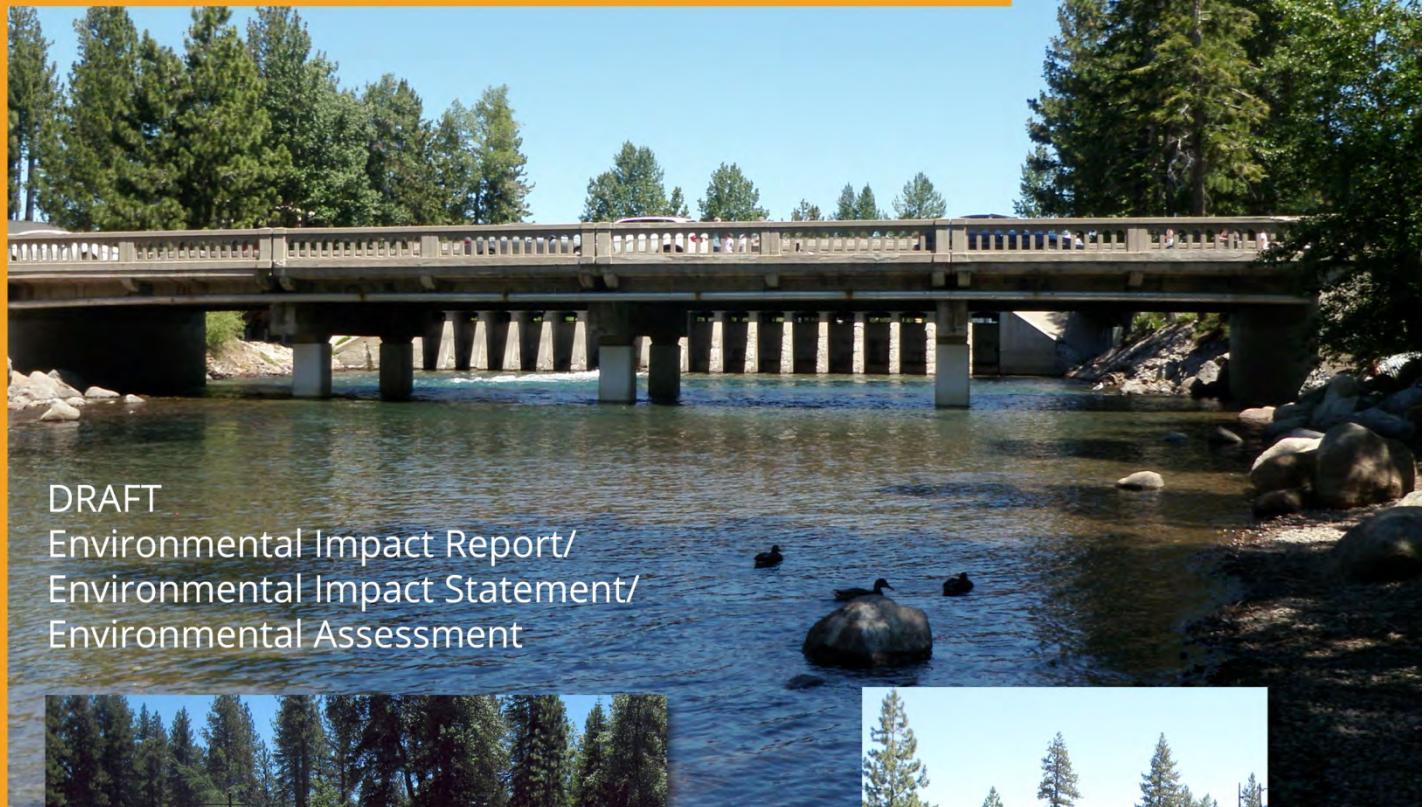


State Route 89 / Fanny Bridge Community Revitalization Project

CA SCH No. 2011122013



DRAFT
Environmental Impact Report/
Environmental Impact Statement/
Environmental Assessment



December 2014



Federal Highway
Administration

State Route 89/Fanny Bridge Community Revitalization Project

Draft Environmental Impact Report / Environmental Impact Statement / Environmental Assessment

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State Route 89/Fanny Bridge Revitalization Project

ENVIRONMENTAL ASSESSMENT

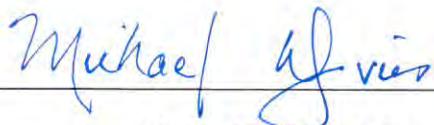
Submitted Pursuant to:
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Federal Highway Administration
Central Federal Lands Highway Division

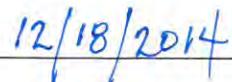
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ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheit
µg/m³	micrograms per cubic meter
µin/sec	micro inch per second
2035 RTP	<i>Mobility 2035: Lake Tahoe Regional Transportation Plan</i>
AADT	annual average daily traffic
AASHTO	American Association of State Highway and Transportation Officials
AB	Assembly Bill
ACHP	Advisory Council on Historic Preservation
ADL	Aerially Deposited Lead
ADT	average daily traffic
af	acre-feet
afy	acre-feet per year
APCO	Air Pollution Control Officer
APE	area of potential effect
APS	Alternative Planning Strategy
ARB	California Air Resources Board
AST	aboveground storage tank
ASTM	American Society for Testing and Materials
Basin	Lake Tahoe Basin
Basin Plan	Water Quality Control Plan for the Lahontan Region
bgs	below the ground surface
BMP	best management practices
BP	before present
BPP	Lake Tahoe Bicycle and Pedestrian Plan
CAA	Clean Air Act
CAAA	Clean Air Act Amendments of 1990
CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
CAL FIRE	California Department of Forestry and Fire Protection
CalARP	California Accidental Release Prevention
CalEPA	California Environmental Protection Agency
Cal-OSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CAP	criteria air pollutant
CBC	California Building Standards Code
CCAA	California Clean Air Act
CCAT	California Climate Action Team
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife

CDP	census data places
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFLHD	Central Federal Lands Highway Division
CFR	Code of Federal Regulations
cfs	cubic feet per second
CH ₄	methane
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CNRA	California Natural Resources Agency
CO	carbon monoxide
CO ₂	carbon dioxide
CPRR	Central Pacific Railroad
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CTC	California Tahoe Conservancy
CWA	Clean Water Act
dB	decibels
dBA	A-weighted decibels
dbh	diameter at breast height
DHS	California Department of Health Services
DOC	California Department of Conservation
DOT	U.S. Department of Transportation
DTSC	California Department of Toxic Substances Control
DVTE	daily vehicle trip ends
DWR	California Department of Water Resources
EA	Environmental Assessment
EIP	Environmental Improvement Program
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning Community Right-to-Know Act
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHSZ	Fire Hazard Severity Zones
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Maps
FMP	Forest Management Plan
Forest Plan	Land and Resource Management Plan
FPA	Z'Berg-Nejedly Forest Practice Act

FPR	California Forest Practice Rules
FTA	Federal Transit Administration
FTIP	Federal Transportation Improvement Program
Fuel Reduction Strategy	Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy for the Lake Tahoe Region
GHG	greenhouse gas
GWP	global warming potential
HAP	hazardous air pollutants
HEPA	High Efficiency Particulate Air
HFC	hydrofluorocarbon
Hz	hertz
I-80	Interstate 80
IEC	TRPA Initial Environmental Checklist
IPCC	Intergovernmental Panel on Climate Change
km	kilometers
KOP	Key Observation Point
lb/day	pounds per day
LCD	land capability districts
LCT	Lahontan cutthroat trout
L _{den}	Day-Evening-Night Level
L _{dn}	Day-Night Level
L _{eq}	Equivalent Continuous Sound Level
LID	Low Impact Development
L _{max}	Maximum Sound Level
LOS	level of service
LPF	Linear Public Facilities
LRMP	Land and Resource Management Plan
LTAB	Lake Tahoe Air Basin
LTBMU	Lake Tahoe Basin Management Unit
LTGRP	Lake Tahoe Geographic Response Plan
LTR&T Co.	Lake Tahoe Railway and Transportation Company
L _{xx}	Percentile-Exceeded Sound Level
MCL	maximum contaminant level
mg/L	milligrams per liter
mgd	million gallons per day
Mm ⁻¹	inverse mega meters
MMT	million metric tons
MMT CO ₂ e/yr	million metric tons carbon dioxide equivalent per year
MOU	Memorandum of Understanding
mPa	micro-Pascals

MRF	Eastern Regional Landfill Materials Recovery Facility
MS4s	municipal separate storm sewer systems
MSIO	Minimum Scenic Integrity Objective
MT	metric tons
MTBE	methyl-tertiary butyl ether
N ₂ O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAC	noise abatement criteria
NAHC	Native American Heritage Commission
National System	National Wild and Scenic Rivers System
NCIC	Northern California Information Center
NEHRP	National Earthquake Hazards Reduction Program
NEPA	National Environmental Policy Act
NESHAP	national emissions standards for HAPs
NFIP	National Flood Insurance Program
NFMA	National Forest Management Act
NFS	National Forest Service
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NMFS	National Marine Fisheries Service
NO ₂	nitrogen dioxide
NOP	Notice of Preparation
NO _x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSEF	North Shore Export Facility
NTS	National Trails System
NTSA	National Trails System Act
NTU	Nephelometric Turbidity Unite
NVUM	National Visitor Use Monitoring
NWP	nationwide permit
OEHHA	Office of Environmental Health Hazard Assessment
ONRW	Outstanding National Resource Water
PAOT	persons at one time
PAS	Plan Area Statement
PCAPCD	Placer County Air Pollution Control District
PCB	Polychlorinated biphenyl
PCTPA	Placer County Transportation Planning Agency
PFCs	perfluorocarbons
PM ₁₀	respirable particulate matter
PM _{2.5}	fine particulate matter
Porter-Cologne Act	Porter-Cologne Water Quality Control Act of 1969

ppb	parts per billion
ppm	parts per million
PPV	peak particle velocity
PRC	Public Resources Code
PSD	Prevention of Significant Deterioration
RCRA	Resource Conservation and Recovery Act
REC	Recognized environmental condition
Regional Plan	Tahoe Regional Planning Agency Regional Plan
RMS	root-mean-square
ROD	Record of Decision
ROS	recreational opportunity spectrum
ROW	right-of-way
RTAC	Regional Targets Advisory Committee
RTP	Lake Tahoe Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SARA	Superfund Amendments and Reauthorization Act
SB	Senate Bill
SCS	Sustainable Communities Strategy
SEZ	Stream environment zone
SF ₆	sulfur hexafluoride
SGC	California Strategic Growth Council
SHPO	State Historic Preservation Officer
SIP	state implementation plan
SNFPA	Sierra Nevada Forest Plan Amendment
SO ₂	sulfur dioxide
SPL	sound pressure level
SQIP	Scenic Quality Improvement Plan
SR	State Route
SRA	State Responsibility Area
SWPPP	storm water pollution prevention plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TAP	Travel Analysis Process
TCCP	Tahoe City Community Plan
TCP	Timberland Conversion Permit
TCPUD	Tahoe City Public Utility District
THP	Timber Harvest Plan
TMDL	total maximum daily load
TMPO	Tahoe Metropolitan Planning Organization
TPY	tons per year
TPZ	timberland production zone
TRI	Truckee River Interceptor

TROA	Truckee River Operating Agreement
TRPA	Tahoe Regional Planning Agency
TRT	Tahoe Rim Trail
TTD	Tahoe Transportation District
T-TSA	Tahoe-Truckee Sanitation Agency
TTSDC	Tahoe-Truckee Sierra Disposal Company, Inc.
TTUSD	Tahoe Truckee Unified School District
UDP	Tahoe City Urban Development Plan
Unified Program	Unified Hazardous Waste and Hazardous Materials Management Regulatory Program
USACE	U.S. Army Corps of Engineers
USC	US Code
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
VdB	vibration decibels
VIA	<i>Visual Impact Assessment; State Route 89/Fanny Bridge Community Revitalization Project</i>
VIS	visitor information services
VMT	vehicle miles traveled
VQO	visual quality objective
WSRA	Wild and Scenic Rivers Act

1 INTRODUCTION

1.1 BACKGROUND

The Tahoe Transportation District (TTD), Tahoe Regional Planning Agency (TRPA), and Federal Highway Administration (FHWA) are proposing improvements to resolve the existing and future traffic congestion at the wye intersection of State Route (SR) 28 and SR 89, enhance multi-modal options, improve safety and access, and address the long-term structural integrity of the Truckee River Bridge #19-0033 (locally known as “Fanny Bridge”). The SR 89/Fanny Bridge Community Revitalization Project is located in Tahoe City, Placer County, California. The project site includes approximately 0.7 mile of SR 28 and 0.6 mile of SR 89. The proposed improvements are designed to enhance motorized and non-motorized mobility, reduce traffic congestion, accommodate anticipated future increases in traffic, increase access across the Truckee River, address existing pedestrian and traffic safety concerns, and encourage revitalization of the local Tahoe City community.

Addressing seasonal traffic congestion problems around the wye and Fanny Bridge has long been a concern of TTD, TRPA, Caltrans, and Placer County, as well as residents, business owners, and visitors. Although traffic management strategies have been implemented, congestion has remained at a level that can only be addressed through physical improvements that enhance traffic flow, better accommodate pedestrians and bicyclists, and facilitate on-time performance of transit service. Specifically, an approach is needed to separate vehicular traffic from the heaviest areas of tourist pedestrian activity and address vehicular conflicts. Realignment of SR 89 in the area is identified as part of the TRPA Regional Plan, Tahoe Metropolitan Planning Organization (TMPO) Regional Transportation Plan, TRPA Environmental Improvement Program, the Caltrans State Route 89 Transportation Corridor Concept Report, and Tahoe City Community Plan adopted by both TRPA and Placer County.

This is a joint document proposed by TTD, TRPA, and the FHWA Central Federal Lands Highway Division (CFLHD). TTD is the lead agency for the Environmental Impact Report (EIR), pursuant to the California Environmental Quality Act (CEQA) (Public Resource Code Section 21000 et. seq.). TRPA is the lead agency for the TRPA Environmental Impact Statement (EIS) under the Tahoe Regional Planning Compact, Code of Ordinances, and Rules of Procedure. CFLHD is the lead agency for the Environmental Assessment (EA) under the National Environmental Policy Act (NEPA) and Council on Environmental Quality’s Regulations Implementing NEPA.

This project is included in the TMPO 2013 Federal Transportation Improvement Program (FTIP) list. It is also considered to be a fiscally constrained project of the Tahoe Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), adopted in December 2012. “Fiscally constrained” means that the costs of the proposed projects, over the 23-year plan horizon of the RTP, are within the reasonably foreseeable revenues of that period and, therefore, the project is prioritized for implementation. The RTP includes a baseline forecast of federal, state, and local funding, which are intended to reflect what has historically been available from these sources, with inflation factors from zero to 2.5 percent, depending on the revenue source (TMPO and TRPA 2012). In 2013, the project was selected and programmed for construction funding through the Federal Lands Access Program in Fiscal Year 2016, if a preferred alternative is approved by the lead agencies following the environmental review process.

The RTP/SCS was approved based on the environmental analysis in a CEQA EIR and TRPA EIS that was prepared as a program environmental document for the entire plan of transportation projects, including the Fanny Bridge/SR 89 Community Revitalization Project. The RTP/SCS EIR/EIS is incorporated by reference into this document for the purpose of relying on cumulative and region-wide impact analysis that has already been prepared and presented in the certified program EIR, in accordance with CEQA Guidelines Section

15168, and in the certified TRPA EIS. Please refer to Chapter 5, “Cumulative Impacts,” for further explanation about the relationship between the analysis in this EIR/EIS/EA and the RTP/SCS EIR/EIS.

The design concept and scope of the proposed project and the action alternatives considered in this environmental document are consistent with the project description in the 2012 RTP.

1.1.1 Project Location

The project site is located at the SR 28/SR 89 intersection in Tahoe City in eastern Placer County along a reach of the Truckee River just below the Lake Tahoe Dam. Fanny Bridge consists of one 12-foot lane in each direction with a 5-foot shoulder on the west side and a 3-foot shoulder and 5-foot sidewalk on the east side. Fanny Bridge is part of the main artery for vehicles, cyclists, and pedestrians between Lake Tahoe’s West Shore and Tahoe City or Truckee, serving many popular recreation destinations, such as Alpine Meadows Ski Rest, Homewood Mountain Resort, Squaw Valley USA, and large tracts of National Forest System Lands. It is currently the only vehicular bridge crossing of the Truckee River that provides access to the West Shore from the north. Exhibit 1-1 provides a regional view of the project location.

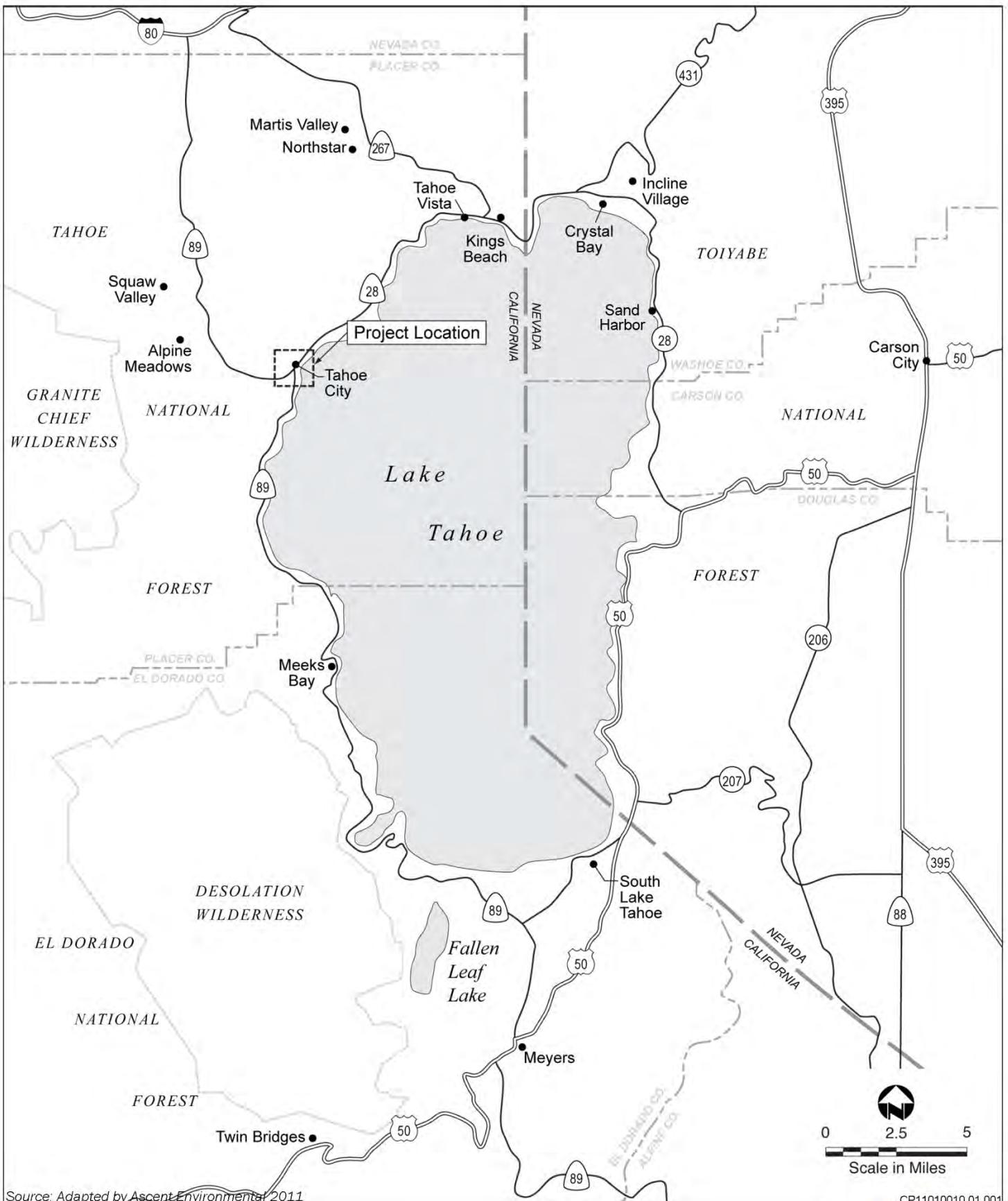
The study area for this EIR/EIS/EA, within which the project site is located, is generally defined by the following boundary points (see Exhibit 3-1):

- ▲ SR 89 just north of its intersection with Fairway Drive.
- ▲ SR 89 just south of its intersection with Granlibakken Road.
- ▲ SR 28 just east of its intersection with SR 89.
- ▲ Western property line of public land known as the 64-Acre Tract.

1.1.2 Project Area Description

SR 89 in the Tahoe City area is primarily a two-lane roadway built to rural design standards. At the southwest end of the Tahoe City commercial area, SR 89 intersects with SR 28 at a signalized intersection locally referred to as the Tahoe City wye. To the west of this intersection, the SR 89 alignment follows the Truckee River, and turns north to provide access to the Squaw Valley and Alpine Meadows ski areas, Town of Truckee, and Interstate 80 (I-80). The I-80/SR 89 route is highly used for ingress and egress to and from the Lake Tahoe Basin and is an important gateway to the North Shore and West Shore of the lake. To the south, SR 89 provides access to Lake Tahoe’s West Shore, Emerald Bay, and City of South Lake Tahoe. To the east, SR 28 provides access to Lake Tahoe’s North Shore communities including Tahoe City and Kings Beach in California, and to Incline Village in Nevada.

Just to the south of the wye, SR 89 crosses the Truckee River on Fanny Bridge. Based on 2012 Caltrans count data, SR 89, just south of Fanny Bridge experiences an average daily traffic of approximately 22,300 vehicles during the summer peak season. Based on the review of bike path counts conducted by TRPA in 2009, the bridge is also subject to high levels of pedestrian and bicycle activity (approximately 400 persons per hour) traveling across/along the bridge during the peak summer season. High levels of pedestrian and bicycle activity is generated in large part because the narrow sidewalk on the east side of the bridge is the best place for views of the Lake Tahoe dam and a common congregation of large fish in the river just upstream of the bridge. Fanny Bridge does not include a bicycle lane or multi-use path facilities, although regular bicycle use of the bridge occurs. Separated, multi-use trails are present near the bridge on adjacent and nearby public land, including a property managed by the U. S. Forest Service locally known as the “64-Acre Tract.” Downstream of Fanny Bridge is a pedestrian/ bicycle bridge crossing the Truckee River that is part of the Tahoe Rim Trail. The Lakeside Trail network, which extends from Dollar Hill to Tahoe City, crosses just upstream of the dam on the south side of Fanny Bridge. In its entirety, the TCPUD trail network consists of 23 miles of trail extending from Dollar Hill through Tahoe City to Sugar Pine Point to the south and Squaw Valley/Olympics Valley to the northwest and is one of the most heavily used trails in the Lake Tahoe Basin (TTD 2014).



Source: Adapted by Ascent Environmental 2011

CP11010010 01 001

Exhibit 1-1

Regional Location



Portions of the project are within the 64-Acre Tract, a parcel managed by the U.S. Forest Service (USFS), which is located southwest of the wye on the southern side of the Truckee River. This site is intended to be used as a public recreation area, consistent with the overall design plan for Tahoe City (USFS 1986). It currently contains hiking trails (including the Truckee River Trail and Tahoe Rim Trail), bike paths, a non-motorized boat launch, and the Tahoe City Transit Center (Transit Center).

The Transit Center, opened in October 2012, provides “park and ride” services for Tahoe Area Regional Transit passengers. The Transit Center includes surface parking for 130 cars; a bus loop for six interregional buses; built-in bicycle lockers; and a 1,100 square foot transit facility with restrooms, an office, and an enclosed waiting area that accommodates up to 40 people. Access to the Transit Center is provided from both northbound and southbound SR 89.

1.2 PURPOSE AND NEED

- ▲ The primary needs for the proposed project relate to the current traffic congestion and inadequate safety and travel conditions in and around the Fanny Bridge and SR 89/28 wye intersection area. During peak travel periods, vehicle queues are very long and persistent, because of the current configuration of Fanny Bridge and the wye intersection, including delay caused by bicycle and pedestrian activity very close to travel lanes on and around Fanny Bridge. Pedestrian, bicycle, and traffic safety risks from inadequate infrastructure exist related to discontinuity in bicycle paths; absence of pedestrian facilities; and heavy volumes of vehicular traffic, pedestrian activity, and trail use. Also, Fanny Bridge is nearly 90 years old and is approaching the end of its service life. It is in need of substantial rehabilitation or replacement to maintain its long-term structural integrity. Because it serves as the sole vehicular and emergency access and evacuation route across the Truckee River for West Shore residents, Fanny Bridge’s deficiency also poses a safety risk to local residents and visitors. By establishing infrastructure that serves all modes of transportation, a walkable and bicycle district would be established that serves users of all ages; promotes efficient, effective transit use; and creates a vibrant and safe commercial area attractive to both residents and tourists. Infrastructure improvements also need to be designed to consider and enhance Tahoe City’s unique geographic location as a northern gateway to Lake Tahoe and its historical attributes.
- ▲ The overall purposes of the proposed project are described as follows.
- ▲ *Safety and Operations.* Improve the safety and operations of the SR 89/28 wye intersection and Fanny Bridge area in Tahoe City for present and future automobile travel demand, pedestrian activity, and trail use.
- ▲ *Multimodal Mobility.* Improve multimodal mobility in the Fanny Bridge area through the creation of “complete streets” elements to accommodate all modes, including transit, pedestrian, and bicycle travel, while also improving personal auto access.
- ▲ *Fanny Bridge Integrity.* Address the long-term structural integrity of Fanny Bridge through its rehabilitation or replacement.
- ▲ *Economic Revitalization.* Contribute to the economic revitalization of the local Tahoe City community by enhancing auto and non-auto business access and safety, including delivery of goods and services.
- ▲ Recognizing the needs and fundamental purposes of the proposed project, it would be intended to achieve the following project objectives:
- ▲ Reduce overall vehicle delays through improved motor vehicle mobility on the State Highway system, including for commercial access and a better resident and visitor experience;

- ▲ Improve traffic safety, traffic operations, and emergency access on SR 89 and SR 28, which includes the river crossing (Fanny Bridge) and associated intersections;
- ▲ Expand emergency access to provide multiple access points across the Truckee River for the Lake Tahoe West Shore communities;
- ▲ Improve connectivity, reliability, travel times and operations of public transportation modes, including increased mobility and safety for bicycles and pedestrians and more multi-use trail options for crossing Truckee River, including maintaining and/or improving access to the Caltrans maintenance yard;
- ▲ Improve highway freight mobility to meet local and regional commerce needs;
- ▲ Address the long-term structural integrity of Fanny Bridge and resolve bridge safety issues;
- ▲ Protect the cultural and scenic values of Fanny Bridge and the historic significance of the Lake Tahoe Dam;
- ▲ Make public transportation more effective with better visibility, connectivity, reliability, and travel times;
- ▲ Comply with TRPA regional level of service (LOS) criteria;
- ▲ Enhance community attraction for existing and future economic activity by resolving mobility and safety issues in the Fanny Bridge area;
- ▲ Facilitate the creation of a safe and walkable district, with an emphasis on the Truckee River and adjacent land uses that improves Tahoe City competitiveness with other regional and national destinations;
- ▲ Create gateway and aesthetic features that create a sense of place and are reflective of Lake Tahoe's unique natural setting and provide effective way-finding for the Tahoe City and other North Shore and West Shore communities.

1.2.1 Traffic Congestion and Connectivity

The Tahoe City wye represents a substantial traffic “bottleneck” for local and regional travelers on SR 89 and SR 28. SR 89 in the project area experiences unacceptable levels of queuing (often over a mile long), especially in the northbound direction approaching the project site during summer peak periods. The traffic bottleneck is caused by:

- ▲ traffic volumes exceeding the capacity of the existing signalized intersection;
- ▲ high levels of pedestrian and bicycling activity on and near Fanny Bridge;
- ▲ several uncontrolled vehicle movements into driveways and side streets south of the wye intersection;
- ▲ driver behavior; and
- ▲ visiting drivers who are unfamiliar with the area.

Traffic volume in the project area is measured and reported both as Annual Average Daily Traffic (AADT) and as peak traffic. As a major tourist destination, the Tahoe Region has more pronounced seasonal peak and weekend peak travel patterns than other regions (TMPO and TRPA 2012, page 4-4). Roadways can be more congested during these peak times, and at other times they provide more vehicle capacity than is necessary to meet the needs of permanent residents. Average annual traffic volumes on segments of SR 89 and SR 28 through the wye decreased between 2003 and 2010 and have increased slightly between 2009-10 and 2013. The decrease was attributed, in part, to the economic downturn over recent years. Between 1992 and 2010, the overall AADT Volume decrease on SR 89 and SR 28 study segments ranged between 3,200 to 4,400 ADT, or a decrease of approximately 23 to 26 percent. This translates to an approximately 1.5 to 1.8 percent annual rate of traffic decrease. Traffic operations during the summer peak continued to operate unacceptably during

the 2009-10 period, including at the SR 89/Tavern Shores access road, the SR 89/64-Acre Tract access road, and SR 89/Granlibakken Road. A supplemental evaluation in August 2013 included updated AM and PM peak-hour intersection turning movement traffic counts. The overall summer total traffic counts at the study intersections have increased by 0.1 percent between 2009-10 and 2013 (TTD 2014).

1.2.2 Traffic in the Peak Season

Traffic flow is described as level of service (LOS), which acts as an indicator of the extent or degree of relative congestion and delay encountered by drivers. LOS is a qualitative measure of traffic operating conditions, whereby a letter grade "A" through "F" is assigned to an intersection or roadway segment, representing a progressively worsening traffic operation with increasing delays (see Section 4.15, "traffic and Transportation" for more information. Tables 1-1 and 1-2 provide the existing segment and intersection LOSs associated with the SR 89/Fanny Bridge Project.

Table 1-1 Existing Conditions Arterial Segment Traffic Operations

Arterial Segment	Direction	2013 Volumes			
		Annual Average Peak Hour		Summer Peak Hour	
		Speed	LOS	Speed	LOS
SR 89 - between Twin Crags Way and existing wye intersection	EB	24.6	B	19.3	C
	WB	20.9	C	20.3	C
Existing SR 89 - between existing wye intersection and Granlibakken Rd	NB	21.7	C	20.9	C
	SB	21.7	C	19.9	C

Notes: 1. Speed = Average Travel Speed in miles per hour, EB = Eastbound, WB = Westbound, NB = Northbound, LOS = Level of Service
 2. Study arterial segments are Class III Arterials based on 2010 Highway Capacity Manual, Two-Lane Highways.
 3. Free flow speeds of 35-37 miles per hour were calculated based on HCM 2010.
 4. LOS Source: 2010 Highway Capacity Manual, Urban Street Segments.

1.2.3 Traffic Safety

The California Department of Transportation (Caltrans) maintains statistics for all State highway facilities for three types of accident rates: the total accident rate, accidents involving fatalities, and accidents involving fatalities or injuries. Accident data were collected for the project roadways for the five-year period of September 1, 2008 through August 31, 2013. During this timeframe, there were a total of 82 reported accidents involving 151 motor vehicles, 7 bicycles, and 5 pedestrians. These 82 accidents occurred at intersections and along roadway segments. Two of the bicycle accidents did not involve a motor vehicle. In only 1 of the 5 pedestrian-involved accidents was the pedestrian in a marked crosswalk (Grove Street). No fatalities were reported during this timeframe within the project study area. Seven of the accidents involved an impaired driver.

Of the 82 reported accidents, 23 resulted in injuries and 59 resulted in property-damage only. The highest percentage of accidents was of the rear-end type, which is typical for congested traffic conditions. The majority of the broadside crashes were a result of a vehicle making either a left-turn or a U-turn in front of oncoming traffic (see Appendix G for more information).

Table 1-2 Existing Conditions Signalized Intersection Traffic Operations											
Intersection	Peak Period	Analysis Method	Calibration	By Approach							
				Southbound		Westbound		Northbound		Eastbound	
				Level of Service	Average Delay						
SR 89 / SR 28 (existing wye)	Average Annual	Synchro	HCM 2010	C	25.7	C	22.7	C	26.5	C	27.7
SR 89 / Fairway Dr	Average Annual	Synchro	HCM 2010	C	15.6	A	0.0			A	8.8
	Summer			C	20.8	A	0.0			A	9.5
SR 28 / Grove St	Average Annual	Synchro	HCM 2010	E	39.7	A	9.5	C	24.2	A	9.0
	Summer			F	144.2	B	10.3	E	42.8	A	9.7
SR 89 / Tavern Shores Access Rd	Average Annual	Synchro	HCM 2010	A	8.8	C	16.2	A	0.0		
	Summer			A	9.5	C	22.9	A	0.0		
SR 89 / 64 Acres Recreational Access Rd	Average Annual	Synchro	HCM 2010	A	0.0			A	8.9	D	30.3
	Summer			A	0.0			A	9.7	F	97.7
SR 89 / Granlibakken Rd	Average Annual	Synchro	HCM 2010	A	8.3	C	16.2	A	8.7	F	57.8
	Summer			A	8.7	C	23.0	A	9.4	F	415.0

LOS Source: 2010 Highway Capacity Manual - Unsignalized Intersections
Delay in seconds per vehicle

1.2.4 Modal Interrelationships and System Linkages

Fanny Bridge serves as the main artery for vehicles, cyclists, and pedestrians between Lake Tahoe's West Shore and Tahoe City or Truckee. Fanny Bridge is currently the only vehicular bridge crossing the Truckee River that provides access, including emergency access, to the West Shore from the north. This bridge provides one 12-foot lane in each direction with a 5-foot-wide shoulder on the west side and 3-foot-wide shoulder and a 5-foot sidewalk on the east side. The Tahoe City Transit Center opened in 2012 on the 64-Acre Tract access road south of the wye intersection. The Transit Center provides surface parking, a bus loop, bicycle lockers, and a transit facility with restrooms, administrative space, and an enclosed waiting area. The Tahoe City Visioning Plan includes a visioning option to utilize the transit center to enhance transit opportunities from the town center to surrounding recreation designations. However, since the opening of the Transit Center along with a new fire station and relocation of a Tahoe City Public Utilities District office, peak-hour traffic has increased to and from Fairway Drive and the 64-Acre Tract access road that both intersect SR 89. Peak-hour LOS has worsened at the SR 89/Fairway Drive intersection from LOS B to LOS C and at the SR 89/64-Acre Tract access road from LOS E to LOS F from 2009-10 to 2013.

1.2.5 Aging Infrastructure

Fanny Bridge was constructed in 1928 and was rehabilitated in 1988. The existing structure is safe for current and near-term traffic use, but the structure is nearly 90 years old and is approaching the end of its service life. Based on the Caltrans 2012 inspection report, the bridge has a sufficiency of 52.7 indicating bridge replacement is needed. In addition, the existing structure does not meet current Caltrans seismic design standards and is potentially vulnerable to failure in earthquakes (Caltrans 2012).

1.2.6 Vehicle Emissions and Stormwater

Pedestrian, cyclists, and drivers are affected by the extreme seasonal congestion at the wye. Long vehicle queues can form entering Tahoe City from the West Shore (on SR 89), which cause extensive engine idling and attendant contributions to increased air pollutant and greenhouse gas emissions. Extended queues, associated idling, and “stop and go” traffic also contribute the release of other anthropogenic pollutants from unmaintained cars such as oil, grease, and antifreeze as well as copper, asbestos, zinc, and cadmium from brake pads. In addition, drainage controls in the project area are inadequate for the treatment of runoff from the roadways, which contribute to sediment reaching downstream receiving waters (Truckee River, in this case).

1.3 LOGICAL TERMINI AND INDEPENDENT UTILITY

FHWA regulations (23 CFR 771.111[f]) require that the proposed action meet three criteria addressing logical termini and independent utility. Logical termini are defined as: rational end points for a transportation improvement and review of the environmental impacts. A project is considered to have independent utility when it can function, or operate, on its own without further construction of an adjoining segment. Projects must not preclude the opportunity to consider alternatives for a future, related transportation improvement. Project termini must be selected to prevent a highway improvement from forcing further improvements that may have negative consequences not addressed in environmental studies.

The following describes how the SR 89/Fanny Bridge Community Revitalization Project alternatives studied in this environmental document would meet the three criteria for defining logical termini and independent utility.

Criterion 1. Connect logical termini and be of sufficient length to address environmental matters on a broad scope.

The project alternatives involve comprehensive interchange improvements, construction of a new bridge over the Truckee River, and solutions to address erosion control and water quality through stormwater drainage improvements. The end points, inclusive of all alternatives, are as follows (see Exhibit 3-1):

- ▲ SR 89 just north of its intersection with Fairway Drive.
- ▲ SR 89 just south of its intersection with Granlibakken Road.
- ▲ SR 28 just east of its intersection with SR 89.

The transportation needs discussed above are all located within these roadway segments. These needs can be addressed without creating additional problems approaching or departing the project area. Thus, the project area encompasses a geographic area of sufficient size and scope for improvements.

Criterion 2. Have independent utility or independent significance (i.e., be usable and be a reasonable expenditure even, if no additional transportation improvements in the area are made).

As described in Section 4.15, “Traffic and Transportation,” the proposed project would provide substantial improvement over the no-project conditions by improving traffic operations, bike/pedestrian/transit facility connectivity, intermodal connectivity, and the structural condition of Fanny Bridge. All state highway facilities would be designed to Caltrans standards. Because the project involves improving the operation of an existing intersection and river crossing, it does not create the need for other highway connections or improvement to perform properly. Also, multi-modal trail improvements would maintain all connections to existing trails entering and leaving the project area, so additional trail improvements would not be needed for adequate connectivity.

Criterion 3. Not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

The analysis presented in this document considers the transportation system beyond the project area to ensure that none of the action alternatives would create the need for additional transportation improvements in the vicinity. As a result, the scope of the project includes end points that extend beyond the wye intersection and Fanny Bridge alone; further, because the proposed improvements are of sufficient length and scope, implementing the proposed project or any of the action alternatives would not substantially increase congestion or reduce safety outside the defined study area. Therefore, the project alternatives would not force immediate transportation improvements on the remaining segments of the roadways outside the project site; and it would not constrain future improvement of any transportation facilities to which it connects.

1.4 SUMMARY OF PUBLIC INVOLVEMENT

A Notice of Preparation (NOP) for the draft EIR/EIS/EA was issued by TTD and TRPA on December 2, 2011. The NOP was sent to the California and Nevada State Clearinghouses; federal, state, and local agencies; and members of the public who had requested notices about the project. An NOP informs the reviewer of the lead agency's intent to prepare an environmental document. Three public scoping meetings were held to provide the opportunity to learn more about the SR 89/Fanny Bridge Community Revitalization Project and to receive comments from the public and other interested parties and agencies regarding the issues that should be addressed in the EIR/EIS/EA.

The scoping meetings were held as follows:

Thursday, December 8, 2011

Friday, December 9, 2011

Wednesday, January 11, 2012

Beginning at 6:00 p.m.	Beginning at 9:30 a.m.	Beginning at 9:30 a.m.
North Tahoe Regional Advisory Council (NTRAC) Tahoe City Public Utility District - Board Room 221 Fairway Drive Tahoe City, CA 96145	Tahoe Transportation District Granlibakken Conference Center 725 Granlibakken Rd. Tahoe City, CA 96145	TRPA Advisory Planning Commission (APC) Tahoe Regional Planning Agency - Board Room 128 Market Street Stateline, NV 89449

Scoping comments received are summarized in Appendix B, Scoping Report and Comments on the NOP.

1.4.1 Areas of Controversy and Issues to be Resolved

CEQA Guidelines require an EIR summary to include a list of areas of potential controversy and issues to be resolved.

Based on public input received during the scoping process, areas of controversy could include: the purpose and need for the project, impacts to scenic quality, impacts to the quality of outdoor recreation experiences, access to USFS lands, impacts to forest resources, effects on water quality, effects on air quality, and impacts to public safety. Additional project details requested by commenters and an assessment of suggested alternatives to the project are included in Chapter 3, “Proposed Action and Alternatives.”

Issues to be resolved include the following topics.

AGRICULTURAL AND FOREST RESOURCES

Comments related to forest resources address regulatory issues related to timberland and tree removal. These issues are addressed in Section 4.1, “Agricultural and Forest Resources.”

AIR QUALITY

Commenters addressed the recent decision by EPA regarding the revision of 8-hour ozone standards and amendment of the area designations based on the state ozone standards for the Lake Tahoe Air Basin. Comments requested the provision of air quality reports addressing the increased air pollution resulting from sweeping sand used for traction control during the winter months on the proposed bypass roadway.

Comments included recommended project-level thresholds of significance, incorporation of various Placer County Air Pollution Control District Rules and Regulations, and an analysis methodology. This includes documentation of all emission factors, assumptions, and modeling inputs and outputs (i.e., expected traffic, mix of light-duty and heavy-duty vehicles, existing and future nearby land uses, etc.). Comments suggested a description of the level of health risk analysis (such as a Health Risk Assessment), if existing or future sensitive receptors are located within close proximity to the project area where there is the potential for exposure to toxic air contaminants and other hazardous air pollutants. These issues are addressed in Section 4.2, “Air Quality.”

BIOLOGICAL RESOURCES

Commenters requested that impacts on fish and wildlife address issues related to construction and additional lighting and noise. Section 4.3, “Biological Resources,” provides a discussion of impacts associated with fish and wildlife.

GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

Comments included the acknowledgement that there is no established threshold for construction-related greenhouse gas (GHG) emissions; however, a determination of significance should be disclosed and based on the project's potential to interfere with GHG reduction goals established by regulatory requirements. In addition, various mitigation measures were suggested to reduce potentially significant levels of criteria pollutants, including GHG emissions. GHG emissions are addressed in Section 4.6, "Greenhouse Gas Emissions and Climate Change."

HYDROLOGY AND WATER QUALITY

Commenters stated that BMPs must be implemented and that sensitive areas (including stream environment zones) may be affected. In addition, concern was expressed related to sanding of roads in the winter months, coverage, and road sweeping effects on water quality. Water quality issues are discussed in Section 4.7, "Hydrology and Water Quality." Land coverage is addressed in Section 4.5, "Geology, Soils, Land Capability, and Coverage." Effects on sensitive biological areas are addressed in Section 4.3, "Biological Resources."

RECREATION

Commenters expressed concern related to outdoor recreation experiences during construction and operation of the action alternatives. Effects on recreation are addressed in Section 4.13, "Recreation."

SCENIC RESOURCES

Commenters expressed concern that Fanny Bridge may disappear from view as a result of the realignment. Several commenters also indicated that adverse effects may result from additional lighting and construction of a new bridge. Section 4.14, "Scenic Resources" provides an analysis of potential scenic resources impacts associated with implementation of the project alternatives.

TRAFFIC AND TRANSPORTATION

Commenters addressed issues related to emergency access and the ability of first responders to provide emergency services if Fanny Bridge is fully or partially closed during construction. Commenters also indicated a need to analyze traffic impacts, including level of service levels, delay times, air emissions and noise. In addition, several commenters suggested cumulative analyses of traffic and transportation effects. Section 4.15, "Traffic and Transportation" addresses potential impacts to the existing transportation system. Operational traffic-related air quality and noise impacts are addressed in Section 4.2, "Air Quality," and Section 4.10, "Noise," respectively.

UTILITIES AND SERVICE SYSTEMS

Commenters expressed concern related to a major sewer line that runs through the project site. Realignment of the sewer line would be included under Alternatives 1, 2, 3, and 4. The relevant environmental impacts are discussed throughout the EIR/EIS/EA.

SOCIOECONOMICS

Commenters express concern related to economic impacts on businesses in Tahoe City. Chapter 6, "Other NEPA-, CEQA-, and TRPA-Mandated Sections," addresses socioeconomics effects of the project alternatives.

1.5 NEXT STEPS IN THE DECISION-MAKING PROCESS

This Draft EIR/EIS/EA has been released for public review and comment during a 60-day period. After the public review and comment period ends, all comments on the Draft EIR/EIS/EA will be evaluated and considered. Responses will be provided on substantive environmental points raised in public comments. In addition, any changes and refinements to the project will be described that occur as a result of on-going planning or comments received during the public review period.

Following completion of the responses to comments and preparation of the final environmental document, TTD, TRPA, and CFLHD will select a preferred alternative and make the final determination of the project's effect on the environment. Public meetings will be held by TTD and TRPA as part of the process of selecting the preferred alternative and considering project approval.

Under CEQA, the certification process will include preparation of findings for all significant impacts identified, adoption of a Mitigation Monitoring or Reporting Program for mitigation incorporated into the project, and preparation of a Statement of Overriding Considerations for impacts that will not be mitigated below a level of significance (if applicable). The findings and Statement of Overriding Considerations will be considered prior to project approval. TTD will then file a Notice of Determination with the California and Nevada State Clearinghouses that will document the project's approval.

This document has been prepared in accordance with Article VII of the Tahoe Regional Planning Compact, Chapter 3 of the TRPA Code of Ordinances, and Article VI of the TRPA Rules of Procedure. Following the public and agency consultation period, substantive comments relating to the environmental analysis will be reviewed and responses will be prepared. The final environmental document will be presented to the TRPA Advisory Planning Commission, which will make a recommendation to the Governing Board with respect to certification of the proposed final document. The Governing Board will provide an opportunity for comment on the proposed final environmental document at a Governing Board hearing. The Board will then consider taking action to certify the Final EIS and adopt findings (TRPA Code Section 4.4) prior to considering approval of a project alternative.

In accordance with NEPA and FHWA regulations, if FHWA CFLHD determines the proposed action does not significantly affect the human environment, CFLHD will issue a Finding of No Significant Impact prior to consideration of project approval.

1.6 OPPORTUNITY FOR PUBLIC COMMENT

The SR 89/Fanny Bridge Project Draft EIR/EIS/EA is available for public and agency review online at TRPA's website: www.trpa.org and TTD's website: www.tahoetransportation.org. In addition, hard copies of the document are available at the following locations.

