the project. As such, the cumulative projects with the potential to result in a significant cumulative impact associated with construction phase emergency access and road design features would be the projects located in the immediate vicinity of the project site. Given there would be very few projects in the immediate vicinity of the project site and because they will also need to demonstrate compliance with applicable design standards and emergency service provider design and emergency response requirements, they would not impede emergency access or cause a potential transportation-related hazard.

For the reasons described above, the alternatives would a have a **less than cumulatively considerable impact** related to transportation.

3.13 LAND USE

Land use planning directs the amount, type, and location of land uses; balances land uses with consideration of the social, environmental, and economic well-being of the Lake Tahoe Region; and coordinates regional land uses with land uses in surrounding areas.

This section describes existing land uses in the project area; identifies the federal, state, and local regulations and policies governing land use; identifies significance criteria for land use impacts; and assesses the environmental effects of the proposed alternatives with respect to the land use patterns, permissible uses, planning systems, and development potential each is designed to achieve.

3.13.1 Regulatory Setting

Meeks Bay is located entirely on federal U.S. Department of Agriculture, Forest Service (USDA Forest Service) land in El Dorado County, California. The bi-state Tahoe Regional Planning Agency (TRPA) administers an overarching regional plan with land use authority for Meeks Bay in accordance with the Tahoe Regional Planning Compact (Compact). A description of the federal, TRPA, state, and local regulatory framework and primary land use planning guidance documents is provided below.

FEDERAL

USDA Forest Service, Lake Tahoe Basin Management Unit

The USDA Forest Service, Lake Tahoe Basin Management Unit (LTBMU) manages more than 75 percent of lands within the Tahoe region. Land management is guided by the LTBMU Land Management Plan. The Land Management Plan (also known as the Forest Plan) lays the groundwork for how the resources of the national forest are managed. The plan translates national laws, policies, and regulations into guidance for activities that occur on the National Forest System lands.

The Land Management Plan includes management direction and explanatory material. The management direction is the content that must be followed in planning and implementing management activities. Within the plan, management direction is organized into three parts—(1) vision, (2) strategy, and (3) design criteria—that together articulate desired conditions, objectives, management areas and suitable uses, designated and recommended special area guidance, and standards and guidelines.

Meeks Bay is entirely contained within the General Conservation management area designation for LTBMU. The guiding concept for this management designation consists of roaded landscapes, active management, and dispersed and developed recreation sites. Active management is carried out on these landscapes to meet a wide variety of social, economic, and ecological objectives. Meeks Bay is adjacent to residential neighborhoods on the north and south end of the project area. LTBMU notes that such general conservation areas are closely associated with local and adjacent communities, houses, structures, people, and values. Individual and family histories are closely interwoven with these lands. Consequently, residents may have strong attachments and feelings of ownership, which leads to a higher level of public scrutiny and sensitivity to management activities and land uses in these areas. LTBMU has policies in place to manage areas like Meeks Bay in close coordination with affected communities and partners to conserve natural resources and maintain high quality recreation opportunities. Cooperation and partnerships with adjacent landowners, local governments, and other entities play an important role in land management.

TAHOE REGIONAL PLANNING AGENCY

Tahoe Regional Plan

Land use regulation by TRPA is guided by its Regional Plan and Code of Ordinances. In accordance with the Tahoe Regional Planning Compact, the Regional Plan is intended to establish a balance, or equilibrium, between the natural environment and the built environment. The Regional Plan Goals and Policies are statements of policy to guide decision making as it affects the region's resources and environmental thresholds, and they are intended to provide opportunities for orderly growth and development consistent with those thresholds. The Goals and Policies are addressed in six major elements: land use, transportation, conservation, recreation, public services and facilities, and implementation. The Land Use Subelement of the Regional Plan addresses policies pertaining to growth and development of the Lake Tahoe Region. It is intended to direct the amount, type, and location of land uses and land coverage; balance land uses with the social, environmental, and economic wellbeing of the region; and coordinate regional land uses with land uses in surrounding areas.

Land Use Designations

The TRPA Regional Plan assigns every portion of the Tahoe Basin a land use designation. The entire project area is designated as Recreation. Recreation areas are non-urban areas with a high potential for developed outdoor recreation, park use, or concentrated recreation. Lands that are identified as recreation areas include: areas of existing private and public recreation use; designated local, state, and federal recreation areas; areas without overriding environmental constraints on resource management or recreational purposes; and areas with unique recreational resources that may service public needs, such as beaches and ski areas.

Plan Area Statements

Plan Area Statements (PAS) provide a detailed guide for planning within discrete areas of the Tahoe Region. Each PAS is assigned a single land use classification and one of three management strategies: development with mitigation, redirection of development, or maximum regulation. Plan Area Statements identify planning considerations, special policies, maximum densities for residential and tourist accommodation uses, community noise equivalent levels, allowable and special uses, and the amount of additional recreation capacity permissible.

The project area is within the Meeks Bay PAS. This PAS is bounded on the west by State Route (SR) 89; therefore, a very small portion of the project area immediately upstream of the Caltrans bridge at SR 89 is within the PAS for Meeks Meadow. The Meeks Bay PAS specifically directs planning considerations for the project area, including the following special policies related to the project (TRPA 2002):

- The feasibility of removing the marina facilities and the campsites from the stream environment zones should be assessed.
- The banks along Meeks Creek should be stabilized.
- Unnatural barriers to fish passage should be removed.
- Restoration programs in the stream environment zone should be continued. This is a high priority area for land coverage removal.

A wide variety of permissible uses are allowed under the Meeks Bay PAS to accommodate the extensive tourist, recreation, and ecological values of the area.

State Route 89 Recreation Corridor Management Plan

The State Route 89 Recreation Corridor Management Plan (SR 89 Corridor Plan) was adopted in September 2020 by TRPA. The SR 89 Corridor Plan sets forth a vision and coordinated set of goals for land managers to work toward. The vision for the corridor emphasizes a shift in the way people travel in the area to be more transit-oriented and multi-modal and recommends several projects across the corridor to achieve specified goals. Specifically, the SR 89 Corridor Plan calls for the development of the following elements for the Meeks Bay Segment:

- Develop Tahoe Trail segment within Meeks Bay with grade-separated crossing, if needed; underground powerlines and co-locate technology infrastructure.
- Develop bus stop at Meeks Bay.
- Relocate roadside parking when alternative access is provided through transit and bike options.
- Replace Caltrans bridge and incorporate capacity for wildlife crossing and pedestrian/bike use.
- Formalize emergency turnouts.
- Provide winter recreation access parking.
- Increase technology infrastructure.

Environmental Improvement Program

TRPA launched the Environmental Improvement Program (EIP) in 1997 to better implement the Regional Plan and accelerate attainment of thresholds. Recognizing that capital investments, research, and monitoring were essential components of the Regional Plan, the EIP called for a substantial investment in capital projects, and research and monitoring. The EIP also identified hundreds of specific projects and programs to be undertaken by more than 50 funding partners, including federal, state, and local agencies and the private sector. The projects are focused on improving air, water, and scenic quality, forest health, fish and wildlife, and public access and recreation. Since its initiation, over a billion dollars have been invested and hundreds of EIP projects have been completed. The Meeks Bay Restoration Project has been identified as a project of the EIP.

3.13.2 Environmental Impacts and Mitigation Measures

METHODOLOGY

The following analysis assesses the consistency of the alternatives with applicable land use plans. This analysis is based on review of existing land use documents, policies, ordinances, and other regulations.

THRESHOLDS OF SIGNIFICANCE

The thresholds of significance were developed in consideration of the State CEQA Guidelines, TRPA Thresholds, TRPA Initial Environmental Checklist, LTBMU Forest Plan, and other applicable policies and regulations. Under NEPA the significance of an effect must consider the context and intensity of the environmental effect. The factors that are considered under NEPA to determine the context and intensity of its effects are encompassed by the thresholds of significance. An alternative would have a significant effect on land use if it would:

- conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Tahoe region, adopted for the purpose of avoiding or mitigating an environmental effect; or
- propose uses inconsistent with applicable goals and policies of the TRPA Regional Plan, or the applicable Plan Area Statement.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.13-1: Consistency with Adopted Plans and Policies

Alternatives 1 through 4 would provide for the same types and pattern of land uses that already exist within the project area. All action alternatives have been designed to meet longstanding goals, policies, and objectives of TRPA and the USDA Forest Service, in particular those related to ecological restoration and recreation, and would meet them if implemented. As a result, Alternatives 1 through 4 would have a **beneficial** effect on land use patterns and consistency with land use plans that guide development within the project area. The No Action Alternative would maintain existing uses in the project area. This would have **no impact** on land use.

No Action Alternative

The No Action Alternative would not change the existing management direction of lands within the project area. Existing conditions would be maintained, including maintenance of the marina and other related elements, and maintenance of campgrounds, parking, circulation, recreational amenities, and resort facilities. These land uses represent allowable uses under applicable land use plans and therefore there would be **no impact** related to consistency with adopted plans and policies at the site.

Alternative 1: Full Restoration with Boating Pier

Alternative 1 would provide for restoration of Meeks Creek, the lagoon, and the barrier beach at Meeks Bay, as well as for complementary resource enhancement activities including AIS control, shoreline stabilization, protection of Tahoe Yellow Cress (TYC), installation of BMPs, and selective fish species passage design features. Alternative 1 also contains other unique recreational and ancillary elements including a boat-accessible pier, reconfiguration of the campgrounds, reconstruction of the SR 89 bridge, and enhancements to parking and circulation.

As described above, TRPA Regional Plan Goals and Policies articulate goals that describe desired conditions and values for the region, and policies that provide specific strategies to achieve those goals. These goals and policies are aimed at achieving the balance between the natural and built environments to attain and maintain the thresholds. Alternative 1 is intended to achieve the goals and policies of the Regional Plan in that it provides for restoration of Meeks Creek and the associated wetland, thereby assisting in achieving TRPA thresholds for water quality, soils, and wildlife. Alternative 1 would help to implement Regional Plan policies including:

- **Policy WQ-3.2:** Restore at least 80 percent of the disturbed lands within the region (from the 1983 baseline; excluding hard coverage).
- **Policy WQ-3.3:** Units of local government, state transportation departments, U.S. Forest Service and other implementing agencies shall restore 25 percent of the sez lands (from the 1983 baseline) that have been disturbed, developed, or subdivided in accordance with the environmental improvement program.
- **Policy VEG-1.10:** Work to eradicate and prevent the spread of invasive species.
- **Policy VEG-2.2:** Riparian plant communities shall be restored or expanded whenever and wherever possible. When complete restoration is not feasible, restoration programs shall focus on restoring the natural function of riparian areas to the greatest extent practical.
- **Policy S-1.7:** All existing natural functioning stream environment zones shall be retained as such, and disturbed stream environment zones shall be restored whenever possible and maybe treated to reduce the risk of catastrophic wildfire.
- **Policy SEZ-1.1:** Restore all disturbed stream environment zone lands in undeveloped, unsubdivided lands, and restore 25 percent of the sez lands that have been disturbed, developed, or subdivided.
- **Policy SEZ-1.7:** Where feasible, encourage and incentivize the removal or retrofitting of existing stream corridor impediments to help reestablish natural conditions and allow for the evolution of natural fluvial processes (such as stream migration) within SEZ lands.