TRPA/TTD Offices
128 Market Street
Stateline, Nevada 89449

Tahoe City Public Library
740 North Lake Boulevard
Tahoe City, NV 89449

Placer County Planning Services
775 North Lake Boulevard
Tahoe City, CA 96145

Kings Beach Library
301 Secline Drive
Kings Beach, CA

Tahoe City Public Utility District
221 Fairway Drive
Tahoe City, CA 96145

Truckee Library
10031 Levon Avenue
Truckee, CA

The public review period extends from December 19, 2014 through February 17, 2015.

Written comments on the Draft EIR/EIS/EA may be sent directly to: Brain Judge, Principal Environmental Specialist, Tahoe Regional Planning Agency, P.O. Box 5310, Stateline, NV, 8944 (fax 775-588-4527) or submitted by email to bjudge@trpa.org.

Oral comments on the Draft EIR/EIS/EA may be provided at a series of public meetings as listed below. Additional meetings, if scheduled, will be posted on TTD's website.

- ▲ **January 14, 2015:** TRPA Advisory Planning Committee Meeting, TRPA Board Rooms, 128 Market Street, Stateline, Nevada.
- ▲ **January 16, 2015:** Tahoe Transportation District Board of Directors Meeting, Granlibakken Resort, 725 Granlibakken Road, Tahoe City, California.
- ▲ **January 28, 2015:** TRPA Governing Board Meeting, The Chateau, 955 Fairway Boulevard, Incline Village, Nevada.

1.7 PERMITS, REVIEWS, AND APPROVALS

The following permits, reviews, and approvals would be required for project construction:

Agency	Environmental Process Role	Permit/Approval
Tahoe Transportation District	CEQA Lead	CEQA compliance, project approval, funding approval
Tahoe Regional Planning Agency	TRPA Lead	TRPA compliance, project approval
Federal Highway Administration-Central Federal Lands Highway Division	NEPA Lead	NEPA compliance, National Historic Preservation Act Section 106 compliance, Section 7 of the Endangered Species Act compliance, project approval, funding approval, Department of Transportation Act Section 4(f) approval
United States Forest Service	NEPA cooperating	Special Use Permit, Department of Transportation Act Section 4(f) concurrence
United States Army Corp of Engineers	Commenting Agency	Clean Water Act Section 404 Fill and Dredge permit
United States Bureau of Reclamation	Commenting Agency	Encroachment permit/easement
Lake Tahoe Basin Management Unit	Commenting Agency	Timber removal permit, letter of consent, utility permit
California Department of Transportation (Caltrans)	CEQA Responsible	Encroachment and ROW permits
Lahontan Regional Water Quality Control Board	CEQA Responsible	Clean Water Act Section 401 Water Quality certification, NPDES General Construction Permit, dewatering permit
California Department of Fish and Wildlife	CEQA Responsible	California Fish and Game Code Section 1602 Stream Alteration Agreement
Placer County	CEQA Responsible	Construction permits, Conditional Use Permit amendment with LTBMU for approval for uses of Transit Center parking lot
TCPUD/NTPUD	CEQA Responsible	Sewer replacement approval

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2 SUMMARY

2.1 INTRODUCTION

The Tahoe Transportation District (TTD), Tahoe Regional Planning Agency (TRPA), and Federal Highway Administration (FHWA) are proposing improvements to resolve the existing and future traffic congestion at the wye intersection of State Route (SR) 28 and SR 89, enhance multi-modal options, improve safety and access, and address the long-term structural integrity of the Truckee River Bridge #19-0033 (locally known as “Fanny Bridge”). The SR 89/Fanny Bridge Community Revitalization Project is located in Tahoe City, Placer County, California. The project site includes approximately 0.7 mile of SR 28 and 0.6 mile of SR 89. The proposed improvements are designed to enhance motorized and non-motorized mobility, reduce traffic congestion, accommodate anticipated future increases in traffic, increase access across the Truckee River, address existing pedestrian and traffic safety concerns, and encourage revitalization of the local Tahoe City community.

Addressing seasonal traffic congestion problems around the wye and Fanny Bridge has long been a concern of TTD, TRPA, Caltrans, and Placer County, as well as residents, business owners, and visitors. Although traffic management strategies have been implemented, congestion has remained at a level that can only be addressed through physical improvements that enhance traffic flow, better accommodate pedestrians and bicyclists, and facilitate on-time performance of transit service. Specifically, an approach is needed to separate vehicular traffic from the heaviest areas of tourist pedestrian activity and address vehicular conflicts. Realignment of SR 89 in the area is identified as part of the TRPA Regional Plan, Tahoe Metropolitan Planning Organization (TMPO) Regional Transportation Plan, TRPA Environmental Improvement Program, the Caltrans State Route 89 Transportation Corridor Concept Report, and Tahoe City Community Plan adopted by both TRPA and Placer County.

This is a joint document proposed by TTD, TRPA, and the FHWA Central Federal Lands Highway Division (CFLHD). TTD is the lead agency for the Environmental Impact Report (EIR), pursuant to the California Environmental Quality Act (CEQA) (Public Resource Code Section 21000 et. seq.). TRPA is the lead agency for the TRPA Environmental Impact Statement (EIS) under the Tahoe Regional Planning Compact, Code of Ordinances, and Rules of Procedure. CFLHD is the lead agency for the Environmental Assessment (EA) under the National Environmental Policy Act (NEPA) and Council on Environmental Quality’s Regulations Implementing NEPA.

This project is included in the TMPO 2013 Federal Transportation Improvement Program (FTIP) list. It is also considered to be a fiscally constrained project of the Tahoe Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), adopted in December 2012. “Fiscally constrained” means that the costs of the proposed projects, over the 23-year plan horizon of the RTP, are within the reasonably foreseeable revenues of that period and, therefore, the project is prioritized for implementation. The RTP includes a baseline forecast of federal, state, and local funding, which are intended to reflect what has historically been available from these sources, with inflation factors from zero to 2.5 percent, depending on the revenue source (TMPO and TRPA 2012). In 2013, the project was selected and programmed for construction funding through the Federal Lands Access Program in Fiscal Year 2016, if a preferred alternative is approved by the lead agencies following the environmental review process.

This EIR/EIS/EA does not make a recommendation regarding the approval or denial of the project. The analysis included in this EIR/EIS/EA is informational in its purpose and will be used by the TTD, TRPA, and CFLHD to render decisions regarding approval of project elements within their jurisdiction and selection of an alternative. It will also be used by other agencies with approval authority over some aspect of project implementation, including but not limited to the U.S. Forest Service (USFS), California Department of Transportation (Caltrans), and Placer County.

2.1.1 Project Location

The project site is located at the SR 28/SR 89 intersection in Tahoe City in eastern Placer County along a reach of the Truckee River just below the Lake Tahoe Dam. Fanny Bridge consists of one 12-foot lane in each direction with a 5-foot shoulder on the west side and a 3-foot shoulder and 5-foot sidewalk on the east side. Fanny Bridge is part of the main artery for vehicles, cyclists, and pedestrians between Lake Tahoe's West Shore and Tahoe City or Truckee, serving many popular recreation destinations, such as Alpine Meadows Ski Rest, Homewood Mountain Resort, Squaw Valley USA, and large tracts of National Forest System Lands. It is currently the only vehicular bridge crossing of the Truckee River that provides access to the West Shore from the north. Exhibit 1-1 provides a regional view of the project location.

The study area for this EIR/EIS/EA, within which the project site is located, is generally defined by the following boundary points (see Exhibit 3-1):

- ▲ SR 89 just north of its intersection with Fairway Drive.
- ▲ SR 89 just south of its intersection with Granlibakken Road.
- ▲ SR 28 just east of its intersection with SR 89.
- ▲ Western property line of public land known as the 64-Acre Tract.

2.1.2 Purpose, Need, and Objectives

The primary needs for the proposed project relate to the current traffic congestion and inadequate safety and travel conditions in and around the Fanny Bridge and SR 89/28 wye intersection area. During peak travel periods, vehicle queues are very long and persistent, because of the current configuration of Fanny Bridge and the wye intersection, including delay caused by bicycle and pedestrian activity very close to travel lanes on and around Fanny Bridge. Pedestrian, bicycle, and traffic safety risks from inadequate infrastructure exist related to discontinuity in bicycle paths; absence of pedestrian facilities; and heavy volumes of vehicular traffic, pedestrian activity, and trail use. Also, Fanny Bridge is nearly 90 years old and is approaching the end of its service life. It is in need of substantial rehabilitation or replacement to maintain its long-term structural integrity. Because it serves as the sole vehicular and emergency access and evacuation route across the Truckee River for West Shore residents, Fanny Bridge's deficiency also poses a safety risk to local residents and visitors. By establishing infrastructure that serves all modes of transportation, a walkable and bicycle district would be established that serves users of all ages; promotes efficient, effective transit use; and creates a vibrant and safe commercial area attractive to both residents and tourists. Infrastructure improvements also need to be designed to consider and enhance Tahoe City's unique geographic location as a northern gateway to Lake Tahoe and its historical attributes.

The overall purposes of the proposed project are described as follows.

- ▲ *Safety and Operations.* Improve the safety and operations of the SR 89/28 wye intersection and Fanny Bridge area in Tahoe City for present and future automobile travel demand, pedestrian activity, and trail use.
- ▲ *Multimodal Mobility.* Improve multimodal mobility in the Fanny Bridge area through the creation of "complete streets" elements to accommodate all modes, including transit, pedestrian, and bicycle travel, while also improving personal auto access.
- ▲ *Fanny Bridge Integrity.* Address the long-term structural integrity of Fanny Bridge through its rehabilitation or replacement.
- ▲ *Economic Revitalization.* Contribute to the economic revitalization of the local Tahoe City community by enhancing auto and non-auto business access and safety, including delivery of goods and services.

Recognizing the needs and fundamental purposes of the proposed project, it would be intended to achieve the following project objectives:

- ▲ Reduce overall vehicle delays through improved motor vehicle mobility on the State Highway system, including for commercial access and a better resident and visitor experience;
- ▲ Improve traffic safety, traffic operations, and emergency access on SR 89 and SR 28, which includes the river crossing (Fanny Bridge) and associated intersections;
- ▲ Expand emergency access to provide multiple access points across the Truckee River for the Lake Tahoe West Shore communities;
- ▲ Improve connectivity, reliability, travel times and operations of public transportation modes, including increased mobility and safety for bicycles and pedestrians and more multi-use trail options for crossing Truckee River, including maintaining and/or improving access to the Caltrans maintenance yard;
- ▲ Improve highway freight mobility to meet local and regional commerce needs;
- ▲ Address the long-term structural integrity of Fanny Bridge and resolve bridge safety issues;
- ▲ Protect the cultural and scenic values of Fanny Bridge and the historic significance of the Lake Tahoe Dam;
- ▲ Make public transportation more effective with better visibility, connectivity, reliability, and travel times;
- ▲ Comply with TRPA regional level of service (LOS) criteria;
- ▲ Enhance community attraction for existing and future economic activity by resolving mobility and safety issues in the Fanny Bridge area;
- ▲ Facilitate the creation of a safe and walkable district, with an emphasis on the Truckee River and adjacent land uses that improves Tahoe City competitiveness with other regional and national destinations;
- ▲ Create gateway and aesthetic features that create a sense of place and are reflective of Lake Tahoe's unique natural setting and provide effective way-finding for the Tahoe City and other North Shore and West Shore communities.

2.2 SUMMARY DESCRIPTION OF ALTERNATIVES

There are seven project alternatives being considered for implementation, consisting of six action alternatives (Alternatives 1, 2, 3, 4, 6, and 6A) and one no-action alternative (Alternative 5). Four action alternatives (Alternatives 1 through 4) would result in the construction of a new bridge over the Truckee River and realignment of SR 89 through the 64-Acre Tract, rehabilitation or replacement of Fanny Bridge, bike path realignments, and modifications to the Caltrans maintenance yard. Two action alternatives (Alternatives 6 and 6A) would focus on rehabilitating or replacing the existing Fanny Bridge on the current SR 89 alignment and improve the SR 89/SR 28 intersection at its current location. All action alternatives propose improvements to the wye.

2.2.1 Alternative 1: New Alignment – Existing SR 89 Open to Local Traffic

Under Alternative 1, SR 89 would be realigned as a new two-lane segment of roadway that would cross through USFS's 64-Acre Tract. The western end of the new segment would be constructed as a new single-

lane roundabout, which would serve as the new SR 89/SR 28 intersection. A new bridge over the Truckee River would be constructed immediately to the southeast of the roundabout on the realigned highway segment. The new alignment would continue east and reconnect to existing SR 89 at a second roundabout near the existing changeable message sign and sled hill (Exhibit 3-2). The realigned portion of SR 89 would be elevated on an earthen embankment from 3 feet near the roundabout, up to 9 feet approaching the bridge. Slopes of the embankment would be vegetated to blend it into the surrounding forest. Fanny Bridge would be rehabilitated or replaced to address the long-term structural integrity and resolve safety issues. . The existing section of SR 89 between Fanny Bridge and the eastern roundabout would be relinquished by the state to Placer County and become a local street (see Exhibit 3-9). Traffic calming and aesthetic features would be installed within this section of roadway (e.g., reduced speed limit, bulb-outs, landscaped areas, raised landscaped median, on-street parking, sidewalks, street lighting, benches, etc.).

WYE INTERSECTION MODIFICATIONS

Alternative 1 (as well as Alternatives 2 through 4) would include options for the existing free-right-turn lanes at the existing SR 89/SR 28 wye intersection.

Option 1 – Parking Spaces, Landscaping, or Minor Modifications

Under Option 1, the existing free-right-turn lanes would either be replaced with 55 parking spaces, restored with expanded landscaping, or retained with minor modifications, as described below:

- ▲ **Parking Spaces:** If the area is developed for parking, the existing free-right-turn lanes would be replaced with approximately 55 parking spaces. The landscaped median at the southeast corner of the intersection would be removed and replaced with a parking lot, and the existing free-right turn lanes would be restriped with parking spaces. The free-right turns would be closed to through traffic, and all right turns would be directed through the signalized intersection.
- ▲ **Landscaping:** If the area is restored with landscaping, the landscaped medians at the southeast and southwest corners of the intersection would be expanded to include the existing free-right turns. All right turns would be directed through the signalized intersection.
- ▲ **Minor modifications:** If the lanes are retained, they would be reduced to 13 feet to make room for landscape and pedestrian improvements. The existing landscaped medians would be expanded and pedestrian facilities in the area would be enhanced. Free-right turns would continue to be provided.

Option 2 – Wye Roundabout

Under Option 2, a roundabout would be constructed at the existing wye intersection with expanded landscaping and gateway features. Business access would require minor modifications associated with consolidation and/or reconfiguration of ingress/egress driveways.

Other Project Components

Alternative 1 would include way-finding signage to indicate to drivers the direction to Truckee, Tahoe City, and South Lake Tahoe. Signs would be placed near all entry points to the roundabouts. Signs for gas, food, lodging, public transportation, hiking trails, and other tourist amenities would direct travelers toward Tahoe City attractions and businesses. In addition, the entrance into the Tahoe City Transit Center (Transit Center) would be realigned to allow for bus and vehicle access approximately 240 feet north of the eastern roundabout.

Under Alternative 1, the primary ingress and egress to the Caltrans maintenance yard (i.e., Caltrans Tahoe City Maintenance Station) would be relocated from the northeastern end of the maintenance yard to a modified entrance at the western end (Exhibit 3-7). The profile of the new western entrance would be raised approximately 10 feet higher than the existing conditions, and a wall may be constructed at the existing entrance to prohibit access. Fuel tanks, pumping facilities, and a pole barn would be demolished and

relocated within the maintenance yard. In addition, the entire area between the new driveway and SR 89 would be used as storage for snow or other materials.

Alternative 1 would include installation of new manholes and relocation and associated replacement of the Truckee River Interceptor (TRI) sewer line either beneath or around the western roundabout (or signalized intersection) at the western end of the new SR 89 alignment. Additionally, the North Shore Export Facility (NSEF) would also be modified to accommodate the relocation of the TRI sewer line. Flow monitoring equipment would also be relocated to one of the new manhole locations. This relocation would be completed within existing disturbed areas (e.g., within the roadway cross-section) and would be sized to maintain the existing flow capacity.

Portions of the existing Class I bike paths on the project site would be realigned as part of implementation of the project, including any of the new bridge alternatives, as described below.

- ▲ Beginning at the “McClintock Building” on SR 89, north of Granlibakken Road, the existing bike path would turn west onto a new alignment for 580 feet. It would then rejoin the existing path and continue toward the Truckee River. At the river, the path would shift closer to the river and go underneath the new Truckee River Bridge before rejoining the existing path, near the existing recreational parking lot. The existing bike path, which runs parallel to SR 89 between the McClintock Building and the Transit Center, would remain. The segment of bike path along existing SR 89, between the Transit Center and Fanny Bridge, would be converted to sidewalk to provide complete-streets elements for a safe and inviting walkable district. Bicycles would be directed to use a new Class II bike lane on the existing SR 89, which would be relinquished by Caltrans and designated as a local Placer County road. Local road designation would provide local control of the street, allowing for community design elements and potential temporary closures for community events.
- ▲ Beginning to the east of the Tahoe City Lumber/Ace Hardware entrance on SR 89, the existing Truckee River Class I bike path would be shifted south toward the Caltrans maintenance yard, and would cross the entrance to the maintenance yard at grade. At the new Truckee River Bridge, the bike path would go under the new bridge and join the trail on the north side of the Truckee River near the Tahoe Rim Trail. The bike path would be separated from vehicle traffic over the bridge to improve safety. The existing segment of trail between the new Truckee River Bridge and the existing bicycle/pedestrian bridge would be realigned and improved.

2.2.2 Alternative 2: New Alignment – Close Existing SR 89 to Vehicle Traffic

Under Alternative 2, the SR 89 realignment and signage would be the same as described above under Alternative 1, except that the western roundabout would be proposed as a single-lane hybrid configuration (i.e., a single-lane around the circle with two free-right-turn lanes). Fanny Bridge would be rehabilitated or replaced to address the long term structural integrity and resolve safety issues. The existing segment of SR 89 between Fanny Bridge and the eastern roundabout would be relinquished to Placer County and become a local street (see Exhibit 3-9). Under Alternative 2, the western roundabout would contain a new bridge, which would serve as the primary river crossing constructed over the Truckee River near the east end of the Caltrans maintenance yard. Bollards would be placed to the north and south of Fanny Bridge to prohibit vehicular traffic. Access across Fanny Bridge would be provided only for pedestrians, bicyclists, and emergency vehicles.

Entry into the Transit Center would be allowed from the south only, at an access point approximately 240 feet north of the eastern roundabout. Transit routes to the north would be provided across the new bridge. Traffic calming improvements similar to those described for Alternative 1 would be constructed on the street south of Fanny Bridge (see Exhibit 3-3). The realigned portion of SR 89 would be elevated through the 64-Acre Tract in the same manner as Alternative 1.

Wye intersection options, signage, and modifications to the Caltrans maintenance yard, realignment and replacement of the TRI and NSEF, and realignments to the Class I bike paths would be the same under Alternative 2 as described above under Alternatives 1.

2.2.3 Alternative 3: New Alignment – Existing SR 89 Becomes a Cul-de-Sac on the South Side of the Bridge

Under Alternative 3, the SR 89 realignment, new bridge, and signage would be the same as described above under Alternative 1, except that the western roundabout is proposed as a single-lane hybrid configuration (same as Alternative 2). Fanny Bridge would be rehabilitated or replaced to address the long term structural integrity and resolve safety issues. The existing section of SR 89 between Fanny Bridge and the eastern roundabout would be relinquished to Placer County and become a local street (see Exhibit 3-9). A new bridge, which would serve as the primary river crossing, would be constructed over the Truckee River near the east end of the Caltrans maintenance yard. Access to Fanny Bridge would only be available from the north via SR 28. A cul-de-sac would be constructed south of Fanny Bridge near the Transit Center. The existing SR 89 approaching from the south would no longer allow vehicular access to Fanny Bridge, but it would provide emergency access across the cul de sac to the bridge, when needed. Buses would be allowed to enter the Transit Center from the north via the cul-de-sac or from the south via the eastern roundabout; automobile entry to the Transit Center would be limited to access from the south at the eastern roundabout. The realigned portion of SR 89 would be elevated through the 64-Acre Tract in the same manner as Alternative 1.

Wye intersection options, signage, and modifications to the Caltrans maintenance yard, realignment and replacement of the TRI and NSEF, and realignments to the Class I bike paths would be the same under Alternative 3 as described above under Alternatives 1.

2.2.4 Alternative 4: New Alignment, No Roundabouts – Existing SR 89 Becomes a Cul-de-Sac on the South Side of the Bridge

Under Alternative 4, the SR 89 realignment would follow a similar path across the 64-Acre Tract, as described above under Alternative 1. However, the western roundabout at the new SR 89/SR 28 junction would be replaced with a traditional, signalized intersection, and the eastern roundabout would be replaced by a sweeping curve directing vehicles from the existing SR 89 alignment to the south onto the realigned SR 89 across the 64-Acre Tract (see Exhibit 3-5). A new bridge, which would serve as the primary river crossing, would be constructed over the Truckee River near the east end of the Caltrans maintenance yard. Fanny Bridge would be rehabilitated or replaced to improve the long term structural integrity and resolve safety issues. A cul-de-sac would be constructed south of Fanny Bridge near the Transit Center. The realigned portion of SR 89 would be elevated through the 64-Acre Tract in the same manner as Alternative 1.

The SR 89/SR 28 intersection modifications and signage would be the same under Alternative 4 as described above under Alternatives 1, 2, and 3. Buses would be allowed to enter the Transit Center from the north via the cul-de-sac or from the south via a new entrance driveway from the sweeping curve; automobile entry to the Transit Center would be limited to an approach from the south via the new entrance driveway.

Under Alternative 4, modification options to the wye intersection would consist of parking spaces, landscaping, or minor modifications. A roundabout would not be constructed at the wye under this alternative.

Modifications to the Caltrans maintenance yard, realignment and replacement of the TRI and NSEF, and realignments to the Class I bike paths would be the same under Alternative 4 as described above under Alternatives 1.

2.2.5 Alternative 5 (No Action)

Alternative 5 is the No Action Alternative. Under this alternative, there would be no improvements to SR 89, the SR 89/SR 28 intersection, or to Fanny Bridge. Any actions required to address the bridge's service life and structural integrity would not be completed by the Tahoe Transportation District. Another agency (such as Caltrans or Placer County) could pursue a separate bridge rehabilitation or replacement project at another time, or gradual upgrades may be implemented through routine maintenance by Caltrans. Alternatively, Caltrans could declare a more stringent vehicle weight restriction. At this time, no specific improvements to the bridge are planned by Caltrans or another agency (Exhibit 3-10).

2.2.6 Alternative 6: Rehabilitate or Replace and Widen Existing Bridge, Modify Lane Geometrics at Existing Wye Intersection

Alternative 6 would rehabilitate or replace the existing Fanny Bridge with a wider structure with three northbound and two southbound travel lanes. SR 89 would remain on its existing alignment. The widened portion of the bridge would be constructed downstream of the existing structure, to comply with Bureau of Reclamation's distance restrictions related to the dam. As a result, the new bridge would be 60 feet wider, and the centerline would be 28 feet downstream, as compared to the existing structure. The new Fanny Bridge would have 12-foot travel lanes, 8-foot shoulders, and 10-foot sidewalks on both sides. Under this alternative, the wye would remain in its existing location and configuration; however, the free-right-turn lanes at the wye would be removed and replaced with right-turn lanes that would direct vehicles through the signalized intersection (Exhibit 3-11).

To implement Alternative 6, acquisition of three properties would be required: Swigard's True Value Hardware (assessor's parcel number [APN] 094-190-013), Bridgetender Restaurant (APN 094-540-025), and River Grill (APN 094-540-023). In addition, an existing structure on the Liberty Power parcel would need to be relocated within that parcel. Access would be maintained to all parcels affected by this alternative.

2.2.7 Alternative 6a: Rehabilitate or Replace and Widen Existing Bridge, Install Roundabout at Existing Wye Intersection

Under Alternative 6a, the existing Fanny Bridge would be rehabilitated or replaced at its current location with a new, wider four-lane structure built to current Caltrans design and safety standards. The increase in width would be approximately 49 feet. Similar to Alternative 6, the additional width would be downstream of the existing structure. The centerline of the new bridge would be 22 feet downstream from the centerline of the existing bridge. The new Fanny Bridge would have 12-foot travel lanes, 8-foot shoulders, and 10-foot sidewalks on both sides. The existing signalized wye intersection would be replaced with a roundabout (Exhibit 3-12).

To implement Alternative 6A, acquisition of two properties would be required: Gary Davis Group Design and Engineering (APN 094-190-006) and Bridgetender Restaurant (APN 094-540-025). In addition, as under Alternative 6, an existing structure on the Liberty Power parcel would need to be relocated within that parcel. Access would be maintained to all parcels affected by this alternative.

2.3 SUMMARY OF PUBLIC INVOLVEMENT

A Notice of Preparation (NOP) for the draft EIR/EIS/EA was issued by TTD and TRPA on December 2, 2011. The NOP was sent to the California and Nevada State Clearinghouses; federal, state, and local agencies; and members of the public who had requested notices about the project. An NOP informs the reviewer of the

lead agency's intent to prepare an environmental document. Three public scoping meetings were held to provide the opportunity to learn more about the SR 89/Fanny Bridge Community Revitalization Project and to receive comments from the public and other interested parties and agencies regarding the issues that should be addressed in the EIR/EIS/EA.

The scoping meetings were held as follows:

Thursday, December 8, 2011 Beginning at 6:00 p.m.	Friday, December 9, 2011 Beginning at 9:30 a.m.	Wednesday, January 11, 2012 Beginning at 9:30 a.m.
North Tahoe Regional Advisory Council (NTRAC) Tahoe City Public Utility District - Board Room 221 Fairway Drive Tahoe City, CA 96145	Tahoe Transportation District Granlibakken Conference Center 725 Granlibakken Rd. Tahoe City, CA 96145	TRPA Advisory Planning Commission (APC) Tahoe Regional Planning Agency - Board Room 128 Market Street Stateline, NV 89449

Scoping comments received are summarized in Appendix B, Scoping Report and Comments on the NOP.

2.4 NEXT STEPS IN THE DECISION-MAKING PROCESS

This Draft EIR/EIS/EA has been released for public review and comment during a 60-day period. After the public review and comment period ends, all comments on the Draft EIR/EIS/EA will be evaluated and considered. Responses will be provided on substantive environmental points raised in public comments. In addition, any changes and refinements to the project will be described that occur as a result of on-going planning or comments received during the public review period.

Following completion of the responses to comments and preparation of the final environmental document, TTD, TRPA, and CFLHD will select a preferred alternative and make the final determination of the project's effect on the environment. Public meetings will be held by TTD and TRPA as part of the process of selecting the preferred alternative and considering project approval.

Under CEQA, the certification process will include preparation of findings for all significant impacts identified, adoption of a Mitigation Monitoring or Reporting Program for mitigation incorporated into the project, and preparation of a Statement of Overriding Considerations for impacts that will not be mitigated below a level of significance (if applicable). The findings and Statement of Overriding Considerations will be considered prior to project approval. TTD will then file a Notice of Determination with the California and Nevada State Clearinghouses that will document the project's approval.

This document has been prepared in accordance with Article VII of the Tahoe Regional Planning Compact, Chapter 3 of the TRPA Code of Ordinances, and Article VI of the TRPA Rules of Procedure. Following the public and agency consultation period, substantive comments relating to the environmental analysis will be reviewed and responses will be prepared. The final environmental document will be presented to the TRPA Advisory Planning Commission, which will make a recommendation to the Governing Board with respect to certification of the proposed final document. The Governing Board will provide an opportunity for comment on the proposed final environmental document at a Governing Board hearing. The Board will then consider taking action to certify the Final EIS and adopt findings (TRPA Code Section 4.4) prior to considering approval of a project alternative.

In accordance with NEPA and FHWA regulations, if FHWA CFLHD determines the proposed action does not significantly affect the human environment, CFLHD will issue a Finding of No Significant Impact prior to consideration of project approval.

2.5 ENVIRONMENTAL IMPACTS AND MITIGATION

As discussed above, the SR 89/Fanny Bridge Project is a joint project proposed by TTD, TRPA, and CFLHD, and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with CEQA; TRPA's Tahoe Regional Planning Compact, Code of Ordinances, and Rules of Procedure; and NEPA. TTD and TRPA have determined that an EIR and an EIS, respectively, would provide the appropriate level of environmental analysis. Impacts described in this document, while determined to be significant under CEQA and TRPA regulations, are not significant under NEPA. Thus, an EA has been prepared by FHWA.

After receiving comments from the public and reviewing agencies, a final environmental document will be prepared. The lead agencies may prepare additional environmental and/or engineering studies to address comments. The final environmental document will include responses to comments received on the Draft EIR/EIS/EA. If the decision is made to approve the project, a Notice of Determination will be published for compliance with CEQA, and CFLHD will decide whether to issue a Finding of No Significant Impact (FONSI) or require an Environmental Impact Statement (EIS) for compliance with NEPA. A Notice of Availability (NOA) of the FONSI will be sent to the affected units of federal, state, and local government, and to the State Clearinghouse in compliance with Executive Order 12372.

Chapter 4, "Affected Environment and Environmental Consequences," of this Draft EIR/EIS/EA describes in detail the environmental effects that would result from implementation of the project alternatives. Impacts are determined to be: 1) no impact; 2) less than significant (adverse or potentially adverse effects that are not substantial); 3) significant or potentially significant (substantial or potentially substantial adverse changes in the environment, for which mitigation measures are required); and 4) significant and unavoidable (substantial or potentially substantial adverse changes in the environment that cannot be feasibly reduced to less-than-significant levels with mitigation measures). Where appropriate, beneficial impacts associated with the project alternative are also noted.

Table 2-1 (at the end of this chapter) summarizes the potential environmental effects that would result from implementation of the action alternatives; describes mitigation measures to address significant and potentially significant environmental effects; and identifies the significance of impacts both before and after mitigation.

Table 2-1 Summary of Resource Topics/Impacts and Mitigation Measures

Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
4.1. Agricultural and Forestry Resources			
Impact 4.1-1: Tree removal. Regardless of the magnitude of biological effects of tree removal, native trees are protected in the Tahoe Basin. Because Alternatives 1, 2, 3, and 4 would result in removal of more than 100 trees greater than 14 inches dbh, they would result in substantial tree removal, which would be a potentially significant impact. Implementation of Alternatives 6 and 6a would not result in substantial tree removal and impacts would be less than significant. While all action alternatives would require removal of trees greater than 30 inches dbh, which is generally prohibited by TRPA, the SR 89/Fanny Bridge Project is exempted because it is on the EIP list of projects. There would be no impact under Alternative 5 because no trees would be removed.	Alt. 1 = PS Alt. 2 = PS Alt. 3 = PS Alt. 4 = PS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS	Mitigation Measure 4.1-1: Prepare tree removal, protection, and replanting plan. This mitigation would apply for Alternatives 1, 2, 3, and 4. A Tree Removal, Protection, and Replanting Plan shall be prepared by the applicant to provide tree protection measures to comply with the performance criteria and other requirements of TRPA Code Section 61, prevent damage to trees that are proposed to remain, and determine appropriate tree replanting locations and approaches to occur in the project area. The Plan will include marking and inventorying the specific trees to be removed, after detailed design is completed. A qualified forester will make a determination regarding the project's consistency with Chapter 61 of the TRPA Code. The plan shall set forth prescriptions for tree removal, water quality protection, root zone and vegetation protection, residual stocking levels, replanting, slash disposal, fire protection, and other appropriate considerations.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS
Impact 4.1-2: Conversion of forest land. Implementation of the action alternatives would result in the conversion of forest land to non-forest use, including the removal of trees. However, because the existing land uses of the project site would otherwise remain the same, other forest land on the project site would be conserved, and regional forest land composition and distribution would not be altered by the project, forest resources would not be substantially changed. Thus, this impact would be less than significant under Alternatives 1, 2, 3, 4, 6, and 6a. Because no action would occur under Alternative 5, there would be no impact.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS	No mitigation is required.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS
4.2. Air Quality			
Impact 4.2-1. Consistency with air quality plans and transportation conformity. The 2013 Federal Transportation Improvement Program (FTIP) was found to conform to the SIPs in California and Nevada. The US Department of Transportation (DOT) made a CAA conformity determination for the 2013 FTIP on January 29, 2013 (DOT 2013). The 2013 FTIP is consistent with the transportation system and financial plan described in the most recent amendment to the applicable RTP, which is called <i>Mobility 2035: Lake Tahoe Regional Transportation Plan</i> and was adopted by TRPA and TMPO on December 12, 2012 (TRPA and TMPO 2012). The 2013 FTIP met all air quality conformity requirements when approved, and EPA has confirmed the transportation	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS	No mitigation is required.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS

Table 2-1 Summary of Resource Topics/Impacts and Mitigation Measures

Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
conformity determination for the RTP. The design concept and scope of the action alternatives are consistent with the project description in the applicable RTP and FTIP, as well as the assumptions in the Regional emissions analysis for the RTP and FTIP. Therefore, implementation of Alternatives 1, 2, 3, 4, 6, and 6a would be consistent with the assumptions in the Regional emissions analysis in the RTP and would conform to the SIP. While these beneficial effects would not be realized under Alternative 5, there would be no increase in mobile-source emissions and the LTAB would continue to conform with applicable air quality plans. Therefore, impacts related to the SIP and its consistency with Transportation Conformity would be less than significant for all the action alternatives; there would be no impact under Alternative 5.			
Impact 4.2-2. Short-term construction-related emissions of criteria air pollutants and precursors. Maximum daily emissions of criteria air pollutants and precursors would not exceed PCAPCD's thresholds of significance. Therefore, construction-generated emissions of criteria air pollutants and precursors would be less than significant for Alternatives 1, 2, 3, 4, 6, and 6a. There would be no impact under Alternative 5.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS	No mitigation is required.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS
Impact 4.2-3. Exposure of sensitive receptors to air toxics. Some TAC-emitting construction activities would be located in close proximity to existing sensitive receptors that are located in or near the project site (see Exhibit 4.2-1); however exposure to sensitive receptors from construction-generated TACs would not be substantial because the duration of construction activity at any one location would be limited. Short-term construction activity performed under Alternatives 1, 2, 3, 4, 6, and 6a would not result in the exposure of sensitive receptors to substantial TAC concentrations and, therefore, would be a less-than-significant impact. There would be no impact under Alternative 5.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS	No mitigation is required.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS
Impact 4.2-4. Localized, long-term mobile-source carbon monoxide emissions. Because the SR 89/Fanny Bridge Project would not result in an increase in VMT or result in a signalized intersection with LOS E or F, the action alternatives would not result in or contribute to CO concentrations that exceed applicable 1-hour and 8-hour CO ambient air quality standards. Under Alternative 5 the LOS at the wye intersection would deteriorate but this deterioration would not be caused by any new vehicle trips or changes in traffic patterns relative to existing conditions.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = LTS Alt. 6 = LTS Alt. 6a = LTS	No mitigation is required.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = LTS Alt. 6 = LTS Alt. 6a = LTS

Table 2-1 Summary of Resource Topics/Impacts and Mitigation Measures

Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
Therefore, operational emissions of CO would be less than significant for all the alternatives.			
Impact 4.2-5. Exposure of sensitive receptors to odors. The proposed land use type is not one that is commonly considered a source of odors. While construction of the action alternatives could result in temporary emissions of odorous diesel exhaust, it is not anticipated that this source would be excessive nor would it affect a substantial number of receptors. This would be a less-than-significant impact for Alternatives 1, 2, 3, 4, 6, and 6a. There would be no impact under Alternative 5.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS	No mitigation is required.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS
4.3. Biological Resources			
Impact 4.3-1. Disturbance or loss of common vegetation communities and wildlife habitats. Under all action alternatives (Alternatives 1, 2, 3, 4, 6, and 6a), project implementation would result in the removal or disturbance of 0.1 to 3.2 acres of common vegetation communities and habitats, including Jeffrey pine and white fir forest. Because these habitats are locally and regionally common and abundant, and the project site is presently affected by high levels of commercial/urban and recreational uses, none of the action alternatives would substantially reduce the size, continuity, or integrity of any common vegetation community or habitat type. Therefore, this impact would be less than significant under Alternatives 1, 2, 3, 4, 6, and 6a. Under the no project alternative (Alternative 5), no project-related vegetation removal would occur; therefore, there would be no impact to common vegetation communities and habitats from this alternative.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS	No mitigation is required.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS
Impact 4.3-2. Disturbance or loss of sensitive habitats (jurisdictional wetlands, riparian vegetation, and SEZ). Implementing any action alternative (Alternative 1, 2, 3, 4, 6, or 6a) would result in direct removal and disturbance of sensitive habitats, including waters of the United States, waters of the state, riparian habitat, and SEZs. This impact would be significant. Under the no project alternative (Alternative 5), no project-related ground disturbances or vegetation removal would occur; therefore, there would be no impact to sensitive habitats from this alternative.	Alt. 1 = S Alt. 2 = S Alt. 3 = S Alt. 4 = S Alt. 5 = NI Alt. 6 = S Alt. 6a = S	Mitigation Measure 4.3-2a: Implement vegetation protection measures and revegetate disturbed areas. Vegetation will not be disturbed, injured or removed, except in accordance with the Code or conditions of Project approval. All trees, major roots, and other vegetation, not specifically designated and approved for removal in connection with a project will be protected according to methods approved by TRPA. All vegetation outside the construction site boundary, as well as other vegetation designated on the approved plans, will be protected by installing temporary fencing pursuant to subsections 33.6.9 and 33.6.10. Areas outside the construction site boundary that sustain vegetation damage during construction will be revegetated according to a revegetation plan in accordance with Section 61.4.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS

Table 2-1 Summary of Resource Topics/Impacts and Mitigation Measures			
Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
		<p>Mitigation Measure 4.3-2b: Conduct delineation of waters of the United States and obtain authorization for fill and required permits. Two delineations of wetlands and other waters of the U.S. within the project site have been completed (NCE 2012, 2013). The first delineation (NCE 2012), which was verified by USACE, covered most but not all the current project site, because the project site configuration changed after the delineation was completed and submitted to USACE. The second delineation (NCE 2013) covered the current, expanded project site. The following would apply, as applicable, to any potentially affected jurisdictional resources that have not been delineated or verified by USACE prior to project implementation.</p> <p>Prior to the start of on-site construction activities on any potentially affected jurisdictional resource that has not been previously delineated or verified by the USACE, a qualified biologist will survey the project site for sensitive natural communities. Sensitive natural communities or habitats are those of special concern to resource agencies or those that are afforded specific consideration, based on Section 404 of the CWA and other applicable regulations. If sensitive natural communities or habitats that are afforded specific consideration, based on Section 404 of the CWA are determined to be present, a delineation of waters of the United States, including wetlands that would be affected by the project, will be prepared by a qualified biologist through the formal Section 404 wetland delineation process. The delineation will be submitted to and verified by USACE. If, based on the verified delineation, it is determined that fill of waters of the United States would result from implementation of the project, authorization for such fill will be secured from USACE through the Section 404 permitting process. The acreage of riparian habitat (deciduous riparian vegetation) that would be removed or disturbed during project implementation will be quantified and replaced or restored/enhanced in accordance with USACE and TRPA regulations. Habitat restoration, enhancement, and/or replacement will be at a location and by methods agreeable to USACE as determined during the permitting processes for CWA Section 404 and by TRPA during the permitting process for SEZ.</p> <p>Mitigation Measure 4.3-2c: Obtain and comply with a lake and streambed alteration agreement; compensate for unavoidable loss of stream and riparian habitat. The following measures would be implemented to avoid or compensate for the loss or degradation of stream or riparian habitat, ensure</p>	

Table 2-1 Summary of Resource Topics/Impacts and Mitigation Measures			
Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
		<p>consistency with Fish and Game Code Section 1602, and further reduce potential adverse effects on riparian habitats:</p> <ul style="list-style-type: none"> ▲ The project proponent will notify CDFW before commencing any activity within the bed, bank, or riparian corridor of any waterway. If activities trigger the need for a Streambed Alteration Agreement, the proponent will obtain an agreement from CDFW. The project proponent will conduct construction activities in accordance with the agreement, including implementing reasonable measures in the agreement necessary to protect the fish and wildlife resources, when working within the bed or bank of waterways that function as a fish or wildlife resource or in riparian habitats associated with those waterways. ▲ The project proponent shall compensate for permanent riparian habitat impacts at a minimum of a 1:1 ratio through contributions to a CDFW approved wetland mitigation bank or through the development and implementation of a Compensatory Stream and Riparian Mitigation and Monitoring Plan aimed at creating or restoring in-kind habitat in the surrounding area. If mitigation credits are not available, stream and riparian habitat compensation shall include establishment of riparian vegetation on currently unvegetated bank portions of streams affected by the project and enhancement of existing riparian habitat through removal of nonnative species, where appropriate, and planting additional native riparian plants to increase cover, continuity, and width of the existing riparian corridor along streams in the project site and surrounding areas. Construction activities and compensatory mitigation shall be conducted in accordance with the terms of a streambed alteration agreement as required under Section 1602 of the Fish and Game Code. ▲ The Compensatory Stream and Riparian Mitigation and Monitoring Plan shall include the following: <ul style="list-style-type: none"> ▶ identification of compensatory mitigation sites and criteria for selecting these mitigation sites; ▶ in kind reference habitats for comparison with compensatory riparian habitats (using performance and success criteria) to document success; ▶ monitoring protocol, including schedule and annual report requirements (Compensatory habitat shall be monitored for a 	

Table 2-1 Summary of Resource Topics/Impacts and Mitigation Measures			
Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
Impact 4.3-3. Introduction and spread of invasive plants. Under all action alternatives (Alternatives 1, 2, 3, 4, 6, and 6a), project implementation has the potential to introduce and spread terrestrial and aquatic invasive plants during construction and revegetation periods. Noxious weeds and other invasive plants could inadvertently be introduced or spread in the project area during grading and construction activities, if nearby source populations passively colonize disturbed ground, or if construction and personnel equipment is transported to the site from an infested area. Soil, vegetation, and other materials transported to the study area from off-site sources for best management practices (BMPs), revegetation, or fill for project construction could contain invasive plant seeds or plant material that could become established in the study area. Additionally, terrestrial and aquatic invasive species currently present in or near the study area have the potential to be spread by construction disturbances. The introduction and spread of terrestrial or aquatic invasive species would degrade terrestrial plant, wildlife, and aquatic habitats, including habitats of special significance (riparian) within the study area. The potential introduction and spread of terrestrial or aquatic invasive species under Alternatives 1, 2, 3, 4, 6, and 6a would be a potentially significant impact. Under the no project alternative (Alternative 5), no project-related ground	Alt. 1 = PS Alt. 2 = PS Alt. 3 = PS Alt. 4 = PS Alt. 5 = NI Alt. 6 = PS Alt. 6a = PS	<p>minimum of 5 years from completion of mitigation, or human intervention (including recontouring and grading), or until the success criteria identified in the approved mitigation plan have been met, whichever is longer.);</p> <ul style="list-style-type: none"> ▶ ecological performance standards, based on the best available science and including specifications for native riparian plant densities, species composition, amount of dead woody vegetation gaps and bare ground, and survivorship; at a minimum, compensatory mitigation planting sites must achieve 80% survival of planted riparian trees and shrubs by the end of the five-year maintenance and monitoring period or dead and dying trees shall be replaced and monitoring continued until 80 percent survivorship is achieved; ▶ corrective measures if performance standards are not met; ▶ responsible parties for monitoring and preparing reports; and ▶ responsible parties for receiving and reviewing reports and for verifying success or prescribing implementation or corrective actions. 	
Mitigation Measure 4.3-3a: Implement invasive plant management practices during project construction. In consultation with TRPA and USFS, the project proponent shall implement appropriate invasive plant management practices during project construction. Recommended practices generally include the following:	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS	<ul style="list-style-type: none"> ▶ For project activities on USFS land, a Noxious Weed Risk Assessment will be prepared for all areas to be temporarily impacted. Applicable LTBMU Invasive Plant Management Measures will be implemented under the direction of the Forest Botanist. ▶ Before construction activities begin, invasive plant infestations will be treated where feasible. Treatments will be selected based on each species ecology and phenology. All treatment methods—including the use of herbicides—will be conducted in accordance with the law, regulations, and policies governing the land owner (e.g., TRPA and/or LTBMU). Land owners will be notified prior to the use of herbicides for invasive treatment. In areas where treatment is not feasible, noxious weed areas will be clearly flagged or fenced in order to clearly delineate work exclusion. 	