Alternative 1 would maintain existing land uses and would add a new public pier as an accessory structure to the existing primary recreation land uses. The Meeks Bay PAS allows piers as an accessory structure; thus, all land uses would be consistent with the applicable PAS. The Meeks Bay PAS also includes special policies that direct the use of the project area (see the "Plan Area Statements" section, above). Alternative 1 would be consistent with and implement those special policies.

Because Alternative 1 proposes removal of the marina facilities within Meeks Creek and full restoration of Meeks Creek and barrier beach, this alternative would implement Regional Plan policies and achieve all four of the above special policies. Section 3.5, "Aquatic Biological Resources," Section 3.6, "Hydrology and Water Quality," and Section 3.7, "Geology and Soils," further discuss technical details relating to how removal of the marina and restoration activities would improve conditions related to these policies.

Desired conditions, objectives, and strategies identified in the LTBMU Forest Plan would also be met with implementation of Alternative 1, including those governing ecological, social, and economic sustainability. Meeks Creek and Meeks Bay are identified as General Conservation management areas by LTBMU and, therefore, a wide variety of uses are permitted and considered appropriate within the project area, including ecosystem restoration, recreation, and infrastructure uses, which are all uses that would be initiated or would continue with implementation of Alternative 1. Restoration encompasses management actions that move ecological conditions towards the desired conditions as identified in the Forest Plan. Restoration is specifically defined as "the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed. Ecological restoration focuses on reestablishing the composition, structure, pattern, and ecological processes necessary to facilitate terrestrial and aquatic ecosystems sustainability, resilience, and health under current and future conditions" (36 CFR 219.19). Activities under Alternative 1 would meet the definition of restoration, while preserving social and economic values, thereby achieving Forest Service objectives for the project area.

Because features of Alternative 1 would implement Regional Plan policies, achieve the special policies of the governing TRPA PAS for Meeks Bay, be consistent with the allowable uses in the applicable PAS; and because these features would also meet LTBMU desired conditions, objectives, and strategies and would not conflict with any other aspect of an adopted plan or policy, implementation of Alternative 1 would result in a **beneficial** effect related to consistency with land use plans and policies.

Alternative 2: Full Restoration with Pedestrian Pier

Alternative 2 would include the restoration activities and improvements to recreational and ancillary features described above for Alternative 1 but would include a pedestrian pier instead of a boat-accessible pier. These features would be consistent with the land uses described for Alternative 1. For the same reasons described for Alternative 1, Alternative 2 would implement policies of the TRPA Regional Plan and PAS, be consistent with land use regulations in the Meeks Bay PAS, and be consistent with LTBMU Forest Plan desired conditions, objectives, and strategies, as described above. For these reasons, Alternative 2 would have a **beneficial** effect related to consistency with land use plans and policies.

Alternative 3: Full Restoration with No Pier

Alternative 3 would include the restoration activities and improvements to recreational and ancillary features described above for Alternative 1 but would include a nonmotorized boat launch instead of a boat-accessible pier. Alternative 3 would also include additional parking by up to 14 spaces and an increase in the number of campsites by 7-22 campsites. These features would be consistent with the land uses described for Alternative 1. For the same reasons described for Alternative 1, Alternative 3 would implement policies of the TRPA Regional Plan and PAS, be consistent with land use regulations in the Meeks Bay PAS, and be consistent with LTBMU Forest Plan desired conditions, objectives, and strategies, as described above. For these reasons, Alternative 3 would have a **beneficial** effect related to consistency with land use plans and policies.

Alternative 4: Preferred Alternative

Alternative 4 would include the restoration activities and improvements to recreational and ancillary features described above for Alternative 1 but would include a nonmotorized boat launch instead of a boat-accessible pier.

Alternative 4 would also include up to 14 parking spaces. These features would be consistent with the land uses described for Alternative 1. For the same reasons described for Alternative 1, Alternative 4 would implement policies of the TRPA Regional Plan and PAS, be consistent with land use regulations in the Meeks Bay PAS, and be consistent with LTBMU Forest Plan desired conditions, objectives, and strategies, as described above. For these reasons, Alternative 4 would have a **beneficial** effect related to consistency with land use plans and policies.

Mitigation Measures

No mitigation is required for this impact.

3.13.3 Cumulative Impacts

Land use plans and policies are intended to have a cumulative effect on the land use and development patterns within the region. Over time, as multiple projects comply with land use regulations and achieve land use policies, desired land use and development patterns are achieved. Thus, the project's consistency with land use plans reflects its cumulative effect on land use. The cumulative effects of all alternatives would be the same as those described in Impact 3.13-1, above. Because the alternatives would not result in a significant impact related to consistency with land use plans and policies, the alternatives would a have a **less than cumulatively considerable impact** related to land use.

4 OTHER SECTIONS REQUIRED BY STATUTE

4.1 GROWTH INDUCEMENT

The California Environmental Quality Act (CEQA) Section 21100(b)(5) specifies that the growth-inducing impacts of a project must be addressed in an environmental impact report (EIR). Section 15126.2(d) of the State CEQA Guidelines provides the following guidance for assessing growth-inducing impacts of a project:

> Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also, discuss the characteristics of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

Section 3.7.2(H) of the TRPA Code of Ordinances also requires that an EIS evaluate the growth-inducing impacts of a proposed project. Growth can be induced by eliminating obstacles to growth or by stimulating economic activity in a way that encourages increases in population in the Tahoe region. Growth in the Tahoe region is limited by the development commodities (also referred to as development rights) system through the allocation of residential, commercial, and tourist accommodation commodities that are capped and allocated under the Regional Plan. By regulating these commodities, the Regional Plan limits the number of residents and tourists that the region can accommodate.

Growth inducement itself is not an environmental effect but may foreseeably lead to environmental effects. If substantial growth inducement occurs, it can result in secondary environmental effects, such as increased demand for housing, demand for other community and public services and infrastructure capacity, increased traffic and noise, degradation of air or water quality, degradation or loss of plant or animal habitats, conversion of agricultural and open-space land to urban uses, and other effects.

The action alternatives for the Meeks Bay Restoration Project would allow some minor new development and redevelopment of facilities and features within the project area. The types of upland and shorezone development that are proposed under the action alternatives—a new pier, accessible non-motorized boat launch, reconfigured camping, parking, and circulation, and restoration features—relate largely to the recreational experience and environmental health of the project area and would neither accommodate nor facilitate an increase in the capacity of the project area to support new tourists, residents, workers, or other types of population growth. The addition and enhancement of new public access facilities (e.g., a pier, accessible non-motorized boat launch, a multi-use path and transit stop) could attract an increased number of day-use visitors to the project area; however, regional, long-term visitation is influenced to a greater degree by the availability of overnight accommodations, which is unaffected by Alternatives 1, 2, and 4 and the No Action Alternative. Therefore, while Alternatives 1, 2, and 4 would allow new structures and redevelopment in the project area, these facilities would not be growth inducing. Alternatives 1, 2, and 4 would reduce the number of campsites by up to four overnight campsites or accommodate up to two additional campsites, which would increase the availability of overnight accommodations. Alternative 3 would accommodate between seven and 22 additional overnight campsites and would therefore increase the availability of overnight accommodations. These overnight visitors could influence tourist accommodation capacity of the region because accommodations such as campsites are not strictly limited by the Regional Plan and are instead linked to the "persons at one time" (PAOT) measure of recreational capacity for an individual site. However, the addition of two to 22 campsites and the attendant increase in overnight visitation at Meeks Bay (see Section 3.1, "Recreation," for details on recreation capacity and increase at Meeks Bay) is relatively minor in comparison with the recreational and visitor capacity of the Tahoe region. This increase in overnight visitation would not be substantial enough to induce growth that would increase the demand for ancillary infrastructure, services, traffic, noise, or result in additional environmental degradation.

4.2 SIGNIFICANT AND UNAVOIDABLE ADVERSE IMPACTS

The State CEQA Guidelines Section 15126.2(b) requires EIRs to include a discussion of the significant environmental effects that cannot be avoided if the project is implemented. As documented throughout Chapter 3 of this EIS/EIS/EIR, after implementation of the recommended mitigation measures, most of the impacts associated with the proposed Meeks Bay Restoration Project would be reduced to a less-than-significant level. The following impacts are considered significant and unavoidable; that is, no feasible mitigation is available to reduce the project's impacts to a less-than-significant level.

- Impact 3.1-4: Affect Local Access or Opportunities for Motorized Watercraft is potentially significant and unavoidable for Alternatives 1, 2, 3, and 4.
- Impact 3.2-2: Alter Views of Lake Tahoe from Meeks Bay is significant and unavoidable for Alternative 1.
- Impact 3.11-1: Short-Term Project-Related Construction Noise Levels is significant and unavoidable for Alternatives 1, 2, 3, and 4.

4.3 SHORT-TERM USES OF THE ENVIRONMENT AND LONG-TERM PRODUCTIVITY

Chapter 3 of the TRPA Code of Ordinances requires a discussion of the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity. This requirement recognizes that short-term uses and long-term productivity are linked, and the opportunities acted upon in the near term have could have limit future opportunities and result in continuing effects well into the future.

This EIS/EIS/EIR assesses the effects of implementing the Meeks Bay Restoration Project. The action alternatives have been crafted to balance restoration and preservation of the natural environment with recreational opportunities at the site.

All action alternatives would allow for redevelopment of upland features within the project area including the campgrounds, circulation, and parking areas; construction of which would result in short-term increases in the use and intensity of activity within the project area. Construction activities would result in the use of energy and resources to prepare the project area, remove old infrastructure, construct new facilities, and redevelop portions of the site. Construction would result in short-term construction-related impacts such as disruption to local traffic and circulation, air pollutant emissions, temporary noise sources, disturbance of wildlife, and construction-related hydrological impacts related to surface runoff on the site.

Alternatives 1, 2, 3, and 4 would provide for wholesale removal of the existing marina infrastructure in Meeks Creek, and full restoration of the creek and barrier beach system to natural conditions. While the demolition and removal of the marina infrastructure would result in short-term disturbance of Meeks Creek, which is a sensitive environment, it would contribute to long-term improvement in the productivity of this sensitive ecosystem and result in numerous environmental benefits (e.g., for aquatic biological resources, terrestrial biological resources, water quality, soils, and scenic resources) within the project area and in the Tahoe Basin more broadly.

Development of Alternatives 1 and 2 would require installation of pier foundations, clearing and prepping nearshore vegetation for installation of a pier, and other construction disturbance in the shorezone. Once committed to a new pier, it is unlikely that the land would be returned to a natural state in the near or long term. Effects on soils, habitat, scenic resources, and land uses from placement of a pier would be permanent. The pier would have associated impacts to aquatic biological resources, recreation, water quality, air quality and climate change, traffic and circulation, noise, and public safety, as described throughout this environmental document.

The Compact required TRPA to establish, attain, and maintain environmental thresholds. These environmental thresholds provide standards and guidance for the Regional Plan and complementary plans, such as the Regional Transportation Plan and Shoreline Plan to implement short-term actions to effectuate long-term productivity. Approval of any of the action alternatives would support the region's commitment to long-term environmental improvement through restoration of the Meeks Creek ecosystem and recreational enhancements aimed at improving recreational opportunities for all visitors to Meeks Bay.