Table 2-1 Summary of Resource Topics/Impacts and Mitigation Measures

Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
disturbance or vegetation removal would occur; therefore, there would be no impact related to the introduction or spread of invasive plants from this alternative.		<ul style="list-style-type: none"> ▲ To ensure that fill material and seeds imported to the project site are free of invasive plants/noxious weeds, the project will use on-site sources of fill and seeds whenever available. Fill and seed materials that need to be imported to the project site will be certified weed-free. In addition, only certified weed-free imported materials (or rice straw in upland areas) will be used for erosion control. ▲ Vehicles and equipment will arrive at the study area clean and weed-free. All equipment entering the project site from weed-infested areas or areas of unknown weed status will be cleaned of all attached soil or plant parts before being allowed into the project site. Vehicles and equipment will be cleaned using high-pressure water or air at designated weed-cleaning stations after exiting a weed-infested area. Cleaning stations will be designated by a botanist or noxious weed specialist and located away from aquatic resources. Equipment will be inspected by the on-site environmental monitor for mud or other signs that weed seeds or propagules could be present prior to use in the study area. If the equipment is not clean, the monitor will deny entry into work areas. ▲ If designated weed-infested areas are unavoidable, the plants will be cut, if feasible, and disposed of in a landfill in sealed bags or disposed of or destroyed in another manner acceptable to the USFS, TRPA, or other agency as appropriate. If cutting weeds is not feasible, layers of mulch, degradable geotextiles, or similar materials will be placed over the infestation area to minimize the spread of seeds and plant materials by equipment and vehicles during construction. These materials will be secured so they are not blown or washed away. ▲ Locally collected native seed sources for revegetation shall be used when possible. Plant and seed material will be collected from or near the study area, from within the same watershed, and at a similar elevation when possible and with approval of the appropriate authority (e.g., USFS botanist for collection on USFS land). Persistent nonnatives such as cultivated timothy (<i>Phleum pretense</i>), orchard grass (<i>Dactylis glomerata</i>), or ryegrass (<i>Lolium spp.</i>) shall not be used. ▲ After the project is completed, the USFS noxious weed coordinator shall be notified so that the USFS portion of the project site can be monitored by the USFS if desired. Monitoring could be for up to three years (as 	

Table 2-1 Summary of Resource Topics/Impacts and Mitigation Measures			
Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
		<p>feasible) subsequent to project implementation to ensure additional nonnative invasive species do not become established in the areas affected by the project and to ensure that known nonnative invasive species do not spread.</p> <p>Mitigation Measure 4.3-3b: Implement aquatic invasive species management practices during project construction. In consultation with TRPA and consistent with USFSWS Hazard Analysis and Critical Control Point (HACCP) planning guidance, the project proponent shall develop and implement a plan that includes appropriate aquatic invasive species management practices during project construction. Recommended practices include the following:</p> <ul style="list-style-type: none"> ▲ All equipment, including individual equipment such as waders, wading boots, etc., entering the study area that will be used in or around the Truckee River or Lake Tahoe shall be decontaminated using methods recommended in the <i>Lake Tahoe Region Aquatic Invasive Species Management Plan</i> (USACE 2009) before being allowed into the study area. ▲ If applicable, all equipment, including individual equipment such as waders, wading boots, etc., used in known infested areas within the study area shall be decontaminated using the above mentioned methods before entering any other areas of the study area not known to contain aquatic invasive species. ▲ Aquatic invasive species encountered during fish removal and relocation efforts will be euthanized and/or removed from the watershed. 	
Impact 4.3-4. Disturbance or loss of special-status wildlife species and habitats. Under all action alternatives (Alternatives 1, 2, 3, 4, 6, and 6a), constructing or expanding roadway alignments, roadway features (e.g., curbs, gutters, retaining walls), bike path realignment, and other project elements could result in disturbances to two special-status wildlife species (waterfowl and olive-sided flycatcher). Disturbances resulting in loss of individuals or nests, or disruptions to nesting attempts by special-status species would be a potentially significant impact. Because no project-related ground disturbance or vegetation removal would occur under the no project alternative (Alternative 5), there would be no impact to special-status species from this alternative.	Alt. 1 = PS Alt. 2 = PS Alt. 3 = PS Alt. 4 = PS Alt. 5 = NI Alt. 6 = PS Alt. 6a = PS	<p>Mitigation Measure 4.3-4: Conduct pre-construction surveys for nesting special-status birds, and implement a limited operating period if necessary. For construction activities that would occur in suitable habitat during the nesting season (generally April 1–August 31, depending on snowpack and other seasonal conditions), a qualified wildlife biologist shall conduct focused surveys for waterfowl and olive-sided flycatcher nests no more than 14 days before construction activities are initiated each construction season. If an active nest is located during the preconstruction surveys, the biologist shall notify TRPA and/or CDFW. If necessary, modifications to the project design to avoid removal of occupied habitat while still achieving project objectives shall be evaluated, and implemented to the extent feasible. If avoidance is not</p>	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS

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Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
		feasible or conflicts with project objectives, appropriate buffers around nests and limited operating periods will be established through consultation with TRPA and/or CDFW to avoid disturbances during the sensitive nesting season.	
<p>Impact 4.3-5. Short-term effects on aquatic resources resulting from construction. Under Alternatives 1, 2, 3, 4, 6, and 6a, project construction and staging near aquatic habitats could temporarily result in adverse impacts to aquatic resources in the Truckee River. Additionally, the action alternatives would require construction and/or rehabilitation of bridge foundations and footings below the ordinary high water mark and within the river channel, dewatering, and water diversion. Because TRPA, State and Regional WQCB, and Placer County regulations are in place to minimize erosion and transport of sediment and other pollutants during construction, and appropriate project-specific measures would be defined to secure necessary permits and approvals, construction-related impacts to aquatic resources would be minimized and would not result in substantial adverse effects on water quality or aquatic habitat quality and functions in the Truckee River. However, even with incorporation of these measures and requirements into the project, project construction could result in loss or degradation of stream or riparian habitat protected under Section 1602 of the Fish and Game Code. Additionally, construction would include dewatering activities that would result in the temporary loss of aquatic habitat. Any disturbance to the bed and bank of a waterway that provides habitat functions and requiring a Streambed Alteration Agreement from CDFW, and potential injury or mortality to native fish during dewatering activities, would be considered a potentially significant impact to aquatic resources. Because no project-related ground disturbance or in-channel construction would occur under the No Project Alternative (Alternative 5), there would be no impact to aquatic resources from this alternative.</p>	Alt. 1 = PS Alt. 2 = PS Alt. 3 = PS Alt. 4 = PS Alt. 5 = NI Alt. 6 = PS Alt. 6a = PS	<p>Mitigation Measure 4.3-5a Implement Mitigation Measure 4.3-2b.</p> <p>Mitigation Measure 4.3-5b Implement Mitigation Measure 4.3-2c.</p> <p>Mitigation Measure 4.3-5c: Conduct preconstruction surveys and develop and implement native-fish capture and translocation plan. The project proponent shall develop and implement measures to prevent the construction-related loss of native fish occupying habitat within the study area. In accordance with existing regulations, before any construction activities that require dewatering commence, a qualified biologist shall conduct preconstruction surveys and implement native-fish relocation activities (if native fish are present) within the construction dewatering area. All captured native fish species shall be immediately released to a suitable habitat near the study area. The qualified biologist shall place nets with 1/8-inch mesh at the upstream and downstream extents of the area to be dewatered to keep fish out of the area during fish removal activities. After completion of removal activities, the work area will be cleared for dewatering. Fish rescue and relocation will continue until the area is completely dewatered or until it is determined that no fish remain in the dewatering area. This fish translocation plan will apply only to native fish species. Nonnative species captured during the pre-dewatering effort will be humanely killed and disposed of. These activities shall take place in consultation with TRPA and CDFW.</p>	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS
<p>Impact 4.3-6. Potential effects on Lahontan cutthroat trout. Lahontan cutthroat trout is listed as endangered under the ESA. Although LCT could potentially occur in the Truckee River on the project site due to hydrologic connectivity with occupied habitat, LCT is not known or expected to occur there due to degraded habitat conditions and overall rarity in the watershed. Under Alternatives 1, 2, 3, 4, 6, and 6a, project construction and staging near the Truckee River could temporarily result in adverse impacts to fish habitat. Because TRPA, State and Regional WQCB, and Placer County regulations are in place to minimize erosion</p>	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS	No mitigation is required.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS

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Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
and transport of sediment and other pollutants during construction, and appropriate project-specific measures would be defined to secure necessary permits and approvals, construction-related impacts to aquatic resources would be minimized and would not result in substantial adverse effects on fish habitat quality and functions in the Truckee River within or downstream of the project site. Additionally, because Lahontan cutthroat trout is not known or expected to occur on the project site, potential impacts to Lahontan cutthroat trout are considered less than significant. Because no project-related grading, ground disturbance, vegetation removal, or in-channel construction would occur under Alternative 5, there would be no impact to Lahontan cutthroat trout from this alternative.			
4.4. Cultural Resources			
Impact 4.4-1. Historical resources. The action alternatives have the potential to affect the NRHP-listed Lake Tahoe Dam and associated Outlet Gates through the rehabilitation or replacement of the adjacent Fanny Bridge. The action alternatives would not physically alter the dam or gates; however, construction would occur immediately adjacent to the resources. Overall, the replacement or rehabilitation of Fanny Bridge would result in a bridge that would be similar in size and scale to the existing bridge and the new elements would be of comparable visual relationship to that of the existing bridge. Therefore, while there would be no change in the significance of the resource, because of the risk of construction damage to the resource this impact would be potentially significant for Alternatives 1, 2, 3, 4, 6, and 6a. There would be no impact under Alternative 5.	Alt. 1 = PS Alt. 2 = PS Alt. 3 = PS Alt. 4 = PS Alt. 5 = NI Alt. 6 = PS Alt. 6a = PS	Mitigation Measure 4.4-1: Ensure historic integrity during construction. This mitigation would apply for Alternatives 1, 2, 3, 4, 6, and 6a. During design development, engineering design and specifications will be prepared to account for the proximity of construction activities associated with rehabilitation or replacement of Fanny Bridge to the Lake Tahoe Dam, Outlet Gates, and stilling basin and define separation distances, construction techniques, and other protective design details to avoid damage to the dam-related structures. This measure will include attention to the construction activity related to the bridge's pile support structures. Where project construction activities will take place in the vicinity of the Lake Tahoe Dam, Outlet Gates, and stilling basin, those facilities shall be clearly identified in the field to facilitate maintenance of a physical separation from construction activities and other protection actions to adequately protect historically important features of the dam structure.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS
Impact 4.4-2. Archaeological resources. Construction and excavation activities associated with the action alternatives could result in sediment disturbance and removal, which can adversely affect archaeological resources. Because Alternatives 1, 2, 3, 4, 6, and 6a would include excavation and other ground-disturbing activities, these alternatives could result in adverse physical effects to known and unknown archaeological resources. This impact is potentially significant for Alternatives 1, 2, 3, 4, 6, and 6a. There would be no impact under Alternative 5.	Alt. 1 = PS Alt. 2 = PS Alt. 3 = PS Alt. 4 = PS Alt. 5 = NI Alt. 6 = PS Alt. 6a = PS	Mitigation Measure 4.4-2a: Conduct archaeological monitoring. The following mitigation was included in the RTP/SCS EIR/EIS, which included the SR 89/Fanny Bridge Community Revitalization Project as one of the TTD Capital Improvement Program projects in the RTP. This mitigation would apply for Alternatives 1, 2, 3, 4, 6, and 6a. In accordance with existing regulations, for ground-disturbing activities that have the potential to impact archaeological remains and that will occur in an area that has been determined by a qualified archaeologist to be an area that is sensitive for the presence of buried archaeological remains, the project	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS

Table 2-1 Summary of Resource Topics/Impacts and Mitigation Measures			
Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
		<p>proponent (e.g., TTD, local county, Caltrans, NDOT) will require the construction contractor to retain a qualified archaeologist to monitor those activities. Archaeological monitoring will be conducted in areas where there is likelihood that archaeological remains may be discovered but where those remains are not visible on the surface. Monitoring will not be considered a substitute for efforts to identify and evaluate cultural resources prior to the project initiation. Where necessary, the project proponent will seek Native American input and consultation.</p> <p>Mitigation Measure 4.4-2b: Stop work in the event of an archaeological discovery. The following mitigation was included in the RTP/SCS EIR/EIS, which included the SR 89/Fanny Bridge Community Revitalization Project as one of the TTD Capital Improvement Program projects in the RTP. This mitigation would apply for Alternatives 1, 2, 3, 4, 6, and 6a.</p> <p>If potentially significant cultural resources are discovered during ground-disturbing activities associated with individual project preparation, construction, or completion, the project proponent will require the construction contractor to stop work in that area until a qualified archaeologist can access the significance of the find, and, if necessary, develop appropriate treatment measures in consultation with TRPA and other appropriate agencies and interested parties. A qualified archaeologist will follow accepted professional standards in recording any find including submittal of the standard Department of Parks and Recreation (DPR) Primary Record forms (Form DPR 523) and location information to the California Historical Resources Information Center office (North Central Information Center) for California projects. The consulting archaeologist will also evaluate such resources for significance per California Register of Historical Resources eligibility criteria (PRC Section 5024.1; Title 14 CCR Section 4852). Consultation with the Nevada State Historic Preservation Officer will be undertaken for Nevada projects.</p> <p>If the archaeologist determines that the find does not meet the TRPA standards of significance for cultural resources, construction may proceed. If the archaeologist determines that further information is needed to evaluate significance, the lead agency will be notified and a data recovery plan will be prepared.</p>	

Table 2-1 Summary of Resource Topics/Impacts and Mitigation Measures			
Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
Impact 4.4-3. Accidental discovery of human remains. Construction and excavation activities associated with development activities result in sediment disturbance and removal, which can unearth human remains if they are present. Because the project would allow excavation and other ground-disturbing activities, this impact is potentially significant for Alternatives 1, 2, 3, 4, 6, and 6a. There would be no impact under Alternative 5.	Alt. 1 = PS Alt. 2 = PS Alt. 3 = PS Alt. 4 = PS Alt. 5 = NI Alt. 6 = PS Alt. 6a = PS	<p>Mitigation Measure 4.4-3: Stop work if human remains are discovered. The following mitigation was included in the RTP/SCS EIR/EIS, which included the SR 89/Fanny Bridge Community Revitalization Project as one of the TTD Capital Improvement Program projects in the RTP. This mitigation would apply for Alternatives 1, 2, 3, 4, 6, and 6a.</p> <p>In accordance with existing regulations, if any human remains are discovered or recognized in any location on an individual project site, the project proponent will ensure that there will be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:</p> <ul style="list-style-type: none"> a) The applicable County Coroner/Sheriff has been informed and has determined that no investigation of the cause of death is required; and b) If the remains are of Native American origin, <ul style="list-style-type: none"> 1. The descendants of the deceased Native Americans have made a recommendation to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98, or 2. The Native American Heritage Commission was unable to identify a descendant or the descendant failed to make a recommendation within 24 hours after being notified by the commission. 3. The site shall be flagged and avoided during construction. c) If human remains, grave goods, or items of cultural patrimony (as defined in the Native American Graves Protection and Repatriation Act [NAGPRA]) are discovered during ground disturbing activities on Federal Property, work will cease until the provisions of NAGPRA are met. 	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS
Impact 4.4-4. Undiscovered paleontological resources. Although ground disturbing activities associated with the project could affect subsurface resources, because the area has a low likelihood to contain paleontological resources, this impact would be less than significant for Alternatives 1, 2, 3, 4, 6, and 6a. There would be no impact under Alternative 5.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS	No mitigation is required.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS

Table 2-1 Summary of Resource Topics/Impacts and Mitigation Measures

Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
Impact 4.4-5. Ethnic and cultural values. Because the project could result in physical changes to historic and prehistoric sites, unique ethnic cultural values could be affected, and historic or prehistoric religious or sacred uses within the APE could be restricted. Consultation with the Washoe tribe is required by federal, state and TRPA regulations, however, project activities could still uncover or destroy historic or archaeological resources as identified in Impacts 4.4-1 (historic) and 4.4-2 (archaeological). Additionally, as described in Impact 4.4-3 (human remains), project activities could result in accidental discovery of remains during grading and excavation. Accidentally discovered remains could be of Native American origin. Therefore, this impact is potentially significant for Alternatives 1, 2, 3, 4, 6, and 6a. There would be no impact under Alternative 5.	Alt. 1 = PS Alt. 2 = PS Alt. 3 = PS Alt. 4 = PS Alt. 5 = NI Alt. 6 = PS Alt. 6a = PS	Mitigation Measure 4.4-5: Implement other cultural resources mitigation measures. The following mitigation applies for Alternatives 1, 2, 3, 4, 6, and 6a. Implement Mitigation Measures 4.4-2a, 4.4-2b, and 4.4-3.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS
4.5. Geology, Soils, Land Capability and Coverage			
Impact 4.5-1. Project site grading and erosion. Implementation of the action alternatives could expose soils and SEZs to adverse effects from soil erosion during construction activities related to roadway, bridge, and bike path construction. Grading and earthmoving activities would be required to obtain grading and excavation permits and approvals in accordance with TRPA Code Chapter 33 and the Placer County grading ordinance. Adherence to existing, standard regulations and permit requirements would maintain the potential for substantial soil erosion or loss of topsoil for all action alternatives (Alternatives 1, 2, 3, 4, 6 and 6a) at a less-than-significant level. Implementation of Alternative 5 would result in no impact.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS	No mitigation is required.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS
Impact 4.5-2. Seismic hazards. The vicinity does not contain a regulated Alquist-Priolo Earthquake Fault Zone; however, several active faults are located near to the project site that could subject project components to ground shaking and ground failure. All action alternatives would include the rehabilitation or replacement of the existing Fanny Bridge, which does not meet current Caltrans seismic design standards. Additionally, implementation of Alternatives 1, 2, 3, and 4 would result in a new bridge crossing of the Truckee River. This would provide two options for potential evacuation routes and would reduce the risk to public safety due to damage to one bridge during a large earthquake. Because the project alternatives involve the improvement or realignment of existing roadways and trails, there would be no change in risks related to an earthquake-triggered seiche. For these reasons, implementation of Alternatives 1, 2, 3, 4, 6, and 6a	Alt. 1 = B Alt. 2 = B Alt. 3 = B Alt. 4 = B Alt. 5 = LTS Alt. 6 = B Alt. 6a = B	No mitigation is required.	Alt. 1 = B Alt. 2 = B Alt. 3 = B Alt. 4 = B Alt. 5 = LTS Alt. 6 = B Alt. 6a = B

Table 2-1 Summary of Resource Topics/Impacts and Mitigation Measures			
Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
would reduce the risk to people and property from earthquakes or strong seismic shaking and would have an overall beneficial impact. The No Action Alternative would continue the existing risk of seismic damage from the deteriorated condition of Fanny Bridge. Because this condition is not a substantial change from the existing conditions however, the impact would be less than significant.			
Impact 4.5-3. Other geologic hazards. Moderately expansive or unstable soils have the potential to occur within the project site. Expansive soils can change in volume, causing damage to structures or foundations. Construction of proposed bridge components would take place on river banks and in areas where unstable soils have been observed. Through completion of the Geotechnical Engineering Report and adherence to its recommendations, the potential for the project to result in the creation of unstable slopes would be minimized. Additionally, the project would not expose users to risks related to liquefaction and expansive soils. Therefore this would be a less-than-significant impact. There would be no impact under Alternative 5.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS	No mitigation is required.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS
Impact 4.5-4. Land coverage. Alternatives 1, 2, 3, 4, 6, and 6a would result in increases in land coverage within LCDs 1b and 5. Because the coverage increase associated with the action alternatives would comply with TRPA land coverage regulations, the potential for these alternatives to create an adverse effect related to land coverage would be less than significant. There would be no impact under Alternative 5.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS	No mitigation is required.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS
4.6. Greenhouse Gas Emissions and Climate Change			
Impact 4.6-1. GHG emissions and consistency with the Regional Transportation Plan. Implementation of the project alternatives would not result in an increase in VMT or associated mobile-source GHG emissions, and implementation of the action alternatives would be consistent with implementation of the RTP/SCS, which aims to achieve targets assigned by the RTAC for mobile-source GHGs. Also, construction-related GHG emissions would be less than significant for all the action alternatives. Implementation of the No Action Alternative (Alternative 5) would retain existing traffic conditions, including existing levels of congestion and traffic flow but would not result in an increase in GHG emissions relative to existing conditions. Therefore, this would be a less-than-significant impact.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = LTS Alt. 6 = LTS Alt. 6a = LTS	No mitigation is required.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = LTS Alt. 6 = LTS Alt. 6a = LTS

Table 2-1 Summary of Resource Topics/Impacts and Mitigation Measures

Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
<p>Impact 4.6-2. Impacts of climate change on the project. Climate change is expected to result in a variety of effects in the project area including increased frequency and intensity of wildfires; changes to timing and intensity of precipitation resulting in increased risk from landslides associated with ground saturation, increased stormwater runoff, and potential increased risk of bridge scour; and increased intensity of storm events that result in increased snow loading and high winds that can down traffic signals, light poles and signage and cause trees to fall onto the roadway or multiuse trails. However, there are numerous programs and policies in place, as well as design measures to the new or rehabilitated bridges, that would protect against these climate change risks. Therefore, environmental effects related to exposure to climate change risks would be less than significant for all the alternatives.</p>	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = LTS Alt. 6 = LTS Alt. 6a = LTS	No mitigation is required.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = LTS Alt. 6 = LTS Alt. 6a = LTS
<p>Impact 4.7-1. Surface water quality All project alternatives would be required to comply with federal, state, regional, and TRPA water quality standards and waste discharge requirements. Implementation of Alternatives 1, 2, 3, 4, 6, and 6a would involve ground disturbance and construction activities. Some of these activities would take place in and adjacent to the Middle Truckee River channel. Construction related ground disturbance could cause accelerated soil erosion and sediment loss that could be transported to nearby water bodies. Use of hazardous materials during construction (e.g., fuels, lubricants) could result in the release of these materials into nearby water bodies. Construction dewatering would not provide a mechanism for contaminant discharges, because all dewatering effluent would be pumped into trucks for offsite disposal. Short-term construction impacts would be avoided or minimized through adherence to various federal, state, and local laws, regulations, and programs which require implementation and continual monitoring and maintenance of BMPs to protect water quality during construction. Various measures included as part of the action alternatives would further reduce the risk of water quality degradation. Therefore, this impact would be less than significant for Alternatives 1, 2, 3, 4, 6, and 6a. Alternative 5 would have no impact on water quality.</p>	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS	No mitigation is required.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS

Table 2-1 Summary of Resource Topics/Impacts and Mitigation Measures

Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
<p>Impact 4.7-2. Groundwater interception. TRPA Code of Ordinances Section 33.3.6 prohibits groundwater interception or interference. Alternatives 1 through 4 would require excavation beyond 5 feet in depth for construction of bridge footings, installation of stormwater treatment facilities and retaining wall foundations, and modifications to the TTSA sewer line and NSEF sewer export main. While groundwater may be intercepted in these locations, the project components would be isolated and would not interfere with the rate or direction of groundwater flow. Additionally, a TRPA soil hydrology report would be prepared and submitted to TRPA as required by TRPA Code Section 33.3.6. Therefore, Alternatives 1, 2, 3, and 4 would have a less than significant impact related to groundwater interception. Alternatives 6 and 6a would also intercept groundwater for the restoration or replacement of Fanny Bridge; however the number of locations where groundwater would be intercepted would be fewer than for Alternatives 1 through 4. For the same reasons, Alternatives 6 and 6a would have a less than significant impact related to groundwater interception. There would be no impact under Alternative 5.</p>	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS	No mitigation is required.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS
<p>Impact 4.7-3. Stormwater runoff and drainage capacity. Alternatives 1, 2, 3, and 4 would result in increases in impervious surfaces associated with the new bridge, roadway, and pedestrian and bicycle improvements. Alternatives 6 and 6a would also create increased impervious surfaces but to a lesser degree. Project components could also require the relocation of existing stormwater infrastructure. The project would be required to comply with the stringent requirements for stormwater and erosion control contained in the Lahontan Water Quality Control Plan, the Truckee River TMDL Program, and existing NPDES permits. Therefore, if adverse increases in runoff were possible in a particular area, compliance with these plans and programs would ensure that adverse effects were avoided. Thus, implementation of Alternatives 1, 2, 3, and 4 would be less than significant. Alternative 6 and 6a would have a beneficial impact due to the slight increase or reduction in impervious surfaces and improvements to the existing storm drain system. There would be no impact under Alternative 5.</p>	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = B Alt. 6a = B	No mitigation is required.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = B Alt. 6a = B

Table 2-1 Summary of Resource Topics/Impacts and Mitigation Measures

Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
Impact 4.7-4. Flood hazard effects. Alternatives 1, 2, 3, 4, 6, and 6a would require construction of some bridge components within the 100-year floodplain and floodway. Additionally, Alternatives 1, 2, 3, and 4 would also locate a portion of a bike path within the 100-year floodplain. The project would comply with all LRWQCB and TRPA floodplain regulations. It would be constructed to prevent damage from flooding, and to result in no rise in the floodway elevation and no more than a one-foot increase in any base flood elevation of any floodplain. No effects on base flood elevations are anticipated. Additionally, protocols are in place to close bicycle and pedestrian facilities in flood hazard areas during high water events in order to minimize the risk of flood related injury or death. For these reasons, the effect of implementation of Alternatives 1, 2, 3, 4, 6, and 6a relative to flood hazards would be less than significant. There would be no impact under Alternative 5.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS	No mitigation is required.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS
4.8. Hazards, Hazardous Materials, and Risk of Upset			
Impact 4.8-1. Expose the public or environment to hazardous materials. Construction activities related to each of the action alternatives could involve the storage, use, and transport of hazardous materials typical of road construction projects. Use of hazardous materials would occur in compliance with all local, state, and federal regulations. Therefore, impacts related to exposure of the public or environment to hazardous materials would be less than significant for Alternatives 1, 2, 3, 4, 6, and 6a. There would be no impact related to Alternative 5.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS	No mitigation is required.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS
Impact 4.8-2. Hazardous materials sites. Roadway improvements could affect properties that are included on a list of hazardous materials sites. Therefore, the possibility of encountering hazardous materials exists and impacts related to exposure of the public or the environment to hazardous materials would be potentially significant for Alternatives 1, 2, 3, 4, 6, and 6a. There would be no impact related to Alternative 5.	Alt. 1 = PS Alt. 2 = PS Alt. 3 = PS Alt. 4 = PS Alt. 5 = NI Alt. 6 = PS Alt. 6a = PS	<p>Mitigation Measure 4.8-2a: Conduct surveys for asbestos-containing materials, aerially deposited lead, and lead-based paints and coatings. This mitigation would apply for Alternatives 1, 2, 3, 4, 6, and 6a.</p> <p>a. Demolition of buildings and roadways containing asbestos and lead-based materials will require specialized procedures and equipment, and appropriately certified personnel, as detailed in the applicable regulations. Buildings and roadways intended for demolition that were constructed before 1980 will be surveyed for asbestos, while those constructed before 1971 will be surveyed for lead.</p> <p>Prior to construction, all existing road right-of-ways in the project site shall be surveyed for lead contamination due to ADL and use of paint and coatings containing lead. All sampling would be conducted consistent with</p>	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS

Table 2-1 Summary of Resource Topics/Impacts and Mitigation Measures			
Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
		<p>applicable Caltrans requirements.</p> <p>b. A demolition plan shall be prepared for any location with positive results for asbestos or lead. The plan will specify how to appropriately contain, remove, and dispose of the asbestos and lead-containing material while meeting all requirements and BMPs to protect human health and the environment. A lead compliance plan shall be prepared by a Certified Industrial Hygienist (consistent with the requirements of Caltrans' SSP 14-11.07).</p> <p>Prior to demolition, the project applicant shall submit the written plan to the Placer County Environmental Health Department describing the methods to be used to: (1) identify locations that could contain hazardous residues; (2) remove plumbing fixtures known to contain, or potentially containing, hazardous materials; (3) determine the waste classification of the debris; (4) package contaminated items and wastes; and (5) identify disposal site(s) permitted to accept such wastes. Demolition shall not occur until the plan has been accepted by the Placer County Environmental Health Department and all potentially hazardous components have been removed to the satisfaction of Placer County Environmental Health Department staff. The project applicant shall also provide written documentation to the County that lead-based paint and asbestos testing and abatement, as appropriate, have been completed in accordance with applicable state and local laws and regulations. Lead abatement will include the removal of lead contaminated soil (considered soil with lead concentrations greater than 400 parts per million in areas where children are likely to be present).</p> <p>Mitigation Measure 4.8-2b: Prepare a construction hazard management plan. This mitigation would apply for Alternatives 1, 2, 3, 4, 6, and 6a.</p> <p>A construction hazardous materials management plan shall be developed to address potentially impacted soil, impacted groundwater, lead-based paint, and asbestos-containing materials that may be encountered during project construction activities. The construction hazardous materials management plan shall include provisions for agency notification, managing impacted materials, sampling and analytical requirements, and disposal procedures. The plan would include identification of construction site BMPs to minimize the</p>	

Table 2-1 Summary of Resource Topics/Impacts and Mitigation Measures

Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
		<p>potential for water quality impacts.</p> <p>The construction hazardous materials management plan shall cover the following:</p> <ul style="list-style-type: none"> ▲ petroleum hydrocarbon-impacted soils and/or groundwater that may be encountered during project construction activities in areas where construction depths exceed 2 feet bgs in the vicinity of the RECs described above; ▲ soils identified by the ADL surveys as being impacted by ADL within survey area right of ways; ▲ materials identified by the lead-based paint and asbestos-containing materials surveys as impacted by lead based paint and asbestos containing materials within bridge, pipe, and building materials; ▲ impacted soil or groundwater related to TRI pipe relocation; and ▲ guidance for relocating, removal, or repair of hazardous materials storage facilities (USTs or ASTs) that are impacted by project construction. The plan shall include information on assessment and potential handing of contaminated soils found during relocation. <p>The plan will include procedures to stop work if evidence of potential hazardous materials or contamination of soils or groundwater is encountered during construction, including the applicable requirements of the Comprehensive Environmental Response, Compensation, and Liability Act and CCR Title 22 regarding the disposal of wastes.</p>	
Impact 4.8-3. Wildland fire hazard. Implementation of all of the build alternatives would result in construction activities associated with the transportation improvements. However, these activities would have no effect on fuel loading or defensible space and would not include habitable structures. Although there would be an elevated risk of accidental ignition of a wildland fire due to increased construction activity in a forested area that has a very high fire hazard, the potential for standard construction practices to result in wildland fire would be low. Implementation of Alternatives 1, 2, 3, 4, 6, and 6a would result in a less-than-significant impact from wildland fire hazards. There would be no impact related to Alternative 5.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS	No mitigation is required.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS

Table 2-1 Summary of Resource Topics/Impacts and Mitigation Measures			
Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
4.9. Land Use and Planning			
Impact 4.9-1. Consistency with land use plans. Alternatives 1 through 4 would be consistent with existing land use plans that include realignment of State Route 89 through the 64-Acre Tract. Alternatives 6 and 6a would result in widening of the existing Fanny Bridge and other minor modifications; however, it would not be consistent with existing land use plans. Implementation of Alternatives 1, 2, 3, and 4 would be consistent. While implementation of Alternatives 5, 6, and 6a would not result in construction of allowable planned land uses (e.g., SR 89 realignment), they would not preclude later implementation of a similar project; thus, these alternatives would not be in conflict with existing land use plans.	Alt. 1 = Consistent Alt. 2 = Consistent Alt. 3 = Consistent Alt. 4 = Consistent Alt. 5 = Not in Conflict Alt. 6 = Not in Conflict Alt. 6a = Not in Conflict	No mitigation is required.	Alt. 1 = Consistent Alt. 2 = Consistent Alt. 3 = Consistent Alt. 4 = Consistent Alt. 5 = Not in Conflict Alt. 6 = Not in Conflict Alt. 6a = Not in Conflict
Impact 4.9-2. Physically divide an established community. Alternatives 1 through 4, 6, and 6a would maintain connectivity throughout the project site, and result in the same modes of transportation currently used under the existing conditions. Thus, the impacts under the build alternatives would be less than significant. Because no new structures would be installed under Alternative 5, there would be no impact.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS	No mitigation is required.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS
4.10. Noise			
Impact 4.10-1. Short-term construction noise impacts. Existing noise-sensitive receptors are located within 50 feet of construction areas. Most heavy-duty construction equipment use and activity would occur during the daytime. However, some minor roadwork would occur at night. Nighttime activities would not result in substantial increases in noise above existing ambient noise levels and would not exceed applicable standards at the nearest sensitive receptors. Daytime construction could occur outside of the exempt daytime hours by Placer County or TRPA; therefore, could potentially exceed applicable standards and result in excessive noise at nearby sensitive receptors. This would be a significant impact for Alternatives 1, 2, 3, 4, 6, and 6a. No construction would occur under Alternative 5 and therefore no impact would occur.	Alt. 1 = S Alt. 2 = S Alt. 3 = S Alt. 4 = S Alt. 5 = NI Alt. 6 = S Alt. 6a = S	<p>Mitigation Measure 4.10-1a: Limit construction hours.</p> <p>This mitigation will apply to Alternatives 1, 2, 3, 4, 6, and 6a.</p> <p>To reduce noise exposure during the sensitive times of the day, construction activities will comply with the following limitations.</p> <p>For daily construction activities (e.g., heavy duty equipment, pile driving, paving, cement removal), with the exception of minor night time activities as described under Impact 4.10-1, construction will begin no earlier than 8:00 a.m. and continue no later than 6:30 p.m. daily.</p> <p>Mitigation Measure 4.10-1b: Noise controls for construction equipment.</p> <p>This mitigation will apply for Alternatives 1, 2, 3, 4, 6, and 6a.</p> <p>To reduce noise levels from the use of heavy-duty construction equipment the construction contractor will comply with the following measures.</p> <p>All construction equipment shall be equipped with properly operating mufflers and engine shrouds, in accordance with manufacturers' specifications.</p>	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS

Table 2-1 Summary of Resource Topics/Impacts and Mitigation Measures

Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
		<p>Inactive construction equipment shall not be left idling for prolonged periods of time (i.e., more than 5 minutes).</p> <p>Stationary equipment (e.g., power generators) and staging area for other equipment shall be located at the maximum distance feasible from nearby noise-sensitive receptors (i.e., receptors defined in Exhibit 4.10-1 and Tables 4.10-13a and -13b).</p> <p>Trucks hauling materials and goods to and from the construction site shall only do so during construction seasons (i.e., May 1 through October 15).</p> <p>As directed by FHWA, the contractor will implement appropriate additional noise mitigation measures, including changing the location of stationary construction equipment, turning off idling equipment, rescheduling construction activity, notifying adjacent residents in advance of construction work, and installing acoustic barriers around stationary construction noise source.</p>	
<p>Impact 4.10-2. Ground vibration impacts. Existing noise-sensitive receptors and structures are located within 50 feet of potential pile driving locations. Thus, receptors could be exposed to excessive levels of ground vibration and vibration noise such that structural damage and human disturbance could occur. This would be a significant impact for Alternatives 1, 2, 3, 4, 6, and 6a. No construction would occur under Alternative 5 and therefore there would be no impact.</p>	Alt. 1 = S Alt. 2 = S Alt. 3 = S Alt. 4 = S Alt. 5 = NI Alt. 6 = S Alt. 6a = S	<p>Mitigation Measure 4.10-2a: Implement 4.10-1a</p> <p>Mitigation Measure 4.10-2b: Reduce exposure to construction-generated ground vibration.</p> <p>This mitigation will apply to Alternatives 1, 2, 3, 4, 6, and 6a.</p> <p>To reduce exposure to construction-generated ground vibration, measures will be developed to address vibration generated during construction and demolition activity. TRPA's Best Construction Practices Policy may include required setback distances for various types of construction equipment that generate ground vibration, as well as criteria for conducting site-specific studies where these setback distances cannot be maintained. Measures required by the policy to minimize exposure to ground vibration may include, but are not limited to, the following:</p> <p>Holes shall be predrilled to the maximum feasible depth to reduce the number of blows required to seat the pile.</p> <p>All construction equipment on construction sites shall be operated as far away from vibration-sensitive sites as reasonably possible.</p> <p>Earthmoving and ground-impacting operations shall be phased so as not to occur simultaneously in areas close to offsite sensitive receptors, to the extent</p>	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS

Table 2-1 Summary of Resource Topics/Impacts and Mitigation Measures			
Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
		<p>feasible. The total vibration level produced could be significantly less when each vibration source is operated at separate times.</p> <p>No construction or demolition activity shall be performed that would expose an existing structure to levels of ground vibration that exceeds 0.20 in/sec PPV. The vibration control program shall include minimum setback requirements for different types of ground vibration-producing activities (e.g., pile driving, blasting) for the purpose of preventing damage to nearby structures.</p> <p>Established setback requirements 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.</p> <ul style="list-style-type: none"> ▲ No construction or demolition activity shall be performed that would expose human activity in an existing building to levels of ground vibration that exceed FTA's 80 VdB standard. The vibration control program shall also include minimum setback requirements for different types of ground vibration producing activities (e.g., pile driving, blasting) for the purpose of preventing negative human response. Established setback requirements can be breached only if a project-specific, site-specific, technically adequate ground vibration study indicates that the buildings would not be exposed to ground vibration levels in excess of 80 VdB, and ground vibration measurements performed during the construction activity confirm that the buildings are not being exposed to levels in excess of 80 VdB; or at least two weeks' advanced notice is provided to owners and renters of residential buildings that would be exposed to ground vibration levels within the applicable setback distance; and hotel accommodations are offered to inhabitants of residences within the applicable setback distance at the expense of the project applicant. 	
Impact 4.10-3. Long-term noise impacts. Traffic noise levels would change in specific locations for all alternatives. For all the alternatives, the noise increase would be less than significant for NEPA compliance, because they would be less than applicable the FHWA-established NAC standards and they would not result in a traffic noise level increases during the worst-case hour greater than 12 db Leq(h).	Alt. 1 = S Alt. 2 = S Alt. 3 = S Alt. 4 = S Alt. 5 = NI Alt. 6 = S Alt. 6a = S	<p>Mitigation Measure 4.10-3a: Include Traffic Noise Reduction Features in the Realigned Section of SR 89.</p> <p>This mitigation will apply to Alternatives 1, 2, 3, and 4 for purposes of reducing the significant impact according to CEQA and TRPA requirements.</p> <p>To reduce noise impacts associated with realignment of SR 89, to the extent feasible, TTD, TRPA, and CFLHD will coordinate with Placer County, Caltrans, and USFS to identify and include feasible and effective design features that</p>	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS

Table 2-1 Summary of Resource Topics/Impacts and Mitigation Measures

Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
<p>For Alternatives 1 through 4, the noise effect in the study area would be significant for CEQA and TRPA environmental compliance, because portions of the 64-Acre Tract would be exposed to traffic noise increases greater than 3 db CNEL where the TRPA standard of 55 dBA CNEL is already exceeded. For Alternative 5, some traffic noise level increases would occur, but they would be a continuation of existing conditions so there would be no impact for purposes of CEQA, NEPA, and TRPA environmental compliance. For Alternatives 6 and 6A, areas along the existing segment of SR 89 would experience traffic noise increases where TRPA's land-based noise standard of 55 CNEL is exceeded under existing conditions. This would be significant for CEQA and TRPA environmental compliance.</p>		<p>would reduce noise generation on the realigned section of the highway to ensure that the traffic noise level does not exceed 55 CNEL at a distance of 300 feet from the highway edge. Feasible and effective design features will be incorporated into the final design of the realigned highway. Features considered during design development may include, but are not limited to:</p> <ul style="list-style-type: none"> ▲ reduced vehicle speeds to 30 mph or lower through posted limits, advisory signs, and/or design features, such as traffic calming elements (e.g., median barrier, center islands, and raised crosswalks), ▲ vegetative screening that includes trees to aid in noise attenuation over distance, ▲ noise-attenuating pavement, if determined to be feasible and effective in this location, ▲ limiting access by heavy duty trucks to daylight hours, ▲ construction of vegetated earth berms for noise attenuation. <p>The performance goal of these noise-reducing features will be to achieve a traffic noise level that does not exceed 55 CNEL at a distance of 300 feet from the highway edge.</p>	

4.11. Population, Employment, and Housing

<p>Impact 4.11-1. Location and distribution of population, employment, and housing in the Region. None of the alternatives would change the location and distribution of population, employment, and housing in a manner contrary to land use planning efforts. Thus, the project alternatives would not induce substantial growth and impacts related to changes in the location and distribution of population, employment, and housing within the Region would not result in adverse environmental effects. Therefore, this impact is less than significant for Alternatives 2, 3, 4, 6, and 6a. Alternative 1 would result in a beneficial impact because it would enhance business and community access by maintaining local street access across Fanny Bridge, along with a second Truckee River crossing. There would be no impact under Alternative 5.</p>	Alt. 1 = B Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS	No mitigation is required.	Alt. 1 = B Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS
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Table 2-1 Summary of Resource Topics/Impacts and Mitigation Measures			
Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
Impact 4.11-2. Displacement of businesses. The SR 89/Fanny Bridge Project would require the acquisition of land and buildings which could displace businesses. Alternatives 1 through 4 would require the acquisition of right-of-way; however no businesses would need to be relocated as a result of these acquisitions and these alternatives would therefore be less than significant. Alternatives 6 and 6a would require full acquisition of parcels and the relocation of businesses; therefore these alternatives would be potentially significant. There would be no impact under Alternative 5.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = PS Alt. 6a = PS	Mitigation Measure 4.11-2: Prepare a Relocation Assistance Plan, or equivalent plan. The project proponent will consider project alternatives that avoid displacement of homes or businesses. For projects that would result in the displacement of residences or business, the project proponent will comply with federal and state requirements for the preparation a relocation assistance plan (RAP), or equivalent document. For projects on the highway system or that receive federal transportation funds, preparation of a RAP will follow the requirements of the Federal Highway Administration Relocation Assistance Program in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended) and Title 49 Code of Federal Regulations (CFR) Part 24. RAP-equivalent documents will comply with applicable regulations that may include the California Relocation Assistance Law (California Government Code Section 7260 et seq.), the California Relocation and Real Property Acquisition Guidelines (California Code of Regulations, Title 25 and Chapter 6, Section 6000 et seq.), and Caltrans' Right of Way Manual, Chapter 10. Relocation plan typically consider: <ul style="list-style-type: none">▲ criteria for replacement housing;▲ reimbursement criteria for moving costs and/or different housing costs (including rents); and▲ reimbursement criteria for businesses, including costs associated with searching for a new space, and business lost.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS
4.12. Public Services and Utilities			
Impact 4.12-1. Utility service lines. Construction activities associated with the action alternatives include grading and other earthmoving activities. Realignment of the T-TSA TRI sewer line and modifications to the NSEF sewer export main is included as part of Alternatives 1 through 4 to accommodate the transportation improvements. Identification and location of all other known underground utility lines is a required standard condition of construction approvals. Therefore, construction contractors would be able to avoid potential conflicts with existing utility services. Thus, this impact would be less than significant for Alternatives 1, 2, 3, 4, 6, and 6a. There would be no impact under Alternative 5.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS	No mitigation is required.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS

Table 2-1 Summary of Resource Topics/Impacts and Mitigation Measures

Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
Impact 4.12-2. Demand for water supply. Construction would require short-term water supply during construction activities, such as dust reduction techniques and irrigation to establish vegetation. Thus, this impact would be less than significant for Alternatives 1, 2, 3, 4, 6, and 6a. There would be no impact under Alternative 5.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS	No mitigation is required.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS
Impact 4.12-3. Solid waste disposal capacity. The action alternatives would generate solid waste during the construction phase. Some waste would be reused or recycled, while other waste would be taken to a landfill, and any hazardous wastes would be transported to an approved facility, such as the US Ecology Nevada, Inc. treatment and disposal facility in Beatty, Nevada. Lockwood Regional Landfill, utilized by TTSDC, has adequate capacity to accept construction waste generated by the project. There are numerous facilities available that can accept hazardous waste. Therefore, this impact would be less than significant for Alternatives 1, 2, 3, 4, 6, and 6a. There would be no impact under Alternative 5.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS	No mitigation is required.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS
Impact 4.12-4. Construction-related access for emergency services. Construction of the project could affect police services, fire protection, emergency medical services response times, and the delivery of emergency services. Traffic control measures and a fire protection plan would be in place during construction. Therefore, no substantial increase in demand for emergency services would occur during construction that would alter government services or create the need for additional government facilities. This impact would be less than significant for Alternatives 1, 2, 3, 4, 6, and 6a. There would be no impact under Alternative 5.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS	No mitigation is required.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS
Impact 4.12-5. Long-term access for emergency services. Operation of the project could affect police services, fire protection, emergency medical services response times, and the delivery of emergency services. Construction of a new bridge southwest of the existing Fanny Bridge would reduce congestion on SR 89 and thereby improve long-term emergency access. This impact would be beneficial for Alternatives 1, 2, 3, and 4, and less than significant for Alternatives 6 and 6a. There would be no impact under Alternative 5.	Alt. 1 = B Alt. 2 = B Alt. 3 = B Alt. 4 = B Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS	No mitigation is required.	Alt. 1 = B Alt. 2 = B Alt. 3 = B Alt. 4 = B Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS

Table 2-1 Summary of Resource Topics/Impacts and Mitigation Measures			
Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
4.13. Recreation			
Impact 4.13-1. Temporary disruption of public access to the Truckee River, recreational trails, 64-Acre Tract, or Fanny Bridge area. During the construction period, the action alternatives would have a short-term effect on existing public access to recreation trails, a public river rafting launch site, and public lands, because of temporary trail closures, construction staging areas, and limitations on parking that supports access to public lands and river recreation. Also, brief closures of Fanny Bridge could occur during its rehabilitation or reconstruction. Cyclists would be directed to “share the road” and/or to temporary detour routes when trails are not available. This short-term decrease in access would be a significant impact for Alternatives 1, 2, 3, 4, 6, and 6a. No impact would occur under Alternative 5.	Alt. 1 = S Alt. 2 = S Alt. 3 = S Alt. 4 = S Alt. 5 = NI Alt. 6 = S Alt. 6a = S	<p>Mitigation Measure 4.13-1: Provide detours and trail access management for the Tahoe Rim Trail and Truckee River Trail through or around construction areas. The following mitigation applies Alternatives 1 through 4, 6, and 6a, except where noted.</p> <p>The Traffic Management Plan shall address all modes of transportation used to access recreation areas, including trail access, public transit, pedestrian and bicycle modes. In order to mitigate short-term decreases in access to recreation resources, trail detour plans shall be included in the Traffic Management Plan, which will meet, at minimum, the following specifications.</p> <ol style="list-style-type: none"> For Alternatives 1 through 4, during construction of the new bridge, SR 89 near the bridge, and the Caltrans maintenance yard entrance, the Truckee River Trail will be temporarily closed and all bicycle and pedestrian travel will be required to “share-the-road” and/or detoured to a temporary trail/path on the highway consisting of a physical barrier such as “K-Rail.” The temporary separated path shall be established from the western end of the construction zone on SR 89 to the existing bicycle/pedestrian bridge to the east. It is anticipated that construction in this area will be completed in one season, thus the temporary trail will be used from May through October during one year. Signage will be provided at parking lots and approaching the construction zone to alert trail users about the timing, duration, and nature of construction-related impacts. The contractor shall submit a plan to create detours for trail users on the Tahoe Rim Trail, West Shore Trail, Lakeside Trail, and the Truckee River Trail. Signage shall be provided at trail heads and parking lots for all trails directly affected by construction and for connecting trails to alert trail users about the timing, duration, and nature of construction-related impacts, detours and closures. <ul style="list-style-type: none"> Sign locations shall include, but are not limited to parking lots and trail entrances at Tahoe City, Alpine Meadows, Squaw Valley, and Tahoma for the Truckee River Trail and the Lakeside Trail, and Barker Pass and Brockway Summit trailheads for the TRT. <p>4. The Traffic Management Plan shall include trail access management and</p>	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS

Table 2-1 Summary of Resource Topics/Impacts and Mitigation Measures

Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
		<p>require extensive public information via a variety of media outlets in the region to inform the public regarding the construction-related detours and closures that affect access to recreational facilities, including parking, and trail closures.</p> <p>5. The Traffic Management Plan shall provide a “recreation hotline” and or website link that is frequently updated to provide current information on construction related detours and closures.</p> <p>The Traffic Management Plan shall be subject to the review and approval of TTD, TRPA, CFLHD, BOR, Placer County, USFS, and TCPUD. Measures will be taken to keep the public informed of the project construction activities. When closures and/or detours are required by the contractor(s), warning signs and signs regarding restricted access, trail closures, and detours will be posted before and during construction to ensure adequate public safety. Postings, including public notices, will be posted no less than 5 working days in advance of the closures and/or detours. Detour routes will be clearly marked, and construction limit fencing or physical barriers will be installed in order to prevent access to the project site and to clearly delineate the detour route. Full trail closure by the contractor(s) will be prohibited from July 1 through September 9 without an approved detour. All bicycle and pedestrian detours will be included in the Traffic Control Plan to be reviewed and approved prior to construction. Approval must be granted before the start of earth-moving activities. No trail shall be closed without an approved detour plan.</p>	
<p>Impact 4.13-2. Long-term impacts on public access to the Truckee River, recreational trails, 64-Acre Tract, or Fanny Bridge area. In the long-term, the action alternatives would result in a beneficial impact on recreational access to and use of public lands and resources for Alternatives 1, 2, 6, and 6a, because project components include improvements to trail connectivity, improved safety, and public access to the forest areas of the 64-Acre Tract, rafting areas, multi-use trails, parking lots, day-use areas, Fanny Bridge, and the Truckee River. Alternatives 3 and 4 would also improve connectivity of recreational trails, restoration of day-use areas, Fanny Bridge, and launching points for river floating; however, a significant impact on forest, trail, and lake shore public access would result from the removal of 16 parking spaces on the east side of SR 89 for development of the cul-de-sac at the south end of a local roadway. There would be no impact under Alternative 5,</p>	Alt. 1 = B Alt. 2 = B Alt. 3 = S Alt. 4 = S Alt. 5 = NI Alt. 6 = B Alt. 6a = B	<p>Mitigation Measure 4.13-2: Replace 16 parking spaces serving the 64-Acre Tract. The following mitigation applies Alternatives 3 and 4.</p> <p>To avoid reduction of parking capacity for recreation visitors to the 64-Acre Tract, the project shall include replacement of 16 off-street parking spaces that would be made inaccessible by the project. These spaces shall be located on the 64-Acre Tract as close to the east side of the study area as feasible to maintain parking capacity on the 64-Acre Tract and, to the extent feasible, support public recreational access to the east side/lake shore area.</p>	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS

Table 2-1 Summary of Resource Topics/Impacts and Mitigation Measures

Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
the No Action Alternative.			
<p>Impact 4.13-3. Reduction of public forest land available for dispersed recreation. Alternatives 1, 2, 3, and 4 involve the conversion of public forest land currently managed by LTBMU and used for dispersed recreation activities to highway corridor for the implementation of the planned realignment of a highway segment within the 64-Acre Tract. The existing portion of the 64-Acre Tract that contains the project site is estimated to be 35 acres. Alternatives 1, 2, and 3 would convert approximately 3.2 acres (about 9 percent) of the public forest land to a highway corridor and Alternative 4 would convert approximately 3.4 acres (almost 10 percent). Alternatives 5, 6, and 6a would not result in any conversion of public forest land. Land use plans for the 64-Acre Tract have included a highway realignment since the 1980s, so Alternatives 1, 2, 3, and 4 would implement long-established plans; in the interim, the entire 35 acres of public forest land has been available for dispersed recreation. Because of reduction of forest area available for this recreation use, the conversion of the public forest land would be an adverse change for Alternatives 1 through 4; however over 90 percent of the 64-Acre Tract would remain available for dispersed recreation and existing recreation facilities would be maintained. For these reasons, the adverse effect would be less than significant for Alternatives 1 through 4. No impact would occur with implementation of Alternatives 5, 6, and 6a.</p>	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = NI Alt. 6a = NI	No mitigation is required.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = NI Alt. 6a = NI
<p>Impact 4.13-4. Effects on the quality of recreation use experience. The quality of an outdoor recreation user's experience relates greatly to expectations for a visit and the ability to meet those expectations during an intended activity. Expectations are typically influenced by user experiences, physical characteristics of the recreation resource setting, and perceptions about the level and pattern of use. All the action alternatives would alter the resource setting of the 64-Acre Tract, regional trails, Truckee River, and Fanny Bridge area, which are the four major outdoor recreation resources in the study area. While survey research data is not available to precisely define user expectations and perceptions in the study area, the existing setting would make it reasonable to anticipate that expectations reflect the understanding that the area, which is heavily used and located where traffic, surrounding urban development, and considerable human interactions are present. Designation of the affected land as "rural" within the recreation opportunity spectrum of the USFS would be consistent with both current and post-project conditions. As such, it is also reasonable to anticipate that the action</p>	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS	No mitigation is required.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS

Table 2-1 Summary of Resource Topics/Impacts and Mitigation Measures

Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
alternatives would result in less-than-significant changes to the quality of recreation user experiences, because the alternatives improve, restore, or replace existing infrastructure in the study area that is compatible with its existing setting. The elevated highway realignment on an earthen embankment as part of Alternatives 1-4 would alter the visual and noise conditions of the study area, but the recreation character of the forest would not be significantly changed for dispersed recreation use. The No Action Alternative, Alternative 5 would have no impact on the quality of recreation user experience.			
4.14. Scenic Resources			
Impact 4.14-1. Degrade the existing visual character or quality of the project site during project construction. During construction under all action alternatives, visual quality of views in the project vicinity would be reduced to moderately low to low levels. Construction would take place in phases; therefore, visual effects would be limited to portions of the project site at one time. Construction period impacts would be temporary; therefore this impact would be less than significant. Alternative 5, the No Action Alternative, would have no impact on visual quality or character.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS	No mitigation is required.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS
Impact 4.14-2. Change the existing visual character or quality of the project site after completion. Alternatives 1 through 4 would increase built environment features within the 64-Acre Tract and across the Truckee River. Views from the Tahoe Rim Trail in the 64-Acre Tract near the new bridge approach and from the river, itself, would experience visual change; however, the area is already altered by the presence of urban features. Because the reduction in the quality of scenic resources would be substantial near the bridge in the 64-Acre Tract and within the river corridor, this impact would be potentially significant for Alternatives 1 - 4. Alternatives 6 and 6a would rehabilitate or replace Fanny Bridge and reconfigure the existing wye intersection, but would not substantially alter the appearance of the bridge, once completed, nor the scenic quality of views in the area. Therefore, impacts under Alternatives 6 and 6A would be less than significant. Alternative 5, the No Action Alternative, would have no impact on visual quality or character.	Alt. 1 = PS Alt. 2 = PS Alt. 3 = PS Alt. 4 = PS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS	<p>Mitigation Measure 4.14-2. Minimize visual change and visually screen infrastructure with replanted forest vegetation.</p> <p>The following mitigation applies to Alternatives 1 through 4. To maintain the existing visual quality and decrease the visual effects caused by the project, the following design, construction, and maintenance actions shall be implemented. These actions will soften the visual intrusion of the new bridge and realigned highway on the 64-Acre Tract.</p> <ul style="list-style-type: none"> ▲ Implement Mitigation Measure 4.1-1: Prepare and implement tree removal, protection, and replanting plan to soften the visual intrusion of the new bridge and realigned highway, as seen from points within the 64-Acre Tract. ▲ Minimize tree removal and retain existing rock outcroppings to the extent feasible. ▲ Revegetate disturbed areas following construction in accordance with the replanting plan. ▲ Select forest-appropriate species and vary plant spacing for a natural appearance. 	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS

Table 2-1 Summary of Resource Topics/Impacts and Mitigation Measures

Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
		<ul style="list-style-type: none"> ▲ Save, stockpile, and reapply duff and topsoil on disturbed slopes to reduce the newly constructed look and to promote natural revegetation. ▲ Apply erosion control to all disturbed and fill slopes. ▲ Erosion control seed species, origin, and application strategy shall be determined by a Landscape Architect or similar qualified specialist. All erosion control seed species used on USFS lands shall be approved by USFS botanist for areas on National Forest System lands. ▲ Design all lighting to comply with TRPA Design Review Guidelines lighting standards and Tahoe City Community Plan Design Review Guidelines related to lighting. ▲ Incorporate aesthetic treatments and design into the materials and colors of the new bridge to reduce the contrast of the structure with the surrounding environment. 	
<p>Impact 4.14-3. Relationship to USFS LTBMU visual quality objectives. Under Alternatives 1 through 4, the new portion of the realigned SR 89 and a portion of the new bridge would be located on land under the jurisdiction of the USFS LTBMU. These project components would increase built environment features within the 64-Acre Tract and across the Truckee River. These project components would not be visible in middle-ground views due to screening provided by existing vegetation. In foreground views from the 64-Acre Tract, the realigned SR 89, roundabout, and bridge would be partially visible from some locations, in most; however, it would not be visible due to the screening effect of trees, and dense shrubs along the river side. Therefore, the roundabouts, roadway, and bridge would not be considered dominant in views along the trails within the 64-Acre Tract. The bridge structure would be surfaced to replicate the colors and textures of surrounding vegetation and soils, and the roadway embankment and interior of the roundabout would be revegetated to replicate the surrounding vegetation. These measures would make the visual characteristics of the bridge and roadway compatible with the surrounding environment. Therefore these project components would not conflict with the VQO Modification for foreground views and the project would meet USFS LTBMU visual quality objectives. This would be a less-than-significant impact for Alternatives 1 through 4. Under Alternative 5, no impact would occur because existing conditions would be retained and no conflict with the USFS LTBMU Visual Quality Objectives would</p>	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = NI Alt. 6a = NI	No mitigation is required.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = NI Alt. 6a = NI

Table 2-1 Summary of Resource Topics/Impacts and Mitigation Measures

Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
occur. Under Alternatives 6 and Alternative 6a, no portion of these projects would be located on land under the jurisdiction of the USFS LTBMU. Therefore, no conflict with the USFS LTBMU Visual Quality Objectives would occur and there would be no impact under Alternatives 6 and 6a.			
<p>Impact 4.14-4. Create a new source of light and glare that would adversely affect day or nighttime views in the area. The action alternatives would increase lighting within the 64-Acre Tract and across the Truckee River by adding new light fixtures. Existing regulations and standard design practices would restrict light fixture locations, lighting visibility from surrounding area, the type and intensity of lights, and the direction of light projection. The localized nature of new light sources and use of standard low glare and night glow designs would minimize light and glare effects in the study area. Thus, because new lighting sources would be limited to roundabouts and the new bridge, this impact would be less than significant for Alternatives 1 through 4. Lighting under Alternatives 6 and 6a would not be substantially altered from existing conditions; thus, impacts would be less than significant. Alternative 5, the No Action Alternative, would not alter the existing lighting conditions and would have no impact related to light and glare..</p>	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS	No mitigation is required.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS
<p>4.15. Traffic and Transportation</p> <p>Impact 4.15-1. Roadway segment operations. The project would not generate additional vehicle trips; rather it would implement improvements to existing transportation infrastructure. For Alternatives 1 through 4, SR 89 would be realigned through the 64-Acre Tract; and under Alternatives 6 and 6A, the existing SR 89 roadway alignment would remain the same as existing conditions. The wye would be modified for all action alternatives. Under the 2018 conditions, Alternatives 1, 2, 3, 4, 6, and 6A would result in acceptable roadway-segment LOS during the peak hours. Under the 2038 conditions, Alternatives 1, 4, 6, and 6a would maintain acceptable roadway segment LOS; however, under Alternatives 2 and 3, the westbound approach to the New SR 89/28 intersection would not provide acceptable roadway-segment LOS for the westbound segment between the western roundabout and existing wye. Thus, Alternatives 1, 4, 6, and 6a would result in less-than-significant roadway segment operations in 2018 and 2038; and Alternatives 2 and 3 would result in less-than-significant roadways segment operations in 2018 and significant impacts in 2038. Because no modifications would occur under Alternative 5, there would be no impact.</p>	Alt. 1 = LTS Alt. 2 = S Alt. 3 = S Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS	<p>Mitigation Measure 4.15-1: Increase the capacity of the western roundabout at the new SR 89/28 intersection to provide two traffic lanes in 2038.</p> <p>Mitigation Measure 4.15-1 applies to Alternatives 2 and 3. The single-lane, hybrid roundabout configuration at the western roundabout, proposed for opening year, is projected to provide acceptable LOS on the adjacent roadway segments during both peak hours in 2018 and the annual average peak hour in 2038. This configuration is projected to result in LOS F on the segment between the western roundabout and the existing wye intersection in 2038 summer peak conditions under Alternatives 2 and 3. This roadway segment could be improved to acceptable LOS standards through conversion of the western roundabout from a single-lane, hybrid to a two-lane design (Exhibit 4.14-10 and 4.14-11). Preliminary modeling has indicated that acceptable LOS would be provided, given projected traffic counts in 2038 (Table 4.15-11). Detailed design and modeling will be required upon the identified need to improve traffic flows in this segment. This design is not under consideration for opening day due to anticipated safety issues given current</p>	Alt. 1 = LTS Alt. 2 = SU Alt. 3 = SU Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS

Table 2-1 Summary of Resource Topics/Impacts and Mitigation Measures			
Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
Impact 4.15-2. Intersection operations. The project would not generate additional vehicle trips that could affect intersection operations; rather, it would implement improvements to existing transportation infrastructure. For Alternatives 1 through 4, SR 89 would be realigned through the 64-Acre Tract; and under Alternatives 6 and 6A the existing SR 89 roadway alignment would remain the same as under the existing conditions. The wye would be modified for all action alternatives. The additional delay that is projected for the Granlibakken Road intersection with SR 89 is greater under Alternatives 1 through 4, than under the No Action Alternative for both 2018 and 2038. Under 2038 conditions, implementation of Alternatives 2 and 3 would result in an additional unacceptable intersection LOS at the western roundabout during summer peak conditions. Thus, intersection impacts would be significant under Alternatives 1 through 4. Under Alternative 6, intersection operations would remain the same as the No Action Alternative, with the exception of a slight improvement at the Tavern Shores intersection, resulting in a less-than-significant impact under 2018 and 2038 conditions. Under Alternative 6A, the intersection modifications improve the projected operations at the wye and result in a beneficial impact under 2018 and 2038 conditions. Because no project would be implemented under Alternative 5 there would be no impact.	Alt. 1 = S Alt. 2 = S Alt. 3 = S Alt. 4 = S Alt. 5 = NI Alt. 6 = LTS Alt. 6a = B	<p>and 2018 traffic volumes, as this design relies upon larger flow volumes to function as intended</p> <p>Mitigation Measure 4.15-2a: Implement improvements for the side-street movements at the Granlibakken Road intersection with SR 89. Mitigation Measure 4.15-2a applies to Alternatives 1, 2, 3 and 4.</p> <p>Four of the proposed build alternatives would create a site-specific impact on the local transportation system when analyzed against the projected operations for the No Action condition. Article 15.28.010 of the Placer County Code establishes a road network Capital Improvement Program. The payment of traffic impact fees funds the Capital Improvement Program for area roadway improvements. Placer County has already identified the SR 89 and Granlibakken Road intersection as a future Capital Improvement Program project. The project is not defined at this time; however, the improvements will modify the type of control at this location to reduce the delay for the side street movements on Granlibakken Road. Placer County is the agency responsible for this mitigation measure.</p> <p>Before initiating construction of the improvements to the SR 89/Ganlibakken Road intersection, an Encroachment Permit from Caltrans will need to be approved. In addition, implementation of this mitigation measure will include sufficient design improvements to achieve acceptable delay and LOS levels to the satisfaction of Placer County, Caltrans, TRPA, and TTD.</p> <p>Mitigation Measure 4.15-2b: Increase the capacity of the western roundabout at the new SR 89/28 intersection to provide two traffic lanes in 2038. Mitigation Measure 4.15-2b applies to Alternatives 2 and 3.</p> <p>Implement Mitigation Measure 4.15-1.</p> <p>Preliminary modeling has indicated that acceptable LOS would be provided, given projected traffic counts in 2038 (Table 4.15-12). Detailed design and modeling will be required upon the identified need to improve traffic flows at this intersection. This design is not under consideration for opening day due to anticipated safety issues given current and 2018 traffic volumes, as this design relies upon larger flow volumes to function as intended.</p>	Alt. 1 = LTS Alt. 2 = SU Alt. 3 = SU Alt. 4 = LTS Alt. 5 = NI Alt. 6 = LTS Alt. 6a = LTS

Table 2-1 Summary of Resource Topics/Impacts and Mitigation Measures

Resource Topics/Impacts	Level of Significance before Mitigation (by Alternative)	Mitigation Measures	Level of Significance after Mitigation (by Alternative)
Impact 4.15-3. Vehicle miles of travel per capita. VMT is a measure of the efficiency of the transportation system and the degree to which the land use pattern would reduce personal motor vehicle travel. When VMT increases, it results in indirect environmental impacts (such as air pollutant emissions). VMT would decrease a small amount for Alternatives 1 through 4 as a result of the realignment of SR 89. For Alternatives 1, 2, 3, and 4, reduced VMT would result in a small beneficial impact. For Alternatives 5, 6, and 6A, the existing roadway alignment would remain the same; thus, no change to existing VMT would occur and there would be no impact.	Alt. 1 = B Alt. 2 = B Alt. 3 = B Alt. 4 = B Alt. 5 = NI Alt. 6 = NI Alt. 6a = NI	No mitigation is required.	Alt. 1 = B Alt. 2 = B Alt. 3 = B Alt. 4 = B Alt. 5 = NI Alt. 6 = NI Alt. 6a = NI
Impact 4.15-4. Construction-related traffic impacts. Construction of the action alternatives would result in temporary construction traffic and temporary disruption to traffic circulation in the area of construction. The project could be constructed over a total of up to three construction seasons. The project applicant would be required to prepare a Traffic Control Plan (TCP) for review and approval by CFLHD-FHWA prior to construction activities. Access to the river crossing and existing intersections would be maintained during construction, however the potential disruption would be potentially significant for Alternatives 1, 2, 3, and 4. Because no construction would occur under Alternative 5, there would be no impacts. The reduction to one travel lane over Fanny Bridge necessitated by Alternatives 6 and 6A would be a significant impact.	Alt. 1 = PS Alt. 2 = PS Alt. 3 = PS Alt. 4 = PS Alt. 5 = NI Alt. 6 = S Alt. 6a = S	Mitigation Measure 4.15-4: Maintain efficient traffic flow and provide safe work zones during each construction season. Mitigation Measure 4.15-4 applies to Alternatives 1, 2, 3, 4, 6 and 6a. Prior to construction, the contractor will be required to submit a Traffic Control Plan to CFLHD-FHWA. CFHLD-FHWA will coordinate review and approval of the plan with TRPA, Placer County, Caltrans, and other agencies as appropriate. The Traffic Control Plan will regulate maintenance of traffic during each construction season and comply with agency standards and regulations to promote safe and efficient travel for the public and construction workers through the work zones. The plan will include provisions for regular inspections to assess contractor compliance with the plan, signage to direct traffic, and public noticing, as appropriate.	Alt. 1 = LTS Alt. 2 = LTS Alt. 3 = LTS Alt. 4 = LTS Alt. 5 = NI Alt. 6 = SU Alt. 6a = SU
Impact 4.15-5. Traffic and pedestrian safety impacts. Alternatives 1 through 4 would realign SR 89, which would result in construction of a new SR 89/28 intersection and improvements to the existing wye. A comparison of the safety-related features for these alternatives suggests they would result in beneficial impacts under Alternatives 1, 2, 3, 4, 6, and 6A. Because the existing wye would remain in the same location with no improvements under Alternative 5, there would be no impact associated with this alternative.	Alt. 1 = B Alt. 2 = B Alt. 3 = B Alt. 4 = B Alt. 5 = NI Alt. 6 = B Alt. 6a = B	No mitigation is required.	Alt. 1 = B Alt. 2 = B Alt. 3 = B Alt. 4 = B Alt. 5 = NI Alt. 6 = B Alt. 6a = B

Notes: NI – no impact, LTS – less-than-significant impact, PS – potentially significant impact, S – significant impact, SU – significant and unavoidable impact, B - beneficial

3 PROPOSED ACTION AND ALTERNATIVES

The project site is located in the immediate vicinity of Truckee River Bridge #19-0033 (locally known as “Fanny Bridge”) in Tahoe City, on the North Shore of Lake Tahoe in Placer County. Fanny Bridge is currently the only vehicular bridge crossing over the Truckee River that provides access to the West Shore from the north. This bridge provides one 12-foot vehicular travel lane in each direction with a 5-foot shoulder on the west side, and a 3-foot shoulder and a 3-foot sidewalk on the east side. Exhibit 3-1 shows the project location and surrounding features.

There are seven project alternatives being considered for implementation, consisting of six action alternatives (Alternatives 1, 2, 3, 4, 6, and 6A) and one no-action alternative (Alternative 5). Four action alternatives (Alternatives 1 through 4) would result in the construction of a new bridge over the Truckee River and realignment of SR 89 through the 64-Acre Tract, rehabilitation or replacement of Fanny Bridge, bike path realignments, and modifications to the Caltrans maintenance yard. Two action alternatives (Alternatives 6 and 6A) would focus on rehabilitating or replacing the existing Fanny Bridge on the current SR 89 alignment and improve the SR 89/SR 28 intersection at its current location. All action alternatives propose improvements to the wye.

The action alternatives address the project needs of improving seasonal traffic congestion and air quality, providing bike/pedestrian connectivity, improving transit operations, creating a gateway experience, improving bicycle and pedestrian safety, and addressing the structural integrity of Fanny Bridge. By relieving congestion on SR 89, the SR 89/Fanny Bridge Project would improve vehicle mobility for commerce needs and for resident and visitor experiences. Alternatives 1 through 4 would also provide a second crossing over the Truckee River that would aid emergency evacuation from the West Shore of Lake Tahoe.

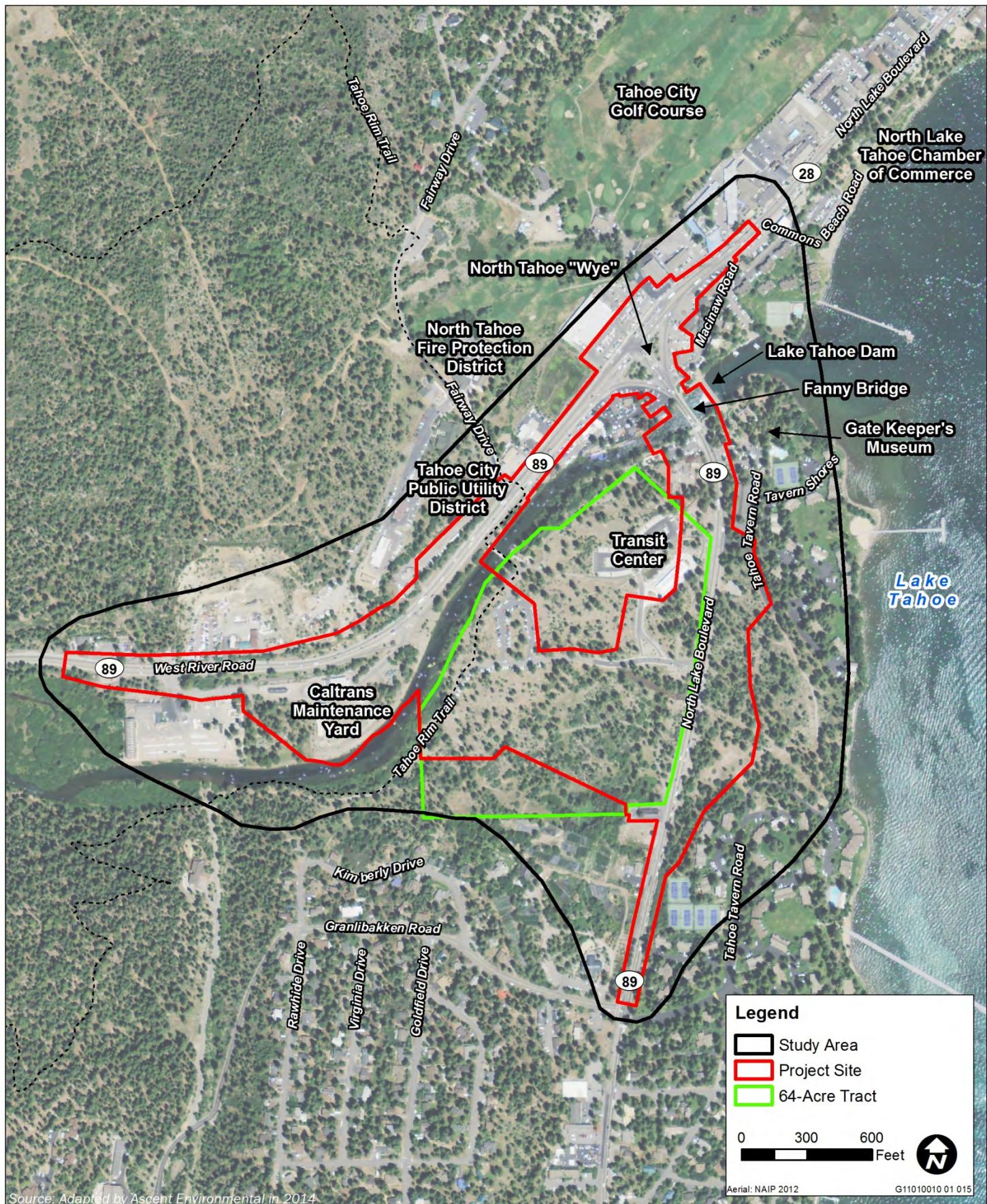
Alternative 1: New Alignment – Existing SR 89 Open to Local Traffic is considered by the lead agencies to be the “proposed action.”

Please see Chapter 1, “Introduction,” for details regarding the project’s purpose and need. Exhibits 3-2 through 3-5 and 3-9 through 3-11 illustrate each alternative. A description of these alternatives follows below.

3.1 PROJECT ELEMENTS COMMON TO ALTERNATIVES 1 THROUGH 4

The four alternatives that provide a new bridge location would include the realignment of SR 89 to a point approximately 1,800 feet southwest of the existing SR 89/SR 28 intersection (known as the “wye”). SR 89 would be realigned from the California Department of Transportation (Caltrans) maintenance yard, over the Truckee River and east through the U.S. Forest Service (USFS) 64-Acre Tract, to reconnect to existing SR 89 near the existing changeable message sign and sled hill. The realigned section would be approximately 1,400 feet in length. SR 28 would be extended from the existing wye to the new SR 89/SR 28 intersection. A portion of existing SR 89 would either become a local road for approximately 2,000 feet south of SR 28, or be re-constructed as a cul-de-sac. Alternatives 1 through 4 would include either rehabilitation and/or replacement of the existing Fanny Bridge and the potential removal of the free right-turn lanes at the existing wye or the construction of a roundabout.

In addition to the roadway realignment, all of the new bridge alternatives (Alternatives 1 through 4) would also include modification to the Caltrans maintenance yard; relocation of the Tahoe Truckee Sanitation Agency sewer line beneath SR 89 near the Caltrans maintenance yard; and realignment of portions of the existing Class I bike paths on both sides of the Truckee River. These common elements are described in more detail below.



Source: Adapted by Ascent Environmental in 2014

Aerial: NAIP 2012

G11010010 01 015

Exhibit 3-1

Project Location



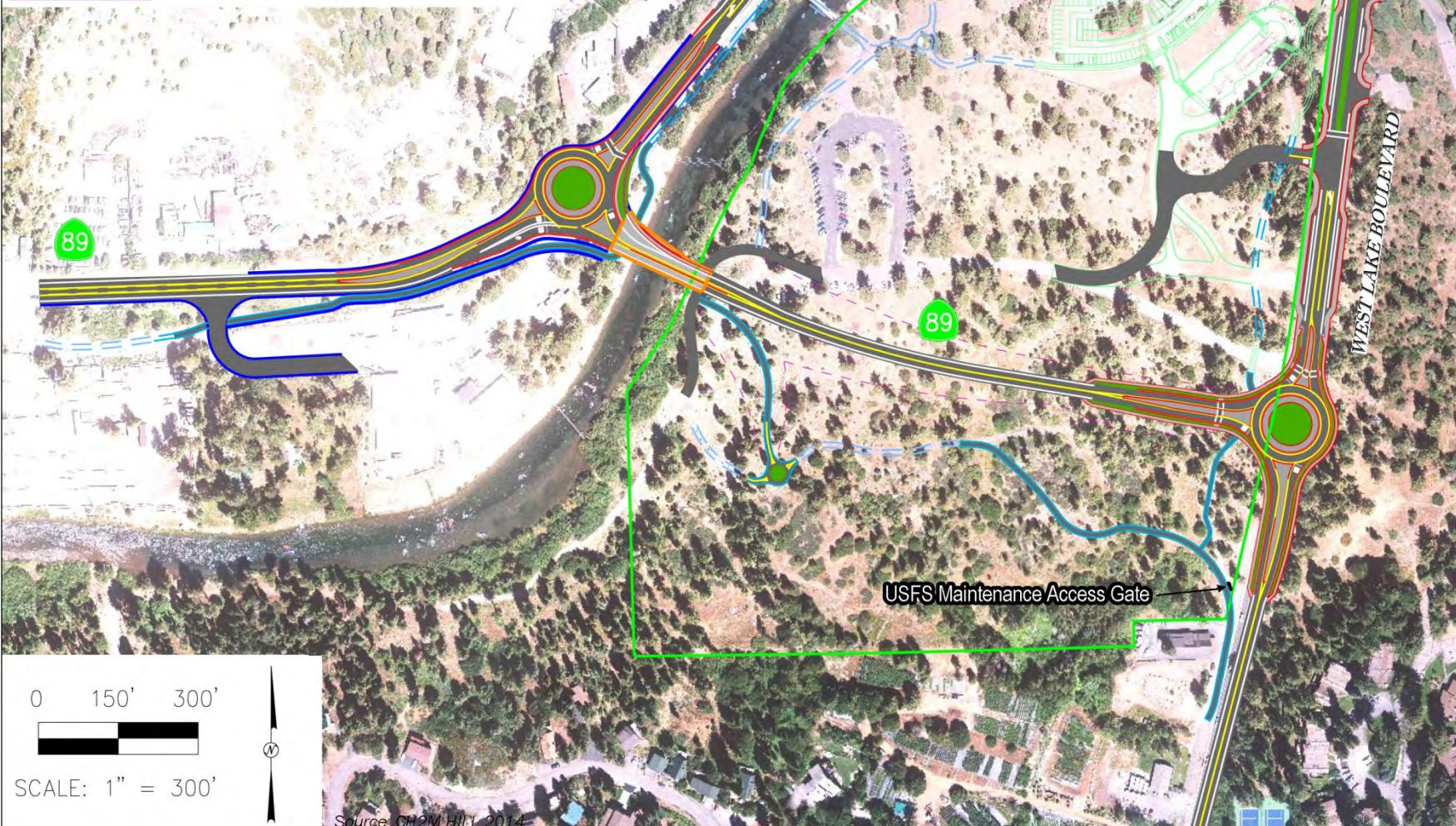
LEGEND

EXISTING FEATURES

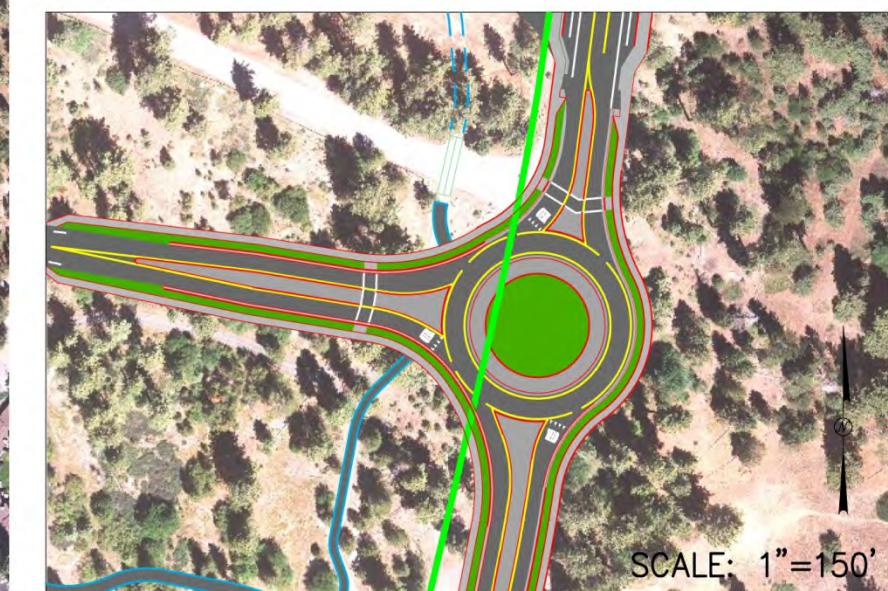
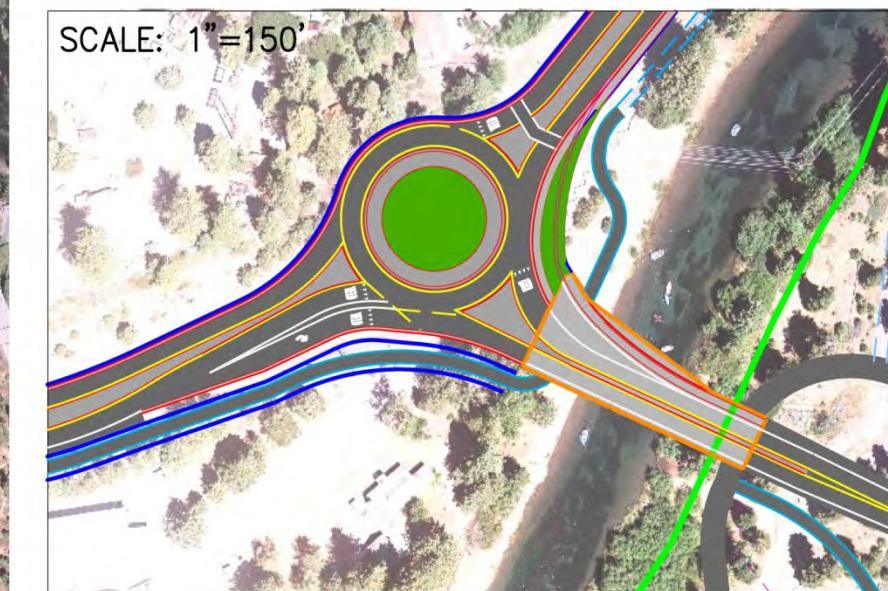
- EXISTING BIKE PATH TO REMAIN
- EXISTING TRANSIT CENTER
- 64-ACRE TRACT BOUNDARY

PROPOSED FEATURES

- CURB, GUTTER, AND MEDIAN
- BRIDGE STRUCTURE
- RETAINING WALL AND/OR BARRIER
- & STRIPING
- LANDSCAPED MEDIAN
- RECONSTRUCTED BIKE PATH
- CUT/FILL LIMITS
- MODIFY EXISTING SIGNAL
- REMOVE FREE RIGHT TURNS



"WYE"
INTERSECTION



CH2MHILL.
Tahoe Transportation DISTRICT
X11010010 01 001

Source: Wood Rodgers 2013

Exhibit 3-2

Alternative 1: New Alignment – Existing SR 89 Open to Local Traffic

ASCENT
ENVIRONMENTAL

LEGEND

EXISTING FEATURES

- Existing Bike Path to remain
- Existing Transit Center
- 64-Acre Tract Boundary

PROPOSED FEATURES

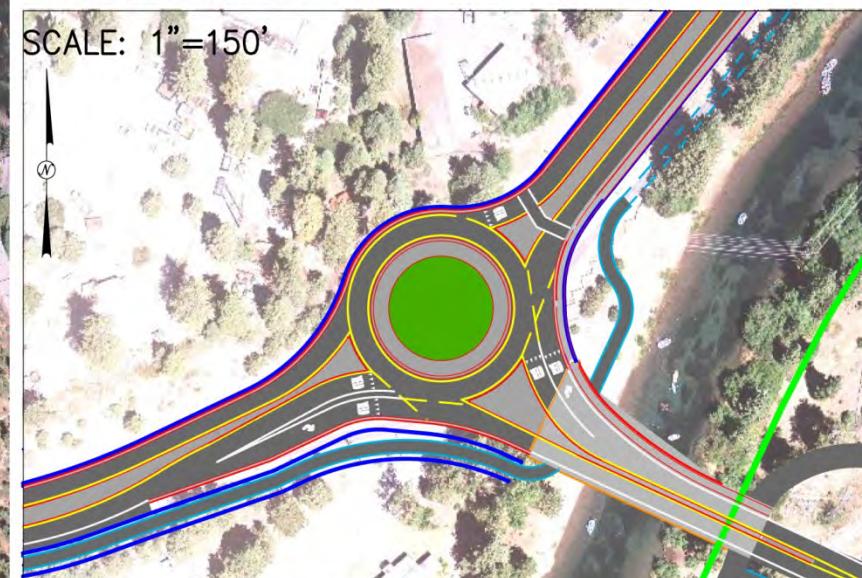
- Curb, Gutter, and Median
- Bridge Structure
- Retaining Wall and/or Barrier
- Reconstructed Bike Path
- Cut/Fill Limits
- Striping & White
- Landscaped Median
- Modify Existing Signal
- Remove Free Right Turns
- Bollards



SEE "WYE" INTERSECTION OPTIONS

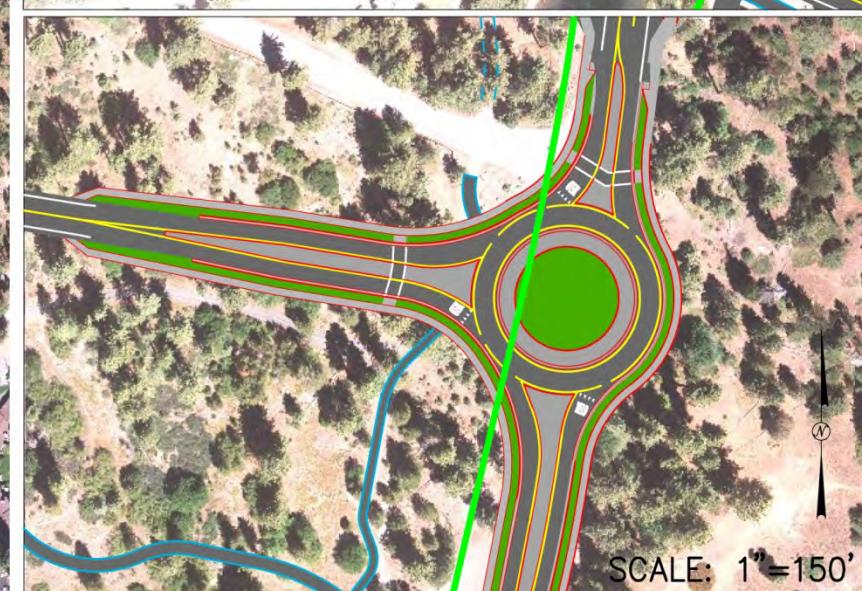


BOLLARDS WILL BE PLACED NORTH AND SOUTH OF FANNY BRIDGE TO PROHIBIT VEHICULAR TRAFFIC BUT ALLOW FOR EMERGENCY ACCESS



BRIDGE ALLOWS FOR A RIGHT TURN FLARE WITH A SIDEWALK

WESTERN ROUNDABOUT



EASTERN ROUNDABOUT

LEGEND

EXISTING FEATURES

- EXISTING BIKE PATH TO REMAIN
- EXISTING TRANSIT CENTER
- 64-ACRE TRACT BOUNDARY

PROPOSED FEATURES

- CURB, GUTTER, AND MEDIAN
- BRIDGE STRUCTURE
- RETAINING WALL AND/OR BARRIER
- RECONSTRUCTED BIKE PATH
- CUT/FILL LIMITS
- STRIPING
- LANDSCAPED MEDIAN
- MODIFY EXISTING SIGNAL
- REMOVE FREE RIGHT TURNS



Exhibit 3-4

Alternative 3: New Alignment – Existing SR 89 Becomes a Cul-de-Sac on the South Side of Fanny Bridge



OPTION 1

"WYE"
INTERSECTION



OPTION 2



BRIDGE ALLOWS FOR
A RIGHT TURN FLARE
WITH A SIDEWALK

WESTERN
ROUNDABOUT



EASTERN
ROUNDABOUT



X11010010 01 042



LEGEND

EXISTING FEATURES

- EXISTING BIKE PATH TO REMAIN
- EXISTING TRANSIT CENTER
- 64-ACRE TRACT BOUNDARY

PROPOSED FEATURES

- CURB, GUTTER, AND MEDIAN
- BRIDGE STRUCTURE
- RETAINING WALL AND/OR BARRIER
- RECONSTRUCTED BIKE PATH
- CUT/FILL LIMITS
- STRIPING & WHITE
- LANDSCAPED MEDIAN
- MODIFY EXISTING SIGNAL
- NEW SIGNAL
- REMOVE FREE RIGHT TURNS

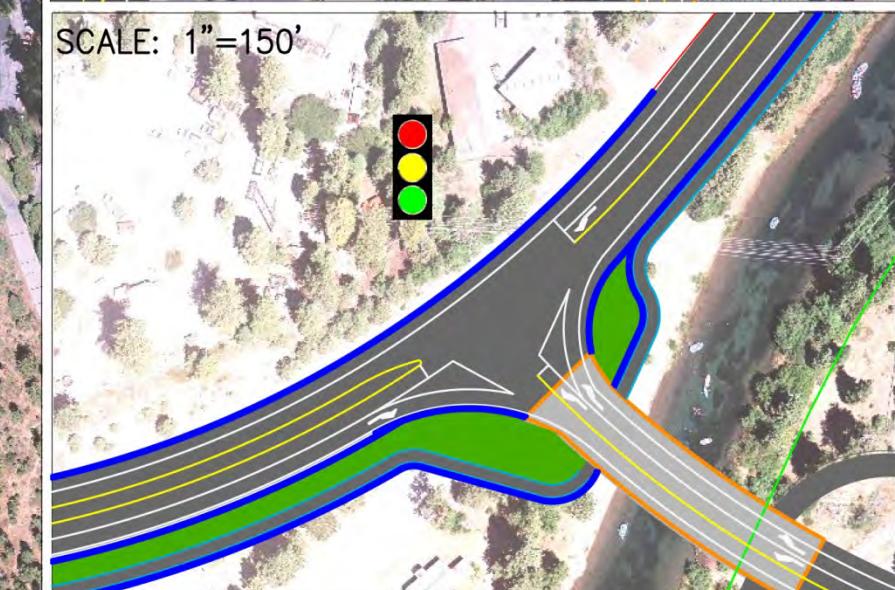


SCALE: 1" = 300'

Source: CH2MHILL 2014



"WYE"
INTERSECTION



NEW SR 89/28
INTERSECTION



TRANSIT CENTER
ENTRANCE

 **CH2MHILL**
Tahoe Transportation DISTRICT

X11010010 01 005

Exhibit 3-5

Alternative 4: New Alignment, No Roundabouts – Existing SR 89 Becomes a Cul-de-Sac on the South Side of Fanny Bridge

 **ASCENT**
ENVIRONMENTAL

3.1.1 New Bridge over the Truckee River

A new bridge over the Truckee River would be located approximately 1,800 feet southwest of the existing Fanny Bridge in four of the action alternatives (Alternatives 1-4). The bridge would include two 11-foot through-traffic lanes (one eastbound and one westbound) and 8-foot shoulders on each side. The width of the proposed bridge would range from 80 feet at the eastern abutment to 100 feet at the western abutment. The structure would widen on the western abutment under Alternatives 1, 2, and 3 to accommodate the approach to the proposed western roundabout. The structure would use precast concrete girders and context sensitive railings, reflective of Tahoe City's surroundings, would be constructed along each edge of the bridge. Aesthetic treatments would be included in the design and construction of the bridge to be compatible with surrounding natural and human environment. There would be a minimum of 10 feet of clearance below the bridge under normal water level conditions, and 10 feet of clearance over the Tahoe Rim Trail/TCPUD bike path on the eastern shore of the Truckee River.