4.4 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The State CEQA Guidelines requires a discussion of any significant irreversible environmental changes that would be caused by the project. Specifically, the State CEQA Guidelines section 15126.2(c) states:

> Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible, since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generation to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.

The project would result in the irreversible and irretrievable commitment of energy and material resources during construction and operation, including the following:

- Construction activities and redevelopment of existing site features would generate nonrecyclable materials, such as solid waste and construction debris. Electricity and hydrocarbon sources would also be expended to be able to implement construction activities. In addition, new facilities may entail the use of concrete, glass, plastic, and petroleum products, as well as an increase in energy consumption, which would be irreversible and irretrievable upon expenditure.
- Commitment of shorezone to pier construction would transfer the area within the shorezone to this use. Commitment of the shorezone to an accessible watercraft launch facility would also transfer the area occupied by the facility within the shorezone to this use.
- Restoration of Meeks Creek would result in removal of the marina, which would permanently eliminate this use in this location.

4.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA calls for the identification of an environmentally superior alternative in an EIR but gives no definition for the term (State CEQA Guidelines Section 15126.6(e)). However, CEQA does specify that if the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.

From the standpoint of minimizing environmental effects related to physical disturbances, Alternative 4 – Preferred Alternative – would be the environmentally preferable/environmentally superior alternative. Alternative 4 supports the most restoration and least amount of development within the project area.

Most of the potential environmental impacts from the action alternatives would be similar in type and magnitude. Resources that would not have substantial differences among the action alternatives include air quality, aquatic biological resources, terrestrial biological resources, cultural resources, greenhouse gas emissions and climate change, hydrology and water quality, geology, soils and mineral resources, land use, transportation and circulation, and noise. Compared to Alternatives 3 and 4, with implementation of the boat or pedestrian pier, Alternatives 1 and 2 would result in slightly greater short-term adverse effects on aquatic biological resources and hydrology and water quality from pier construction activities that would occur in the lake; however, compliance with applicable regulatory requirements and implementation of best management practices discussed in Impact 3.5-1 in Section 3.5, "Aquatic

Biological Resources," and Impact 3.6-1 in Section 3.6, "Hydrology and Water Quality," the overall impact would be less than significant. Compared to Alternatives 1 and 4, Alternatives 2 and 3 would result in greater disturbance in Meeks Creek resulting in greater potential impacts on aquatic biological resources, erosion potential, and hydrology and water quality, from construction of two multi-use path bridges because the multi-use path closest to the highway for Alternatives 1 and 4 would be on the new SR 89 bridge.

While restoration of Meeks Creek would be successfully implemented with any of the action alternatives, implementation of specific features or layouts for upland or shorezone features should not be viewed as mutually exclusive. Compatible upland features from any of the alternatives could potentially be implemented in a combined, hybrid design layout. Similarly, a pier, launch facility, and shorezone erosion improvements could be combined or not constructed at all. Trade-offs in environmental and recreational benefits could be made by combining different features evaluated in this environmental document, as was done in developing Alternative 4.

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6 REFERENCES

Executive Summary

No references were used in this section.

Chapter 1 Introduction

No references were used in this section.

Chapter 2 Description of the Proposed Action and Alternatives

Balance Hydrologics. 2021 (June). *Meeks Bay Restoration – Hydrology and Geomorphology Specialist Report.* Prepared for Ascent Environmental.

Ragan, Mark. Pacific Built, Inc. Tahoe City, California. May 16, 2017—telephone discussion with Rachel Kozloski of Ascent Environmental regarding probably techniques for pier removal and construction at Kings Beach State Recreation Area.

Swanson H+G. *See* Swanson Hydrology + Geomorphology.

Swanson Hydrology + Geomorphology. 2006 (June). *Meeks Creek Watershed Ecosystem Assessment Report*. Prepared for USDA Forest Service, Lake Tahoe Basin Management Unit.

Tahoe Regional Planning Agency. 2014. *Best Management Practices Handbook*. Stateline, NV

Tahoe Regional Planning Agency, Tahoe Transportation District, and U.S. Department of Agriculture, Forest Service. 2020 (September). *SR-89 Corridor Management Plan*.

TRPA. *See* Tahoe Regional Planning Agency.

TRPA et al. *See* Tahoe Regional Planning Agency, Tahoe Transportation District, and U.S. Department of Agriculture, Forest Service.

Chapter 3 Environmental Impacts and Mitigation Measures

Approach to the Environmental Analysis

No references were used in this section.

Section 3.1 Recreation

Kasman, Ken. Research and Analysis Division Manager. Tahoe Regional Planning Agency. November 19, 2021—email to Rebecca Cremeen of TRPA regarding data for Meeks Bay.

Lake Tahoe Info. 2021a. *Quality of Recreation Experience and Access to Recreational Opportunities*. Available: https://thresholds.laketahoeinfo.org/ThresholdIndicator/Detail/54. Accessed July 15, 2021.

———. 2021b. Threshold Categories and Indicators. Available: https://thresholds.laketahoeinfo.org/ThresholdCategory/Index. Accessed July 15, 2021.

———. 2022a. *Fair Share Distribution of Recreation Capacity – 2019 Evaluation*. Available: https://thresholds.laketahoeinfo.org/Indicator/ThresholdEvaluationDetail/397. Accessed January 4, 2022.

———. 2022b. *Monitoring Program – Bicycle and Pedestrian – Sugar Pine Point*. Available: https://monitoring.laketahoeinfo.org/MonitoringSite/Detail/439. Accessed January 24, 2022.

Tahoe Regional Planning Agency. 2012. *Lake Tahoe Threshold Standards and Regional Plan*.

———. 2016 (September). *Summary of Water Access for Marinas and Public Boat Ramps*.

———. 2017. Boat Ramp Launch Data. Collected by Lake Tahoe Watercraft Inspection Program in 2010 through 2016.

———. 2018a (October). *Linking Tahoe Active Transportation Plan*.

———. 2018b (October). *Shoreline Implementation Program*.

———. 2018c (May). *Draft Environmental Impact Statements for the Lake Tahoe Shoreline Plan*, Appendix A Use and Build Out Assumptions.

———. 2021a. Code of Ordinances. Adopted by TRPA on December 12, 2012; reflects amendments through September 29, 2021.

———. 2021b. *Regional Transportation Plan*.

Tahoe Regional Planning Agency, Tahoe Transportation District, and USDA Forest Service. 2019 (May). *SR 89 Corridor Management Plan Existing Conditions Summary Report*.

———. 2020 (September). *SR 89 Corridor Management Plan*.

Totterdale, Ron. Operations Manager, Tahoe Recreation. July 12, 2021—email to Ashley Sibr of the USDA Forest Service regarding visitation to the Meeks Bay area south of Meeks Creek.

TRPA. *See* Tahoe Regional Planning Agency.

TRPA et al. *See* Tahoe Regional Planning Agency, Tahoe Transportation District, and USDA Forest Service.

U.S. Forest Service. 2004 (January). *Sierra Nevada Forest Plan Amendment Final Supplemental Environmental Impact Statement Record of Decision*.

———. 2016 (July). *Land Management Plan (Forest Plan), Lake Tahoe Basin Management Unit*.

USFS. *See* U.S. Forest Service.

Section 3.2 Scenic Resources

California Department of Transportation. 2019. Scenic Highway System Lists. Available: https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways. Accessed: 11/1/2021.

———. 2021. Scenic Highways – Frequently Asked Questions. Available: https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways/lap-liv-i-scenic-highways-faq2. Accessed 11/1/2021.

Caltrans. *See California Department of Transportation*.

Iverson, W.D., Sheppard, S.R.J., Strain, R.A., 1993. Managing Regional Scenic Quality in the Lake Tahoe Basin. Landscape Journal 12, 23–39.

Tahoe Regional Planning Agency. 1982. Lake Tahoe Basin Scenic Resource Inventory.

———. 1989. TRPA Design Review Guidelines, Appendix H: Visual Assessment Tool for the Review of Projects Located in the Shoreland. Adopted 9/27/1989.

———. 1993. *Lake Tahoe Scenic Resource Evaluation*.

———. 2011. *2011 Threshold Evaluation Report*.

———. 2012. *Threshold Standards and Regional Plan*. Amended 4/24/2019.

———. 2016. *2015 Threshold Evaluation Report*.

———. 2021a. Presentation of the Draft 2019 Threshold Evaluation. Staff Report, Agenda Item No. VI.A, 3/17/2021.

———. 2021b. 2019 Evaluation, Scenic Quality Ratings for Shoreline Travel Units (Scenic Resources). Available: https://thresholds.laketahoeinfo.org/Indicator/ThresholdEvaluationDetail/403. Accessed 11/1/2021.

———. 2021c. Travel Route Ratings for Roadway Travel Units. Available: https://thresholds.laketahoeinfo.org/ThresholdIndicator/Detail/58. Accessed: 11/1/2021.

———. 2021d. 2019 Evaluation, Scenic Quality of Other Areas (Recreation Sites and Bike Trails). Available: https://thresholds.laketahoeinfo.org/Indicator/ThresholdEvaluationDetail/400. Accessed: 11/1/2021.

———. 2021e. Built Environment. Available: https://thresholds.laketahoeinfo.org/ThresholdReportingCategory/Detail/BuiltEnvironment. Accessed: 11/1/2021.

———. 2021f. EIP Project Map. Available: https://eip.laketahoeinfo.org/Results/EipProjectMap. Accessed 11/2/2021.

TRPA. *See* Tahoe Regional Planning Agency.

USDA Forest Service. 1995. Landscape Aesthetics: A Handbook for Scenery Management. December 1995.

———. 2016 (July). *Land Management Plan, Lake Tahoe Basin Management Unit*.

USFS. See USDA Forest Service.

Section 3.3 Cultural and Tribal Cultural Resources

Ascent Environmental. 2022. *Historic Resource Evaluation Report for the Meeks Bay Restoration Project*. Prepared for Tahoe Regional Planning Agency.

California Department of Transportation. 2019. Standard Environmental Reference (SER). Volume 2 Exhibit 6.2 Bridge Numbering and Historic Status Code. Available: https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/ser/ex-6-2-bridge-codes-a11y.pdf.

Caltrans. *See* California Department of Transportation.

Marvin, Judith. 2011. *Section 106 Consultation on the National Register of Historic Places Eligibility for the Meeks Bay Resort Historical Evaluation of Site No. 05-19-1283 Forest Service Project No. TB-2011-10 Event No. R211051900056, Meeks Bay, Lake Tahoe, El Dorado County, California*. Report on file with United States Forest Service Lake Tahoe Basin Management Unit, South Lake Tahoe.

Natural Investigations Company. 2021. *Cultural Resources Inventory for the Meeks Bay Restoration Project, Meeks Bay, Tahoma, El Dorado County, California*. Prepared for Tahoe Regional Planning Agency.

NIC. *See* Natural Investigations Company.

Tahoe Regional Planning Agency. 2012a. *Threshold Standards and Regional Plan*. Amended 4/24/2019.