Slope retaining structures built with stacked boulders (i.e., rockery) with appropriate drainage would be constructed, as required, along the portions of SR 89 that would be widened. The stacked-boulder retaining walls would be constructed without mortar, concrete, or steel reinforcement. Boulder dimensions are generally greater than 18 inches and 200 pounds. Stability of the system is achieved through the mass and friction between boulders. The retaining wall would not prohibit access to adjacent parcels.

Exhibit 3-6 shows an example photo simulation/rendering of the new bridge that would be constructed over Truckee River.

3.1.2 Fanny Bridge

Following construction of the new bridge, Fanny Bridge would either be rehabilitated or be replaced with a new structure to address long-term structural integrity of the bridge. A replaced Fanny Bridge would be the same width as the existing bridge and have similar architecture. With the bridge no longer serving as a state highway, a replaced bridge would be relinquished to Placer County in a "state of good repair" and would allow for reduced 11-foot lanes, and 3-foot shoulders. This would allow for a sidewalk to be added to the western (downstream) side of the bridge. If the bridge is replaced, the new structure could be designed as a single-span structure without any piers in the Truckee River. The bridge relinquished to Placer County would be designed and constructed adhering to current engineering standards that provide a design life of between 50 to 75 years (FHWA - "Bridge Preservation Guide").

3.1.3 Modifications to the Caltrans Maintenance Yard

Under Alternatives 1 through 4, the primary ingress and egress to the Caltrans maintenance yard (i.e., Caltrans Tahoe City Maintenance Station) would be relocated from the northeastern end of the maintenance yard to a modified entrance at the western end (Exhibit 3-7). The profile of the new western entrance would be raised approximately 10 feet higher than the existing conditions, and a wall may be constructed at the existing entrance to prohibit access. Fuel tanks, pumping facilities, and a pole barn would be demolished and relocated within the maintenance yard. In addition, the entire area between the new driveway and SR 89 would be used as storage for snow or other materials.

The existing bike path would be realigned to include an at-grade crossing of the Caltrans maintenance yard entrance. The bike path would descend to a lower profile to continue under the new bridge to accommodate a grade-separated bicycle crossing.

Existing View from the Pedestrian Bridge Looking Downstream



Conceptual View of New Bridge under Alternatives 1 through 4 Looking Downstream



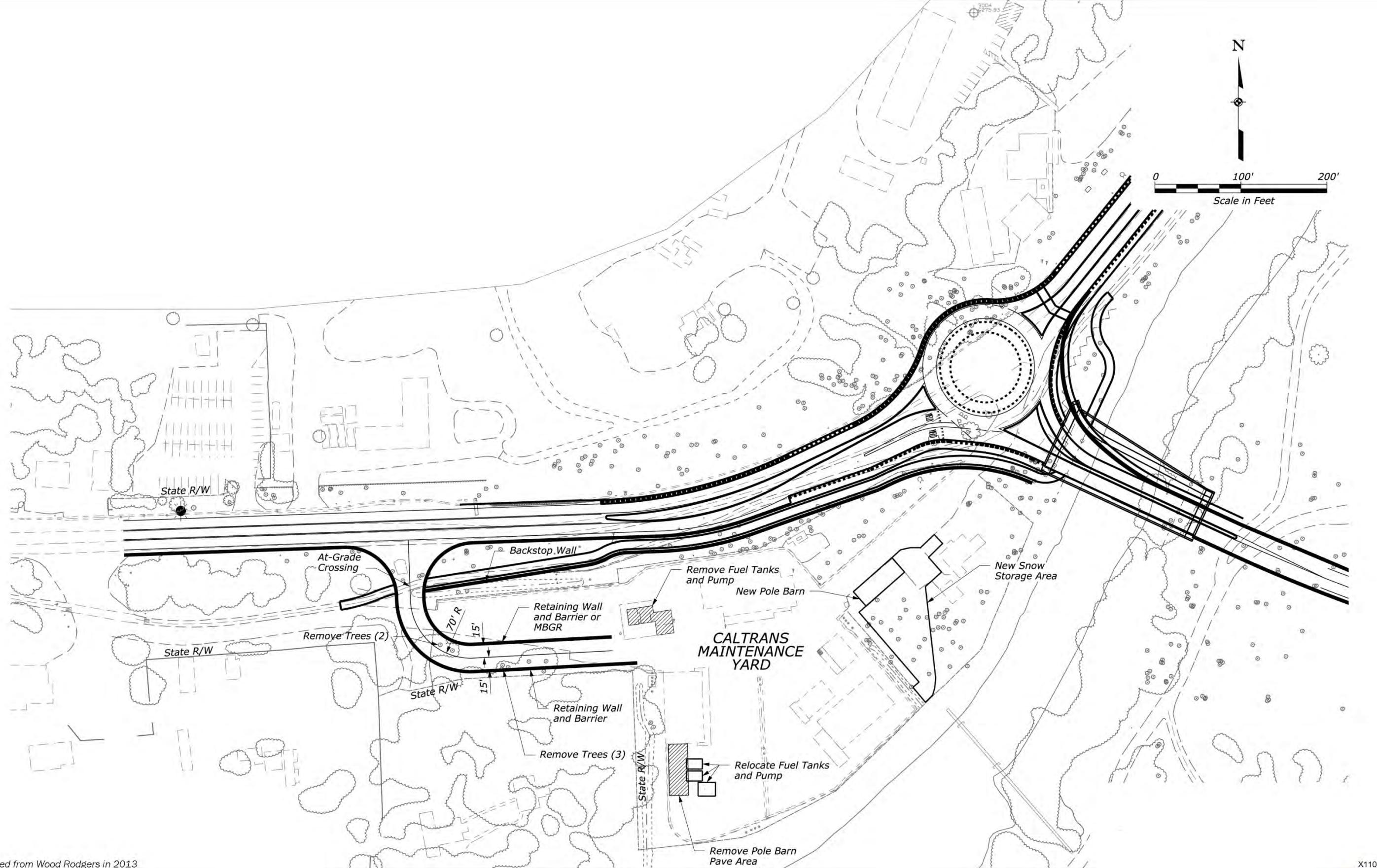
Source: AECOM 2014

X11010010701019

Exhibit 3-6

Photosimulation of New Bridge – Alternatives 1 through 4





Source: Received from Wood Rodgers in 2013

X11010010 01 006

Exhibit 3-7

Caltrans Maintenance Yard Reconfiguration

3.1.1 Realignment and Replacement of the Truckee River Interceptor

The Truckee River Interceptor (TRI) pipeline is a trunk sewer line that serves the North Tahoe Public Utility District (NTPUD), the Tahoe City Public Utility District (TCPUD), the Alpine Springs County Water District, the Squaw Valley Public Service District, and the Tahoe Truckee Sanitary District (T-TSA). It is owned jointly by NTPUD and TCPUD, and operated by TCPUD. A portion of the TRI sewer line is located beneath the area of the proposed roundabout or intersection near the Caltrans maintenance yard and would require relocation. The TRI pipeline connects to the North Shore Export Facility (NSEF) line, which is located beneath SR 28 and SR 89 near the existing wye intersection.

Alternative 1 would include installation of new manholes and relocation and associated replacement of the Truckee River Interceptor (TRI) sewer line either beneath or around the western roundabout (or signalized intersection) at the western end of the new SR 89 alignment. Additionally, the North Shore Export Facility (NSEF) would also be modified to accommodate the relocation of the TRI sewer line. Flow monitoring equipment would also be relocated to one of the new manhole locations. This relocation would be completed within existing disturbed areas (e.g., within the roadway cross-section) and would be sized to maintain the existing flow capacity.

3.1.2 Bike Path Realignment

Portions of the existing Class I bike paths on the project site would be realigned as part of implementation of the project, including any of the new bridge alternatives, as described below.

SOUTH SIDE OF RIVER

Beginning at the “McClintock Building” on SR 89, north of Granlibakken Road, the existing bike path would turn west onto a new alignment for 580 feet. It would then rejoin the existing path and continue toward the Truckee River. At the river, the path would shift closer to the river and go underneath the new Truckee River Bridge before rejoining the existing path, near the existing recreational parking lot. The existing bike path, which runs parallel to SR 89 between the McClintock Building and the Transit Center, would remain. The segment of bike path along existing SR 89, between the Transit Center and Fanny Bridge, would be converted to sidewalk to provide complete-streets elements for a safe and inviting walkable district. Bicycles would be directed to use a new Class II bike lane on the existing SR 89, which would be relinquished by Caltrans and designated as a local Placer County road. Local road designation would provide local control of the street, allowing for community design elements and potential temporary closures for community events.

NORTH SIDE OF RIVER

Beginning to the east of the Tahoe City Lumber/Ace Hardware entrance on SR 89, the existing Truckee River Class I bike path would be shifted south toward the Caltrans maintenance yard, and would cross the entrance to the maintenance yard at grade. At the new Truckee River Bridge, the bike path would go under the new bridge and join the trail on the north side of the Truckee River near the Tahoe Rim Trail. The bike path would be separated from vehicle traffic over the bridge to improve safety. The existing segment of trail between the new Truckee River Bridge and the existing bicycle/pedestrian bridge would be realigned and improved.

3.1.3 Construction Techniques

Pre-grading conditions, construction conditions, and design standards would be reviewed and approved, as required under TRPA's Regulations, RWQCB requirements of the Truckee River TMDL Program, and NPDES permits. "Standard Conditions of Approval for Grading Projects" or "Attachment Q" 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.

IN-WATER CONSTRUCTION

Construction of any new bridge across the Truckee River would require dewatering for construction activities that would encounter groundwater, including installation of the bridge footings and utility demolition, replacement, and protection. No piers would be placed in the river to support the new bridge. As necessary during construction, water-tight coffer dams would be temporarily installed to prevent scour and to maintain soil- and water-free footings to allow for pile driving for bridge footings. Once the footings are constructed, the coffer dams would be removed and the remaining portion of the bridge would be constructed from outside the Truckee River. The river bottom would be restored to its original condition and elevation when work within the river is completed. Construction activities would not impede access to the Tahoe Dam. No coffer dams would be required for construction activities related to the existing Fanny Bridge, because pipes would be attached to dam gates to allow regulated flow to bypass the Fanny Bridge construction site through the pipes to a discharge return into the channel just downstream of the bridge.

Water pumped from excavation activities would contain suspended sediments and other solids. The suspended sediments would not be discharged into the Truckee River, stream environment zones (as defined by TRPA), wetlands (as defined by the U.S. Army Corps of Engineers), or municipal storm drains. Dewatering discharge or any accumulated storm water runoff that contains elevated levels of regulated constituents, including suspended sediment, would be pumped into trucks and disposed offsite at a permitted waste disposal facility that meets all applicable laws and regulations. Construction best management practices (BMPs) would be installed, in accordance with all permits and Caltrans requirements. Please refer to Section 4.7, "Hydrology and Water Quality," for additional details regarding standard BMPs to be implemented during construction. Utility work and bridge footing work within the Truckee River is anticipated to take several months and would be completed during one construction season, primarily in the summer months.

TRAFFIC CONTROL MEASURES

Traffic control would be required during construction of the project to minimize lane closure requirements, preserve access to businesses, provide emergency access, and minimize travel delays. These strategies would be 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 the Traffic Management Plan would include: Bureau of Reclamation, USFS, TCPUD, and Placer County.

Rehabilitation or replacement of Fanny Bridge would require periods of reduced lane widths and lane closures on the existing bridge, and potentially 24 hour to 3 working day periods of full bridge closure. Bridge and lane closure would affect traffic and accessibility to and from the West Shore. The new Truckee River Bridge would be built and opened prior to the construction on Fanny Bridge to allow for detour of traffic and to maintain a crossing over the Truckee River at all times. Any rehabilitation or replacement activities for the existing Fanny Bridge that can be completed without affecting traffic may occur prior to completion of the new Truckee River Bridge. Closures could potentially be scheduled in late spring or early fall to reduce impacts on businesses, residents, and visitors during the summer peak season. However, this may not be feasible due to the short construction season within the Tahoe Basin (May 1 through October 15). Under Alternatives 1 through 4, emergency service providers, business, and other affected public would be notified

about any planned lane closures and reduced lane widths, and a traffic management plan would be prepared to specify how emergency services would be provided during temporary closures. Traffic control measures would include: public outreach, temporary signage, lane width reductions, reduced speeds, and detours over the new bridge.

CONSTRUCTION STAGING AREAS

Construction staging areas 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. There would be four construction staging areas, subject to approval by relevant agencies, located in the following locations (Exhibit 3-8):

- ▲ the parking lot located along River Access Drive;
- ▲ the TCPUD drive and parking lot located just west of the Fairway Drive, and West River Road intersection;
- ▲ the Tahoe City Transit Center parking;
- ▲ USFS lots; and
- ▲ Caltrans maintenance yard

3.2 NEW BRIDGE ALTERNATIVES DESCRIPTION

While the components described above would be the same under each new bridge alternative, the configurations of the roadways and associated features would differ as described below.

3.2.1 Alternative 1: New Alignment – Existing SR 89 Open to Local Traffic

Under Alternative 1, SR 89 would be realigned as a new two-lane segment of roadway that would cross through USFS's 64-Acre Tract. The western end of the new segment would be constructed as a new single-lane roundabout, which would serve as the new SR 89/SR 28 intersection. A new bridge over the Truckee River would be constructed immediately to the southeast of the roundabout on the realigned highway segment. The new alignment would continue east and reconnect to existing SR 89 at a second roundabout near the existing changeable message sign and sled hill (Exhibit 3-2). The realigned portion of SR 89 would be elevated on an earthen embankment from 3 feet near the roundabout, up to 9 feet approaching the bridge. Slopes of the embankment would be vegetated to blend it into the surrounding forest. Fanny Bridge would be rehabilitated or replaced to address the long-term structural integrity and resolve safety issues. . The existing section of SR 89 between Fanny Bridge and the eastern roundabout would be relinquished by the state to Placer County and become a local street (see Exhibit 3-9). Traffic calming and aesthetic features would be installed within this section of roadway (e.g., reduced speed limit, bulb-outs, landscaped areas, raised landscaped median, on-street parking, sidewalks, street lighting, benches, etc.).

Alternative 1 would include way-finding signage to indicate to drivers the direction to Truckee, Tahoe City, and South Lake Tahoe. Signs would be placed near all entry points to the roundabouts. Signs for gas, food, lodging, public transportation, hiking trails, and other tourist amenities would direct travelers toward Tahoe City attractions and businesses. In addition, the entrance into the Tahoe City Transit Center (Transit Center) would be realigned to allow for bus and vehicle access approximately 240 feet north of the eastern roundabout.

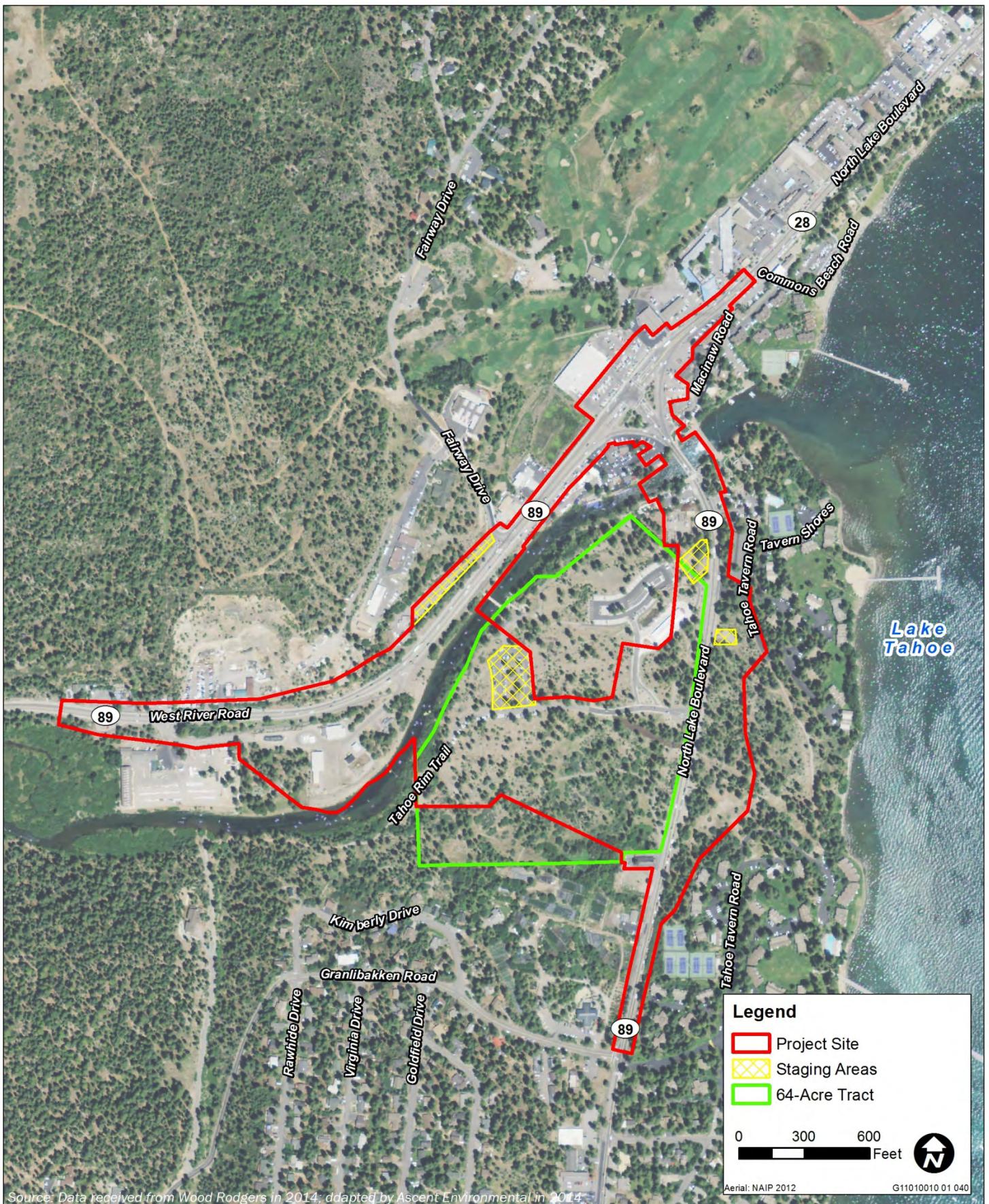
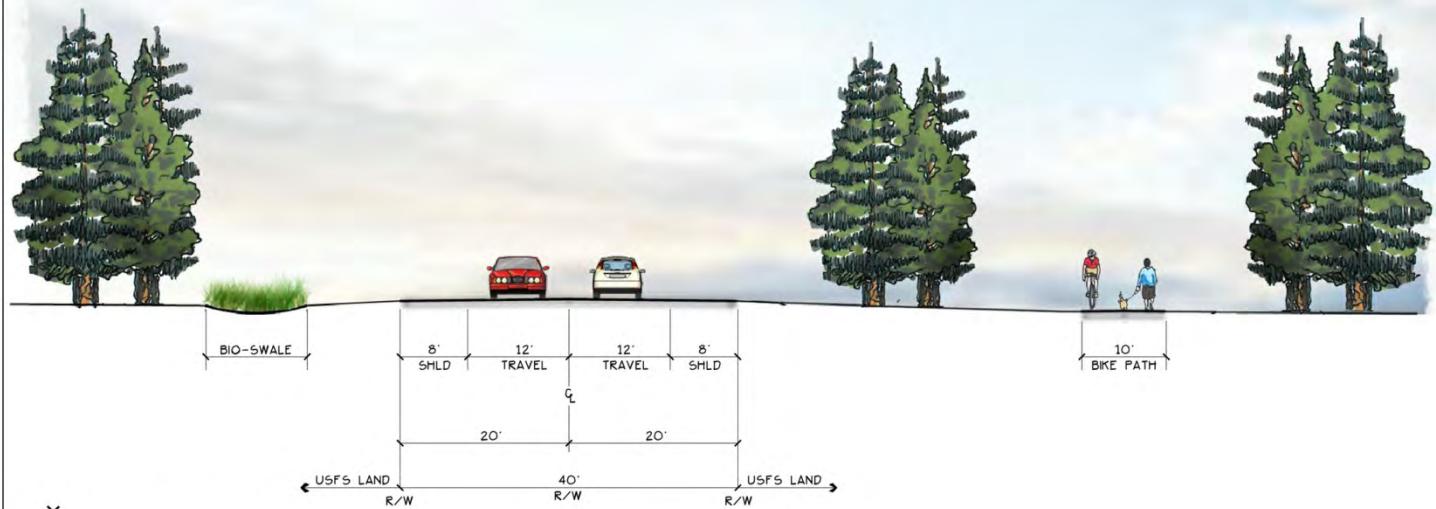
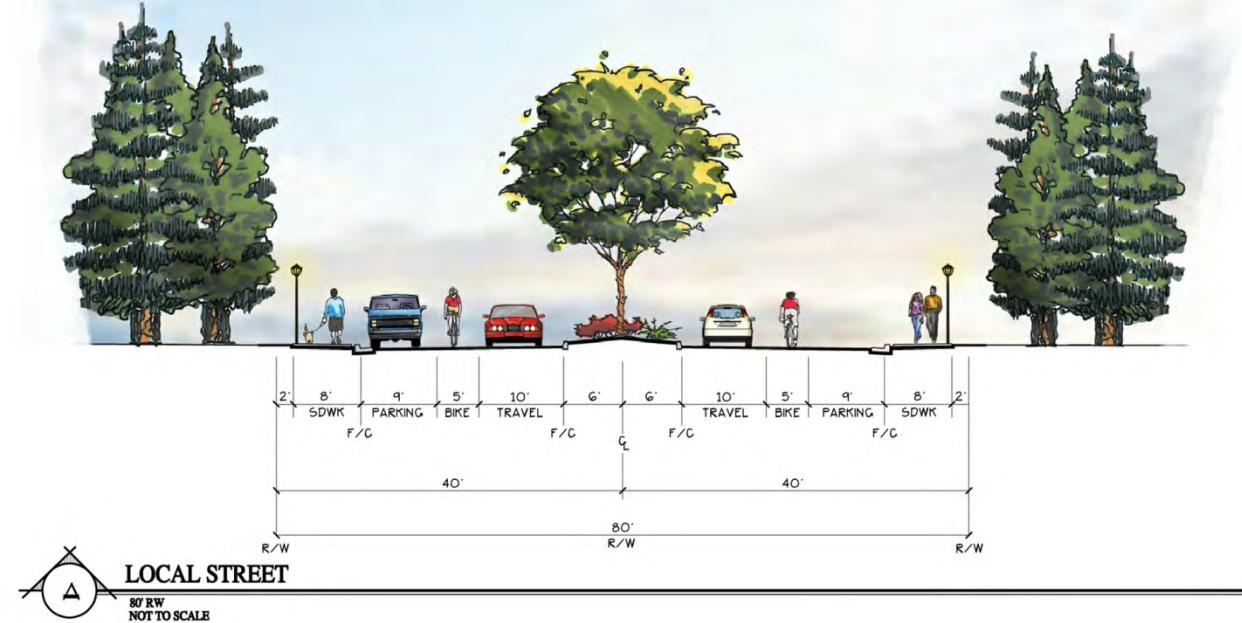


Exhibit 3-8

Staging Areas



For Illustrative Purposes Only



Source: Wood Rodgers 2013

X11010010 01 002

Exhibit 3-9

Local Street/Existing SR 89 and New SR 89 Cross-Section Examples



WYE INTERSECTION MODIFICATIONS

Alternative 1 (as well as Alternatives 2 through 4) would include options for the existing free-right-turn lanes at the existing SR 89/SR 28 wye intersection.

Option 1 – Parking Spaces, Landscaping, or Minor Modifications

Under Option 1, the existing free-right-turn lanes would either be replaced with 55 parking spaces, restored with expanded landscaping, or retained with minor modifications, as described below:

- ▲ **Parking Spaces:** If the area is developed for parking, the existing free-right-turn lanes would be replaced with approximately 55 parking spaces. The landscaped median at the southeast corner of the intersection would be removed and replaced with a parking lot, and the existing free-right turn lanes would be restriped with parking spaces. The free-right turns would be closed to through traffic, and all right turns would be directed through the signalized intersection.
- ▲ **Landscaping:** If the area is restored with landscaping, the landscaped medians at the southeast and southwest corners of the intersection would be expanded to include the existing free-right turns. All right turns would be directed through the signalized intersection.
- ▲ **Minor modifications:** If the lanes are retained, they would be reduced to 13 feet to make room for landscape and pedestrian improvements. The existing landscaped medians would be expanded and pedestrian facilities in the area would be enhanced. Free-right turns would continue to be provided.

Option 2 – Wye Roundabout

Under Option 2, a roundabout would be constructed at the existing wye intersection with expanded landscaping and gateway features. Business access would require minor modifications associated with consolidation and/or reconfiguration of ingress/egress driveways.

3.2.2 Alternative 2: New Alignment – Close Existing SR 89 to Vehicle Traffic

Under Alternative 2, the SR 89 realignment and signage would be the same as described above under Alternative 1, except that the western roundabout would be proposed as a single-lane hybrid configuration (i.e., a single-lane around the circle with two free-right-turn lanes). Fanny Bridge would be rehabilitated or replaced to address the long term structural integrity and resolve safety issues. The existing segment of SR 89 between Fanny Bridge and the eastern roundabout would be relinquished to Placer County and become a local street (see Exhibit 3-9). Under Alternative 2, the western roundabout would contain a new bridge, which would serve as the primary river crossing constructed over the Truckee River near the east end of the Caltrans maintenance yard. Bollards would be placed to the north and south of Fanny Bridge to prohibit vehicular traffic. Access across Fanny Bridge would be provided only for pedestrians, bicyclists, and emergency vehicles.

Entry into the Transit Center would be allowed from the south only, at an access point approximately 240 feet north of the eastern roundabout. Transit routes to the north would be provided across the new bridge. Traffic calming improvements similar to those described for Alternative 1 would be constructed on the street south of Fanny Bridge (see Exhibit 3-3). The realigned portion of SR 89 would be elevated through the 64-Acre Tract in the same manner as Alternative 1. The SR 89/SR 28 intersection modifications and signage would be the same under Alternative 2 as described above under Alternatives 1.

3.2.3 Alternative 3: New Alignment – Existing SR 89 Becomes a Cul-de-Sac on the South Side of the Bridge

Under Alternative 3, the SR 89 realignment, new bridge, and signage would be the same as described above under Alternative 1, except that the western roundabout is proposed as a single-lane hybrid configuration (same as Alternative 2). Fanny Bridge would be rehabilitated or replaced to address the long term structural integrity and resolve safety issues. The existing section of SR 89 between Fanny Bridge and the eastern roundabout would be relinquished to Placer County and become a local street (see Exhibit 3-9). A new bridge, which would serve as the primary river crossing, would be constructed over the Truckee River near the east end of the Caltrans maintenance yard. Access to Fanny Bridge would only be available from the north via SR 28. A cul-de-sac would be constructed south of Fanny Bridge near the Transit Center. The existing SR 89 approaching from the south would no longer allow vehicular access to Fanny Bridge, but it would provide emergency access across the cul-de-sac to the bridge, when needed. Buses would be allowed to enter the Transit Center from the north via the cul-de-sac or from the south via the eastern roundabout; automobile entry to the Transit Center would be limited to access from the south at the eastern roundabout. The realigned portion of SR 89 would be elevated through the 64-Acre Tract in the same manner as Alternative 1.

The SR 89/SR 28 intersection modifications and signage would be the same under Alternative 3 as described above under Alternatives 1 and 2.

3.2.4 Alternative 4: New Alignment, No Roundabouts – Existing SR 89 Becomes a Cul-de-Sac on the South Side of the Bridge

Under Alternative 4, the SR 89 realignment would follow a similar path across the 64-Acre Tract, as described above under Alternative 1. However, the western roundabout at the new SR 89/SR 28 junction would be replaced with a traditional, signalized intersection, and the eastern roundabout would be replaced by a sweeping curve directing vehicles from the existing SR 89 alignment to the south onto the realigned SR 89 across the 64-Acre Tract (see Exhibit 3-5). A new bridge, which would serve as the primary river crossing, would be constructed over the Truckee River near the east end of the Caltrans maintenance yard. Fanny Bridge would be rehabilitated or replaced to improve the long term structural integrity and resolve safety issues. A cul-de-sac would be constructed south of Fanny Bridge near the Transit Center. The realigned portion of SR 89 would be elevated through the 64-Acre Tract in the same manner as Alternative 1.

The SR 89/SR 28 intersection modifications and signage would be the same under Alternative 4 as described above under Alternatives 1, 2, and 3. Buses would be allowed to enter the Transit Center from the north via the cul-de-sac or from the south via a new entrance driveway from the sweeping curve; automobile entry to the Transit Center would be limited to an approach from the south via the new entrance driveway.

Under Alternative 4, modification options to the wye intersection would consist of parking spaces, landscaping, or minor modifications. A roundabout would not be constructed at the wye under this alternative.

3.3 ALTERNATIVE 5 (NO ACTION)

Alternative 5 is the No Action Alternative. Under this alternative, there would be no improvements to SR 89, the SR 89/SR 28 intersection, or to Fanny Bridge. Any actions required to address the bridge's service life and structural integrity would not be completed by the Tahoe Transportation District. Another agency (such as Caltrans or Placer County) could pursue a separate bridge rehabilitation or replacement project at another time, or gradual upgrades may be implemented through routine maintenance by Caltrans. Alternatively, Caltrans could declare a more stringent vehicle weight restriction. At this time, no specific improvements to the bridge are planned by Caltrans or another agency (Exhibit 3-10).

3.4 ALTERNATIVES 6 AND 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Under Alternatives 6 and 6a, the existing Fanny Bridge structure would be rehabilitated or replaced with a wider structure and changes to the profile may be required. These alternatives would not include the project components described in Section 3.1, “Project Elements Common to Alternatives 1 through 4.” While construction of Alternatives 6 and 6a would not affect the existing bicycle paths or other facilities in the 64-Acre Tract, access to the 64-Acre Tract on either side of SR 89 could be temporarily blocked during construction. Access to bicycle paths would still be possible by using the existing pedestrian/bicycle bridge.

Replacement of Fanny Bridge would require periods of reduced lane widths and lane closures on the existing bridge, and potentially very brief periods of full bridge closure. Bridge closure would affect traffic and accessibility to and from the west shore. Lane closures could potentially be scheduled in late spring or early fall to reduce impacts on businesses, residents, and visitors during the summer peak season. However, this may not be feasible due to the short construction season of the Tahoe Basin (May 1 through October 15). As with Alternatives 1 through 4, emergency service providers would be notified about any planned lane closures and reduced lane widths, and a traffic management plan would be prepared to specify how emergency services would be provided during temporary full closures. Full closures would normally not exceed 20 minutes and lanes and the bridge could be opened immediately for emergency use, if needed.

3.4.1 Construction Techniques

Pre-grading conditions, construction conditions, and design standards would be reviewed and approved, as required under TRPA’s Regulations, RWQCB requirements the Truckee River TMDL Program, and NPDES permits. “Standard Conditions of Approval for Grading Projects,” or “Attachment Q,” includes standards such as: temporary BMPs, equipment idling times, erosion control requirements, lighting standards, and landscaping specifications. In addition, the Alternatives 6 and 6a would incorporate the following construction techniques and practices. Construction BMPs would be installed, in accordance with all permits and Caltrans requirements. Please refer to Section 4.7, “Hydrology and Water Quality,” for additional details regarding standard BMPs to be implemented during construction.

IN-WATER CONSTRUCTION

Under Alternatives 6 and 6a, pipes would be attached to dam gates to allow regulated flow to bypass the Fanny Bridge construction site through the pipes to a discharge return into the channel just downstream of the bridge. Construction activities would not impede access to the Tahoe Dam. No coffer dams would be required for construction activities related to the existing Fanny Bridge.

Utility work and bridge footing work within the Truckee River is anticipated to take approximately several months and would be completed during one construction season, primarily in the summer months.

TRAFFIC CONTROL MEASURES

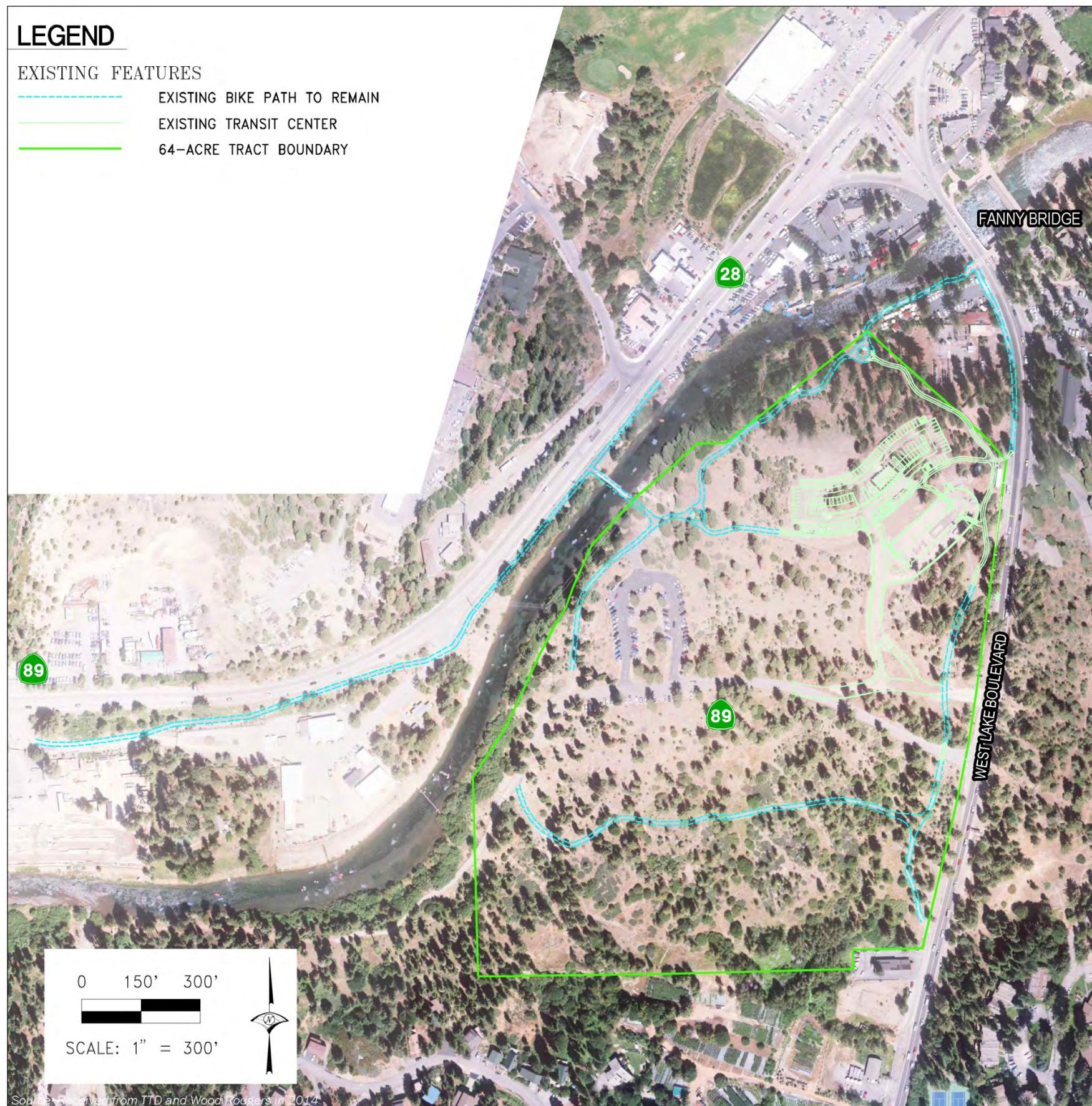
Traffic control would be required during construction of the project to minimize lane closure requirements, preserve access to businesses, provide emergency access, and minimize travel delays. These strategies would be implemented in conformance with Caltrans, county, and other applicable standards as they apply to each stage of construction. Agencies consulted during preparation and approval of the Traffic Management Plan would include: Bureau of Reclamation, USFS, TCPUD, and Placer County.

Under Alternatives 6 and 6a, full closure of the bridge would not be permitted during the rehabilitation or replacement of Fanny Bridge. The rehabilitation or replacement bridge would be constructed in phases with

LEGEND

EXISTING FEATURES

- EXISTING BIKE PATH TO REMAIN
- EXISTING TRANSIT CENTER
- 64-ACRE TRACT BOUNDARY



Source: Retrieved from TTD and Wood Rodgers in 2014

Source: Wood Rodgers 2013

Exhibit 3-10



"WYE"
INTERSECTION

Alternative 5: No Action



X11010010 01 007



at least one lane open at all times. In the event that full closure of the bridge is required (such as to re-position construction equipment), then closures would be limited to a maximum of 20 minutes with no delays to emergency vehicles. Additionally, full bridge closures would not be permitted to occur during peak summer months.

As with Alternatives 1 through 4, emergency service providers, business, and other affected public would be notified about any planned lane closures and reduced lane widths, and a traffic management plan would be prepared to specify how emergency services would be provided during temporary closures. Traffic control measures would include: public outreach, temporary signage, lane width reductions, and reduced speeds.

CONSTRUCTION STAGING AREAS

Construction staging areas 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. There would be four construction staging areas, subject to approval by relevant agencies, located in the following locations (Exhibit 3-8):

- ▲ the TCPUD drive and parking lot located just west of the Fairway Drive and West River Road intersection,
- ▲ the Tahoe City Transit Center parking, and
- ▲ USFS lots.

The following provides specifics related to Alternatives 6 and 6a.

3.4.2 Alternative 6: Rehabilitate or Replace and Widen Existing Bridge, Modify Lane Geometrics at Existing Wye Intersection

Alternative 6 would rehabilitate or replace the existing Fanny Bridge with a wider structure with three northbound and two southbound travel lanes. SR 89 would remain on its existing alignment. The widened portion of the bridge would be constructed downstream of the existing structure, to comply with Bureau of Reclamation's distance restrictions related to the dam. As a result, the new bridge would be 60 feet wider, and the centerline would be 28 feet downstream, as compared to the existing structure. The new Fanny Bridge would have 12-foot travel lanes, 8-foot shoulders, and 10-foot sidewalks on both sides. Under this alternative, the wye would remain in its existing location and configuration; however, the free-right-turn lanes at the wye would be removed and replaced with right-turn lanes that would direct vehicles through the signalized intersection (Exhibit 3-11).

To implement Alternative 6, acquisition of three properties would be required: Swigard's True Value Hardware (assessor's parcel number [APN] 094-190-013), Bridgetender Restaurant (APN 094-540-025), and River Grill (APN 094-540-023). In addition, an existing structure on the Liberty Power parcel would need to be relocated within that parcel. Access would be maintained to all parcels affected by this alternative.

3.4.3 Alternative 6a: Rehabilitate or Replace and Widen Existing Bridge, Install Roundabout at Existing Wye Intersection

Under Alternative 6a, the existing Fanny Bridge would be rehabilitated or replaced at its current location with a new, wider four-lane structure built to current Caltrans design and safety standards. The increase in width would be approximately 49 feet. Similar to Alternative 6, the additional width would be downstream of the existing structure. The centerline of the new bridge would be 22 feet downstream from the centerline of the existing bridge. The new Fanny Bridge would have 12-foot travel lanes, 8-foot shoulders, and 10-foot

sidewalks on both sides. The existing signalized wye intersection would be replaced with a roundabout (Exhibit 3-12).

To implement Alternative 6A, acquisition of two properties would be required: Gary Davis Group Design and Engineering (APN 094-190-006) and Bridgetender Restaurant (APN 094-540-025). In addition, as under Alternative 6, an existing structure on the Liberty Power parcel would need to be relocated within that parcel. Access would be maintained to all parcels affected by this alternative.

3.5 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER EVALUATION

Additional alternatives were considered during the initial planning for the SR 89/Fanny Bridge Community Revitalization Project. The CEQA Guidelines section 15126.6(c) includes three factors that may be used to eliminate alternatives from detailed consideration in an EIR: “i. failure to meet most of the basic project objectives; ii. infeasibility, or iii. inability to avoid significant environmental impact.”

3.5.1 Replace and Upgrade the Existing Fanny Bridge, Provide Pedestrian Undercrossing

This alternative would rehabilitate or replace the existing Fanny Bridge and widen it by approximately 19 feet in the downstream direction. The widening would accommodate a new sidewalk on the downstream side of the bridge, a wider sidewalk on the upstream side, and separate the sidewalks on both sides of the bridge from traffic lanes with reinforced concrete barrier rails to provide a safe pedestrian environment. A pedestrian/ bicycle underpass would be provided on the south side of the bridge, with stairs and ramps connecting existing trails, so that trail connectivity could be upgraded and the existing mid-block pedestrian crossing could be removed. Reinforced concrete barrier rails would be constructed on each side of SR 89 south of the bridge to discourage at-grade pedestrian/bicycle crossing.

This alternative was eliminated from consideration because it would have resulted in substantial biological impacts to the Truckee River to construct the pedestrian undercrossing. Also, the U.S. Bureau of Reclamation has stated that they would not allow excavation or construction near the river upstream of the existing bridge limits, which would be required. Additionally, this alternative did not meet some of the basic objectives of the project including the Purpose and Need, because the pedestrian undercrossing would need to be closed during high river flows in early summer when there is corresponding heavy pedestrian activity, thereby reducing any benefit to the level of service at the intersection and associated air quality improvements.

3.5.2 2002 Caltrans Project Study Report Alternatives

In 2002, TRPA prepared a Caltrans Project Study Report (PSR), as required under the Caltrans Project Development Procedures Manual (Government Code sections 14526(b) and 14527(g)) required for projects on the State Highway System. PSRs are prepared for California State highway system projects to allow for open and continuous communication between Caltrans, the sponsoring agency, and the regional transportation planning agency/county transportation commission. The intent of PSRs is to allow for examination necessary to define the scope, schedule, and cost estimate of a project. PSRs enable the programming of the project development support components to allow engineering and environmental studies to proceed to evaluate the merits and feasibility of alternatives before a preferred alternative is selected for the programming of right-of-way and construction capital costs.



LEGEND

—	CURB, GUTTER, AND MEDIAN	—	RETAINING WALL OR BARRIER	—	TRANSIT CENTER	—	STRIPING
—	BRIDGE STRUCTURE	—	BIKE PATH	—	CUT/FILL LIMITS	—	& WHITE

80' 40' 0 80'



CH2MHILL
Tahoe Transportation District

X11010010 01 008 Source: CH2M HILL 2014

Source: Wood Rodgers 2013

Exhibit 3-11

Alternative 6: Rehabilitate or Replace and Widen Existing Bridge, Modify Lane Geometrics at Existing Wye Intersection

ASCENT
ENVIRONMENTAL



LEGEND

—	CURB, GUTTER, AND MEDIAN	—	RETAINING WALL OR BARRIER	—	TRANSIT CENTER	—	STRIPING
—	BRIDGE STRUCTURE	—	BIKE PATH	—	CUT/FILL LIMITS	—	& WHITE

80' 40' 0 80'



CH2MHILL
Tahoe Transportation District

X11010010 01 009 Source: CH2M HILL 2014

Source: Wood Rodgers 2013

Exhibit 3-12

Alternative 6a: Rehabilitate or Replace and Widen Existing Bridge, Install Roundabout at Existing Wye Intersection

ASCENT
ENVIRONMENTAL

The four alternatives described in the 2002 PSR are described as follows:

Realign SR 89 Southerly Near the Caltrans Maintenance Yard with SR 89 and SR 89 as the Through Move.

This alternative would realign SR 89 from its existing alignment across Fanny Bridge and construct a new bridge over the Truckee River near the existing Caltrans maintenance yard. A new at-grade T-intersection connecting SR 89 and SR 28 would be constructed approximately 0.3 miles southwest of the existing SR 89/SR 28 intersection. Through traffic flow would be directed primarily through SR 89 (between South Lake Tahoe and Truckee); vehicles travelling to and from Kings Beach (SR 28) would be required to make a turning movement. At the south end of the project (i.e., near the proposed eastern roundabout under action alternatives 1, 2, and 3), a new at-grade T-intersection would be needed to provide access to the existing SR 89 roadway to maintain access to residences and businesses. This alternative would result in the need to relocate the Caltrans maintenance yard.

This alternative was eliminated from consideration because it would require moving the Caltrans maintenance yard. Caltrans has no alternative site for the maintenance yard and no plans to relocate.

Realign SR 89 Southerly Near the Caltrans Maintenance Yard, Maintain SR 89 to SR 28 as the Through Move.

This alternative would realign SR 89 from its existing alignment across Fanny Bridge and construct a new bridge over the Truckee River near the existing Caltrans maintenance yard. A new at-grade T-intersection similar to the existing intersection connecting SR 89 and SR 28 would be constructed approximately 0.3 miles southwest of the existing SR 89/28 intersection. For this alternative, though, SR 89 (from the north) to SR 28 would be the through move of the "T." The new T-intersection would be signalized and dual left-turn lanes would be provided for both left-turn movements. At the south end of the project, a new at-grade T-intersection would be needed to provide access to the existing SR 89 roadway in order to maintain access to residences and businesses. This alternative would also result in the need to relocate the Caltrans maintenance yard.

This alternative was eliminated from consideration because it would require moving the Caltrans maintenance yard. Caltrans has no alternative site for the maintenance yard and no plans to relocate.

Realign SR 89 at Fairway Drive and Construct a New Bridge. This alternative would realign SR 89 from its existing alignment across Fanny Bridge and connect it as the fourth leg of the existing Fairway Drive T-intersection approximately 900 feet southwest of the existing SR 89/SR 28 intersection. A new bridge would be constructed over the Truckee River. The new alignment would continue south through the USFS 64-Acre Tract and reconnect to existing SR 89 with a sweeping curve near the existing changeable message sign. A new intersection would be constructed to connect the existing segment of SR 89 south of Fanny Bridge to the new alignment.

This alternative was eliminated from consideration because it would eliminate existing businesses at the Fairway Drive intersection. It also was the least popular alternative among the local community during a series of public outreach efforts for the project in 2004.

Rehabilitate or Replace and Widen the Existing Fanny Bridge, Provide Barriers Separating Vehicles and Pedestrians. This alternative would rehabilitate or replace the existing Fanny Bridge and widen it by approximately 14 feet in the downstream direction. The widening would accommodate a new shared bicycle/pedestrian sidewalk on the downstream side of the bridge, and separate the sidewalks on both sides of the bridge from traffic lanes with reinforced concrete barrier rails to provide a safe pedestrian environment.

This alternative was eliminated from consideration because it did not meet some of the basic objectives of the project including the Purpose and Need, and would not eliminate pedestrian crossings south of Fanny Bridge, and would not construct any features to improve level of service or air quality, improve safety and improve access, or provide for a "gateway experience."

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4 APPROACH TO THE ENVIRONMENTAL ANALYSIS

As described in Chapter 1, “Introduction,” this is a joint environmental impact report (EIR) under California Environmental Quality Act (CEQA) regulations, environmental impact statement (EIS) under the Tahoe Regional Planning Agency (TRPA) Code of Ordinances and Rules of Procedure, and an environmental assessment (EA) under the National Environmental Policy Act (NEPA) and regulations. Some terminology and document contents vary between the three sets of environmental statutes and regulations. This EIR/EIS/EA contains the necessary elements to satisfy the pertinent CEQA, TRPA, and NEPA requirements. The technical sections have been prepared in compliance with the acts and regulations defined below and where applicable, in accordance with the California Department of Transportation (Caltrans) Standard Environmental Reference.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA and the State CEQA Guidelines direct that an EIR evaluate and disclose the environmental impacts associated with a proposed project (i.e., proposed action). The potentially significant environmental effects of all phases of the proposed project and project alternatives, including construction and operation, are evaluated in the analysis (consistent with 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 all feasible mitigation measures and a reasonable range of alternatives to reduce the potentially significant or 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.

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 environmental impact statement (EIS) before deciding to approve or carry out any project. The TRPA Code of Ordinances states that an EIS shall identify significant environmental impacts of the proposed project (i.e., proposed action), any significant adverse environmental effects that cannot be avoided should the project be implemented, and mitigation measures that must be implemented to assure meeting standards of the Lake Tahoe Basin (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 proposed project should it be implemented. The EIS shall also evaluate growth-inducing impacts of the proposed project (TRPA Code of Ordinances, 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 targets to be achieved in the Tahoe Region. Every five years, TRPA evaluates the attainment status of all TRPA threshold standards. The latest TRPA Threshold Evaluation was completed in April 2012 (TRPA 2012a). Pursuant to Code Section 4.4, TRPA is required to find that the project would not cause the environmental threshold carrying capacities to be exceeded. These will be presented as part of the findings to the board during consideration of certification of this EIR/EIS/EA and adoption of a project alternative.

NATIONAL ENVIRONMENTAL POLICY ACT

NEPA requires federal agencies to integrate environmental values into their decision-making processes by considering the environmental impacts of their major Federal actions and reasonable alternatives to those actions. The SR 89/Fanny Bridge Community Revitalization Project is considered to be a major Federal action, because it is a transportation project proposed for FHWA funding (23 Code of Federal Regulations [CFR] 771.106[b]). When the significance of impacts of a transportation 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. 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 EA follows the FHWA regulations for implementing NEPA, including Environmental Impact and Related Procedures (23 CFR 771), *Environmental Impact and Related Procedures*. The FHWA guidance complementing the regulations were issued in the form of a Technical Advisory (T.6640.8a), *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*. The Technical Advisory provides detailed information on the contents and processing of environmental documents. Additional guidance and information on the NEPA process and other environmental requirements are found in FHWA's Environmental Guidebook. The Guidebook includes up-to-date information to accelerate the delivery of transportation projects. It includes information on FHWA policy and guidance and provides links to transportation and environment websites and resources related to specific technical topics, such as air quality, biological resources, community impacts, cultural resources, Section 4(f), visual impacts, and water quality.

INCORPORATION BY REFERENCE

TRPA and the Tahoe Metropolitan Planning Organization (TMPO) prepared a program EIR/EIS for the environmental review and approval of the Lake Tahoe Regional Transportation Plan (RTP, also known as *Mobility 2035*) and Sustainable Communities Strategy (SCS, for the California portion of the Lake Tahoe Region) (TMPO and TRPA 2012). This program-level document provides a regional consideration of cumulative effects and includes broad policy alternatives and program mitigation measures that are equally broad in scope. Because the approved RTP/SCS EIR/EIS includes the proposed SR 89/Fanny Bridge Community Revitalization Project, some of its environmental effects, including cumulative effects, have been considered at the program level. Thus, this EIR/EIS/EA incorporates the RTP/SCS EIR/EIS by reference. It is available for review on the TMPO's webpage (<http://tahoempo.org/Mobility2035/>) and summarized in this document, where appropriate. -

CONTENTS OF ENVIRONMENTAL ANALYSIS SECTIONS

This environmental analysis provides a comparable level of detail regarding the environmental impacts of all of the SR 89/Fanny Bridge Community Revitalization Project alternatives under consideration. The environmental document has been prepared at a project-specific level of analysis.

Discussion of each technical topic is contained in Sections 4.1 through 4.15. Chapter 5 contains a discussion of cumulative impacts in the context of other existing and proposed development near the project site. Chapter 4 includes the evaluation of all environmental topics originally identified for review in the Notice of Preparation (NOP) for the Draft EIR/EIS/EA and issue areas identified in the TRPA Initial Environmental Checklist. Appendix A of this EIR/EIS/EA contains the NOP. Appendix B contains the Scoping Report, which includes the comments received during public scoping conducted for the EIR/EIS/EA.

In accordance with CEQA, TRPA, and NEPA requirements, this environmental analysis examines 14 technical topics. The impacts in Sections 4.1 through 4.15 address effects from implementation of Alternatives 1 through 6a. Technical topic areas consist of the following:

- ▲ Section 4.1, “Agricultural and Forest Resources”
- ▲ Section 4.2, “Air Quality”
- ▲ Section 4.3, “Biological Resources”
- ▲ Section 4.4, “Cultural Resources”
- ▲ Section 4.5, “Geology, Soils, Land Capability, and Coverage”
- ▲ Section 4.6, “Greenhouse Gas Emissions and Climate Change”
- ▲ Section 4.7, “Hydrology and Water Quality”
- ▲ Section 4.8, “Hazards, Hazardous Materials, and Risk of Upset”
- ▲ Section 4.9, “Land Use and Planning”
- ▲ Section 4.10, “Noise”
- ▲ Section 4.11, “Population, Employment, and Housing”
- ▲ Section 4.12, “Public Services and Utilities”
- ▲ Section 4.13, “Recreation”
- ▲ Section 4.14, “Scenic Resources”
- ▲ Section 4.15, “Traffic and Transportation”

Sections 4.1 through 4.15 of this EIR/EIS/EA are organized into the following major subsections:

Introduction: This section provides introductory text pertaining to each technical topic, including a brief summary of comments raised by the public in response to the Notice of Preparation.

Regulatory Setting: This section presents the applicable regulatory framework and planning context, if any, for the specific technical issue as it relates to TRPA, federal, state, and local requirements. For applicable resource sections, the Regulatory Setting also includes a discussion of the threshold standard attainment status for the relevant TRPA Environmental Threshold Carrying Capacities: water quality, soil conservation, air quality, vegetation, wildlife, fisheries, noise, recreation, and scenic resources.

Affected Environment: This section describes the environmental setting. The environmental setting presents the existing environmental conditions in the project site and surrounding vicinity, as appropriate. The extent of the environmental setting area evaluated differs among resources, depending on the locations where impacts would be expected. For example, air quality impacts are assessed for the air basin, while aesthetic impacts only need to be assessed for the project site vicinity.

Environmental Consequences: This section identifies and describes the methods and assumptions used in the environmental impact analysis, the criteria used to determine the level of significance of environmental impacts, the environmental effects of implementing the project alternatives, and feasible minimization and mitigation measures that could reduce potentially significant and significant impacts. The potential impacts of the alternatives are determined by comparing estimated environmental effects of each alternative with the baseline condition, which is the existing affected environment (as defined above). The significance determination for each impact is also determined with this comparison. Project impacts are numbered sequentially in each section. A summary impact statement precedes a more detailed discussion of the environmental effects of the alternatives. The level of significance of the impact is also defined for each alternative. The discussion is organized by alternative and includes the analysis, rationale, and substantial evidence upon which conclusions are drawn. Some alternatives may have the same or similar impacts. In these instances, the reader is referred back to previous impact discussions to reduce redundancy.

Many environmental impacts are the subject of existing laws and regulations intended to protect environmental quality. For instance, the TRPA environmental threshold standards and Code of Ordinances requirements; federal environmental laws, regulations, and permitting requirements; and state environmental laws, regulations, and permitting requirements each may mandate either specific actions or achievement of performance standards. 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, leaving little discretion in its implementation, 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 requirements that allow substantial discretion in how they are accomplished, or have a substantial compensatory component, the level of significance is determined before applying the influence of the regulatory requirements. In this circumstance, the impact would be potentially significant or significant, and the regulatory requirements would be included as a mitigation measure.

Methods and Assumptions: This section describes the methods, process, procedures, and/or assumptions used to formulate and conduct the impact analysis. Where relevant, this section may also include dialogue on any issue that is not discussed in the impacts section (i.e., where no impact would be expected and the reasoning behind this conclusion).

Design of the action alternatives is on-going and refinements are continuing. As a result, background studies have been revised as necessary to provide the best available information. A traffic study was completed in April 2014, which is used as the basis for the air quality and noise analysis. In December 2014, a revised version of the traffic study was completed to address alternative refinements, including a reduced footprint and the addition of a roundabout at the wye. These refinements are reflected in Section 4.15, "Traffic and Transportation." Other resources sections, including air quality and noise, are based on the preliminary traffic study and the original project components. These analyses may overstate some of the impacts because the updated traffic analysis indicates a reduced effect in the anticipated level of service projections for roadway segments and intersections in the study area compared to the April study.

Significance Criteria: This section provides the criteria used in this document to define the level at which an impact would be considered significant, in accordance with CEQA, NEPA, and TRPA Code of Ordinances. Significance criteria used in this EIR/EIS/EA are based on the checklist presented in Appendix G of the State CEQA Guidelines; the TRPA Initial Environmental Checklist, factual or scientific information and data; and regulatory standards of Federal, State, and local agencies. While CEQA requires a determination of impact significance for each impact discussed in an EIR based on significance criteria, NEPA does not require this for an EA. 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. The significance thresholds used in this document also encompass the factors taken into account under NEPA to evaluate the context and the intensity of the effects of an action.

Environmental Effects of the Project Alternatives: For each alternative, environmental effects are listed numerically and sequentially throughout each section. Project impacts are numbered sequentially for Alternatives 1 through 6a in each section. For example, impacts in Section 4.3 are numbered 4.3-1 (Alt. 1), 4.3-2 (Alt. 1), and so on for Alternative 1 and impacts in Section 4.3 for Alternative 2 are numbered 4.3-1 (Alt. 2), 4.3-2 (Alt. 2), and so on. A **bold** font impact statement precedes the discussion of each impact and provides a summary of each impact and its level of significance. Impact conclusions are made using the significance criteria described above and include consideration of the "context" of the action and the "intensity" (severity) of its effects in accordance with NEPA guidance (40 CFR 1508.27).

The level of impact of the alternatives is determined by comparing estimated effects with baseline conditions. Under CEQA, the existing setting (as described in Affected Environment, above) normally constitutes the baseline point of comparison against which a significance determination is made. 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. Alternative-specific analyses are conducted to evaluate each potential impact on the existing environment. This assessment also specifies why impacts are found to be significant, potentially significant, or less than significant, or why there is no environmental impact or a beneficial effect. A "potentially significant" impact and "significant" impact are treated the same under CEQA in terms of procedural requirements and the need to identify feasible mitigation. A less-than-significant impact is one that would not result in a substantial adverse change in the physical environment.

Both direct and indirect effects of the alternatives are evaluated for each environmental resource area. Direct effects are those that are caused by the action and occur at the same time and place. Indirect effects are reasonably foreseeable consequences that may occur at a later time or at a distance that is removed from the project area, such as growth-inducing effects and other effects related to changes in land use patterns, population density, or growth rate, and related effects on the physical environment.

Avoidance, Minimization, and/or Mitigation Measures: Mitigation measure are identified, where feasible, to avoid, minimize, rectify, reduce, or compensate for significant or potentially significant impacts of the project, in accordance with the State CEQA Guidelines (section 15126.4), the TRPA regulations, and the regulations implementing NEPA.

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4.1 AGRICULTURAL AND FOREST RESOURCES

4.1.1 Introduction

This section describes existing forest resources in the project area, presents applicable government regulations related to forest/tree removal, identifies forest zoning designations and uses on the project site, and presents an analysis of potential impacts under each project alternative.

According to the California Department of Conservation (DOC), there are no lands considered to be important farmland on the project site (DOC 2010) or lands subject to Williamson Act contracts (DOC 2013). Thus, the project alternatives would not convert important farmland, conflict with Williamson Act contracts, or otherwise affect agricultural land. There would be no impacts related to agricultural resources. This topic is not discussed further in this EIR/EIS/EA.

The ability of forest land on the project site to support other uses and the effects that the project alternatives might have on these uses are addressed in other sections of this EIR/EIS/EA. Aesthetic resources are addressed in Section 4.14, “Scenic Resources”; the project’s consistency with Tahoe Regional Planning Agency (TRPA) and local agency goals and policies is presented in Section 4.9, “Land Use and Planning”; forest-related habitat, wildlife, ecosystem, and land management impacts are evaluated in Section 4.3, “Biological Resources”; and, issues related to recreation are addressed in Section 4.13, “Recreation.”

Mary Huggins, with the California Department of Forestry and Fire Protection (CAL FIRE) submitted comments on the Notice of Preparation related to tree removal. She requested consideration of state law requirements regarding tree removal and timberland conversion under the California Forest Practices Act and its Rules and Regulations (Title 14 California Code of Regulations, Chapters 4, 4.5, and 10).

4.1.2 Regulatory Setting

Forest resources in the Tahoe Basin are regulated by several federal, state, and local laws and policies. Key regulations and conservation planning issues applicable to the SR 89/Fanny Bridge Community Revitalization Project are discussed below.

FEDERAL

United States Forest Service

The project components are predominantly located on National Forest System (NFS) lands managed by the USFS; these lands are located in the Lake Tahoe Basin Management Unit (LTBMU). The management of NFS lands in each of these forests is guided by a separate Land and Resources Management Plan (Forest Plan). The current plans are summarized below.

Lake Tahoe Basin Management Unit – Land and Resource Management Plan

The LTBMU manages more than 75 percent of lands within the Tahoe Region, including lands located within the project site. Land management is guided by the LTBMU Forest Plan (USFS 1988), as amended by the Sierra Nevada Forest Plan Amendment (SNFPA) (USFS 2003), described below. Recently, LTBMU issued as an update to the Forest Plan a revised Forest Management Plan (FMP), final Environmental Impact Statement, and Draft Record of Decision (ROD) on November 22, 2013. A “Notice of Objections Filed” was published on January 31, 2014 and the Objection Reviewing Period is underway. The length of time needed to resolve objections is uncertain; therefore, it is not possible to predict whether the revised 2013 FMP would change from its current content or become effective prior to the approval of the SR 89/Fanny Bridge

Community Revitalization Project. For this reason, this environmental document discusses the 1988 Land and Resources Management.

The Forest Plan sets the framework for how the resources of the national forest lands are managed. The plan translates national laws, policies, and regulations into guidance for activities that occur on the NFS lands. The Forest Plan addresses multiple uses and benefits of forest land. LTBMU is required by law to permit the appropriate removal and sale of timber products on National Forest Land.

Sierra Nevada Forest Plan Amendment

The SNFPA (USFS 2003) amends the Forest Plans for the 11 National Forests that fall within the Sierra Nevada, including the 1988 LTBMU Forest Plan, described above. The SNFPA Final Supplemental EIS and Record of Decision describe the amendments to the Sierra Nevada Forest Plan developed to improve protection of old forests, wildlife habitats, watersheds, and communities in the Sierra Nevada and Modoc Plateau. The SNFPA provides management direction for protecting communities and wildlife, improving forest health, recreation use, and wildfire protection in the 11 National Forests in the Sierra Nevada.

TAHOE REGIONAL PLANNING AGENCY

TRPA plans and policies related to forest resources are from a habitat perspective instead of a timber resource perspective. As indicated above, this section focusses on issues related strictly to the loss or conversion of forest land and zoning of forest land, timberland, and timberland production zone (TPZ) as described in CEQA. A description of TRPA forest-related policies and regulations and analysis of project effects on biological resources and on forest resources from a TRPA regulatory perspective is provided in Section 4.3, "Biological Resources," of this document.

This section considers zoning conflicts and potential rezoning related to forest land. Timber operations occurring in the Lake Tahoe Region (pursuant to Title 14, CCR, Section 1038) are exempt from timber harvesting plan preparation and submission requirements and from the completion report and stocking report requirements of the FPA; however, such operations must have a valid Tahoe Basin Tree Removal Permit (as defined by the TRPA) or shall be conducted under a valid TRPA Memorandum of Understanding, when such a permit is required by TRPA. Such operations are also subject to specific restrictions as identified in the California Forest Practice Rules (FPR).

Code of Ordinances

Code of Ordinances applicable to the SR 89/Fanny Bridge Project include:

▲ **61.1.4.A. Standards for Conservation and Recreation Lands or SEZs**

Within lands classified by TRPA as conservation or recreation land use or SEZs, any live, dead, or dying tree larger than 30 inches diameter at breast height (dbh) in westside forest types shall not be cut, and any live, dead or dying tree larger than 24 inches diameter at breast height in eastside forest types shall not be cut, except as provided below.

▲ **61.1.A.7 Environmental Improvement Program Projects**

Trees larger than 30 inches dbh in the westside forest types and larger than 24 inches dbh in the eastside forest types may be removed when it is demonstrated that the removal is necessary for the activity.

▲ **61.1.5. General Tree Removal Standards**

The cutting, moving, removing, killing, or materially damaging of live trees, and the attachment of appurtenances to trees, shall comply with this subsection. The removal of trees 14 inches dbh or less shall be exempt from TRPA approval under subparagraph 2.3.2.M and requirements of this chapter,

except as provided herein. Removal of trees greater than 14 inches dbh shall require approval by TRPA except as provided in subparagraphs 61.1.7.B and 61.1.7.J. Removal of trees greater than six inches dbh on lakefront properties where the trees to be removed provide vegetative screening of existing structures as viewed from Lake Tahoe requires TRPA approval, except as provided in subsections 61.1.7.B and J. Permits shall be granted or denied in conformity with the provisions of this chapter.

A. Additional Code Standards

Such tree-related projects and activities also shall conform to the provisions of the Code as provided below.

1. If vegetative screening is required by an existing permit for any property, the vegetative screening shall not be removed without prior approval from TRPA except for defensible space purposes pursuant to subparagraph 61.3.6.D.
2. If tree and/or vegetation removal to occur on any property where existing permit conditions require retention of vegetation, including tree and/or vegetation removal for defensible space purposes pursuant to subparagraph 61.3.6.D, alternative scenic mitigation shall be proposed to TRPA within 30 days of vegetation removal and shall be subject to review and approval by TRPA notwithstanding the permit exemption in subparagraph 2.3.2.M.

B. Findings

Before tree-related projects and activities are approved by TRPA, TRPA shall find, based on a report from a qualified forester, that the project or activity is consistent with this chapter and the Code. TRPA may delegate permit issuance to a federal, state, or other qualified agency through a memorandum of understanding.

C. Harvest or Tree Removal Plan

In cases of substantial tree removal, as set forth in subparagraph 61.1.8, the applicant shall submit a harvest plan or tree removal plan prepared by a qualified forester. The plan shall set forth prescriptions for tree removal, water quality protection, vegetation protection, residual stocking levels, reforestation, slash disposal, fire protection, and other appropriate considerations. The plan, as approved by TRPA, shall become a part of the project and prescriptions contained in the plan shall be conditions of approval.

▲ 61.1.8. Substantial Tree Removal

Substantial tree removal shall be activities on project areas of three acres or more and proposing the removal of more than 100 live trees 14 inches dbh or larger, or proposing tree removal that as determined by TRPA after a joint inspection with appropriate state or federal Forest staff does not meet the minimum acceptable stocking standards set forth in subparagraph 61.1.6.H.

PAS 174: 64-Acre Tract

No goals or policies within the PAS 174: 64-Acre Tract related to forest resources apply to the project alternatives.

Environmental Threshold Carry Capacities

TRPA has not established any environmental threshold carrying capacities related to agricultural and forest resources.

Tahoe City Community Plan

No goals or policies within the Tahoe City Community Plan related to forest resources apply to the project alternatives.

STATE

California Public Resources Code

The California Public Resources Code provides a definition for forest land which is applicable to the project alternatives.

- ▲ Section 12220(g) defines forest land as land that can support 10 percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.
- ▲ Section 4526 defines timberland as land, other than land owned by the federal government and land designated by the board as experimental forest land, which is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees.

California Government Code

California Government Code definitions applicable to the project alternatives include the following.

- ▲ Section 51104(g) defines “timberland production zone” (TPZ) to mean an area which has been zoned pursuant to Section 51112 or 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses. Compatible uses are defined under Section 51104(h) and include the construction and maintenance of electric transmission facilities.
- ▲ Section 51112 identifies situations which would warrant a decision that a parcel is not devoted to and used for growing and harvesting timber or for growing and harvesting timber and compatible uses.
- ▲ Section 51113 allows the opportunity for a landowner to petition that his or her land be zoned timberland production.

California Timberland Productivity Act of 1982

The California Timberland Productivity Act of 1982 (Government Code Section 51100-51104) identifies the benefits of the state’s timberlands and acknowledges the threat of timberland loss via land use conversions. The law identifies policies intended to preserve timberland, including maintaining an optimum amount of timberland, discouraging premature conversion, discouraging expansion of urban land uses into timberlands, and encouraging investments in timberland. The law establishes TPZ on all qualifying timberland, which is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses. The law also provides that timber operations conducted in a manner consistent with forest practice rules (Z’Berg-Nejedly Forest Practices Act of 1973) shall not be or become restricted or prohibited due to any land use in or around the locality of those operations.

Z’Berg-Nejedly Forest Practice Act of 1973

The Z’Berg-Nejedly Forest Practice Act (FPA) of 1973 (Public Resources Code Section 4511-4517) established the state Board of Forestry and Fire Protection, whose mandate is to protect and enhance the state’s unique forest and wildland resources. This mandate is carried out through enforcement of the California Forest Practice Rules (FPR) (14 CCR Chapters 4, 4.5 and 10). The California Department of Forestry and Fire Protection enforces the laws that regulate logging on non-federal lands in California. Additional rules enacted by the State Board of Forestry and Fire Protection are also enforced to protect forest and wildland resources.

The FPA is intended to create and maintain an effective and comprehensive system of regulation and use of all timberlands so as to ensure that the productivity of timberlands is restored, enhanced, and maintained and that the goal of maximum sustained production of high-quality timber products is achieved while giving consideration to values relating to sequestration of carbon dioxide, recreation, watershed, wildlife, range and forage, fisheries, regional economic vitality, employment, and aesthetic enjoyment. The FPA requires that a Timber Harvest Plan (THP) be prepared by a Registered Professional Forester for timber harvest on non-federal lands in the state.

LOCAL

Placer County

While the project site is located within Placer County, land use authority is under the jurisdiction of TRPA. Therefore, no goals and policies associated with the Placer County General Plan related to agricultural and forest resources are applicable to the project.

4.1.3 Affected Environment

FOREST LAND

For the purposes of this analysis, forest land is defined as land that can support 10 percent native tree cover of any species that allows for management of timber, aesthetics, fish and wildlife, recreation, and other public benefits (PRC Section 12220(g)). Large portions of the project site for the action alternatives are located within land that meets the PRC 12220(g) definition. Forest types in the area near the project site typically have greater than 10 percent cover by native trees. For the purposes of this EIR/EIS/EA, all forest types on the project site are considered to be forest land. As shown in Exhibit 4.1-1, the project site contains Jeffrey pine and white fir forest types. These forest types are described as follows (see Section 4.3, "Biological Resources," for additional information).

Jeffrey Pine

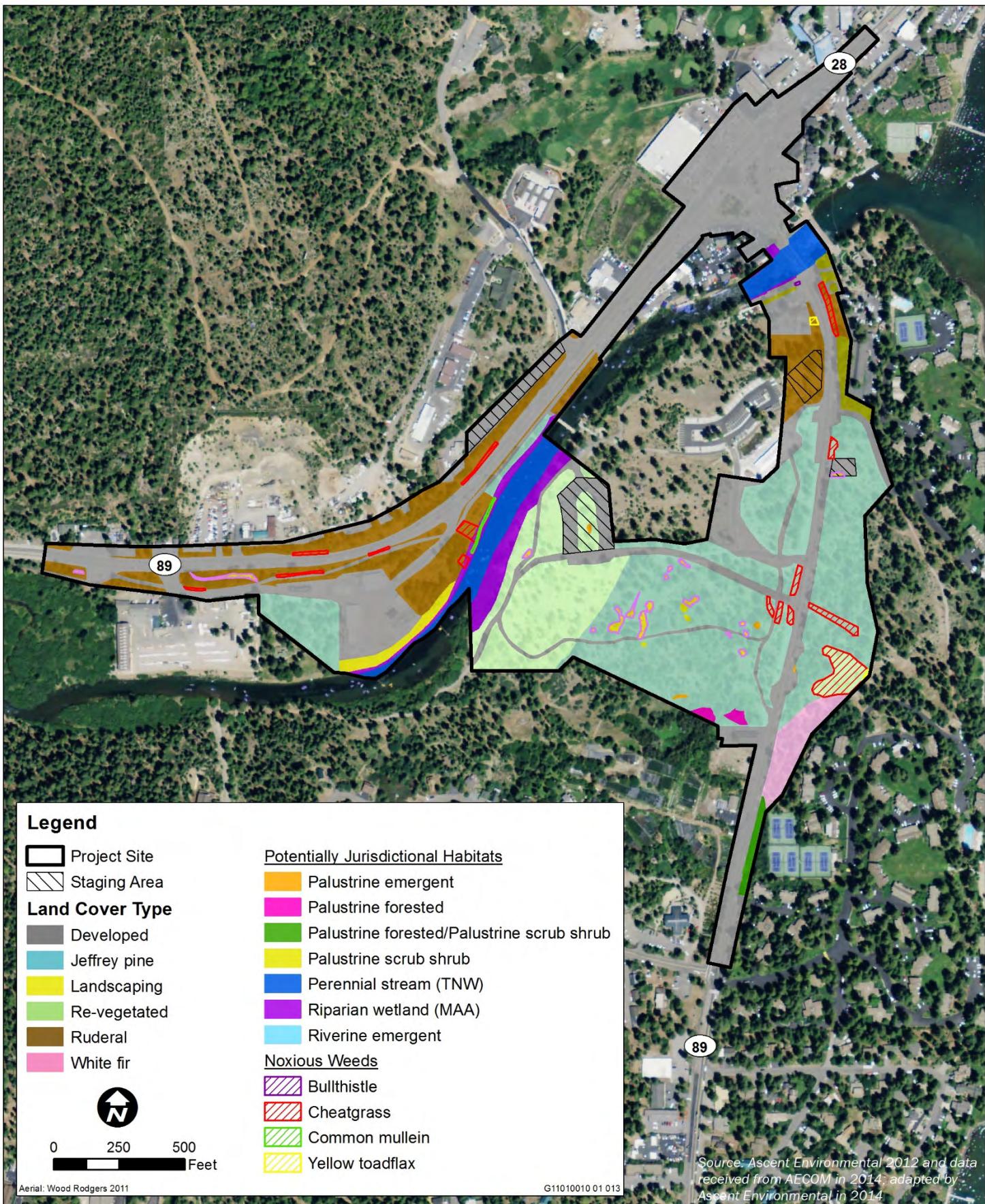
Jeffrey pine (*Pinus jeffreyi*) forest occupies 16.7 acres in the central and eastern portion of the project site. Canopy cover is sparse (10–24 percent) to open (25–39 percent) and the stands are mostly even-aged, consisting of an overstory of large trees (> 24 inches in diameter at breast height [DBH]) and abundant pine saplings (< 6 inches DBH) in the understory, but no mid-canopy. Jeffrey pine is the dominant species, with a few large white firs (*Abies concolor*) present on the east side of SR 89 at the entrance of the road to Tavern Shores.

White Fir

White fir (*Abies concolor*) forest occupies 1.1 acres adjacent to SR 89 on the east side in the southernmost part of the project site. Canopy cover in this vegetation community is dense (>60 percent) with multiple layers of trees ranging from large (>24 inches DBH) overstory trees to saplings (<6 inches DBH). White fir is the dominant species, contributing well over 60 percent relative cover.

Surrounding Forest Lands

The forest types surrounding Lake Tahoe within the LTMBU Management Unit range along elevational gradients, beginning with those found in the montane zone at lake level (6,250 feet), continuing through an upper montane zone (7,200–8,500 feet) and up to the sub-alpine zone along the mountain peaks and ridges (above 8,500 feet). The major forest types that comprise the greater extent of the lower elevations include the Jeffrey pine and white fir-mixed conifer while the upper montane includes red fir. Together, these three forest types comprise the majority of forested lands around Lake Tahoe.



TIMBERLAND

Timberland, a subset of forest land, is defined by PRC Section 4526 and consists of non-federal land that is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products. Based on this definition and the species composition of forest land on the project site, there are no timberlands within the project site.

TIMBERLAND PRODUCTION ZONE

Timberland Production Zone is defined as an area which has been zoned as such and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses, which include construction and maintenance of electric transmission facilities (Government Code Section 51104[g]). No Timberland Production Zones exist on the project site.

STREAM ENVIRONMENT ZONES

Stream Environment Zones (SEZ) are unique to the Tahoe Basin and include perennial, intermittent, and ephemeral streams and drainages, as well as marshes and meadows. Defined by TRPA, these areas generally include riparian or hydric vegetation, alluvial/hydric soils, and the presence of surface water or near-surface groundwater at least part of the year. SEZs make up a small portion of the land area within the Tahoe Basin (approximately 5 percent), but provide important wildlife habitat and help to reduce sediment and nutrient runoff (California Tahoe Conservancy 2014). Based on the ecological importance of SEZs in the Tahoe Basin, an evaluation of forest land within these zones was conducted, as some SEZs or portions thereof could be subject to temporary or permanent effects from implementation of the project alternatives. Based on the preliminary land capability verification completed for the project in February 2012, the riparian corridor of the Lower Truckee River is mapped as SEZ (LCD 1b) (see Section 4.3, “Bioglocal Resources”).

4.1.4 Environmental Consequences and Mitigation Measures

METHODS AND ASSUMPTIONS

Evaluation of the potential impacts of the project alternatives on forest resources was based on project site reconnaissance, aerial photography, and a review of the planning documents pertaining to the project site, including the LTBMU Forest Plan (USFS 2013), SNFPA (USFS 2003), and zoning and land use designations related to timberlands. In addition, vegetation cover types were mapped and evaluated to determine the extent and type of forest resources on the project site. Potential effects associated with the SR 89/Fanny Bridge Project on the forest resources within the project site were then evaluated, including temporary and permanent impacts associated with ground disturbance, and tree or other vegetation removal.

The SR 89/Fanny Bridge Project is included within the Environmental Improvement Program (EIP). TRPA launched the EIP in an effort to better implement the Regional Plan and to improve air, water, and scenic quality, forest health, fish and wildlife, and public access to the Lake and other recreation areas. The prime directive of the EIP was to move the Tahoe Basin closer to environmental threshold attainment. In some cases, exemptions to Code regulations are allowed to implement EIP projects (see Impact 4.1-1 discussion below).

SIGNIFICANCE CRITERIA

NEPA Criteria

An environmental document prepared to comply with NEPA must consider the context and intensity of the environmental effects that would be caused by or result from the proposed action. Under NEPA, the significance of an effect is used solely to determine whether an EIS must be prepared. The factors that are taken into account under NEPA to determine the significance of an action in terms of the context and the intensity of its effects are encompassed by the CEQA criteria used for this analysis. No specific factors related to forest resources are contained in NEPA, CEQ Regulations Implementing NEPA, or FHWA NEPA regulations in 23 CFR 771 et seq.

TRPA Criteria

TRPA criteria related to vegetation are assessed in Section 4.3, “Biological Resources,” of this EIR/EIS/EA.

CEQA Criteria

In order to determine whether impacts to forest resources, including timberland, are significant environmental effects, Appendix G of the State CEQA Guidelines asks whether a project would do any of the following:

- ▲ conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC Section 12220(g)), timberland (as defined by PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g));
- ▲ result in substantial tree removal;
- ▲ result in the loss of forest land or conversion of forest land to non-forest use; or
- ▲ involve other changes in the existing environment that, due to their location or nature, could result in conversion of forest land to a non-forest use.

ISSUES NOT WARRANTING DETAILED EVALUATION

As described above under Section 4.1.3, “Affected Environment,” lands within the project site are not timberland (as defined by PRC Section 4526) or Timberland Production Zones (as defined Government Code Section 51104[g]). Thus, there would be no impacts to timberland or timber production and this topic is not discussed further.

Impact 4.1-1: Tree removal.

Regardless of the magnitude of biological effects of tree removal, native trees are protected in the Tahoe Basin. Because Alternatives 1, 2, 3, and 4 would result in removal of more than 100 trees greater than 14 inches dbh, they would result in substantial tree removal, which would be a **potentially significant** impact. Implementation of Alternatives 6 and 6a would not result in substantial tree removal and impacts would be **less than significant**. While all action alternatives would require removal of trees greater than 30 inches dbh, which is generally prohibited by TRPA, the SR 89/Fanny Bridge Project is exempted because it is on the EIP list of projects. There would be **no impact** under Alternative 5 because no trees would be removed.

TRPA Code Section 61.1.8 defines substantial tree removal as, “activities on project areas of three acres or more and proposing the removal of more than 100 live trees 14 inches dbh or larger....” All of the action alternatives considered under the SR 89/Fanny Bridge Project would require tree removal. Project components, including roadway alignments, roadway features (e.g., curbs, gutters, retaining walls), and bike path realignment would be constructed or expanded in areas supporting conifer forest, riparian habitat,

perennial stream habitat, and wetland habitat. Table 4.1-1 shows expected tree removal for each alternative.

With limited exceptions, Section 61.1.4, “Old Growth Enhancement Protections,” of the TRPA Code prohibits the removal of trees greater than 24 and 30 inches dbh in eastside and westside forest types, respectively, in lands classified as conservation or recreation lands. The SR 89/Fanny Bridge Project site is within the area designated as a westside forest area. Table 4.1-2 provides tree removal estimates by size class.

Table 4.1-1 Approximate Tree Removal (> 6 inch dbh) under each Action Alternative						
	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 6	Alternative 6a
Aspen	11	11	11	15	6	12
Cedar	8	8	8	2	0	0
Cottonwood	26	26	26	7	0	1
Douglas Fir	61	61	60	44	1	1
Jeffrey Pine	256	256	242	176	16	17
Lodgepole Pine	47	47	47	34	0	2
Total	409	409	394	278	23	33
Acreage	3.3	3.4	3.4	2.8	0.2	0.2

Source: Data compiled by Ascent Environmental Inc. in 2014

Table 4.1-2 Approximate Tree Removal by Size under each Action Alternative						
	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 6	Alternative 6a
6 - 14 in.	231	231	229	157	8	14
14 - 30 in.	164	164	154	116	9	13
> 30 in.	14	14	11	5	6	6
Total	409	409	394	278	23	33

Source: Data compiled by Ascent Environmental Inc. in 2014

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

Under Alternative 1, approximately 409 trees would be removed, including 178 trees that are larger than 14 inches dbh, 14 of which are greater than 30 inches dbh. While TRPA Code Section 61.1.4 prohibits removal of westside trees greater than 30 inches dbh, Code Section 61.1.4.A.7 allows removal, if necessary, for EIP projects. Regardless, removal of 178 trees greater than 14 inches dbh would constitute substantial tree removal under TRPA Code Section 61.1.8. Thus, this impact would be **potentially significant**.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Tree removal impacts under Alternative 2 would be identical to those discussed above under Alternative 1. Thus, tree removal impacts under Alternative 2 would be **potentially significant**.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Under Alternative 3, approximately 394 trees would be removed, including 165 trees that are larger than 14 inches dbh, 11 of which are greater than 30 inches dbh. While TRPA Code Section 61.1.4 prohibits removal of westside trees greater than 30 inches dbh, Code Section 61.1.4.A.7 allows removal, if necessary, for EIP projects. Regardless, removal of 165 trees greater than 14 inches dbh would constitute substantial tree removal under TRPA Code Section 61.1.8. Thus, this impact would be **potentially significant**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Under Alternative 4, approximately 278 trees would be removed, including 121 trees that are larger than 14 inches dbh, 5 of which are greater than 30 inches dbh. While TRPA Code Section 61.1.4 prohibits removal of westside trees greater than 30 inches dbh, Code Section 61.1.4.A.7 allows removal, if necessary, for EIP projects. Regardless, removal of 121 trees greater than 14 inches dbh would constitute substantial tree removal under TRPA Code Section 61.1.8. Thus, this impact would be **potentially significant**.

ALTERNATIVE 5: NO ACTION

Under Alternative 5, the SR 89/Fanny Bridge Project would not be built. Thus, no tree removal would occur and there would be **no impact**.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Under Alternative 6, approximately 23 trees would be removed, including 15 trees that are larger than 14 inches dbh, 6 of which are greater than 30 inches dbh. Under TRPA Code Section 61.1.8, this would not be considered substantial tree removal. In addition, the removal of 6 trees greater than 30 inches dbh would be prohibited under TRPA Code section 61.1.4. However, the SR 89/Fanny Bridge Project is an EIP Project, which allows for trees greater than 30 inches dbh to be removed if necessary for project implementation (Code Section 61.1.4.A.7). Thus, this impact would be **less than significant**.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Under Alternative 6a, approximately 33 trees would need to be removed, including 19 trees that are larger than 14 inches dbh, 6 of which are greater than 30 inches dbh. Under TRPA Code Section 61.1.8, this would not be considered substantial tree removal. In addition, the removal of 6 trees greater than 30 inches dbh is prohibited under TRPA Code section 61.1.4. However, the SR 89/Fanny Bridge Project is an EIP Project, which allows for trees greater than 30 inches dbh to be removed if necessary for project implementation (Code Section 61.1.4.A.7). Thus, this impact would be **less than significant**.

Impact 4.1-2: Conversion of forest land.

Implementation of the action alternatives would result in the conversion of forest land to non-forest use, including the removal of trees. However, because the existing land uses of the project site would otherwise remain the same, other forest land on the project site would be conserved, and regional forest land composition and distribution would not be altered by the project, forest resources would not be substantially changed. Thus, this impact would be **less than significant** under Alternatives 1, 2, 3, 4, 6, and 6a. Because no action would occur under Alternative 5, there would be **no impact**.

As identified previously, forest land is defined in PRC Section 12220(g) as land that can support 10 percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. For the purposes of this analysis, forest communities identified above in Section 4.1.3, “Affected Environment” are assumed to fall within the definition of forest land.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

Under Alternative 1, approximately 3.3 acres of trees would be removed and approximately 3.2 acres would be converted from forest land to highway corridor. The tree removal would occur within the project site, which includes highway, bridge, and trail construction. The project site has been planned for a realigned highway since the 1980s, so the conversion of forest land resulting from the SR 89/Fanny Bridge Project has long been contemplated in land use and forest management planning. With consideration of the larger context of Region-wide (i.e., the LTBMU Management Area as a whole) and statewide forest resources, the project would not result in substantial conversion of forest resources, because implementation of Alternative

1 would be consistent with land uses planned for the project site (see Section 4.9, “Land Use and Planning”). In addition, the land surrounding the project site is already either developed in urban uses or protected as public land, so implementation of Alternative 1 would not encourage or otherwise indirectly lead to substantial additional conversion, changes to adjacent forest stand structure, or differences in regional forest land composition or distribution. Therefore, no substantial changes to regional timber production, aesthetics, fish and wildlife habitat, biodiversity, water quality, recreation, and other public benefits of forest land would occur. Thus, this impact would be **less than significant**.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Under Alternative 2, approximately 3.4 acres of trees would be removed and approximately 3.2 acres would be converted from forest land to highway corridor. These acreage impacts are similar to those identified for Alternative 1. As discussed above under Alternative 1, implementation of Alternative 2 would not result in substantial impacts to forest resources, and this impact would be **less than significant**.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Under Alternative 3, approximately 3.4 acres of trees would be removed and approximately 3.2 acres would be converted from forest land to highway corridor. These acreage impacts are similar to those identified for Alternative 1. As discussed above under Alternative 1, implementation of Alternative 3 would not result in substantial impacts to forest resources, and this impact would be **less than significant**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Under Alternative 4, approximately 2.8 acres of trees would be removed and approximately 3.4 acres would be converted from forest land to highway corridor. As discussed above under Alternative 1, implementation of Alternative 4 would not result in substantial impacts to forest resources, and this impact would be **less than significant**.

ALTERNATIVE 5: NO ACTION

Under Alternative 5, the SR 89/Fanny Bridge Project would not be built. Thus, there would be **no impact** on forest lands.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Under Alternative 6, approximately 0.2 acres of trees would be removed and no forest land would be converted to highway corridor (because the improvements are limited to the Fanny Bridge area). With consideration of the larger context of Region-wide (i.e., the LTBMU Management Area) and statewide forest resources, the project would not result in substantial impacts to forest resources because implementation of Alternative 6 would be consistent with land uses planned for the project site (see Section 4.9, “Land Use and Planning”) and the tree removal would be minimal. In addition, implementation of Alternative 6 is not expected to result in substantial changes to adjacent stand structure or regional forest land composition or distribution, such that it would lead to regional changes in timber production, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. Thus, this impact would be **less than significant**.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Under Alternative 6a, approximately 0.2 acres of trees would be removed and no forest land would be converted to highway corridor (because the improvements are limited to the Fanny Bridge area). As discussed above under Alternative 6, implementation of Alternative 6a would not result in substantial impacts to forest resources, and this impact would be **less than significant**.

4.1.5 Avoidance, Minimization, and/or Mitigation Measures

Mitigation Measure 4.1-1: Prepare tree removal, protection, and replanting plan.

This mitigation would apply for Alternatives 1, 2, 3, and 4.

A Tree Removal, Protection, and Replanting Plan shall be prepared by the applicant to provide tree protection measures to comply with the performance criteria and other requirements of TRPA Code Section 61, prevent damage to trees that are proposed to remain, and determine appropriate tree replanting locations and approaches to occur in the project area. The Plan will include marking and inventorying the specific trees to be removed, after detailed design is completed. A qualified forester will make a determination regarding the project's consistency with Chapter 61 of the TRPA Code. The plan shall set forth prescriptions for tree removal, water quality protection, root zone and vegetation protection, residual stocking levels, replanting, slash disposal, fire protection, and other appropriate considerations.

Significance after Mitigation

Implementation of Mitigation Measure 4.1-1 would reduce potentially significant impacts associated with tree removal because a qualified forester will be retained to develop a tree removal plan that would comply with TRPA Code Section 61. By ensuring adherence to the TRPA requirements associated with tree removal, this impact (Impact 4.1-1) would be reduced to a **less-than-significant** level for all Alternatives 1, 2, 3, and 4.

4.2 AIR QUALITY

4.2.1 Introduction

This section describes the existing air quality and climactic conditions and applicable air quality-related regulations applicable to the project site. This section also analyzes potential short-term and long-term air quality impacts that could result from implementation of the project alternatives. Effects related to climate change are addressed in Section 4.6, “Greenhouse Gas Emissions and Climate Change.”

4.2.2 Regulatory Setting

The SR 89/Fanny Bridge Project is located within the Lake Tahoe Air Basin (LTAB) in Tahoe City, on the North Shore of Lake Tahoe in eastern Placer County. Air quality in the project area is regulated by the Tahoe Regional Planning Agency (TRPA), U.S. Environmental Protection Agency (EPA), California Air Resources Board (ARB), and Placer County Air Pollution Control District (PCAPCD). Each of these agencies develops rules, regulations, policies, and/or goals to comply with applicable legislation. Although EPA regulations may not be superseded, state and local regulations may be more stringent.

FEDERAL AGENCIES

U.S. Environmental Protection Agency

EPA has been charged with implementing national air quality programs. EPA's air quality mandates are drawn primarily from the federal Clean Air Act (CAA), which was enacted in 1970. The most recent major amendments made by Congress were in 1990.

Criteria Air Pollutants

The CAA required EPA to establish National Ambient Air Quality Standards (NAAQS). As shown in Table 4.2-1, EPA has established primary and secondary NAAQS for the following criteria air pollutants (CAPs): ozone, carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), respirable and fine particulate matter less than 10 microns and 2.5 microns in diameter (PM₁₀ and PM_{2.5}), and lead. The primary standards protect the public health and the secondary standards protect public welfare. The CAA also required each state to prepare an air quality control plan, referred to as a state implementation plan (SIP), for areas that do not attain the NAAQS. The federal Clean Air Act Amendments of 1990 (CAAA) added requirements for states with areas that are not in attainment of all NAAQSs to revise their SIPs to incorporate additional control measures to reduce air pollution. The 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, a federal implementation plan that imposes additional control measures may be prepared for the nonattainment area. If an approvable SIP is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and permitting of stationary air pollution sources in the nonattainment air basin.