———. 2012b. Section 3.15, Cultural Resources. In *Regional Plan Update Draft Environmental Impact Statement*. 3.15-1–3.15-19. Stateline, NV.

TRPA. *See* Tahoe Regional Planning Agency.

Section 3.4 Terrestrial Biological Resources

Ascent Environmental. 2020. *Aquatic Resources Delineation Report for the Meeks Bay Restoration Project.* Prepared for USDA Forest Service Lake Tahoe Basin Management Unit.

Brylski P. V., P. W. Collins, E. D. Pierson, W. E. Rainey, and T. E. Kucera. 1998. *Terrestrial Mammal Species of Special Concern in California.* Prepared for California Department of Fish and Game, Sacramento, CA.

California Department of Fish and Wildlife. 2018. *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities.* Available: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18959&inline. Accessed July 19, 2021.

California Department of Food and Agriculture. 2021. CDFA Weed Pest Ratings and CCR 4500 Noxious Weeds as of June 22, 2021, State of California, Department of Food and Agriculture, Division of Plant Health and Pest Prevention Services.

California Invasive Plant Council. 2021. CalWeedMapper.

California Native Plant Society. 2021. *Inventory of Rare and Endangered Plants of California* (online edition, v9-01 0.0). Available: http://www.rareplants.cnps.org. Accessed July 7, 2021.

California Natural Diversity Database. 2021. Results of electronic records search. Sacramento: California Department of Fish and Wildlife, Biogeographic Data Branch. Accessed July 7, 2021.

CDFW. *See* California Department of Fish and Wildlife.

CNDDB. *See* California Natural Diversity Database.

CNPS. *See* California Native Plant Society.

Jennings, M. R. and M. P. Hayes. 1994. *Amphibian and Reptile Species of Special Concern in California*. Prepared for California Department of Fish and Wildlife. Rancho Cordova, CA.

Knapp, R. A. and K. R. Matthews. 2000. Non-native fish introductions and the decline of the mountain yellow-legged frog from within protected areas. *Conservation Biology* 14:428–438.

Lake Tahoe Basin Management Unit. 2021. *Biological Evaluation for Terrestrial Wildlife and Botanical Species. Meeks Bay Restoration Project.* Prepared by Ascent Environmental, Inc. Stateline, NV.

———. 2022. *Invasive Plant Risk Assessment Meeks Creek Restoration Project.* Prepared by Ascent Environmental Inc. Stateline, NV.

LTBMU. *See* Lake Tahoe Basin Management Unit.

Muskopf, S. 2020. Aquatic Biologist, USDA Forest Service—Lake Tahoe Basin Management Unit. Email correspondence with biologist Steve Henderson of Ascent Environmental. May 20.

Pavlik, B. and D. Murphy. 2002. Conservation Strategy for Tahoe Yellow Cress (*Rorippa subumbellata*). Tahoe Regional Planning Agency. Lake Tahoe, NV.

Rowe, C. and V. Stevens. 2016. *LTBMU Rare Botanical Species – 2015 Monitoring Report.* USDA Forest Service, Lake Tahoe Basin Management Unit. South Lake Tahoe, CA.

Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. *A Manual of California Vegetation*. Second edition. California Native Plant Society Press, Sacramento, California, USA.

Spencer, W.D., P. Beier, K. Penrod, K. Winters, C. Paulman, H. Rustigian-Romsos, J. Strittholt, M. Parisi, and A. Pettler. 2010. *California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California*. Available: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18366. Accessed April 20, 2020.

Stanton, A. and B. Pavlik. 2009. Implementation of the Conservation Strategy for Tahoe Yellow Cress *(Rorippa subumbellata) 2008 Annual Report*. Prepared for the Tahoe Yellow Cress Adaptive Management Working Group. Prepared by BMP Ecosciences. San Francisco, CA. March.

Stanton, A. and Tahoe Yellow Cress Adaptive Management Working Group (AMWG) and Executive Committee. 2015. *Conservation Strategy for Tahoe Yellow Cress (*Rorippa subumbellata*)*. USDA Forest Service Pacific Southwest Research Station. Albany, CA. October 23.

Sweitzer, R., C. Thompson, K. Purcell, R. Barrett, D. Tempel, and Z. Peery. 2015. Sierra Nevada Adaptive Management Project. Appendix D: Fisher Team Final Report. Available: http://snamp.ucanr.edu/static/documents/2015/09/03/D_Fisher_Chapter_final_small.pdf. Accessed October 16, 2019.

Tahoe Regional Planning Agency. 2020. Tahoe Open Data Wildlife Mapping. Available: https://data-trpa.opendata.arcgis.com/. Accessed July 20, 2021.

———. 2021a. *2019 Threshold Evaluation*. Stateline, NV. December. Available: https://thresholds.laketahoeinfo.org/ThresholdIndicator/Detail/59. Accessed December 14, 2021.

———. 2021b. *Tahoe Regional Planning Agency Code of Ordinances*. Available: https://www.trpa.org/regional-plan/code-of-ordinances/. Accessed July 20, 2021.

———. 2022. Tahoe Open Data Wildlife Mapping. Available: https://data-trpa.opendata.arcgis.com/. Accessed May 31, 2022.

TRPA. *See* Tahoe Regional Planning Agency.

USDA Forest Service. 1992. Interim management guide for *Ivesia aperta* var. *aperta, Ivesia aperta* var. *canina, Ivesia sericoleuca*. U.S. Department of Agriculture, Forest Service, Pacific Southwest, and Intermountain Regions; Tahoe, Plumas, and Toiyabe National Forests.

———. 2010. Terrestrial Invasive Plant Species Treatment Project, Finding of No Significant Impact. U.S. Department of Agriculture, Forest Service, Lake Tahoe Basin Management Unit, South Lake Tahoe.

———. 2013a. *Region 5 Regional Forester's 2013 Sensitive Plant Species List*. Available: https://www.fs.usda.gov/main/r5/plants-animals/wildlife. Accessed July 19, 2021.

———. 2013b. *Region 5 Regional Forester's 2013 Sensitive Animal Species List*. Available: https://www.fs.usda.gov/main/r5/plants-animals/wildlife. Accessed July 19, 2021.

———. 2021. GIS data for species occurrences, protected activity centers, habitat suitability, and other natural resources. Provided by the Lake Tahoe Basin Management Unit to Ascent Environmental.

U. S. Fish and Wildlife Service. 2014a. Endangered and threatened wildlife and plants; Endangered status for the Sierra Nevada yellow-legged frog and the northern district population segment of the mountain yellow-legged frog, and threatened status for the Yosemite toad; Final Rule. Federal Register 79:24256-24310.45

———. 2014b. Programmatic Biological Opinion on Nine Forest Programs on Nine National Forests in the Sierra Nevada of California for the Endangered Sierra Nevada Yellow-legged Frog, Endangered Northern Distinct Population Segment of the Mountain Yellow-legged Frog, and Threatened Yosemite Toad. Ref. FF08ESMF00-2014-F-0557. December 19. Issued to USDA Forest Service, Pacific Southwest Region, Vallejo, CA. Sacramento Fish and Wildlife Office. Sacramento, CA.

———. 2018. *Survey Protocols for the Rusty Patched Bumble Bee (*Bomubs affinis*)*. Available: https://www.fws.gov/midwest/endangered/insects/rpbb/pdf/SurveyProtocolsRPBB28Feb2018.pdf. Accessed July 23, 2021.

———. 2022. Information for Planning and Consultation electronic records search. Available: https://ecos.fws.gov/ipac/. Accessed May 19, 2022.

USFWS. *See* U.S. Fish and Wildlife Service.

Vredenburg, V. T. 2004. Reversing Introduced Species Effects: Experimental Removal of Introduced Fish Leads to Rapid Recovery of a Declining Frog. *PNAS*. 101:7646-7650.

Williams, P. H., R. W. Thorp, L. L. Richardson, and S. R. Colla. 2014. *Bumble Bees of North America*. Princeton, NJ: Princeton University Press.

Xerces Society. 2012. *Conserving Bumble Bees Guidelines for Creating and Managing Habitat for America's Declining Pollinators.* Available: https://xerces.org/publications/guidelines/conserving-bumble-bees. Accessed July 23, 2021.

———. 2018. *A Petition to the State of California Fish and Game Commission to List the Crotch Bumble Bee (Bombus crotchii), Franklin's Bumble Bee (Bombus franklini), Suckley Cuckoo Bumble Bee (Bombus suckleyi), and Western Bumble Bee (Bombus occidentalis occidentalis) as Endangered Under the California Endangered Species Act.* Available: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=161902&inline. Accessed July 21, 2021.

Xerces Society, Idaho Department of Fish and Game, and Washington Department of Fish and Wildlife. 2022. Western Monarch Milkweed Mapper. Available: https://www.monarchmilkweedmapper.org/. Accessed January 27, 2022.

Zielinski, W. J., T. E. Kucera, and R. H. Barrett. 1995. Current Distribution of the Fisher, *Martes pennanti*, in California. *California Fish and Game*. 81:104-112.

Section 3.5 Aquatic Biological Resources

Aldridge DW, McMahon RF. (1978) Growth, fecundity, and bioenergetics in a natural population of the Asiatic freshwater clam, *Corbicula manilensis* Phillippi, from north central Texas. J. Moll. Stud. 44: 49–70

Allen, B.C., and J. Reuter. 1996. Shorezone Spawning in Lake Tahoe: The Effect of Shorezone Structures and Associated Activities on The Spawning Success of Native Minnows. Report to the Tahoe Regional Planning Agency.

Beauchamp, D.A., E.A. Byron, and W.A. Wurtsbaugh. 1994. Summer Habitat Use by Littoral-Zone Fishes in Lake Tahoe and the Effects of Shoreline Structures. *North American Journal of Fisheries Management* 14:385–94.

Beauchamp, D.A., W.A. Wurtsbaugh, B.C. Allen, P. Budy, J. Reuter. 1990. *Lake Tahoe Fish Community Structure Investigations: Phase II Report*. Institute of Ecology, Division of Environmental Studies, University of California, Davis.

Beauchamp, D., W. A. Wurtsbaugh, B. Allen, P. Budy. R. Richards and J. Reuter. 1991. *Lake Tahoe Fish Community Structure Investigations Phase III Report*. Institute of Ecology, Division of Environmental Studies, University of California, Davis.

Byron, E.R., B.C. Allen, W. Wurtsbaugh and K. Kuzis. 1989. *Final Report: Littoral Structure and its Effects on the Fish Community of Lake Tahoe*. Institute of Ecology, Division of Environmental Studies, University of California, Davis, Davis, CA 95616.

California Department of Fish and Wildlife. 2010a. *Lahontan lake tui chub (*Siphateles bicolor pectinifer*) species account.* Author. Retrieved from https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=104329.

———. 2010b. *Mountain Whitefish (*Prosopium williamsoni*) species account*. California Department of Fish and Wildlife. Retrieved from https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=104341&inline.

California Department of Transportation. 2009. *Technical guidance for assessment and mitigation of the hydroacoustic effects of pile driving on fish*. Appendix I, revised 2012, Compendium of pile driving sounds.

California Natural Diversity Database. 2021. Results of electronic records search. Sacramento: California Department of Fish and Wildlife, Biogeographic Data Branch. Accessed July 7, 2021.