Table 4.2-1 Ambient Air Quality Standards and Attainment Status in the Lake Tahoe Air Basin

Pollutant	Averaging Time	California Attainment Status	California ^{a,b}	National Attainment Status	National ^c	
					Primary ^{b,d}	Secondary ^{b,e}
Ozone	1-hour	NT	0.09 ppm (180 µg/m ³)	-	- ^e	Same as primary standard
	8-hour		0.070 ppm (137 µg/m ³)	U/A	0.075 ppm (147 µg/m ³)	
Carbon monoxide (CO)	1-hour	A	20 ppm (23 mg/m ³)	U	35 ppm (40 mg/m ³)	Same as primary standard
	8-hour		LTAB 6 ppm ^f (7 mg/m ³)		9 ppm (10 mg/m ³)	
Nitrogen dioxide (NO ₂) ^g	Annual arithmetic mean	A	0.030 ppm (57 µg/m ³)	U	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)	Annual arithmetic mean	A	-	A	0.030 ppm	-
	24-hour		0.04 ppm (105 µg/m ³)		0.14 ppm	
	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	N	20 µg/m ³	U	-	Same as primary standard
	24-hour		50 µg/m ³		150 µg/m ³	
Fine particulate matter (PM _{2.5})	Annual arithmetic mean	A	12 µg/m ³	U	12.0 µg/m ³	15.0 µg/m ³
	24-hour		-		35 µg/m ³	
Lead ^g	Calendar quarter	A	-	U	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	
Hydrogen sulfide	1-hour	U	0.03 ppm (42 µg/m ³)	No national standards		
Sulfates	24-hour	A	25 µg/m ³			
Vinyl chloride ^g	24-hour	-	0.01 ppm (26 µg/m ³)			
Visibility-reducing particulate matter	8-hour	U	Extinction of 0.23 per km statewide, and 0.07 per km in LTAB, respectively			

Notes: µg/m³ = micrograms per cubic meter; km = kilometers; ppb = parts per billion; ppm = parts per million; LTAB = Lake Tahoe Air Basin.

Unclassified (U): a pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.

Attainment (A): a pollutant is designated attainment if the standard for that pollutant was not violated at any site in the area during a 3-year period.

Nonattainment (N): a pollutant is designated nonattainment if there was a least one violation of a standard for that pollutant in the area.

Nonattainment-Transitional (NT): a subcategory of the nonattainment designation. An area is designated nonattainment/transitional to signify that the area is close to attaining the standard for that pollutant.

Maintenance (M): any area previously designated nonattainment pursuant to the CAAA of 1990 and subsequently redesignated to attainment subject to the requirement to develop a maintenance plan under Section 175A of the CAA, as amended.

^a California standards for ozone, SO₂ (1- and 24-hour), NO₂, 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 issued. 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 3 years, is equal to or less than the standard. The PM₁₀ 24-hour standard is attained when 99% of the daily concentrations, averaged over 3 years, are equal to or less than the standard. The PM_{2.5} 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

^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 Applicable in the Lake Tahoe Air Basin.

^g 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.

Sources: ARB 2013a, ARB 2014a; EPA 2012a

In addition, general conformity requirements were adopted by Congress as part of the CAAA and were implemented by EPA regulations in 1993, which were amended most recently in 2010. General conformity requires that all federal actions conform to the SIP as approved or promulgated by EPA. The purpose of the general conformity program is to ensure that actions taken by the federal government do not undermine state or local efforts to achieve and maintain NAAQS. Before a federal action is taken, it must be evaluated for conformity with the SIP. All reasonably foreseeable emissions, both direct and indirect, that are predicted to result from the action are taken into consideration. The location and quantity of emissions must be identified. If it is found that the action would create emissions above de minimis threshold levels specified in EPA regulations, the action cannot proceed unless mitigation measures are specified that would bring the project into conformance.

Hazardous Air Pollutants

Air quality regulations also focus on toxic air contaminants (TACs) or, in federal terminology, hazardous air pollutants (HAPs). In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no threshold level below which adverse health impacts may not be expected to occur. (By contrast, for CAPs, acceptable levels of exposure can be determined and ambient standards have been established [Table 4.2-1].) Instead, EPA and ARB regulate HAPs and TACs, respectively, through statutes and regulations that generally require the use of the maximum available control technology or best available control technology for TACs to limit emissions. (See the discussion of TACs under “State,” below, for a description of ARB’s efforts.) These, in conjunction with additional rules set forth by PCAPCD, described under “Local” establish the regulatory framework for TACs.

EPA has programs for identifying and regulating HAPs. Title III of the CAA directed EPA to promulgate national emissions standards for HAPs (NESHAP). The national emissions standards for HAPs may differ for major sources and for area sources of HAPs. Major sources are defined as stationary sources with potential to emit more than 10 tons per year (TPY) of any HAP or more than 25 TPY of any combination of HAPs; all other sources are considered area sources. The emissions standards are to be promulgated in two phases. In the first phase (1992–2000), EPA developed technology-based emission standards designed to produce the maximum emission reduction achievable. These standards are generally referred to as requiring maximum available control technology for toxics. For area sources, the standards may be different, based on generally available control technology. In the second phase (2001–2008), EPA is required to promulgate health risk-based emissions standards, where deemed necessary, to address risks remaining after implementation of the technology-based NESHAP standards.

The CAA also required EPA to issue vehicle or fuel standards containing reasonable requirements that control toxic emissions of, at a minimum, benzene and formaldehyde. Performance criteria were established to limit mobile-source emissions of toxics, including benzene, formaldehyde, and 1,3-butadiene. In addition, Section 219 required the use of reformulated gasoline in selected areas with the most severe ozone nonattainment conditions to further reduce mobile-source emissions.

TAHOE REGIONAL PLANNING AGENCY

Environmental Threshold Carrying Capacities

TRPA threshold carrying capacity standards address CO, ozone, regional and sub-regional visibility, 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. The management standards include reducing particulate matter, maintaining levels of oxides of nitrogen (NO_x), reducing traffic volumes on US Highway 50 (US 50), and reducing vehicle miles traveled. These threshold standards and associated management standards are described in more detail below. 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 Region for which the standards are applicable (TRPA 2012a).

Threshold standards related to vehicle miles traveled and traffic volume are addressed further in Section 4.15, "Traffic and Transportation." Attainment status and trends of each air quality indicator are summarized in Table 4.2-2.

Table 4.2-2 Air Quality Indicator Attainment Status and Trends						
Threshold Indicator Reporting Category	1991 Attainment Status	1996 Attainment Status	2001 Attainment Status	2006 Attainment Status	2011 Attainment Status ¹	Trend
Carbon monoxide (CO)	Non-attainment	Attainment	Attainment	Non-attainment	Considerably better than target	Rapid improvement
Ozone	Non-attainment	Non-attainment	Non-attainment	Non-attainment	At or somewhat better than target	Little or no change
Visibility	Attainment	Non-attainment	Non-attainment	Attainment	Considerably better than target	Moderate improvement
Particulate matter	Non-attainment	Non-attainment	Attainment	Non-attainment	At or somewhat better than target	Little or no change
Nitrate deposition	Unknown	Unknown	Unknown	Unknown	Implemented ²	Unknown
Odor	No Designation	No Designation	No Designation	No Designation	Implemented ²	Unknown

Notes: ¹ Change in terminology occurred in the 2011 Threshold Evaluation (TRPA 212a).

² "Implemented" refers to implementation of a management standard rather than monitoring the achievement of a numerical standard.

Source: TRPA 2007:2-8; TRPA 2012a.

AQ-1. Carbon Monoxide

- ▲ Numerical Standard: Maintain CO concentrations at or below 6 parts per million (ppm) averaged over 8 hours.
- ▲ Management Standard: Reduce traffic volumes on the US 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.

AQ-2. Ozone

- ▲ Numerical Standard: Maintain ozone concentration below 0.08 ppm averaged over 1 hour.
- ▲ Numerical Standard: Maintain NO_x emissions at or below the 1981 level.

AQ-3. 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 156 kilometer, 97 miles).
 - ▼ 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 115 kilometers, 71 miles). Calculations will be made on three year running periods. Beginning with the existing 1991-93 monitoring data as the performance standards to be met or exceeded.
 - ▼ Achieve an extinction coefficient of 50 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 78 kilometers, 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 31 kilometers, 19 miles); and calculations will be made on three year running periods. Beginning with the existing 1991-93 monitoring data as the performance standards to be met or exceeded.
- ▶ PM₁₀ 24-hour Standard: Maintain PM₁₀ at or below 50 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) measured over a 24-hour period using gravimetric or beta attenuation methods or any equivalent procedure which can be shown to provide equivalent results at or near the level of air quality standard.
- ▶ PM₁₀ Annual Arithmetic Average - Maintain PM₁₀ at or below annual arithmetic average of 20 $\mu\text{g}/\text{m}^3$ using gravimetric or beta attenuation methods or any equivalent procedure which can be shown to provide equivalent results at or near the level of air quality standard.
- ▶ Particulate Matter_{2.5} 24-hour Standard – Maintain PM_{2.5} at or below 35 $\mu\text{g}/\text{m}^3$ measured over a 24-hour period using gravimetric or beta attenuation methods or any equivalent procedure which can be shown to provide equivalent results at or near the level of air quality standard.
- ▶ Particulate Matter_{2.5} Annual Arithmetic Average – Maintain PM_{2.5} at or below annual arithmetic average of 12 $\mu\text{g}/\text{m}^3$ using gravimetric or beta attenuation methods or any equivalent procedure which can be shown to provide equivalent results at or near the level of air quality standard.

AQ-4, Nitrate Deposition

◀ Management Standards:

- ▶ Reduce the transport of nitrates into the Basin and reduce oxides of nitrogen (NO_x) produced in the Basin consistent with the water quality thresholds.
- ▶ Reduce vehicle miles of travel in the Basin by 10 percent of the 1981 base year values.

AQ-5, Odor

◀ Policy Statement

- ▶ It is the policy of the TRPA Governing Board in the development of the Regional Plan to reduce fumes from diesel engines to the extent possible.

Lake Tahoe Regional Plan

Goals and Policies

The Goals and Policies are designed to achieve and maintain adopted environmental threshold standards and are implemented through the 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, one of which is the Air Quality Subelement.

TRPA has jurisdiction within the LTAB portion of Placer and El Dorado Counties in regard to air quality. Therefore, the Air Quality Subelement of the Goals and Policies document has focused on achieving the NAAQS and California Ambient Air Quality Standards (CAAQS), as well as special TRPA-adopted regional and sub-regional visibility standards, and on reducing the deposition of nitrate from NO_x emitted by vehicles. The Code and the Regional Transportation Plan contain specific measures designed to monitor and achieve the air quality objectives of the Regional Plan. PCAPCD rules and regulations (discussed below) also have certain application in the Tahoe Basin.

Code of Ordinances

Applicable provisions of Chapter 65 (Air Quality and Transportation) of the Code of Ordinances (TRPA 2012b) are described below.

Chapter 33—Grading and Construction

Chapter 33 includes requirements about grading and construction activity, which include limiting grading and earth disturbance activity to the time of year between May 1 and October 15 unless approval is granted by TRPA and implementation of TRPA-approved dust control measures.

Chapter 65.1—Air Quality Control

The provisions of Chapter 65.1 apply to direct sources of air pollution in the Lake Tahoe Region, including certain motor vehicles registered in the Region, combustion heaters installed in the Region, open burning and stationary sources of air pollution, and idling combustion engines. Provisions potentially applicable to the SR 89/Fanny Bridge Project are provided below.

- ▲ 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 Lake 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).

Mobility 2035: Lake Tahoe Regional Transportation Plan

In 2012, the Tahoe Metropolitan Planning Organization (TMPO) prepared the *Mobility 2035: Lake Tahoe Regional Transportation Plan* (RTP), which seeks to improve mobility and safety for the commuting public while at the same time delivering environmental improvements throughout the transportation network in the Lake 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 also supported an update of the Transportation Element of the Tahoe Regional Planning Agency (TRPA) Regional Plan. Finally, the plan met the challenge of California’s Senate Bill 375 by presenting an integrated land use and transportation strategy that will allow the Region to achieve targets for reducing greenhouse gas (GHG) emissions by 2035.

Construction Practices Policy for Construction Emissions

TRPA coordinates implementation of its Best Construction Practices Policy for Construction Emissions through TRPA-approved plans, project-permitting, or projects/programs developed in coordination with local or other governments that require, as a condition of project approval, implementation of feasible measures and Best Management Practices to reduce construction-generated emissions to the extent feasible. TRPA developed its Best Construction Practices Policy pursuant to Mitigation Measure 3.4-2 of the RTP Environmental Impact Report/Environmental Impact Statement (EIR/EIS) and Mitigation Measure 3.4-2 of the Regional Plan Update EIS.

TRPA's Best Construction Practices Policy for Construction Emissions includes the following measures applicable to the proposed SR 89/Fanny Bridge Project (TRPA 2013):

- ▲ Fugitive dust shall not exceed 40 percent opacity and not go beyond the property boundary at any time during project construction.
- ▲ No open burning of removed vegetation shall occur during infrastructure improvements.
- ▲ Minimize idling time to five minutes for all diesel-power equipment.
- ▲ Apply water to control dust as needed to prevent dust impacts offsite. Operational water truck(s) shall be onsite, as required, to control fugitive dust. Construction vehicles leaving the site shall be cleaned to prevent dust, silt, mud, and dirt from being released or tracked offsite.

- ▲ Apply approved chemical soil stabilizers, vegetative mats, or other appropriate Best Management Practices to manufacturer's specifications, to all inactive construction areas (previously graded areas which remain inactive for 96 hours). Spread soil binders on unpaved roads and employee/equipment parking areas and wet broom or wash streets if silt is carried over to adjacent public thoroughfares.
- ▲ Utilize existing power sources (e.g., power poles) or clean-fuel generators rather than temporary diesel power generators, wherever feasible.

STATE

California Air Resources Board

ARB 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). California law authorizes ARB to set ambient (outdoor) air pollution standards (California Health & Safety Code section 39606) in consideration of public health, safety and welfare (CAAQS (Table 4.2-1)).

Criteria Air Pollutants

ARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned CAPs. 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 achieve and maintain the CAAQS by the earliest date practical. The act specifies that local air districts should focus particular attention on reducing the emissions from transportation and area-wide emission sources, and provides districts with the authority to regulate indirect sources.

Among ARB's other responsibilities are overseeing local air district compliance with federal and state laws, approving local air quality plans, submitting SIPs to EPA, monitoring air quality, determining and updating area designations and maps, and setting emissions standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels.

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 ARB to designate substances as TACs. Research, public participation, and scientific peer review are required before ARB can designate a substance as a TAC. To date, ARB has identified more than 21 TACs, including diesel PM (ARB 1998), and adopted EPA's list of HAPs as TACs.

Once a TAC is identified, ARB then adopts an airborne toxics control measure for sources that emit that particular TAC. If a safe threshold standard exists for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold standard. If no safe threshold standard exists, the measure must incorporate best available control technology for toxics to minimize emissions.

ARB has adopted diesel exhaust control measures and more stringent emission standards for various on-road mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). Recent milestones included the low-sulfur diesel fuel requirement and tighter emissions standards for heavy-duty diesel trucks (effective in 2007 and subsequent model years) and off-road diesel equipment (2011) nationwide. Over time, replacing 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) in California have been reduced substantially over the last decade; such

emissions will be reduced further through a progression of regulatory measures (e.g., low emission vehicle/clean fuels and Phase II reformulated-gasoline regulations) and control technologies.

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.

LOCAL

Placer County Air Pollution Control District

Criteria Air Pollutants

PCAPCD attains and maintains air quality conditions in Placer County through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of PCAPCD includes preparing plans for the attainment of ambient air quality standards, adopting and enforcing rules and regulations concerning sources of air pollution, and issuing permits for stationary sources of air pollution. PCAPCD also inspects stationary sources of air pollution and responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by the CAA, CAAA, and CCAA.

All projects in Placer County are subject to PCAPCD's adopted rules and regulations in effect at the time of construction. Specific rules applicable to the construction under the action alternatives may include but are not limited to the following:

- ▲ PCAPCD Rule 202—Visible Emissions. A person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than 3 minutes in any one hour which is as dark or darker in shade as that designated as number 1 on the Ringelmann Chart, as published by the United States Bureau of Mines.
- ▲ PCAPCD Rule 217—Cutback and Emulsified Asphalt Paving Materials. A person shall not manufacture for sale nor use for paving, road construction, or road maintenance any: rapid cure cutback asphalt; slow cure cutback asphalt containing organic compounds which evaporate at 500°F or lower as determined by current American Society for Testing and Materials (ASTM) Method D402; medium cure cutback asphalt except as provided in Section 1.2 (PCAPCD 2012); or emulsified asphalt containing organic compounds which evaporate at 500°F or lower as determined by current ASTM Method D244, in excess of 3 percent by volume.
- ▲ PCAPCD Rule 218—Application of Architectural Coatings. This rule limits the quantity of volatile organic compounds in architectural coatings used in PCAPCD's jurisdiction.
- ▲ PCAPCD Rule 228—Fugitive Dust
 - ▼ *Visible Emissions Not Allowed Beyond the Boundary Line:* A person shall not cause or allow the emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area (including disturbance as a result of the raising and/or keeping of animals or by vehicle use), such that the presence of such dust remains visible in the atmosphere beyond the boundary line of the emission source.
 - ▼ *Visible Emissions from Active Operations:* In addition to the requirements of Rule 202, Visible Emissions, a person shall not cause or allow fugitive dust generated by active operations, an open storage pile, or a disturbed surface area, such that the fugitive dust is of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke as dark or darker in shade as that designated as number 2 on the Ringelmann Chart, as published by the United States Bureau of Mines.

- ▶ **Concentration Limit:** A person shall not cause or allow PM₁₀ levels to exceed 50 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) (24-hour average) when determined, by simultaneous sampling, as the difference between upwind and downwind samples collected on high-volume particulate matter samplers or other EPA-approved equivalent method for PM₁₀ monitoring.
- ▶ **Track-Out onto Paved Public Roadways:** Visible roadway dust as a result of active operations, spillage from transport trucks, and the track-out of bulk material onto public paved roadways shall be minimized and removed.
- ▶ The track-out of bulk material onto public paved roadways as a result of operations, or erosion, shall be minimized by the use of track-out and erosion control, minimization, and preventative measures, and removed within 1 hour from adjacent streets any time track-out extends for a cumulative distance of greater than 50 feet onto any paved public road during active operations.
- ▶ All visible roadway dust tracked-out upon public paved roadways as a result of active operations shall be removed at the conclusion of each work day when active operations cease, or every 24 hours for continuous operations. Wet sweeping or a High Efficiency Particulate Air (HEPA) filter equipped vacuum device shall be used for roadway dust removal.
- ▶ Any material tracked-out, or carried by erosion, and clean-up water, shall be prevented from entering waterways or storm water inlets as required to comply water quality control requirements.
- ▶ **Minimum Dust Control Requirements:** The following dust mitigation measures are to be initiated at the start and maintained throughout the duration of the construction or grading activity, including any construction or grading for road construction or maintenance.

Unpaved areas subject to vehicle traffic must be stabilized by being kept wet, treated with a chemical dust suppressant, or covered.

The speed of any vehicles and equipment traveling across unpaved areas must be no more than 15 miles per hour unless the road surface and surrounding area is sufficiently stabilized to prevent vehicles and equipment traveling more than 15 miles per hour from emitting dust exceeding Ringelmann 2 or visible emissions from crossing the project boundary line.

Storage piles and disturbed areas not subject to vehicular traffic must be stabilized by being kept wet, treated with a chemical dust suppressant, or covered when material is not being added to or removed from the pile.

Prior to any ground disturbance, including grading, excavating, and land clearing, sufficient water must be applied to the area to be disturbed to prevent emitting dust exceeding Ringelmann 2 and to minimize visible emissions from crossing the boundary line.

Construction vehicles leaving the site shall be cleaned to prevent dust, silt, mud, and dirt from being released or tracked off-site.

When wind speeds are high enough to result in dust emissions crossing the boundary line, despite the application of dust mitigation measures, grading and earthmoving operations shall be suspended.

No trucks are allowed to transport excavated material off-site unless the trucks are maintained such that no spillage can occur from holes or other openings in cargo compartments, and loads are either covered with tarps; or wetted and loaded such that the material does not touch the front, back, or sides of the cargo compartment at any point less than 6 inches from the top and that no point of the load extends above the top of the cargo compartment.

- ▶ *Wind-Driven Fugitive Dust Control:* A person shall take action(s), such as surface stabilization, establishment of a vegetative cover, or paving, to minimize wind-driven dust from inactive disturbed surface areas.
- ▲ PCAPCD Rule 501— General Permit Requirements. Any person operating an article, machine, equipment, or other contrivance, the use of which may cause, eliminate, reduce, or control the issuance of air contaminants, shall first obtain a written permit from the Air Pollution Control Officer (APCO). Stationary sources subject to the requirements of Rule 507, Federal Operating Permit Program, must also obtain a Title V permit pursuant to the requirements and procedures of that rule.

Toxic Air Contaminants

At the local level, PCAPCD may adopt and enforce ARB's airborne toxic control measures. Under PCAPCD Rule 501 ("Permit Requirements"), PCAPCD Rule 502 ("New Source Review"), PCAPCD Rule 507 ("Federal Operating Permit"), all sources that possess the potential to emit TACs are required to obtain permits from PCAPCD. PCAPCD may grant 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. PCAPCD limits emissions and public exposure to TACs through a number of programs.

Sources that require a permit are analyzed by PCAPCD (e.g., health risk assessment) based on their potential to emit TACs. If it is determined that the project will emit toxics in excess of PCAPCD's threshold standard of significance for TACs (identified below), sources have to implement the BACT for TACs to reduce emissions. If a source cannot reduce the risk below the threshold standard of significance even after the BACT has been implemented, PCAPCD will deny the permit required by the source. This helps to prevent new problems and reduces emissions from existing older sources by requiring them to apply new technology when retrofitting with respect to TACs.

Odors

PCAPCD has determined some common types of facilities that have been known to produce odors, including wastewater treatment facilities, chemical manufacturing plants, painting/coating operations, feed lots/dairies, composting facilities, landfills, and transfer stations (PCAPCD 2012:42-43). Because offensive odors rarely cause any physical harm, and federal and state air quality regulations do not contain any requirements for their control, PCAPCD has no rules or standards related to odor emissions other than their nuisance rules:

- ▲ **PCAPCD Rule 205—Nuisance.** A person shall not discharge from any source whatsoever such 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. The provisions of Rule 205 do not apply to odors emanating from agriculture operations necessary for the growing of crops or raising of fowl or animals.

Any actions related to odors are based on citizen complaints to local governments and the air districts.

4.2.3 Affected Environment

The LTAB comprises portions of El Dorado and Placer counties on the California side of the Lake Tahoe Basin, and Washoe County, Douglas County, and the Carson City Rural District on the Nevada side. The project site is located in Placer County.

The ambient concentrations of air pollutant emissions are determined by the amount of pollutants emitted and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and the presence of sunlight. Therefore, existing air quality conditions in the area are determined by such natural factors as climate, meteorology, and

topography, in addition to the level of emissions by existing air pollutant sources. These factors are discussed separately below.

CLIMATE, METEOROLOGY, AND TOPOGRAPHY

Lake Tahoe lies in a topographic depression between the crests of the Sierra Nevada and Carson ranges on the California-Nevada border at a surface elevation of approximately 6,260 feet above mean sea level. The LTAB is defined by the 7,000-foot contour, which is continuous around the Lake, except near Tahoe City. The mountains surrounding the Lake are approximately 8,000–9,000 feet in height on average, with some reaching 10,000 feet.

Pollutants from local sources are trapped by frequent inversions in the LTAB, greatly limiting the volume of air into which the pollutants are mixed (e.g., diluted), which results in accumulation and elevated concentrations of pollutants. A second important meteorological regime is the transport of pollutants from the Sacramento Valley and San Francisco Bay Area because winds from these areas move upslope in the Sierra Nevada and the Lake is located directly east of the Sierra Nevada crest (Cahill and Cliff 2000:1).

The project site generally experiences warm, dry summers and wet and snowy winters. Local climatology of the project site can be best represented by measurements at the Squaw Valley Lodge and Truckee Airport stations. Maximum temperatures occur during July and reach 80 degrees Fahrenheit on average. Minimum temperatures can be as low at 15 degrees Fahrenheit during winter months (WRCC 2014). Average annual precipitation of approximately 31 inches (191 inches of snowfall) occurs primarily during the months of November through March at the National Climactic Data Center in Tahoe City (WRCC 2014). Average annual wind speed is approximately 4.4 miles per hour from the south at the Truckee Airport and 6.1 miles per hour in the South Lake Tahoe (WRCC 2013).

CRITERIA AIR POLLUTANTS

Concentrations of ozone, CO, NO₂, SO₂, PM₁₀ and PM_{2.5}, and lead are used as indicators of ambient air quality conditions and are referred to as criteria air pollutants. Criteria air pollutants are air pollutants for which acceptable levels of exposure can be determined and for which an ambient air quality standard has been set.

A brief description of each criteria air pollutant—source types, health effects, and future trends—is provided below and summarized in Table 4.2-3 along with a description of monitoring data at those monitoring stations located closest to the project site. No descriptions are included for lead and SO₂ because the action alternatives would not result in an increase in these two pollutants. This is largely because all gasoline is now unleaded and low-sulfur diesel fuel requirements are in place.

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 in large amounts, but is formed through complex chemical reactions between precursor emissions of 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. Emissions of the ozone precursors ROG and NO_x have decreased over the past several years because of more stringent motor vehicle standards and cleaner burning fuels (ARB 2009).

Nitrogen Dioxide

NO₂ is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO₂ 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 NO₂. The combined emissions of NO and NO₂ are referred to as NO_x and are reported as equivalent NO₂. Because NO₂ is formed and depleted by reactions associated with photochemical smog (ozone), the NO₂ concentration in a particular geographical area may not be representative of the local sources of NO_x emissions (EPA 2012b).

Table 4.2-3 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 ROG and 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

Notes: NO_x = oxides of nitrogen; ROG = reactive organic gases.

¹ "Acute" refers to effects of short-term exposures to criteria air pollutants, usually at fairly high concentrations.

² "Chronic" refers to effects of long-term exposures to criteria air pollutants, usually at lower, ambient concentrations.

Sources: EPA 2012b.

Particulate Matter

Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM₁₀. PM₁₀ 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 (ARB 2009). Fine particulate matter (PM_{2.5}) includes a subgroup of smaller particles that have an aerodynamic diameter of 2.5 micrometers or less. PM₁₀ emissions 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. Direct emissions of PM₁₀ have increased slightly over the last 20 years, and are projected to continue to increase. PM_{2.5} emissions have remained relatively steady over the last 20 years and are projected to increase slightly through 2020 (ARB 2009).

Carbon Monoxide

Carbon monoxide (CO) is a tasteless, odorless, and colorless gas. It is a public health concern because elevated concentrations affect human and animal health by reducing the supply of oxygen to body tissues. This can result in shortness of breath, seizures, coma, or even death. CO is created through the incomplete combustion of carbon-based fuels. The primary anthropogenic sources of CO are on-road motor vehicles (30 percent), residential wood burning (28 percent), motorized watercraft (16 percent), and off-highway vehicles (8 percent) (ARB 2006, as cited in TRPA 2012a:3-11). Wildfires are a natural source of CO (TRPA 2012a:3-11). Meteorology also plays a key role in influencing the concentration of CO within the Region as wind and inversion layers can affect CO concentrations.

MONITORING STATION DATA AND ATTAINMENT AREA DESIGNATIONS

Concentrations of CAPs are measured at several monitoring stations in the LTAB. The measurements at the stations in Echo Summit, Tahoe City, South Lake Tahoe, and the Truckee Fire Station are presented here and are generally representative of ambient air quality in the vicinity of the project site. Table 4.2-4 summarizes the most recent three years of reported air quality data from these stations (2011–2013).

Table 4.2-4 Summary of Annual Data on Ambient Air Quality (2011–2013)¹

	2011	2012	2013
Ozone			
Echo Summit			
Maximum concentration (1-hour/8-hour, ppm)	0.108/0.071	0.084/0.076	0.082/0.075
Number of days state standard exceeded (1-hour/8-hour)	1/1	0/11	0/1
Number of days national standard exceeded (1-hour/8-hour)	0/0	0/1	0/0
Tahoe City²			
Maximum concentration (1-hour/8-hour, ppm)	-1	-1	0.049/0.046
Number of days state standard exceeded (1-hour/8-hour)	-1	-1	0/0
Number of days national standard exceeded (1-hour/8-hour)	-1	-1	0/0
Respirable Particulate Matter (PM₁₀)			
South Lake Tahoe			
Maximum Concentration ($\mu\text{g}/\text{m}^3$) (California)	55.8	84.1	139.3
Number of days state standard exceeded (measured ³)	3	4	4
Number of days national standard exceeded (measured ³)	*	*	*
Fine Particulate Matter (PM_{2.5})			
Truckee Fire Station			
Maximum Concentration ($\mu\text{g}/\text{m}^3$) (California)	68.9	27.5	61.2
Annual Average ($\mu\text{g}/\text{m}^3$) (California)	6.6	11.0	8.3
Number of days national standard exceeded (measured ³)	0	0	0

Notes: $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter, — = data not available; ppm = parts per million, * = Insufficient data to determine the value.

¹ Carbon Monoxide and nitrogen dioxide have not been monitored anywhere in the Lake Tahoe Air Basin or in Placer County in recent years (ARB 2014b). Echo Summit Monitoring Station is outside of the Lake Tahoe Region.

² Only data for ozone in 2013 is available from the Tahoe City station.

³ Measured days are those days that an actual measurement was greater than the level of the state daily standard or the national daily standard. Calculated days are the estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year.

Sources: ARB 2014b

CO has not been monitored in the LTAB in recent years, which is why measurement data for CO is not shown in Table 4.2-4. Existing conditions with regards to CO are characterized in TRPA's *2011 Threshold Evaluation* (TRPA 2012a:3-11 to 3-19). The threshold evaluation uses three separate indicators to evaluate CO in the LTAB—the 1-hour CAAQS of 20 ppm; the 8-hour CAAQS of 6 ppm, and winter traffic volumes. The LTAB has been in compliance with the 1- and 8-hour CAAQSSs since 1983 and 2003, respectively. In 2011, which is the most recent year included in the latest threshold evaluation, the highest measured 1-hour concentration was 7.7 ppm, which is approximately 39 percent of the 1-hour CAAQS (TRPA 2012a:3-13 to 3-14). The highest recent measured 8-hour concentration was 3.3 ppm in 2010 (TRPA 2012a), which is equivalent to 55 percent of the 8-hour CAAQS (TRPA 2012a:3-15). Therefore, the threshold evaluation determined that the 1- and 8-hour CAAQS are “considerably better than target” and continuing to improve rapidly with a high level of confidence. It also determined that winter traffic volumes are “at or better than target” and this indicator has had “moderate improvement” since 1980 with a moderate level of confidence.

TOXIC AIR CONTAMINANTS

Concentrations of TACs are also used to indicate the quality of ambient air. 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.

According to the *California Almanac of Emissions and Air Quality* (ARB 2009), the majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being diesel PM. 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 PM is emitted by diesel-fueled internal combustion engines, 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, ARB has made preliminary concentration estimates based on a PM exposure method. This method uses the ARB emissions inventory's PM₁₀ database, ambient PM₁₀ 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.

NATURALLY OCCURRING ASBESTOS

Asbestos is the common name for a group of naturally occurring fibrous silicate minerals that can separate into thin but strong and durable fibers. Naturally occurring asbestos, which was identified as a TAC by ARB in 1986, is located in many parts of California and is commonly associated with serpentine.

According to two reports by the California Department of Conservation, Division of Mines and Geology called *Relative Likelihood for the Presence of Naturally Occurring Asbestos in Placer County, California* and *A General Location Guide to Ultramafic Rocks in California—Areas More Likely to Contain Naturally Occurring Asbestos* (Higgins and Clinkenbeard 2006:54, California Department of Conservation 2000), the project site is not likely to contain naturally occurring asbestos.

ODORS

Odors are typically regarded as an annoyance rather than a health hazard. However, 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). No major odor sources (e.g., wastewater treatment facilities, landfills, food processing facilities) exist in the vicinity of the project site.

SENSITIVE LAND USES

Sensitive land uses are generally considered to include those 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 the potential for increased and prolonged exposure of individuals to pollutants.

Sensitive receptors in and near the project site include the neighborhood of single family homes around Kimberly Drive, and the residences of Tahoe Tavern and Tavern Shores on the east side of SR 89. These areas are shown in Exhibit 4.2-1. Creekside Cooperative Charter School is located near the intersection of SR 89 and Fairway Drive. These land uses are located adjacent to, or in close proximity to, areas where construction activity would occur. The next closest sensitive receptor is Tahoe Lake Elementary School located north of the project site on Grove Street in Tahoe City.

4.2.4 Environmental Consequences and Mitigation Measures

METHODS AND ASSUMPTIONS

The methods used for this assessment of air quality impacts are based on guidance from PCAPCD's *Draft CEQA Air Quality Handbook* (PCAPCD 2012), as well as the *Air Quality Impact Analysis—State Route 89/Fanny Bridge Community Revitalization Project*, which was prepared for the Tahoe Transportation District (TTD 2014) and is provided in Appendix C, Air Quality and Climate Change. The *Air Quality Impact Analysis* examines potential air quality impacts of the action alternatives pursuant to guidance from EPA and the Federal Highway Administration (TTD 2014). The *Air Quality Impact Analysis* was prepared based on the preliminary traffic analysis. A revised traffic report has been prepared that updated the traffic volume estimates. The updated volumes are lower than the volumes estimated in the preliminary report; therefore the analysis in the *Air Quality Impact Analysis* represents a conservative evaluation (i.e., tending to overstate impacts).

PCAPCD does not provide specific models or methodology for analyzing project-related emissions. Therefore, short-term construction-generated emissions were modeled using project-specific data and the Sacramento Metropolitan Air Quality Management District's (SMAQMD) Road Construction Emissions Model, Version 7.1.5.1 (SMAQMD 2013). The use of this model is accepted in other air districts throughout the state, including PCAPCD. The model was developed to provide timelines and equipment necessary to estimate the emissions from linear projects, such as roadways. The design characteristics of the action alternatives were input into the Road Construction Emissions Model to develop estimates of construction emissions. The methodologies used in this analysis include those required for TRPA and CEQA documents. Additional information related to methodology used in this analysis are provided in Appendix C of this document.

Climate change-related impacts are analyzed in Section 4.6, "Greenhouse Gas Emissions and Climate Change."

Given that the air quality analysis in the EIR/EIS/EA must address multiple criteria from different agencies, as identified below, air quality impact statements were organized in a manner that allows a coherent discussion of air quality impacts while considering all relevant criteria and measures.



Exhibit 4.2-1

Sensitive Receptor Locations



SIGNIFICANCE CRITERIA

NEPA Criteria

An environmental document prepared to comply with NEPA must consider the context and intensity of the environmental effects that would be caused by or result from the proposed action. Context means that the significance of the action must be considered in terms of the region as a whole, affected interests, and the specific locality. Intensity refers to the severity of an effect. Under NEPA, the significance of an effect is used solely to determine whether an EIS must be prepared. The factors that are taken into account under NEPA to determine the significance of an action in terms of the context and the intensity of its effects are encompassed by the TRPA and CEQA criteria, as recommended by PCAPCD, used for this analysis. Applicable TRPA criteria and PCAPCD's significance thresholds are presented in detail below. This analysis considers the following FHWA significance criteria.

FHWA has developed a tiered approach for analyzing Mobile Source Air Toxics (MSATs) in NEPA documents. Depending on the specific project circumstances, FHWA identifies three levels of analysis:

- ▲ Category 1: No analysis for projects with no potential for meaningful MSAT effects.
 - ▶ Projects qualifying as a categorical exclusion under 23 CFR 771.117(c);
 - ▶ Projects exempt under the Clean Air Act conformity rule under 40 CFR 93.126; or
 - ▶ Other projects with no meaningful impacts on traffic volumes or vehicle mix.
- ▲ Category 2: Qualitative analysis for projects with low potential MSAT effects.
 - ▶ Projects that serve to improve operations of highway, transit, or freight without adding substantial new capacity or without creating a facility that is likely to meaningfully increase MSAT emissions.
 - ▶ Project examples include minor widening projects; new interchanges; replacing a signalized intersection on a surface street; or projects where design year traffic is projected to be less than 140,000 to 150,000 AADT.
 - ▶ Any projects not meeting the criteria in Category (1) or Category (3) should be included in this category.
- ▲ Category 3: Projects with higher potential MSAT effects.
 - ▶ Create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of diesel particulate matter in a single location, involving a significant number of diesel vehicles for new projects or accommodating with a significant increase in the number of diesel vehicles for expansion projects; or
 - ▶ Create new capacity or add significant capacity to urban highways such as interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the AADT is projected to be in the range of 140,000 to 150,000 or greater by the design year; and
 - ▶ Proposed to be located in proximity to populated areas.

TRPA Criteria

The "Air Quality" criteria from the TRPA Initial Environmental Checklist were used to evaluate the air quality impacts of the alternatives. The checklist asks if the project would result in any of the following conditions:

- ▲ Substantial air pollutant emissions?
- ▲ Deterioration of ambient (existing) air quality?

- ▲ The creation of objectionable odors?
- ▲ Alteration of air movement, moisture or temperature, or any change in climate, either locally or Regionally?
- ▲ Increased use of diesel fuel?

CEQA Criteria

Based on Appendix G of the State CEQA Guidelines, an air quality impact is considered significant if implementation of the SR 89/Fanny Bridge Project would do any of the following:

- ▲ conflict with or obstruct implementation of the applicable air quality plan;
- ▲ violate any air quality standard or contribute substantially to an existing or projected air quality violation (Table 4.2-1);
- ▲ result in a cumulatively considerable net increase of any criteria air pollutant for which the project region is in nonattainment under any applicable National or State ambient air quality standards (including releasing emissions that exceed quantitative standards for ozone precursors);
- ▲ expose sensitive receptors to substantial pollutant concentrations (including TACs/HAPs); or
- ▲ create objectionable odors affecting a substantial number or people.

As stated in Appendix G, the significance criteria established by the applicable AQMD or APCD may be relied on to make the above determinations. Thus, as identified by PCAPCD, an air quality impact also is considered significant if implementation of the SR 89/Fanny Bridge Project would result in:

- ▲ a net increase in short-term construction-related or long-term operation-related (regional) emissions of ROG, NO_x, or PM₁₀ that exceed mass emissions of 82 pounds per day (lb/day) in Placer County (PCAPCD 2012:23);
- ▲ exposure of sensitive receptors to TAC emissions that 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 (PCAPCD 2012:70); and/or
- ▲ a net increase in short-term construction-related or long-term operation-related (regional) emissions of CO that would result in CO concentrations that exceed the 1-hour CAAQS of 20 ppm or the 8-hour CAAQS for the LTAB of 6 ppm.

In addition, according to PCAPCD, a project would result in a considerable contribution to a cumulative impact to air quality if it would result in:

- ▲ a net increase in short-term construction-related or long-term operation-related (regional) emissions of ROG or NO_x that exceed 10 lb/day (PCAPCD 2012:24) and all feasible mitigation is not implemented (Chang, pers. comm., 2012).

ISSUES NOT WARRANTING DETAILED EVALUATION

No new stationary sources of emissions or new trip-generating land uses would be constructed as part of the action alternatives. Long-term operation of any of the action alternatives would involve regular maintenance personnel traveling on access roads throughout the project site and occasional use of equipment for maintenance activities such as tree trimming and vegetation removal. However, the action alternatives would not require any additional personnel or maintenance activities in comparison to existing conditions. Therefore, the number of vehicle trips and the level of maintenance activities would not increase as a result of the SR 89/Fanny Bridge Project and; thus, long-term operational emissions of CAPs and precursors from

these sources would not increase above levels existing without the project and were not quantified in the analysis below.

Also, as discussed in Section 4.2.3, “Affected Environment,” the project site is not likely to contain naturally occurring asbestos. Thus, ground disturbance activities performed during project construction (e.g., grading, dozing, excavation, vehicle travel on unpaved surfaces) would not generate fugitive dust emissions that contain naturally occurring asbestos. This issue is not discussed further.

Alternatives 1 through 4 would involve adding a second bridge over the Truckee River along with structural improvements to Fanny Bridge or replacing and widening Fanny Bridge (Alternatives 6 and 6A), which currently experiences substantial congestion and is not seismically or structurally sufficient. The action alternatives would also provide intermodal connectivity in the region for transit, pedestrians, and bicyclists, which could reduce vehicle trips and vehicle miles traveled (see Impact 4.15-3 in Section 4.15, Traffic and Transportation). Furthermore, the 2038-design-year AADT and maximum ADT during summer peak tourist months would be 17,600 and 23,900 vehicles, respectively (Wood Rodgers 2011), which would be substantially less than the FHWA threshold value of 140,000 AADT, the minimum volume for higher potential MSAT effects (FHWA 2006a). Thus, the action alternatives are exempt under the CAA conformity rule under 40 CFR 93.126 and would not have a meaningful impact on traffic volumes or vehicle mix. Therefore, the action alternatives are considered by FHWA to be a Category (1) project that would have no potential for meaningful MSAT effects and does not require further analysis.

ENVIRONMENTAL EFFECTS OF THE PROJECT ALTERNATIVES

Impact 4.2-1. Consistency with air quality plans and transportation conformity.

The 2013 Federal Transportation Improvement Program (FTIP) was found to conform to the SIPs in California and Nevada. The US Department of Transportation (DOT) made a CAA conformity determination for the 2013 FTIP on January 29, 2013 (DOT 2013). The 2013 FTIP is consistent with the transportation system and financial plan described in the most recent amendment to the applicable RTP, which is called *Mobility 2035: Lake Tahoe Regional Transportation Plan* and was adopted by TRPA and TMPO on December 12, 2012 (TRPA and TMPO 2012). The 2013 FTIP met all air quality conformity requirements when approved, and EPA has confirmed the transportation conformity determination for the RTP. The design concept and scope of the action alternatives are consistent with the project description in the applicable RTP and FTIP, as well as the assumptions in the Regional emissions analysis for the RTP and FTIP. Therefore, implementation of Alternatives 1, 2, 3, 4, 6, and 6a would be consistent with the assumptions in the Regional emissions analysis in the RTP and would conform to the SIP. While these beneficial effects would not be realized under Alternative 5, there would be no increase in mobile-source emissions and the LTAB would continue to conform with applicable air quality plans. Therefore, impacts related to the SIP and its consistency with and Transportation Conformity would be **less than significant** for all the action alternatives; there would be **no impact** under Alternative 5.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

As discussed in Section 4.2.2, “Regulatory Setting,” the CAA of 1970, as amended, requires a demonstration that federal actions conform to the SIP and similar approved plans in areas that are designated as nonattainment or have maintenance plans for criteria pollutants. Transportation measures, such as the SR 89/Fanny Bridge Project, are analyzed for conformity with the SIP as part of the applicable RTP and FTIP. If the design concept and scope of a proposed transportation project are consistent with the project description in the applicable RTP and FTIP, as well as the assumptions in the Regional emissions analysis for the RTP and FTIP, then the SR 89/Fanny Bridge Project would conform to the SIP and would not result in an adverse impact on Regional air quality.

TMPO and DOT must make a determination that the applicable RTP and FTIP conform to the applicable SIP. Conformity to the SIP means that transportation activities will not create new air quality violations, worsen

existing violations, or delay the attainment of the NAAQS. Federal regulations also require TMPO to conduct an air quality conformity analysis of all regionally significant projects that increase the capacity of the transportation system. All Regionally significant capacity-increasing transportation projects, regardless of funding sources, must be included in the FTIP.

TMPO adopted its RTP, called *Mobility 2035: Lake Tahoe Regional Transportation Plan* (2035 RTP), on December 12, 2012 (TRPA and TMPO 2012) and the 2013 FTIP, a four-year program of surface transportation projects, on September 26, 2012 and amended on January 23, 2013 (TMPO 2013). The SR 89/Fanny Bridge Project is included in the 2035 RTP in the “Planned Corridor Revitalization Projects” section (TRPA and TMPO 2012). The SR 89/Fanny Bridge Project is also included in the Final 2013 FTIP on page 40 as MPO ID TTD03 (TMPO 2013). Furthermore, it should be noted that the SR 89/Fanny Bridge Project is also included in TMPO’s 2035 RTP (TRPA and TMPO 2012). The SR 89/Fanny Bridge Project is considered a Safety Improvement Program under the EPA Table II and III Exempt Category. DOT made a CAA conformity determination for the 2013 FTIP on January 29, 2013 (DOT 2013).

Alternative 1 would involve construction of a new bridge over the Truckee River, realignment of SR 89 through the 64-Acre Tract, modifications to the existing SR 89 to become a local road for approximately 2,000 feet south of SR 28, bike path realignments, and the rehabilitation or replacement of Fanny Bridge. Alternative 1 would also provide intermodal connectivity in the Region for transit, pedestrians, and bicyclists—elements that could reduce vehicle trips and vehicle miles traveled (VMT).