California Tahoe Conservancy. 2007. *Fish Distribution and Abundance Report for the Sunset Stables Restoration and Resource Management Plan*. Prepared by ENTRIX.

Caltrans. *See* California Department of Transportation.

CDFW. *See* California Department of Fish and Wildlife.

Chandra, S., K.L.C. Ngai, M. Kamerath. 2009. *Warm-water Non-native Fishes in Lake Tahoe*. Carson City, NV.

CNDDB. *See* California Natural Diversity Database.

Dill, W. A., and A. J. Cordone. 1997. History and Status of Introduced Fishes in California, 1871–1996. *California Department of Fish and Game, Fish Bulletin* 178.

Environmental Science Associates.2021 (August). *Meeks Bay Restoration Project Aquatic Resources Specialist Report.*

Fisheries Hydroacoustic Working Group 2008. *Agreement in Principle for Interim Criteria for Injury to Fish from Pile Driving Activities*. http://www.dot.ca.gov/hq/env/bio/files/fhwgcriteria_agree.pdf.

Hastings, M.C., and A.N. Popper, 2005. *Effects of sound on fish*. Prepared for California Department of Transportation. 82 pp.

Heyvaert, Alan, John Reuter, Sudeep Chandra, Rick Susfalk, S. Geoffrey Schladow, Scott Hackley, Christine Ngai, et al. 2013. *Lake Tahoe Nearshore Evaluation and Monitoring Framework* (v10.e). Final Report prepared for the USDA Forest Service Pacific Southwest Research Station. Reno, NV: Desert Research Institute.

Kamerath, M., S Chandra, and B.C. Allen. 2008. Distribution and Impacts of Warm Water Invasive Fish in Lake Tahoe, USA. *Aquatic Invasions* 3(1):35–41.

Kramer-Wilt, E. (2008). *Corbicula fluminea* (O. F. Müller, 1774) – Asian clam. Aquatic invasion ecology, 16. animals: selection versus resistance. Canadian Journal of Fisheries and Aquatic Sciences, 59: 1235–1244.

Lahontan Regional Water Quality Control Board (RWQCB). 2019. Water Quality Control Plan for the Lahontan Region. South Lake Tahoe, CA.2019

Lake Tahoe Basin Management Unit. 2022. *Biological Evaluation. Meeks Bay Restoration Project.* Prepared by Ascent Environmental, Inc. Stateline, NV.

Moyle, P.B. 2002. *Inland Fishes of California, Revised and Expanded*. Berkeley, CA: University of California Press.

Murphy, D. D. and C. M. Kopp. 2000. *Lake Tahoe Watershed Assessment. General Technical Report PSWGTR-176*. Albany, CA: U.S. Forest Service, Pacific Southwest Research Station

Nedeau, E., A. K. Smith, and J. Stone. 2005. *Freshwater mussels of the Pacific Northwest*. United States Fish and Wildlife Service. The Xerces Society. Portland, OR

Ngai, C.K.L., B.J. Shuter, D.A. Jackson, and S. Chandra. 2013. Projecting Impacts of Climate Change on Surface Temperatures of a Large Subalpine Lake: Lake Tahoe, USA. *Climate Change* 118:841-855.

O'Neil-Dunne, Jarlath, J. Shane Romsos, and David Saah. 2016. *Use of Remotely Sensed Imagery to Map and Quantify the Extent and Distribution of Lake Tahoe's Nearshore Substrates and Fish Habitats.* A Report to the Tahoe Regional Planning Agency In Partial Completion of Work Order #2 of Contract #16C00011. Pleasanton, CA: Spatial Informatics Group, LLC.

Prezant, R.S. and K. Chalermwat. Flotation of the bivalve Corbicula fluminea as a means of dispersal. *Science* 225: 1491-1493.

Reuter, J.E., and W.W. Miller. 1999. Chapter Four Aquatic Resources, Water Quality, and Limnology of Lake Tahoe and its Upland Watershed. *Lake Tahoe Watershed Assessment*. D.D. Murhy and C.M Knopp, editors.

Rosa, I.C., J. L. Pereira, R. Costa, F. Concalves, and R. Prezant. 2012. Effects of upper-limit water temperatures on the dispersal of the Asian clam Corbicula fluminea. PLoS ONE 7(10): e46635. doi:10.1371/journal.pone.0046635.

Schlesinger, M. D., and J. S. Romsos. 2000. Vertebrate Species of the Lake Tahoe Basin. Pages G1–G15 in D. D. Murphy and C. M. Knopp (eds.). *Lake Tahoe Watershed Assessment:* Volume II, Appendices. General Technical Report PSW-GTR-176. U.S. Forest Service, Albany, CA.

Sousa, R., Antunes, C., & Guilhermino, L. (2008). Ecology of the invasive Asian clam *Corbicula fluminea* (Muller, 1774) in aquatic ecosystems: an overview. International Journal of Limnology, 44:85-94.

Swanson Hydrology + Geomorphology. 2006 (June). Meeks Creek Watershed Ecosystem Assessment Report. Prepared for USDA Forest Service, Lake Tahoe Basin Management Unit.

Swanson H+G. *See* Swanson Hydrology + Geomorphology.

Tahoe Regional Planning Agency. 1996. Draft 1996 Evaluation Report: Environmental Carrying Capacities and the Regional Plan Package for the Lake Tahoe Basin. Stateline, NV.

———. 2012. *TRPA Threshold Standards and Regional Plan*. Stateline, NV.

———. 2016. *2015 Threshold Evaluation Report*. Stateline, NV.

———. 2021a. *TRPA Code of Ordinances*. Stateline, NV.

———. 2021b. Tahoe Regional Planning Agency Aquatic Invasive Species Program Request For Proposals (RFP) Meeks Bay Restoration Bubble Curtain. Available: https://www.trpa.gov/wp-content/uploads/documents/Meeks-Bay-Restoration-Bubble-Curtain-RFP.pdf. Accessed February 16, 2022.

TRPA. *See* Tahoe Regional Planning Agency.

UC Davis, Tahoe Environmental Research Center. 2021. Asian Clams. Retrieved January 3, 2021, from: https://tahoe.ucdavis.edu/asian-clam-0#:~:text=Asian%20clams%20%28Corbicula%20fluminea%29%20were%20first%20discovered%20along,6000%20clams%20per%20square%20meter%20in%20some%20locations.

U.S. Fish and Wildlife Service. 2022. Information for Planning and Consultation electronic records search. Available: https://ecos.fws.gov/ipac/. Accessed February 8, 2022.

USFWS. *See* U.S. Fish and Wildlife Service.

U.S. Forest Service. 2016. *Land Management Plan, Lake Tahoe Basin Management Unit.* USDA Forest Service, Lake Tahoe Basin Management Unit, 35 College Drive, South Lake Tahoe, California 96150.

———. 2017. *Warm Water Fish. Lake Tahoe Basin Mgt. Unit*. Available: https://www.fs.usda.gov/detail/ltbmu/home/?cid=stelprdb5311259. Accessed February 1, 2018.

USFS. *See* U.S. Forest Service.

Waters, T.F. 1995. *Sediment in Streams: Sources, Biological Effects and Control*. American Fisheries Society, Bethesda, Md. 251p

Wittmann, M. E., and S. Chandra. 2015. *Implementation Plan for the Control of Aquatic Invasive Species within Lake Tahoe*. Reno, NV: Lake Tahoe AIS Coordination Committee.

Section 3.6 Hydrology and Water Quality

Adams, K.D., and Minor, T.B. 2002. Historic Shoreline Change at Lake Tahoe From 1938 to 1998 and its Impact on Sediment and Nutrient Loading. *Journal of Coastal Research*, Vol. 18, No. 4, p 637 – 651.

Balance Hydrologics. 2021 (June). *Meeks Bay Restoration – Hydrology and Geomorphology Specialist Report.* Prepared for Ascent Environmental.

Balloffet, A., and L. Quinn. 2004. The Relationship between Boating Activity on Lake Tahoe and Contamination from Polycyclic Aromatic Hydrocarbons (PAH). Report prepared by ENTRIX for Tahoe Regional Planning Agency. Stateline, NV.

Beachler, M., and D. F. Hill. 2003. Stirring up trouble? Resuspension of bottom sediments by recreational watercraft. *Lake and Reservoir Management* 19(1):15–25.

California Tahoe Conservancy and Department of General Services. 2017 (November). Upper Truckee River and Marsh Restoration Project Hydrotechnical Basis of Design (Preliminary Plans). Prepared by Northwest Hydraulic Consultants with Balance Hydrologics and Western Botanical Services.

CTC and DGS. *See* California Tahoe Conservancy and Department of General Services.

Heyvaert, A. 2019. Resource Profile – Summary of Historical, Current, and Future Climate Conditions in Integrated Vulnerability Assessment of Climate Change in the Lake Tahoe Basin. Technical Memos.

Heyvaert, A.C., J.E. Reuter, S. Chandra, R.B. Susfalk, S.G. Schaldow, and S.H. Hackley. 2013. *Lake Tahoe Nearshore Evaluation and Monitoring Framework. Final Report*. Prepared for U.S. Forest Service, Pacific Southwest Research Station.

Hoverson, D., and P. McGinley. 2007. *Waves, Wind, Watercraft, and Water Clarity: A Study of Sediment Resuspension in Clark Lake.* Center for Watershed Science and Education, University of Wisconsin. Stevens Point, WI.

Lahontan Regional Water Quality Control Board. 2019. *Updated Lake Tahoe Nearshore Water Quality Protection Plan*.

Lahontan RWQCB. *See* Lahontan Regional Water Quality Control Board

Lake Tahoe Info. 2022a. Indicator - Nearshore Turbidity (Stream Influence), 2019 Evaluation. Available: https://thresholds.laketahoeinfo.org/Indicator/ThresholdEvaluationDetail/483. Accessed January 21, 2022.

———. 2022b. Indicator – Nearshore Attached Algae. Available: https://www.laketahoeinfo.org/Indicator/Detail/171/Overview. Accessed January 21, 2022.

Miller, G., C. Hoonhout, E. Sufka, S. Carrol, V. Edivirisingham, B. Allen, J. T. Oris, and M. S. Lico. 2003. *Environmental Assessment of the Impacts of PAH in Lake Tahoe and Donner Lake*. Lahontan Regional Water Quality Control Board. Sacramento, CA.

Plume, R.W.; M.L. Tumbusch, and T.L. Welborn. 2009. Hydrogeology of the Lake Tahoe Basin, California and Nevada. Scientific Investigations Map 3063. U.S Geological Society.

Simon, A. 2008. Fine-Sediment Loadings to Lake Tahoe. *Journal of the American Water Resources Association*, Vol. 44, No. 3, p 618 – 639.

Swanson Hydrology + Geomorphology. 2006. *Meeks Creek Watershed Ecosystem Assessment Report*: final report prepared for U.S. Forest Service Lake Tahoe Basin Management Unit.

———. 2008. *Meeks Meadow Restoration and Management Plan*. Prepared for U.S. Forest Service Lake Tahoe Basin Management Unit.

State Water Resources Control Board. 2021. GeoTracker Waste and Substances Site List. Available: https://geotracker.waterboards.ca.gov/. Accessed July 21, 2021.

SWRCB. *See* State Water Resources Control Board.

Tahoe Regional Planning Agency. 2004. *Lake Tahoe Shorezone Ordinance Amendments Draft EIS*. Appendix H: Soil Conservation/Littoral Processes/SEZ.

———. 2012. *Regional Plan* (Adopted December 12, 2012). Stateline, NV.

———. 2014. *Best Management Practices Handbook*. Stateline, NV

———. 2018. *Lake Tahoe Shoreline Plan Environmental Impact Statement*. Adopted October 2018.

———. 2021. Code of Ordinances. Adopted by TRPA on December 12, 2012; reflects amendments through September 29, 2021.

TRPA. *See* Tahoe Regional Planning Agency.

Western Regional Climate Center. 2020. Northern Sierra Precipitation: 8-Station Index, May 24, 2021. California, USA.

WRCC. *See* Western Regional Climate Center.

Section 3.7 Geology and Soils

Bailey RG. 1974. Land-capability classification of the Lake Tahoe Basin, California-Nevada: A Guide for Planning. USDA Forest Service.

Balance Hydrologics. 2021 (June). *Meeks Bay Restoration – Hydrology and Geomorphology Specialist Report*. Prepared for Ascent Environmental.

Brothers, Daniel S., Graham M. Kent, Neal W. Driscoll, Shane B. Smith, Robert Karlin, Jeffery A Dingler, Alistair J Harding, Gordon G Seitz, and Jeffery M. Babcock. 2009 (April). New constraints on deformation, slip rate, and timing of the most recent earthquake on the West Tahoe-Dollar Point Fault, Lake Tahoe Basin, California. *Bulletin of the Seismological Society of America*, Vol 99, No 2A pp 499-519.

Bryant, W.A., and Hart, E.W, Interim Revision 2007, Fault Rupture Hazard Zones in California, Alquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Fault Zones Maps: *California Geological Survey*, Special Publications 42.

California Geological Survey. 2008. *Guidelines for Evaluating and Mitigating Seismic Hazards in California*. (Special Publication 117A).

———. 2010. Cities and Counties Affected by Alquist-Priolo Earthquake Fault Zones as of January 2010. Available: http://www.consrv.ca.gov/cgs/rghm/ap/Pages/affected.aspx. Accessed March 26, 2014.

CGS. *See* California Geologic Survey.

dePolo, Craig M., John G. Anderson, Diane M. dePolo, and Jonathan G. Price. 1997. Earthquake Occurrence in the Reno-Carson City Urban Corridor. Seismological Research Letters 68: 401-412. May/June.

Dingler. 2007. A high-resolution seismic CHIRP investigation of active normal faulting across the Lake Tahoe Basin, California-Nevada. *Geological Society of America Bulletin*. 121:1089-1107.

El Dorado County. 2018. Local Hazard Mitigation Plan. El Dorado County Sheriff Office of Emergency Services. Available: https://www.edcgov.us/Government/sheriff/Documents/ElDoradoCounty_LHMP.pdf. Accessed July 30, 2021.

Ichinose, G.E., J.G. Anderson, K. Satake, R.A. Schweickert, and M.M. Lahren. 2000 (April 15). The potential hazard from tsunami and seiche waves generated by large earthquakes within Lake Tahoe, California-Nevada. *Geophysical Research Letters* Vol. 27, No. 8, 1203-1206.

Lahontan Regional Water Quality Control Board. 2019. *Water Quality Control Plan for the Lahontan Region North and South Basins*.

Lahontan RWQCB. *See* Lahontan Regional Water Quality Control Board.

Lake Tahoe Info. 2022a. Threshold Dashboard, Impervious Cover. Available: https://thresholds.laketahoeinfo.org/ThresholdReportingCategory/Detail/ImperviousCover. Accessed January 21, 2022.

———. 2022b. Percent of Land Coverage Within Land Capability Class 1b (allow up to 1% impervious coverage). Available: https://thresholds.laketahoeinfo.org/Indicator/ThresholdEvaluationDetail/406. Accessed January 21, 2022.

NRCS. *See* U.S. Natural Resources Conservation Service.

Orme, A.R. 1972. *Toward a Shorezone Plan for Lake Tahoe*. Department of Geography, UCLA.

Plume, Russell W., Mary L. Tumbusch, and Toby L. Welborn. 2009. Hydrogeology of the Lake Tahoe Basin, California and Nevada. Scientific Investigations Map 3063, U.S. Geological Survey.

Roby, K., O'Neil-Dunne, J., Romsos, S., Loftis, W., MacFaden, S., Saah, D., 2015. *A Review of Stream Environment Zone Definitions, Field Delineation Criteria and Indicators, Classification Systems, and Mapping – Collaborative Recommendations for Stream Environment Zone Program Updates*. Spatial Informatics Group, LLC, Pleasanton, CA.

Saucedo, G.J., 2005, Geologic map of the Lake Tahoe basin, California and Nevada, 1:100,000 scale: California Geological Survey, Regional Geologic Map No. 4, scale 1:100000. Available: http://www.quake.ca.gov/gmaps/RGM/tahoe/tahoe.html Accessed March 26, 2014.

Schweickert, R. A.; M. M. Lahren; R. Karlin; J. Howle; K. Smith. 2000. Lake Tahoe Active Faults, Landslides, and Tsunamis. *GSA Field Guide* 2:1-21

Seitz, G. 2013. Limited investigation of seismic hazards of Lake Tahoe Basin; Dive Test in Support of WISSARD project. Report to the Alfred E. Alquist Seismic Safety Commission. Publication No. CSSC No. 14-02.

Seitz, G., and G. Kent. 2004. Closing the gap between on and offshore paleoseismic records in the Lake Tahoe Basin. Report on NEHRP External Grant Award No: 04HQGR007.

Seitz G.G., Kent G., Dingler J., Karlin R., Babcock J., Driscoll N., Turner R. 2005. First paleoseismic results from the Lake Tahoe Basin: Evidence for three M7 range earthquakes on the Incline Village fault: Seismological Society of America, Annual Meeting, 2005.

SGH. *See* Simpson, Gumpertz, and Heger.

Simpson, Gumpertz, and Heger. 2014. ASCE 61-14: A new seismic design standard for piers and wharves. A presentation by Gayle S. Johnson of SGH at the Prevention First Symposium, October 8, 2014, Long Beach, California.

Swanson. *See* Swanson Hydrology and Geomorphology.

Swanson Hydrology and Geomorphology. 2006. *Meeks Creek Watershed Ecosystem Assessment Report*. Prepared for USFS- Lake Tahoe Basin Management Unit.

Tahoe Regional Planning Agency. 2004 (July). Chapter 11, Soil Conservation. In *Lake Tahoe Shorezone Ordinance Amendments Draft EIS*. Stateline, NV.

———. 2021. (June 23). *Final 2019 Threshold Evaluation*.

TRPA. *See* Tahoe Regional Planning Agency.

U.S. Natural Resources Conservation Service. 2007. *Soil Survey of the Lake Tahoe Basin, California and Nevada*.

Section 3.8 Air Quality

California Air Pollution Control Officers Association. 2021. California Emissions Estimator Model Version 2020.4.0 Users Guide. Available: http://www.aqmd.gov/docs/default-source/caleemod/user-guide-2021/01_user-39-s-guide2020-4-0.pdf?sfvrsn=6. January 26, 2022.

California Air Resources Board. No Date. *Overview: Diesel Exhaust and Health*.

———. 2003. *HARP Users Guide*. Version 1.0. Sacramento, CA.

———. 2013. *California Almanac of Emissions and Air Quality – 2013 Edition*. Available: https://ww2.arb.ca.gov/our-work/programs/resource-center/technical-assistance/air-quality-and-emissions-data/almanac. Accessed January 26, 2022.

———. 2016. *Ambient Air Quality Standards*. Available: https://ww2.arb.ca.gov/sites/default/files/2020-03/aaqs2_0.pdf. Accessed January 26, 2022.

———. 2020a. EMFAC Off-Model Adjustment Factors for Carbon Dioxide (CO_2) Emissions to Account for the SAFE Vehicle Rule Part One and the Final SAFE Rule. Available: https://ww3.arb.ca.gov/msei/emfac_off_model_co2_adjustment_factors_06262020-final.pdf. Accessed January 26, 2022.

———. 2020b. Maps of State and Federal Area Designations. Available: https://ww2.arb.ca.gov/resources/documents/maps-state-and-federal-area-designations. Accessed January 26, 2022.

CAPCOA. *See* California Air Pollution Control Officers Association.

EDCAQMD. *See* El Dorado County Air Quality Management District.

El Dorado County Air Quality Management District. 2002. *Guide to Air Quality Assessment*, Chapter 3: Thresholds of Significance. Available: https://www.edcgov.us/Government/AirQualityManagement/documents/Chapter3_RF6.pdf. Accessed January 26, 2022.

EPA. *See* U.S. Environmental Protection Agency.

Governor's Office of Planning and Research. 2017. *General Plan Guidelines*. Available: https://opr.ca.gov/docs/OPR_COMPLETE_7.31.17.pdf. Accessed January 26, 2022.

Lake Tahoe Info. 2022. Evaluation Overview, Air Quality. Available: https://thresholds.laketahoeinfo.org/ThresholdCategory/Detail/AirQuality. Accessed April 19, 2022.

OEHHA. *See* Office of Environmental Health Hazard Assessment.

Office of Environmental Health Hazard Assessment. 2015. *Air Toxics Hot Spots Program - Guidance Manual for Preparation of Health Risk Assessments, Risk Assessment Guidelines*.

OPR. *See* Governor's Office of Planning and Research.

U.S. Environmental Protection Agency. 2021a. *Executive Order on Protecting Public Health and the Environmental and Restoring Science to Tackle the Climate Crisis*. Available: https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/20/executive-order-protecting-public-health-and-environment-and-restoring-science-to-tackle-climate-crisis/. Accessed January 26, 2022.

———. 2021b. Criteria Air Pollutants Homepage. Available: https://www.epa.gov/criteria-air-pollutants. Accessed January 26, 2022.

Section 3.9 Climate Change and Energy

CalEPA et al. *See* California Environmental Protection Agency, California Natural Resources Agency, California Department of Food and Agriculture, California Air Resources Board, and California Strategic Growth Council.

California Air Resources Board. 2017. *2017 California Climate Change Scoping Plan*. Available: https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/scoping_plan_2017.pdf. Accessed January 26, 2022.

———. 2018a. *2018 ZEV Action Plan*. Available: https://static.business.ca.gov/wp-content/uploads/2019/12/2018-ZEV-Action-Plan-Priorities-Update.pdf. Accessed January 26, 2022.

———. 2018b. *Technical Evaluation of the Greenhouse Gas Emissions Reduction Quantification for Tahoe Metropolitan Planning Organization/Tahoe Regional Planning Agency's SB 275 2017 Sustainable Communities Strategy*. Available: https://ww2.arb.ca.gov/sites/default/files/2020-06/Technical_Evaluation_of_the_GHG_Emissions_Reduction_Quantification_for_the_TMPO_SB_375_SCS_October_2018.pdf. Accessed May 23, 2022.

———. 2020a. EMFAC Off-Model Adjustment Factors for Carbon Dioxide (CO_2) Emissions to Account for the SAFE Vehicle Rule Part One and the Final SAFE Rule. Available: https://ww3.arb.ca.gov/msei/emfac_off_model_co2_adjustment_factors_06262020-final.pdf. Accessed January 26, 2022.

———. 2020b. California Greenhouse Gas Emission Inventory for 2000 to 2018. Available: https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2018/ghg_inventory_trends_00-18.pdf. Accessed January 26, 2022.

California Department of Transportation. 2008. 2007 *California Motor Vehicle Stock, Travel and Fuel Forecast*. Available: https://planning.lacity.org/eir/8150Sunset/References/6.0.%20Other%20CEQA%20Considerations/OTHER.03_2008%20California%20Motor%20Vehicle%20Stock,%20Travel%20and%20Fuel%20Forecast.pdf. Accessed July 21, 2021.

California Energy Commission. 2018 (March). 2019 Building Energy Efficiency Standards: Frequently Asked Questions. Available: https://www.energy.ca.gov/sites/default/files/2020-03/Title_24_2019_Building_Standards_FAQ_ada.pdf. Accessed January 26, 2022.

———. 2020. 2019 Power Content Label Liberty Utilities CalPeco Electric LLC. Available: https://www.energy.ca.gov/filebrowser/download/3238. Accessed July 26, 2021.

———. 2021a. 2019 Total System Electric Generation. Available: https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2020-total-system-electric-generation/2019. Accessed May 31, 2022.

———. 2021b. *CEC-A15 Results and Analysis*. Available: https://www.energy.ca.gov/media/3874. Accessed July 26, 2021.

California Environmental Protection Agency, California Natural Resources Agency, California Department of Food and Agriculture, California Air Resources Board, and California Strategic Growth Council. 2019 (January). *Draft*

California 2030 Natural and Working Lands Climate Change Implementation Plan. Available: https://ww2.arb.ca.gov/sites/default/files/2020-10/draft-nwl-ip-040419.pdf. Accessed January 26, 2022.

California Natural Resources Agency. 2018. *Safeguarding California Plan: 2018 Update*. Available: https://resources.ca.gov/CNRALegacyFiles/docs/climate/safeguarding/update2018/safeguarding-california-plan-2018-update.pdf. Accessed May 31, 2022.

CARB. *See* California Air Resources Board.

CNRA. *See* California Natural Resources Agency.

EIA. *See* U.S. Energy Information Agency.

EPA. *See* U.S. Environmental Protection Agency.

European Commission Joint Research Centre. 2018 (March 16). *Climate Change Promotes the Spread of Mosquito and Tick-Borne Viruses*. Available: https://www.sciencedaily.com/releases/2018/03/180316111311.htm. Accessed February 13, 2020.

Governor's Office of Planning and Research, California Energy Commission, and California Natural Resources Agency. 2018. California's Fourth Climate Change Assessment. Available: https://www.energy.ca.gov/sites/default/files/2019-11/Statewide_Reports-SUM-CCCA4-2018-013_Statewide_Summary_Report_ADA.pdf. Accessed March 4, 2022.

OPR et al. *See* Governor's Office of Planning and Research, California Energy Commission, and California Natural Resources Agency.

Intergovernmental Panel on Climate Change. 2013. Chapter 6, Carbon and Other Biogeochemical Cycles. Pages 465–570 in *Climate Change 2013: The Physical Science Basis. Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Available: http://www.climatechange2013.org/images/report/WG1AR5_ALL_FINAL.pdf. Accessed January 26, 2022.

———. 2014. *Fifth Assessment Report*. Available: https://www.ipcc.ch/site/assets/uploads/2018/02/SYR_AR5_FINAL_full.pdf. Accessed January 26, 2022.

Lister, B. C., and A. Garcia. 2018. Climate-Driven Declines in Arthropod Abundance Restructure a Rainforest Food Web. Available: https://www.pnas.org/content/pnas/115/44/E10397.full.pdf. Accessed March 14, 2022.

National Oceanic and Atmospheric Administration. 2022. 2021 Was World's 6th-Warmest Year on Record. Available: https://www.noaa.gov/news/2021-was-worlds-6th-warmest-year-on-record. Accessed May 31, 2022.

NOAA. *See* National Oceanic and Atmospheric Administration.

OPR. *See* Governor's Office of Planning and Research.

Tahoe Regional Planning Agency. 2013. *Sustainability Action Plan: A Sustainability Action Toolkit for Lake Tahoe*. Available: https://www.trpa.gov/wp-content/uploads/documents/archive/Final-Sustainability-Action-Plan_FINAL.pdf. Accessed January 26, 2022.

———. 2021. *Regional Transportation Plan*. https://www.trpa.gov/wp-content/uploads/documents/2020-RTP-FINAL.pdf. Accessed January 26, 2022.

Tahoe Regional Planning Agency, Sierra Business Council, Spatial Informatics Group, and California Tahoe Conservancy. 2021. *Lake Tahoe Greenhouse Gas Inventory Update.* Available: https://www.trpa.gov/wp-content/uploads/documents/TRPA-GHG-Inventory-Report-with-appendices.pdf. Accessed May 31, 2022.

TRPA. *See* Tahoe Regional Planning Agency.

TRPA et al. *See* Tahoe Regional Planning Agency, Sierra Business Council, Spatial Informatics Group, and California Tahoe Conservancy.

U.S. Energy Information Agency. 2022. California Profile Overview: California Energy Consumption by End-Use Sector, 2019 [chart]. Available: https://www.eia.gov/state/?sid=CA#tabs-2. Accessed May 31, 2022.

U.S. Environmental Protection Agency. 2021a. *Executive Order on Protecting Public Health and the Environmental and Restoring Science to Tackle the Climate Crisis*. Available: https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/20/executive-order-protecting-public-health-and-environment-and-restoring-science-to-tackle-climate-crisis/. Accessed January 26, 2022.

———. 2021b. Proposal: Affordable Clean Energy (ACE) Rule. Last Updated March 3, 2021. Available: https://www.epa.gov/stationary-sources-air-pollution/proposal-affordable-clean-energy-ace-rule. Accessed January 26, 2022.

Wade, Samuel. Branch chief. Transportation Fuels Branch, Industrial Strategies Division, California Air Resources Board, Sacramento, CA. June 30, 2017—e-mail to Austin Kerr of Ascent Environmental regarding whether the Low Carbon Fuel Standard applies to fuels used by off-road construction equipment.

Section 3.10 Public Safety and Hazards

Almos, Greg. Deputy Sheriff. El Dorado County Sheriff’s Office, Placerville, CA. January 18, 2018—telephone discussion with Angela Xiong of Ascent Environmental regarding emergency response capacity at Lake Tahoe.

Ascent Environmental. 2022. *Historic Resource Evaluation Report for the Meeks Bay Restoration Project*. Prepared for Tahoe Regional Planning Agency.

Baxter, Michelle. Lieutenant. Placer County Sheriff’s Office, Auburn, CA. February 27, 2018—telephone discussion with Angela Xiong of Ascent Environmental regarding emergency response capacity at Lake Tahoe.

Bello, Michelle. Sergeant. Washoe County Sheriff’s Office, Reno, NV. February 5, 2018—telephone discussion with Angela Xiong of Ascent Environmental regarding emergency response capacity at Lake Tahoe.

Bieber, Shane. United States Coast Guard, Tahoe City, CA. January 19, 2018—telephone discussion with Angela Xiong of Ascent Environmental regarding emergency response capacity at Lake Tahoe.

Brown, Bryan. Lieutenant. El Dorado County Sheriff’s Office. June 10, 2021—email to Jessica Mitchell of Ascent Environmental regarding law enforcement services near Meeks Bay.

CAL FIRE. *See* California Department of Forestry and Fire Protection.

CAL FIRE et al. *See* California Department of Forestry and Fire Protection, California State Parks, California Tahoe Conservancy, Fallen Leaf Fire Department, Lake Valley Fire Protection District, Meeks Bay Fire Protection District, Nevada Division of Forestry, Nevada Division of State Lands, Nevada Division of State Parks, Nevada Tahoe Resource Team, North Lake Tahoe Fire Protection District, North Tahoe Fire Protection District, South Lake Tahoe Fire Department, Tahoe Douglas Fire Protection District, Tahoe Regional Planning Agency, and United States Department of Agriculture Forest Service.

California Department of Forestry and Fire Protection. 2007 (January). *Guidelines for Fire Hazard Zoning Review and Validation*.

———. 2009 (March). El Dorado County. Available: https://osfm.fire.ca.gov/media/6668/fhszl_map9.pdf. Accessed August 5, 2021.

California Department of Forestry and Fire Protection, California State Parks, California Tahoe Conservancy, Fallen Leaf Fire Department, Lake Valley Fire Protection District, Meeks Bay Fire Protection District, Nevada Division of Forestry, Nevada Division of State Lands, Nevada Division of State Parks, Nevada Tahoe Resource Team, North Lake Tahoe Fire Protection District, North Tahoe Fire Protection District, South Lake Tahoe Fire Department, Tahoe Douglas Fire Protection District, Tahoe Regional Planning Agency, and United States Department of Agriculture Forest Service. 2014 (August). *Lake Tahoe Basin Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy*.

———. 2017 (April). *Amendment to the 2014 Lake Tahoe Basin Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy*.

California Department of Industrial Relations. 2021. Asbestos Information. Available: https://www.dir.ca.gov/dosh/acru/acruinfo.htm. Accessed August 11, 2021.

California Department of Toxic Substances Control. 2016 (October). 2016 DTSC-Caltrans Soil Management Agreement for Aerially Deposited Lead-Contaminated Soils, FAQs. Available: https://dtsc.ca.gov/dtsc-caltrans-sma-faqs/#easy-faq-348202. Accessed August 11, 2021.

———. 2021. Envirostor Database. Available: https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=Search. Accessed August 11, 2021.

California State Parks, California Tahoe Conservancy, and Tahoe Regional Planning Agency. 2018 (May). *Kings Beach State Recreation Area Preliminary General Plan Revision and Draft Environmental Impact Report/Kings Beach Pier Rebuild Project Draft Environmental Impact Report/Environmental Impact Statement*, Section 5.3.11 Recreation.

California Tahoe Conservancy. 2019 (August). *Lake Tahoe Basin Forest Action Plan*.

City of South Lake Tahoe. 2021. Emergency Evacuation Zones website. Available: https://cslt.maps.arcgis.com/apps/webappviewer/index.html?id=d19f32ce62f241819b781f37482cbf1a. Accessed August 6, 2021.

Dougherty, Kathleen. Police Records Supervisor. City of South Lake Tahoe Police Department, South Lake Tahoe, CA. January 18, 2018—telephone discussion with Angela Xiong of Ascent Environmental regarding emergency response capacity at Lake Tahoe.

DTSC. *See* California Department of Toxic Substances Control.

El Dorado County. 2018 (July). *El Dorado County Local Hazard Mitigation Plan*. Available: https://www.edcgov.us/Government/sheriff/Documents/ElDoradoCounty_LHMP.pdf. Accessed August 6, 2021.

EPA. *See* U.S. Environmental Protection Agency.

Google. 1969. Historic Aerial of Meeks Marina. Accessed August 11, 2021.

Lahontan Regional Water Quality Control Board. 2017 (March). Adoption of Settlement Agreement and Stipulation for Entry of Administrative Civil Liability Order No. R6T-2016-0063, Action Motorsports of Tahoe, Inc., Meeks Bay Marina, El Dorado County.

Lahontan RWQCB. *See* Lahontan Regional Water Quality Control Board.

Lake Tahoe Basin Management Unit. 2011 (August). Section 106 Consultation on the National Register of Historic Places Eligibility for the Meeks Bay Resort, Site No. 05-19-1283, Forest Service Project No. TB-2011-10, Event No. R2011051900056. Meeks Bay, Lake Tahoe, El Dorado County, California. Prepared by Foothill Resources, Ltd.

Lake Tahoe Info. 2021a. State Route 89 Water Quality Improvement Project - Eagle Falls Viaduto Meeks Creek. Available: https://eip.laketahoeinfo.org/Project/FactSheet/01.01.01.0008. Accessed August 11, 2021.

———. 2021b. Meeks Bay Highway Corridor BMPs. Available: https://eip.laketahoeinfo.org/Project/FactSheet/01.01.01.0075. Accessed August 11, 2021.

LTBMU. *See* Lake Tahoe Basin Management Unit.

LT Info. *See* Lake Tahoe Info.

MBFPD and NTFPD. *See* Meeks Bay Fire Protection District and North Tahoe Fire Protection District.

McNamara, Steve. Division Chief. North Tahoe Fire Protection District. September 24, 2020—email to Austin McInerny, Senior Facilitator at Consensus Building Institute, regarding Meeks Bay Fire Protection District emergency response data.

———. June 1, 2021a—email to Jessica Mitchell of Ascent Environmental regarding existing conditions for emergency services and response at Meeks Bay.

———. June 3, 2021b—email to Jessica Mitchell of Ascent Environmental regarding emergency response procedures.

Meeks Bay Fire Protection District and North Tahoe Fire Protection District. 2020 (December). *Meeks Bay Restoration Public Safety Considerations*. Presentation to stakeholders.

NLTFPD. *See* North Lake Tahoe Fire Protection District.

North Lake Tahoe Fire Protection District. 2021 (July). *North Lake Tahoe Fire Protection District Takes Delivery of a New Rescue Boat Thanks to the Dave & Cheryl Duffield Foundation*. Available: https://www.nltfpd.org/news/north-lake-tahoe-fire-protection-district-takes-delivery-of-a-new-rescue-boat-thanks-to-the-dave-cheryl-duffield-foundation-1. Accessed August 12, 2021.

North Tahoe Fire Protection District. 2021. *About Us*. Available: https://www.ntfire.net/about-us. Accessed August 15, 2021.

North Tahoe Fire Protection District and Meeks Bay Fire Protection District. 2018. *Standards of Coverage and Deployment Plan*. Available: https://meeksbayfire.specialdistrict.org/files/a0f2a9894/Standards+of+Coverage+2018.pdf. Accessed August 6, 2021.

———. 2021. Emergency Preparedness and Evacuation Guide. Available: https://a1a57985-b06a-4ce2-980f-c62ebe0e4c45.filesusr.com/ugd/35dc29_c6b4469186844da481e80b6d8f974099.pdf. Accessed August 6, 2021.

NTFPD. *See* North Tahoe Fire Protection District.

NTFPD and MBFPD. *See* North Tahoe Fire Protection District and Meeks Bay Fire Protection District.

Placer County. 2015 (March). *Placer Operational Area East Side Emergency Evacuation Plan*.

Sibr, Ashley. Acting Planning Staff Officer. USDA Forest Service, Lake Tahoe Basin Management Unit. June 17, 2021—email to Tiffany Lunday of Ascent Environmental regarding the Forest Service fire station near Meeks Bay.

Skibinski, Ronald. Deputy Sheriff. Douglas County Sheriff's Office, Minden, NV. February 6, 2018—telephone discussion with Angela Xiong of Ascent Environmental regarding emergency response capacity at Lake Tahoe.

State Water Resources Control Board. 2021. Geotracker, Meeks Bay Resort (T0601700111). Available: https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=lake+tahoe%2C+ca#. Accessed August 13, 2021.

SWRCB. *See* State Water Resources Control Board.

Tahoe Douglas Fire Protection District. 2021. *Water Rescue*. Available: https://tahoefire.org/services/water-rescue. Accessed August 12, 2021.

Tahoe Fire and Fuels Team. 2015 (August). *Lake Tahoe Basin Community Wildfire Protection Plan*.

Tahoe Regional Planning Agency. 2014. *Best Management Practices Handbook*.

———. 2021. Code of Ordinances. Adopted by TRPA on December 12, 2012; reflects amendments through September 29, 2021.

Tahoe Regional Planning Agency, Tahoe Transportation District, and USDA Forest Service. 2019 (May). *SR 89 Corridor Management Plan Existing Conditions Summary Report*.

———. 2020 (September). *SR 89 Corridor Management Plan*.

TDFPD. *See* Tahoe Douglas Fire Protection District.

TFFT. *See* Tahoe Fire and Fuels Team.

TRPA. *See* Tahoe Regional Planning Agency.

TRPA et al. *See* Tahoe Regional Planning Agency, Tahoe Transportation District, and USDA Forest Service.

U.S. Environmental Protection Agency. 2019. *Protect Your Family from Exposures to Lead*. Available: https://www.epa.gov/lead/protect-your-family-sources-lead. Accessed August 11, 2021.

U.S. Forest Service. 2016 (July). *Land Management Plan (Forest Plan), Lake Tahoe Basin Management Unit*.

USFS. *See* U.S. Forest Service.

Section 3.11 Noise

California Department of Transportation. 2013 (September). *Technical Noise Supplement.* California Department of Transportation Division of Environmental Analysis. Sacramento, CA. Prepared by ICF Jones & Stokes.

———. 2017. *Caltrans 2017 Traffic Volumes*. Available: https://dot.ca.gov/programs/traffic-operations/census/traffic-volumes/2017. Accessed October 25, 2021.

———. 2020 (April). *Transportation and Construction Vibration Guidance Manual*. Sacramento, CA: Noise, Division of Environmental Analysis. Sacramento, CA.

Caltrans. *See* California Department of Transportation

Federal Highway Administration. 2004. Traffic Noise Model, Version 2.5. Available for download at https://www.fhwa.dot.gov/environment/noise/traffic_noise_model/purchasing_tnm/. Accessed April 4, 2017.

———. 2006 (January). *Roadway Construction Noise Model User's Guide*. Washington, D.C. Prepared by the Research and Innovative Technology Administration, Cambridge, MA.

Federal Transit Administration. 2006. *Transit Noise and Vibration Impact Assessment*. Washington, D.C. Available: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA_Noise_and_Vibration_Manual.pdf. Accessed April 4, 2017.

FHWA. *See* Federal Highway Administration.

FTA. *See* Federal Transit Administration.

Lake Tahoe Info. 2022. Threshold Dashboard, Single Noise Events. Available: https://thresholds.laketahoeinfo.org/ThresholdReportingCategory/Detail/SingleNoiseEvents. Accessed February 10, 2022.

Tahoe Regional Planning Agency. 2002 (May). PAS 150 Meeks Bay. Available: https://www.trpa.gov/wp-content/uploads/documents/archive/2/150.pdf. Accessed February 10, 2022.

———. 2012. *2012 Adopted Regional Plan*. Available: https://www.trpa.gov/wp-content/uploads/documents/archive/Adopted-Regional-Plan_20180306_Clean.pdf. Accessed January 28, 2022.

———. 2014 (May). *TRPA Best Management Practice Handbook*. Available: https://tahoebmp.org/Documents/BMPHandbook/BMP_Handbook.pdf.

———. 2019 (March). Attachment S Standard Conditions of Approval for Shorezone Projects. Available: https://www.trpa.gov/wp-content/uploads/documents/archive/Attachment_S_Standard_Conditions_Shorezone_Projects.pdf. Accessed February 10, 2022.

———. 2021. TRPA Code of Ordinances. Adopted by TRPA on December 12, 2012; reflects amendments through September 29, 2021.

———. 2022. Attachment Q Standard Conditions of Approval for Grading Projects. Available: https://www.trpa.gov/wp-content/uploads/documents/archive/Attachment_Q_Standard_Conditions_Grading.pdf. Accessed February 10, 2022.

TRPA. See Tahoe Regional Planning Agency.

Section 3.12 Transportation and Circulation

California Department of Transportation. 2019 (March). Traffic Safety Systems Guidance. Available: https://dot.ca.gov/-/media/dot-media/programs/safety-programs/documents/safety-devices/f0018639-traffic-safety-systems-guidance-a11y.pdf.

Caltrans. *See* California Department of Transportation.

El Dorado County Fire Protection Officers. 2009a (May). 2009 (May). El Dorado County Regional Fire Protection Standard. Standard #B-003: Emergency Apparatus Access Ways. Available: http://pioneerfire.org/wp-content/uploads/2018/06/Emergency_Access_Ways_B003_050509.pdf.

———. 2009b. El Dorado County Regional Fire Protection Standard. Standard #G-001: Fire Department Access During Construction. Available: http://pioneerfire.org/wp-content/uploads/2018/06/Fire_Department_Access_During_Construction_G001_052709.pdf.

Governor's Office of Planning and Research. 2018 (December). Technical Advisory on Evaluating Transportation Impacts in CEQA. Available: http://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf. Accessed July 1, 2021.

OPR. *See* Governor's Office of Planning and Research.

Tahoe Regional Planning Agency. 2018 (October). Linking Tahoe: Active Transportation Plan (Technical Amendment). Available: https://www.trpa.gov/wp-content/uploads/documents/archive/2/2018_ATP_Technical_Amendment_1_FINAL.pdf. Accessed October 19, 2021.

———. 2021a (September). Code of Ordinances. Available: https://www.trpa.gov/wp-content/uploads/documents/TRPA-Code-of-Ordinances-2.pdf. Accessed January 27, 2022.

———. 2021b (June). Project Impact Assessment Guidelines. Available: https://www.trpa.gov/wp-content/uploads/documents/PIA-Guidelines-Draft.pdf. Accessed October 19, 2021.

———. 2021c (April). Regional Transportation Plan. Available: https://www.trpa.gov/wp-content/uploads/documents/2020-RTP-FINAL.pdf. Accessed October 18, 2021.

Tahoe Regional Planning Agency, Tahoe Transportation District, and USDA Forest Service. 2020 (September). SR-89 Corridor Management Plan. Available: https://www.trpa.gov/wp-content/uploads/documents/archive/Final-State-Route-89-Recreation-Corridor-Management-Plan.pdf.

TRPA. *See* Tahoe Regional Planning Agency.

TRPA et al. *See* Tahoe Regional Planning Agency, Tahoe Transportation District, and USDA Forest Service.

Section 3.13 Land Use

Tahoe Regional Planning Agency. 2002 (May). PAS 150 Meeks Bay. Available: https://www.trpa.gov/wp-content/uploads/documents/archive/2/150.pdf. Accessed February 10, 2022.

Chapter 4 Other Sections Required by Statute

No references were used in this section.