Therefore, the design concept and scope of Alternative 1 are consistent with the description of the SR 89/Fanny Bridge Project in the 2035 RTP and the 2013 FTIP, and the assumptions in TMPO’s Regional emissions analysis. Alternative 1 would conform to the SIP, and no adverse Regional air quality impact would occur as a result of implementation of Alternative 1. This would be a **less-than-significant** impact.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Impacts of Alternative 2 would be the same as described for Alternative 1 because the design concept and scope of Alternative 2 would also be consistent with the description of the SR 89/Fanny Bridge Project in the 2035 RTP and the 2013 FTIP, and the assumptions in TMPO’s Regional emissions analysis. Therefore, Alternative 2 would conform to the SIP, and no adverse Regional air quality impact would occur as a result of implementation of Alternative 2. This would be a **less-than-significant** impact.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Impacts of Alternative 3 would be the same as described for Alternative 1 because the design concept and scope of Alternative 3 would also be consistent with the description of the SR 89/Fanny Bridge Project in the 2035 RTP and the 2013 FTIP, and the assumptions in TMPO’s Regional emissions analysis. Therefore, Alternative 3 would conform to the SIP, and no adverse Regional air quality impact would occur as a result of implementation of Alternative 3. This would be a **less-than-significant** impact.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Impacts of Alternative 4 would be the same as described for Alternative 1 because the design concept and scope of Alternative 4 would also be consistent with the description of the SR 89/Fanny Bridge Project in the 2035 RTP and the 2013 FTIP, and the assumptions in TMPO’s Regional emissions analysis. Therefore, Alternative 4 would conform to the SIP, and no adverse Regional air quality impact would occur as a result of implementation of Alternative 4. This would be a **less-than-significant** impact.

ALTERNATIVE 5: NO ACTION

The RTP description of the SR 89/Fanny Bridge Community Revitalization project included construction of a new bridge over the Truckee River, rehabilitation or replacement of Fanny Bridge, and other roadway improvements. The No Action Alternative would not result in the construction of these roadway improvements and would retain existing traffic conditions, including existing levels of congestion and traffic flow, and therefore, could potentially prevent full, effective implementation of the 2035 RTP, which aims to

improve connectivity, reliability, travel times, and operations of public transportation, as well as increased mobility and safety of bicycles and pedestrians. There would be no change in existing conditions and, thus, **no impact** would occur.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISITING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Alternative 6 would rehabilitate or replace and widen Fanny Bridge, make minor improvements to the existing SR 89 between the bridge and Tahoe Tavern Road, and maintain the existing SR 89/SR 28 intersection location. While there would be no change to VMT and no secondary bridge crossing that would improve emergency access, these improvements under Alternative 6 would lessen congestion at the wye intersection, and improve transit mobility and pedestrian and bicycle safety (Wood Rodgers 2014:7,8). Therefore, Alternative 6 would be consistent with the description of the SR 89/Fanny Bridge Project in the 2035 RTP and the 2013 FTIP, and the assumptions in TMPO's Regional emissions analysis. Thus, Alternative 6 would conform to the SIP, and no adverse Regional air quality impact would occur as a result of implementation of Alternative 6. This would be a **less-than-significant** impact.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

The analysis for Alternative 6a is the same as for Alternative 6. While there would be no change to VMT and no secondary bridge crossing that would improve emergency access, the improvements under Alternative 6a would lessen congestion at the wye intersection, and improve transit mobility and pedestrian and bicycle safety (Wood Rodgers 2014:7,8). Therefore, Alternative 6a would be consistent with the description of the SR 89/Fanny Bridge Project in the 2035 RTP and the 2013 FTIP, and the assumptions in TMPO's Regional emissions analysis. Thus, Alternative 6a would conform to the SIP, and no adverse Regional air quality impact would occur as a result of implementation of Alternative 6. This would be a **less-than-significant** impact.

Impact 4.2-2. Short-term construction-related emissions of criteria air pollutants and precursors.

Maximum daily emissions of criteria air pollutants and precursors would not exceed PCAPCD's thresholds of significance. Therefore, construction-generated emissions of criteria air pollutants and precursors would be **less than significant** for Alternatives 1, 2, 3, 4, 6, and 6a. There would be **no impact** under Alternative 5.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

Construction-generated emissions associated with Alternative 1 would be short-term and temporary in nature. Construction activities that would generate emissions of criteria air pollutants generally include: grubbing/vegetation clearing, grading and excavation, demolition and removal of existing of pavement, installation or relocation of subgrade utilities and drainage infrastructure, and paving of new stretches of roadway, multiuse (bike and pedestrian) paths, and parking areas. These activities would temporarily generate emissions of several criteria air pollutants (CO, PM₁₀ and PM_{2.5}) and ozone precursors (ROG and NO_x). Exhaust emissions would be generated by construction equipment, worker commute trips, and trucks delivering and removing materials. Evaporative emissions would be generated by asphalt paving. Fugitive dust emissions, including PM₁₀ and PM_{2.5}, would also be generated during site preparation; grading and excavation; truck travel on unpaved surfaces; and material blown from unprotected graded areas, stockpiles, and haul trucks. Generally, the distance that particles drift from their source depends on their size, emission height, and wind speed.

Short-term construction emissions of ROG, NO_x, PM₁₀, and PM_{2.5} were modeled using the Roadway Construction Emissions Model (Sacramento Metropolitan Air Quality Management District [SMAQMD] 2012), which is widely accepted for estimation emissions from linear construction projects. The modeled maximum daily construction emissions are summarized in Table 4.2-5. Detailed modeling parameters are provided in Appendix B of *Air Quality Impact Analysis— State Route 89/Fanny Bridge Community Revitalization Project* (TTD 2014), which is available in Appendix C to this EIR/EIS/EA.

Table 4.2-5 Maximum Daily Construction Emissions (lb/day)^{1,2}

	ROG	NO _x	PM ₁₀	PM _{2.5}	CO
Grubbing and Vegetation Clearing	2.6	23.2	14.2	24.1	5.8
Grading and Excavation	5.7	54.2	28.1	25.6	7.1
Drainage/Utilities/Subgrade	4.4	38.9	19.6	25.1	6.7
Paving	2.9	22.3	14.7	1.5	1.4
Maximum Daily Emissions	5.7	54.2	28.1	25.6	7.1
PCAPCD Threshold of Significance	82	82	82	-3	-3

Notes:

lb/day = pounds per day

ROG = reactive organic gases

NO_x = oxides of nitrogenPM₁₀ = respirable particulate matter with an aerodynamic diameter of 10 micrometers or lessPM_{2.5} = respirable particulate matter with an aerodynamic diameter of 2.5 micrometers or less

CO = carbon monoxide

PCAPCD = Placer County Air Pollution Control District

NA = not applicable

Modeled values represent worst-case daily emissions that would occur during specified periods of the construction schedule. See Appendix I for detailed calculations, model inputs, assumptions, and project-specific modeling parameters, which is available in Appendix C to this EIR/EIS/EA.

¹ Maximum daily emission levels were estimated using the Roadway Construction Emissions Model, Version 7.1.5.1 (SMAQMD 2012, as cited in TTD 2013:54).

² The maximum daily emission levels presented in this table are representative of the construction of the new alignment of SR 89 would be built, which is the most intense phase of construction that would occur under Alternatives 1, 2, 3, and 4. The maximum daily emissions levels presented in this table are also representative of Alternatives 6 and 6a because these alternatives would also involve the realignment of SR 89.

³ PCAPCD does not have mass emission thresholds for PM_{2.5} and CO. The mass emissions levels of these pollutants were estimated for disclosure purposes.

Source: TTD 2014. For detailed input parameters and modeling results see Appendix B of Air Quality Impact Analysis— State Route 89/Fanny Bridge Community Revitalization Project (TTD 2014), which is available in Appendix C to this EIR/EIS/EA.

As shown in Table 4.2-5, Alternative 1 would not result in construction-generated emissions of ROG, NO_x, or PM₁₀ that exceed PCAPCD's mass emission threshold of 82 lb/day.

PCAPCD does not recommend mass emission thresholds for evaluating emissions of CO. Most construction-related CO emissions would be generated by off-road equipment, haul truck trips, and worker trips. Under Alternative 1, there would be no period during construction when there would be no bridge available across the Truckee River and, therefore, extensive queuing and idling of motor vehicles would not likely occur. CO emissions disperse rapidly with distance from the source under normal meteorological conditions. Because CO emissions from off-road equipment would be spread out among the different sites where construction activity would occur; because haul truck trips and worker commute trips are non-stationary in nature; and because the LTAB is designated as attainment for CO, it is not anticipated that CO emissions would contribute to CO concentrations that exceed the NAAQS or CAAQS. Furthermore, adherence to TRPA's Best Construction Practices Policy for Construction Emissions and PCAPCD Rules 202, 217, 218, and 228 with respect to heavy-duty equipment, the opacity of fugitive dust emissions from construction activities and track out onto paved roadways, fugitive dust control, would prevent or minimize adverse effects related to short-term construction-related emissions.

Thus, construction-related emissions of criteria air pollutants and precursors would not conflict with or obstruct implementation of an applicable air quality plan, violate any air quality standard or contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. This would be a **less-than-significant** impact.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Impacts under Alternative 2 would be the same as described for Alternative 1. Like Alternative 1, the maximum daily emissions under Alternative 2 would occur during the construction of the realigned portion of SR 89. Therefore, the modeled maximum daily emission levels shown in Table 4.2-5 are also representative of Alternative 2. As shown in Table 4.2-5, maximum daily construction construction-generated emissions of ROG, NO_x, or PM₁₀ would not exceed PCAPCD's mass emission thresholds of 82 lb/day. In addition, adherence to applicable TRPA and PCAPCD rules would prevent or minimize adverse effects related to short-term construction-related emissions. Also, extensive queuing or idling by motor vehicles is not expected during construction. Therefore, construction-related emissions of criteria air pollutants and precursors under Alternative 2 would not conflict with or obstruct implementation of an applicable air quality plan, violate any air quality standard or contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. This would be a **less-than-significant** impact.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Impacts under Alternative 3 would be the same as described for Alternative 1. Like Alternative 1, the maximum daily emissions under Alternative 3 would occur during the construction of the realigned portion of SR 89. Therefore, the modeled maximum daily emission levels shown in Table 4.2-5 are also representative of Alternative 3. As shown in Table 4.2-5, maximum daily construction construction-generated emissions of ROG, NO_x, or PM₁₀ would not exceed PCAPCD's mass emission thresholds of 82 lb/day. In addition, adherence to applicable TRPA and PCAPCD rules would prevent or minimize adverse effects related to short-term construction-related emissions. Also, extensive queuing or idling by motor vehicles is not expected during construction. Therefore, construction-related emissions of criteria air pollutants and precursors under Alternative 3 would not conflict with or obstruct implementation of an applicable air quality plan, violate any air quality standard or contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. This would be a **less-than-significant** impact.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Impacts under Alternative 4 would be the same as described for Alternative 1. Like Alternative 1, the maximum daily emissions under Alternative 4 would occur during the construction of the realigned portion of SR 89. Therefore, the modeled maximum daily emission levels shown in Table 4.2-5 are also representative of Alternative 4. As shown in Table 4.2-5, maximum daily construction construction-generated emissions of ROG, NO_x, or PM₁₀ would not exceed PCAPCD's mass emission thresholds of 82 lb/day. In addition, adherence to applicable TRPA and PCAPCD rules would prevent or minimize adverse effects related to short-term construction-related emissions. Also, extensive queuing or idling by motor vehicles is not expected during construction. Therefore, construction-related emissions of criteria air pollutants and precursors under Alternative 4 would not conflict with or obstruct implementation of an applicable air quality plan, violate any air quality standard or contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. This would be a **less-than-significant** impact.

ALTERNATIVE 5: NO ACTION

Because there would be no improvements under the No Action Alternative, there would be no construction activity, or no additional queuing or idling by motor vehicles and therefore **no impact**.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISITING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Maximum daily mass emission levels from construction activity under Alternative 6 would be similar to those described for Alternative 1. The modeled maximum daily emission levels under Alternative 6 would be similar but may be reduced from those shown in Table 4.2-5 because Alternative 6 would result in less construction. As shown in Table 4.2-5, maximum daily construction-generated emissions of ROG, NO_x, or PM₁₀ would not exceed PCAPCD's mass emission thresholds of 82 lb/day. In addition, adherence to applicable TRPA and PCAPCD rules would prevent or minimize adverse effects related to short-term construction-related emissions.

However, implementation of Alternative 6 would involve replacing and expanding Fanny Bridge and it is anticipated that a partial or complete shutdown of Fanny Bridge could occur, which would result in additional congestion and idling. Although this impact would be temporary, congestion and idling could be extensive during periods when the bridge is completely shut down as there are no current alternative routes between the West Shore and Tahoe City (TTD 2014:56). CO emissions are a direct function of vehicle idling time and, thus, traffic flow conditions. Under specific meteorological conditions, the concentration of CO emissions near congested roadways and/or intersections may reach unhealthy levels with respect to local sensitive land uses such as residential areas. PCAPCD recommends screening-level guidance based on the level of service (LOS) of affected intersections to determine whether there would be a potential for CO concentrations to exceed the CAAQS (PCAPCD 2012:39 to 40). The traffic analysis prepared for this project did not quantify the LOS of affected intersections during the construction phase (Wood Rodgers 2014). The SMAQMD developed screening criteria for determining whether local CO modeling is necessary to evaluate impacts of traffic congestion on local CO concentrations. The SMAQMD screening method was developed using emission factors from ARB's EMFAC model; the same modeling tool applied to estimate operational mobile-source emissions associated with the Regional Plan Update and RTP/SCS. Therefore, because SMAQMD's screening tool was developed using methods that also apply in the LTAB, it is reasonable to use the SMAQMD screening method for screening of CO impacts for intersections in the LTAB. These criteria are useful in other air districts (that have not developed criteria of their own), because the factors creating localized CO hot spots do not change substantially from one region to another.

The applicable screening criteria are as follows (SMAQMD 2009:4-15 and 4-16):

- ▲ The project would not result in an affected intersection experiencing more than 31,600 vehicles per hour;
- ▲ The project would not contribute traffic to a tunnel, parking garage, bridge underpass, urban street canyon, or below-grade roadway; or other locations where horizontal or vertical mixing of air would be substantially limited; and
- ▲ The mix of vehicle types at the intersection is not anticipated to be substantially different from the county average (as identified by the EMFAC or URBEMIS models).

None of these screening criteria would be triggered during the construction phase of Alternative 6. Specifically, no affected intersections would experience more than 31,600 vehicles per hour. According to peak hour summertime traffic volume data presented in Figure 2A in the traffic report, the wye intersection experiences a peak traffic volume of 1,571 vehicles per hour (Wood Rodgers 2014:Figure 2A), which is approximately 0.5 percent of SMAQMD's first screening criterion. Also, vehicle congestion during construction would not affect intersections or roadway segments where mixing would be substantially limited, and the vehicle fleet would not differ substantially from the local average. The SMAQMD screening criteria are associated with the 1-hour and 8-hour California AAQS for CO of 20 and 6 ppm (for the LTAB), respectively. However, because the affected intersections would accommodate traffic levels an order of magnitude below the SMAQMD screening level of 31,600 vehicles, in combination with the fact that the LTAB is a maintenance area for CO (rather than in nonattainment), an air quality violation would not occur. Thus, implementation of Alternative 6 would not result in, or contribute to, local CO concentrations that exceed the 8-hour CAAQS of 9 ppm or the 1-hour CAAQS of 20 ppm.

Therefore, construction-related emissions of criteria air pollutants and precursors under Alternative 6 would not conflict with or obstruct implementation of an applicable air quality plan, violate any air quality standard or contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. This would be a **less-than-significant** impact.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Impacts under Alternative 6a would be the same as described for Alternative 6. As shown in Table 4.2-5, maximum daily construction construction-generated emissions of ROG, NO_x, or PM₁₀ would not exceed PCAPCD's mass emission thresholds of 82 lb/day. In addition, adherence to applicable TRPA and PCAPCD rules would prevent or minimize adverse effects related to short-term construction-related emissions. Moreover, as with Alternative 6, the peak volume vehicles using the wye intersection during periods when the bridge is not accessible would not trigger the need to perform local CO modeling to determine whether associated CO emissions could contribute to an exceedance of the applicable CAAQS, according to SMAQMD guidance. Therefore, construction-related emissions of criteria air pollutants and precursors under Alternative 6a would not conflict with or obstruct implementation of an applicable air quality plan, violate any air quality standard or contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. This would be a **less-than-significant** impact.

Impact 4.2-3. Exposure of sensitive receptors to air toxics.

Some TAC-emitting construction activities would be located in close proximity to existing sensitive receptors that are located in or near the project site (see Exhibit 4.2-1); however exposure to sensitive receptors from construction-generated TACs would not be substantial because the duration of construction activity at any one location would be limited. Short-term construction activity performed under Alternatives 1, 2, 3, 4, 6, and 6a would not result in the exposure of sensitive receptors to substantial TAC concentrations and, therefore, would be a **less-than-significant** impact. There would be **no impact** under Alternative 5.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

Construction-related activity would result in temporary, short-term emissions of diesel PM from the exhaust of off-road heavy-duty diesel equipment used for site preparation (e.g., excavation, grading, and clearing); paving; trucks hauling materials to and from construction staging areas; and other miscellaneous activities. The potential cancer risk from the inhalation of diesel PM is a more serious risk than the potential non-cancer health impacts (ARB 2003); therefore, for the purposes of this analysis, this discussion focuses on cancer risk rather than non-cancer risks.

The dose to which receptors are exposed is the primary factor used to determine health risk (i.e., potential exposure to HAP emission levels that exceed applicable standards). Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. It is positively correlated with time, meaning that a longer exposure period would result in a higher level of exposure to the exposed individual. In other words, 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 (OEHHA), Health Risk Assessments, which determine the exposure of sensitive receptors to HAP emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the duration of exposure (OEHHA 2001). Due to the linear nature of the project, the use of heavy-duty, diesel-powered equipment for construction activities would be temporary at any one location, and would dissipate with increasing distance from the source. In addition, all construction equipment would not operate at the same time or location and, therefore, not expose the same receptors to increased levels of diesel PM during the entire construction period.

On-going maintenance of the new facilities would consist of occasional maintenance vehicles and repair equipment operating along the corridor. However, no new stationary sources or continuously operating area sources of HAPs would be introduced to the area around the project site. For these reasons, and because of the highly dispersive properties of diesel PM (Zhu et. al. 2002), short-term construction-generated and long-term operational HAP emissions would not expose sensitive receptors to an incremental increase in cancer risk that exceeds of 10 in one million or a Hazard Index greater than 1.0 at the maximally exposed individual. Therefore, the project would not have an adverse effect on the environment related to exposure to HAP, and this would be a **less-than-significant** impact.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Impacts under Alternative 2 would be the same as described for Alternative 1 because the types of heavy-duty, diesel-powered equipment would be the same and the period during which diesel PM would be emitted is short relative to the 70-year exposure period typically used in forma health risk assessments. Also, no new operational sources of HAPs would be introduced under Alternative 2. Therefore, short-term construction-generated and long-term operational HAP emissions would not expose sensitive receptors to an incremental increase in cancer risk that exceeds of 10 in one million or a Hazard Index greater than 1.0 at the maximally exposed individual. Therefore, the project would not have an adverse effect on the environment related to exposure to HAPs. This would be a **less-than-significant** impact.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Impacts under Alternative 3 would be the same as described for Alternative 1 because the types of heavy-duty, diesel-powered equipment would be the same and the period during which diesel PM would be emitted is short relative to the 70-year exposure period typically used in forma health risk assessments. Also, no new operational sources of HAPs would be introduced under Alternative 3. Therefore, short-term construction-generated and long-term operational HAP emissions would not expose sensitive receptors to an incremental increase in cancer risk that exceeds of 10 in one million or a Hazard Index greater than 1.0 at the maximally exposed individual. Therefore, the project would not have an adverse effect on the environment related to exposure to HAPs. This would be a **less-than-significant** impact.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Impacts under Alternative 4 would be the same as described for Alternative 1 because the types of heavy-duty, diesel-powered equipment would be the same and the period during which diesel PM would be emitted is short relative to the 70-year exposure period typically used in forma health risk assessments. Also, no new operational sources of HAPs would be introduced under Alternative 4. Therefore, short-term construction-generated and long-term operational HAP emissions would not expose sensitive receptors to an incremental increase in cancer risk that exceeds of 10 in one million or a Hazard Index greater than 1.0 at the maximally exposed individual. Therefore, the project would not have an adverse effect on the environment related to exposure to HAPs. This would be a **less-than-significant** impact.

ALTERNATIVE 5: NO ACTION

Because there would be no improvements under the No Action Alternative, there would be no increase in short-term, construction-generated emissions of diesel PM or other TACs. Therefore, there would be **no impact**.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Impacts under Alternative 6 would be the same as described for Alternative 1 because the types of heavy-duty, diesel-powered equipment would be the same (while the level of use may be lower) and the period during which diesel PM would be emitted is short relative to the 70-year exposure period typically used in forma health risk assessments. Also, no new operational sources of HAPs would be introduced under Alternative 6. Therefore, short-term construction-generated and long-term operational HAP emissions would not expose sensitive receptors to an incremental increase in cancer risk that exceeds of 10 in one million or a Hazard Index greater than 1.0 at the maximally exposed individual. Therefore, the project would not have an adverse effect on the environment related to exposure to HAPs. This would be a **less-than-significant** impact.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Impacts under Alternative 6a would be the same as described for Alternative 1 because the types of heavy-duty, diesel-powered equipment would be the same (while the level of use may be lower) and the period during which diesel PM would be emitted is short relative to the 70-year exposure period typically used in forma health risk assessments. Also, no new operational sources of HAPs would be introduced under

Alternative 6. Therefore, short-term construction-generated and long-term operational HAP emissions would not expose sensitive receptors to an incremental increase in cancer risk that exceeds of 10 in one million or a Hazard Index greater than 1.0 at the maximally exposed individual. Therefore, the project would not have an adverse effect on the environment related to exposure to HAPs. This would be a **less-than-significant** impact.

Impact 4.2-4. Localized, long-term mobile-source carbon monoxide emissions.

Because the SR 89/Fanny Bridge Project would not result in an increase in VMT or result in a signalized intersection with LOS E or F, the action alternatives would not result in or contribute to CO concentrations that exceed applicable 1-hour and 8-hour CO ambient air quality standards. Under Alternative 5 the LOS at the wye intersection would deteriorate but this deterioration would not be caused by any new vehicle trips or changes in traffic patterns relative to existing conditions. Therefore, operational emissions of CO would be **less than significant** for all the alternatives.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

The LTAB is designated as a maintenance area for the NAAQS for CO and as an attainment area for the CAAQS for CO. Also, in its most recent evaluation, the *2011 Threshold Evaluation Report* TRPA determined that the LTAB is doing considerably better than target with respect to the standard of maintaining CO concentrations at or below the 8-hour CAAQS 6 ppm and the 1-hour CAAQS of 20 ppm and that TRPA will continue to be able to meet these standards (TRPA 2012a:3-11 to 3-19), as shown in Table 4.2-2 (TRPA 2012). Thus, pursuant to the procedures for a hot-spot analysis in the CFR (40 CFR Section 93.123; CFR 2008) the potential for the project alternatives to result in localized concentrations of CO that exceed the NAAQS and CAAQS can be assessed qualitatively.

Implementation of Alternative 1 would not increase vehicle trips to and from the project area. According to the traffic analysis prepared, the SR 89/Fanny Bridge Project would improve the level of service at the existing wye intersection (i.e., the intersection of SR 89 and SR 28) and result in a moderate decrease in VMT on the area roadway network (Wood Rodgers 2014:7). Also, the potential for CO hot spots is greater in winter because motor vehicles generate higher emissions of CO when ambient temperature is low (ARB 2013b); however peak use of the wye intersection would occur during the summertime peak hour (Wood Rodgers 2014:6).

CO emissions are a direct function of vehicle idling time and, thus, traffic flow conditions. Under specific meteorological conditions, the concentration of CO emissions near congested roadways and/or intersections may reach unhealthy levels with respect to local sensitive land uses such as residential areas. The *Transportation Project-Level Carbon Monoxide Protocol* (Garza et al. 1997) states that signalized intersections at LOS E or F represent a potential for a CO violation, also known as a “hot spot,” and should undergo quantitative screening-level analysis. Thus, modeling of CO concentrations is typically recommended for receptors located near signalized roadway intersections that are projected to operate at LOS E or F. The traffic analysis prepared for this EIR/EIS/EA (Section 4.15, “Traffic and Transportation”) focuses on an evaluation of effects on roadway LOS at at-grade crossing locations for the SR 89/Fanny Bridge Project. This analysis determined that the existing LOS at the wye intersection is D and would either stay the same or improve to LOS C or better with implementation of the SR 89/Fanny Bridge Project (Wood Rodgers 2014:30-37). It also determined that no other signalized intersection in the project area would deteriorate to LOS E or F (Wood Rodgers 2014:30-37).

Because Alternative 1 would not adversely affect the LOS at nearby intersections, it would not result in, or contribute to, CO concentrations that exceed applicable 1-hour and 8-hour CO ambient air quality standards. The *Air Quality Impact Analysis* performed for the SR 89/Fanny Bridge Project also determined that Alternative 1 would not result in an exceedance of the CAAQS or NAAQS for CO because it is classified as a Safety Improvement Program that would not generate additional traffic in the Region or contribute to existing congestion (TTD 2014:ii,58). As a result, no adverse effect on localized CO concentrations would occur, and this would be a **less-than-significant** impact.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Impacts under Alternative 2 would be the same as described for Alternative 1 because it would not increase the number of vehicle trips to and from the project area, it would improve the level of service at the existing wye intersection (i.e., the intersection of SR 89 and SR 28), and it would result in a small decrease in VMT on the area roadway network (Wood Rodgers 2014:7). Therefore, Alternative 2 would not result in or contribute to CO concentrations that exceed applicable 1-hour and 8-hour CO ambient air quality standards. This would be a **less-than-significant** impact.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Impacts under Alternative 3 would be the same as described for Alternative 1 because it would not increase the number of vehicle trips to and from the project area, it would improve the level of service at the existing wye intersection (i.e., the intersection of SR 89 and SR 28), and it would result in a small decrease in VMT on the area roadway network (Wood Rodgers 2014:7). Therefore, Alternative 3 would not result in or contribute to CO concentrations that exceed applicable 1-hour and 8-hour CO ambient air quality standards. This would be a **less-than-significant** impact.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Impacts under Alternative 4 would be the same as described for Alternative 1 because it would not increase the number of vehicle trips to and from the project area, it would improve the level of service at the existing wye intersection (i.e., the intersection of SR 89 and SR 28), and it would result in a small decrease in VMT on the area roadway network (Wood Rodgers 2014:7). Therefore, Alternative 4 would not result in or contribute to CO concentrations that exceed applicable 1-hour and 8-hour CO ambient air quality standards. This would be a **less-than-significant** impact.

ALTERNATIVE 5: NO ACTION

Under the No Action Alternative, the wye intersection would deteriorate from LOS D under existing conditions to LOS F during the peak hour of the summer season of the 2018 analysis year and the 2038 analysis year (Wood Rodgers 2014:30). According to guidance provided in the *Transportation Project-Level Carbon Monoxide Protocol*, signalized intersections with LOS E or F have the potential to result in CO concentrations that could exceed 9 ppm, and therefore the 6 ppm standard established for the LTAB, at nearby sensitive receptors (Garza et al. 1997). However, this deterioration would be the result of increased traffic volumes associated with general population and economic growth in the Region rather than any new vehicle trips generated by Alternative 5. Also, Alternative 5 would not result in any changes to existing traffic patterns or to the vehicle fleet using the intersection. While Alternative 5 would not have the beneficial effects on the LOS at the wye intersection that would occur under the action alternatives, this would be a **less-than-significant** impact.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Impacts under Alternative 6 would be the same as described for Alternative 1 because it would not increase the number of vehicle trips to and from the project area, it would improve the level of service at the existing wye intersection (i.e., the intersection of SR 89 and SR 28), and it would result in no change in VMT on the area roadway network (Wood Rodgers 2014:7). Therefore, Alternative 6 would not result in or contribute to CO concentrations that exceed applicable 1-hour and 8-hour CO ambient air quality standards. This would be a **less-than-significant** impact.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Impacts under Alternative 6a would be the same as described for Alternative 1 because it would not increase the number of vehicle trips to and from the project area, it would improve the level of service at the existing wye intersection (i.e., the intersection of SR 89 and SR 28), and it would result in no change in VMT on the area roadway network (Wood Rodgers 2014:7). Therefore, Alternative 6a would not result in or

contribute to CO concentrations that exceed applicable 1-hour and 8-hour CO ambient air quality standards. This would be a **less-than-significant** impact.

Impact 4.2-5. Exposure of sensitive receptors to odors.

The proposed land use type is not one that is commonly considered a source of odors. While construction of the action alternatives could result in temporary emissions of odorous diesel exhaust, it is not anticipated that this source would be excessive nor would it affect a substantial number of receptors. This would be a **less-than-significant** impact for Alternatives 1, 2, 3, 4, 6, and 6a. There would be **no impact** under Alternative 5.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

The occurrence and severity of odor impacts depends on numerous factors, including: the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of the receptors. While offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and regulatory agencies.

Implementation of Alternative 1 would not result in the introduction of any new operational sources of odors to the area. Project-related construction activities could result in odorous diesel exhaust emissions from construction equipment, and odors associated with asphalt paving. These types of construction-generated odorous emissions, however, would be temporary and not be generated at any one location for an extended period. Diesel exhaust would also dissipate rapidly from the source with an increase in distance. Therefore, these activities would not result in the frequent exposure of receptors to objectionable odorous emissions, and this would be a **less-than-significant** impact for Alternative 1.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Impacts under Alternative 2 would be the same as described for Alternative 1 because it would not result in the introduction of any new operational sources of odors to the area and construction-generated odorous emissions (i.e., diesel exhaust and odors from asphalt paving) would be temporary and not be generated at any one location for an extended period. Therefore, Alternative 2 would not result in the frequent exposure of receptors to objectionable odorous emissions, and this would be a **less-than-significant** impact.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Impacts under Alternative 3 would be the same as described for Alternative 1 because it would not result in the introduction of any new operational sources of odors to the area and construction-generated odorous emissions (i.e., diesel exhaust and odors from asphalt paving) would be temporary and not be generated at any one location for an extended period. Therefore, Alternative 3 would not result in the frequent exposure of receptors to objectionable odorous emissions, and this would be a **less-than-significant** impact.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Impacts under Alternative 4 would be the same as described for Alternative 1 because it would not result in the introduction of any new operational sources of odors to the area and construction-generated odorous emissions (i.e., diesel exhaust and odors from asphalt paving) would be temporary and not be generated at any one location for an extended period. Therefore, Alternative 4 would not result in the frequent exposure of receptors to objectionable odorous emissions, and this would be a **less-than-significant** impact.

ALTERNATIVE 5: NO ACTION

Because there would be no improvements under the No Action alternative, there would be no increase in short-term, odorous emissions from construction activity. Therefore, there would be **no impact**.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Impacts under Alternative 6 would be the same as described for Alternative 1 because it would not result in the introduction of any new operational sources of odors to the area and construction-generated odorous emissions (i.e., diesel exhaust and odors from asphalt paving) would be temporary and not be generated at any one location for an extended period. Therefore, Alternative 6 would not result in the frequent exposure of receptors to objectionable odorous emissions, and this would be a **less-than-significant** impact.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Impacts under Alternative 6a would be the same as described for Alternative 1 because it would not result in the introduction of any new operational sources of odors to the area and construction-generated odorous emissions (i.e., diesel exhaust and odors from asphalt paving) would be temporary and not be generated at any one location for an extended period. Therefore, Alternative 6a would not result in the frequent exposure of receptors to objectionable odorous emissions, and this would be a **less-than-significant** impact.

4.2.5 Avoidance, Minimization, and/or Mitigation Measures

No mitigation is required for any of the alternatives.

4.3 BIOLOGICAL RESOURCES

4.3.1 Introduction

This section describes the common and sensitive vegetation, terrestrial wildlife, and aquatic biological resources that are known or have the potential to occur in the study area. Biological resources include common vegetation and habitat types, sensitive plant communities, and special-status plant and animal species. Federal, Tahoe Regional Planning Agency (TRPA), state, and local regulations related to biological resources are summarized. Potential impacts of the proposed alternatives are analyzed, and mitigation measures are provided for those impacts determined to be significant. Cumulative biological resources impacts are addressed in Chapter 5, “Cumulative Impacts.”

The potential loss or conversion of forest land, and potential zoning conflicts related to forest land and timberland are analyzed separately in Section 4.1, “Agricultural and Forestry Resources.”

4.3.2 Regulatory Setting

FEDERAL

Federal Endangered Species Act

The US Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) are charged with oversight of species designated as threatened or endangered under the federal Endangered Species Act (ESA) of 1973 (Title 50, Part 17 of the Code of Federal Regulations [i.e., 50 CFR 17]), as amended under the USFWS Mitigation Policy of 1956 (Title 16, Chapter 35, Section 1531 of the United States Code [16 USC 1531 et seq.]), as well as those species that are designated by Region 1 of the USFWS as species of concern.

USFWS has authority over projects that may result in take of a federally listed species. Under the ESA, “take” is to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or to attempt to engage in any such conduct” (Public Law 93-205, as amended by Section 3 of Public Law 107-136 [16 USC 1532]). The loss of habitat can also be considered “take” under the ESA. For projects with a federal nexus, such as this project, the process is accomplished through consultation under ESA Section 7 (16 USC 1536[a][2]), which produces a biological assessment to describe the impact mechanisms and any adverse effects on the listed population. Information within the biological assessment is used to prepare the biological opinion.

In accordance with section 7 of the Endangered Species Act (16 U.S.C 1531 et seq.), FHWA has initiated informal consultation with the U.S. Fish and Wildlife Service on the proposed SR 89/Fanny Bridge Project. On January 20, 2014, a list of threatened and endangered species with the potential to occur within the vicinity of the project site was retrieved from the online database maintained by the Sacramento Fish and Wildlife Office. In addition, FHWA staff had an informal discussion with the U.S. Fish and Wildlife Service on October 7, 2014 to provide information on the project alternatives and on issues regarding listed species that may be affected by project activities directly or indirectly, and to determine the appropriate section 7 consultation pathway. As a result of these discussions, a biological assessment is being prepared and will be submitted to the U.S. Fish and Wildlife Service as part of the Section 7 consultation process. The Final EIS/EIR/EA will disclose the results of the consultation. At the time of release of this Draft EIR/EIS/EA, informal consultation has also occurred with USFS-LTBMU biologist as appropriate and as necessary.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act, enacted in 1918, domestically implements a series of international treaties that provide protection for migratory birds. It authorizes the Secretary of the Interior to regulate the taking of

migratory birds and provides that it shall 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 (16 USC 703). This prohibition includes both direct and indirect acts, although harassment and habitat modification are not included unless they result in direct loss of birds, nests, or eggs. The current list of species protected by the Migratory Bird Treaty Act includes several hundred species, which is essentially all the native birds, in 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 USC 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 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.

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.

Section 404 of the Clean Water Act

Section 404 of the Clean Water Act (CWA) establishes a requirement for a project applicant to obtain a permit before engaging in any activity that involves any discharge of dredged or fill material into waters of the United States, including wetlands. Waters of the United States include navigable waters of the United States, interstate waters, all other waters where the use or degradation or destruction of the waters could affect interstate or foreign commerce, tributaries to any of these waters, and wetlands that meet any of these criteria or that are adjacent to any of these waters or their tributaries. Under Section 404 of the CWA, the US Army Corps of Engineers (USACE) regulates and issues permits for activities that involve the discharge of dredged or fill materials into waters of the United States. Fills of less than 0.5 acre of nontidal waters of the United States for residential, commercial, or institutional development projects can generally be authorized under USACE’s nationwide permit (NWP) program, provided that the project satisfies the terms and conditions of the particular NWP. Fills that do not qualify for a NWP require a letter of permission or an individual permit.

Section 401 Water Quality Certification

Under Section 401 of the CWA, an applicant for a Section 404 permit must obtain a certificate from the appropriate state agency stating that the intended dredging or filling activity is consistent with the State’s water quality standards and criteria. In California, the authority to grant water quality certification is delegated by the State Water Resources Control Board to the nine Regional Water Quality Control Boards (RWQCBs). The study area is within the jurisdiction of the Lahontan RWQCB.

US Forest Service, Lake Tahoe Basin Management Unit

The US Forest Service (USFS), Lake Tahoe Basin Management Unit (LTBMU) manages 75 percent of lands within the Tahoe Basin. Management of LTBMU lands on the project site is guided by the LTBMU Forest Plan (USFS 1988). LTBMU has been seeking to update the Forest Plan for several years. It issued a revised Forest

Management Plan, final EIS, and Draft Record of Decision (ROD) on November 22, 2013. The “Notice of Objections Filed” was published on January 31, 2014 and the Objection Reviewing Period is underway. The length of time needed to resolve objections filed over the plan is uncertain. For this reason the 1988 Forest Plan is considered to be the most recent planning document.

Specific standards and guidelines for biological and other resources are also described in detail in the *Sierra Nevada Forest Plan Amendment* (USFS 2004) and the resulting Record of Decision. The 1988 Forest Plan provides the basis for evaluating the project alternatives’ consistency with LTBMU planning guidance. The project’s consistency with the Forest Plan is considered in the National Forest Management Act (NFMA) Forest Plan Consistency Checklist, a planning tool developed and used by LTBMU staff.

In accordance with the forest plan, USFS will do all of the following, in order of priority:

- ▲ protect and enhance water clarity and quality,
- ▲ protect threatened and endangered plant and animal species native to the area,
- ▲ preserve significant cultural resources,
- ▲ achieve air quality standards for health and visibility and prevent the adverse impacts of atmospheric deposition upon water quality,
- ▲ maintain viable populations of wildlife,
- ▲ achieve diverse vegetation communities, and
- ▲ enhance outdoor recreational opportunities.

In addition, LTBMU maintains a list of plants and animals designated as sensitive by the Regional Forester of USFS Region 5, and a list of management indicator species that should be addressed when a project may affect LTBMU land.

Sierra Nevada Forest Plan Amendment

The Sierra Nevada Forest Plan Amendment (SNFPA) of 2004 amends the Forest Plans for the 11 National Forests in the Sierra Nevada, including the LTBMU Forest Plan, described above. The SNFPA Final Supplemental Environmental Impact Statement and Record of Decision (ROD) describe the amendments to the Sierra Nevada Forest Plan developed to improve protection of old forests, wildlife habitats, watersheds and communities in the Sierra Nevada and the Modoc Plateau. Appendix A of the ROD provides management direction for the Record of Decision. The appendix is divided into six parts.

- ▲ Part A presents broad management goals and strategies for addressing the five problem areas: old forest ecosystems and associated species; aquatic, riparian, and meadow ecosystems and associated species; fire and fuels management; noxious weeds; and lower westside hardwood ecosystems.
- ▲ Part B describes desired conditions for land allocations across Sierra Nevada national forests.
- ▲ Part C describes management intents and objectives.
- ▲ Part D describes management standards and guidelines that provide direction for specific aspects of project planning and analysis.
- ▲ Part E sets forth management direction for the Herger-Feinstein Quincy Library Group Pilot Project Area during the life of the pilot project.
- ▲ Part F describes the monitoring plan for the ROD.

While the ROD generally establishes broad goals, the Management Direction appendix (Appendix A of the ROD) is intended to provide more specifics at the objectives and implementation level. The project's consistency with specific guidance provided in the SNFPA is considered in the NFMA Forest Plan Consistency Checklist.

TAHOE REGIONAL PLANNING AGENCY

Environmental Threshold Carrying Capacities

The TRPA threshold standards define special attainment goals that have been developed to focus management efforts and provide a measure of progress for vegetation, wildlife, and fisheries. The Conservation Element of TRPA's Goals and Policies specifically identifies several attainment goals or threshold standards for certain vegetation and wildlife resources. The adopted TRPA threshold standards for vegetation, wildlife, and fisheries are listed below, and Table 4.3-1 summarizes the 2011 attainment status for these threshold standards (TRPA 2012a).

Table 4.3-1 TRPA Vegetation, Wildlife, and Fisheries Resource Threshold Indicators and their Attainment Status

TRPA Threshold Indicator	2011 Attainment Status
Vegetation	
Common Vegetation—Overall Status for Indicator Reporting Category	Somewhat Worse than Target
Common Vegetation—Community Species Richness	At or Somewhat Better than Target
Common Vegetation—Proportion of Red Fir Stands in Small Diameter Size Class	Considerably Worse than Target
Common Vegetation—Proportion of Yellow Pine Stands in Small Diameter Size Class	Considerably Worse than Target
Common Vegetation—Relative Abundance of Meadows and Wetland Vegetation Types	Somewhat Worse than Target
Common Vegetation—Relative Abundance of Shrubs Vegetation Type	Considerably Better than Target
Common Vegetation—Relative Abundance of Deciduous Riparian Vegetation Type	Considerably Worse than Target
Uncommon Plant Communities—Overall Status for Indicator Reporting Category	At or Somewhat Better than Target
Uncommon Plant Communities—Upper Truckee Marsh	Somewhat Worse than Target
Uncommon Plant Communities—Taylor Creek Marsh	At or Somewhat Better than Target
Uncommon Plant Communities—Pope Marsh	Somewhat Worse than Target
Uncommon Plant Communities—Osgood Swamp	Somewhat Worse than Target
Uncommon Plant Communities—Hell Hole	At or Somewhat Better than Target
Uncommon Plant Communities—Grass Lake	At or Somewhat Better than Target
Uncommon Plant Communities—Freel Peak	At or Somewhat Better than Target
Uncommon Plant Communities—Deep-Water Plants	Unknown (Insufficient Information)
Sensitive Plants—Overall Status for Indicator Reporting Category	Considerably Better than Target
Sensitive Plants—Tahoe Yellow Cress	Considerably Better than Target
Sensitive Plants—Tahoe Draba	Considerably Better than Target
Sensitive Plants—Long-petaled Lewisia	Considerably Better than Target
Sensitive Plants—Cup Lake Draba	Considerably Better than Target
Sensitive Plants—Galena Creek Rockcress	Unknown (Insufficient Information)
Late Seral/Old-Growth Ecosystems Overall and in Montane, Upper Montane, and Subalpine Elevation Zones	Considerably Worse than Target (overall and in all elevation zones)

Table 4.3-1 TRPA Vegetation, Wildlife, and Fisheries Resource Threshold Indicators and their Attainment Status

TRPA Threshold Indicator	2011 Attainment Status
Wildlife	
Special-Interest Species—Overall Status for Indicator Reporting Category	At or Somewhat Better than Target
Special-Interest Species—Northern Goshawk	Somewhat Worse than Target
Special-Interest Species—Osprey	Considerably Better than Target
Special-Interest Species—Bald Eagle—Nesting	At or Somewhat Better than Target
Special-Interest Species—Bald Eagle—Wintering	No target established
Special-Interest Species—Golden Eagle	Unknown (Insufficient Information)
Special-Interest Species—Peregrine Falcon	At or Somewhat Better than Target
Special-Interest Species—Waterfowl	Somewhat Worse than Target
Special-Interest Species—Deer	No target established
Habitats of Special Significance	Implemented/Attainment
Fisheries	
Lake Habitat	At or somewhat better than Target
Stream Habitat	Unknown
Instream Flow	Implemented/Attainment
Lahontan Cutthroat Trout	Implemented/Attainment

Source: TRPA 2012a

Lake Tahoe Regional Plan

Goals and Policies

The Conservation Element (Chapter IV) of the TRPA Goals and Policies document 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 SEZ Subelements are discussed in this section, and the goals related to each of these subelements are identified below.

Chapter IV of the Goals and Policies identifies the following six goals for vegetation in the Tahoe Region:

- ▲ provide for a wide mix and increased diversity of plant communities;
- ▲ provide for the protection, maintenance, and restoration of such unique ecosystems as wetlands, meadows, and other riparian vegetation;
- ▲ conserve threatened, endangered, and sensitive plant species and uncommon plant communities of the Lake Tahoe Region;
- ▲ provide for and increase the amount of late seral/old-growth stands within the Lake Tahoe Region;
- ▲ 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; and

- ▲ 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:

- ▲ maintain suitable habitats for all indigenous species of wildlife without preference to game or nongame species through maintenance and improvement of habitat diversity, and
- ▲ preserve, enhance, and where feasible, expand habitats essential for threatened, endangered, rare, or sensitive species found in the Region.

The goal identified for fisheries is:

- ▲ improve aquatic habitat essential for the growth, reproduction, and perpetuation of existing and threatened fish resources in the Lake Tahoe Region.

The goal identified for SEZs is:

- ▲ provide for the long-term preservation and restoration of stream environment zones.

Code of Ordinances

The applicable provisions of the TRPA Code regarding vegetation, wildlife, and fisheries 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 2012b). 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 Environmental Threshold Carrying Capacities. 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, or
- ▲ 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 suitable habitats for diverse wildlife species. Tree removal is subject to review and approval by TRPA (TRPA 2012b). Provisions for tree removal are provided in the following chapters and sections of the TRPA Code: Chapter 61, Vegetation and Forest Health, Section 61.1, Tree Removal, Section

61.3.6, Sensitive and Uncommon Plant Protection and Fire Hazard Reduction, and Section 61.4, Revegetation; Chapter 36, Design Standards; and Chapter 33, Grading and Construction, Section 33.6, Vegetation Protection During Construction.

Applicants must obtain a tree removal permit from TRPA for cutting of live trees 14 inches diameter at breast height (dbh) or greater. However, trees of any size marked as a fire hazard by a fire protection district or fire department that operates under a memorandum of understanding with TRPA can be removed without a separate tree permit.

With limited exceptions, Code Section 61.1.4, Old Growth Enhancement and Protection, prohibits the removal of trees greater than 24 and 30 inches dbh in eastside and westside forest types, respectively. Code Section 61.1.4 allows private landowners to remove trees larger than these size classes provided the landowner follows one of the planning processes identified in that section of the Code. However, trees larger than 30 inches dbh in westside forest types and larger than 24 inches dbh in eastside forest types may be removed for EIP projects or large public utilities projects if TRPA finds there is no other reasonable alternative. The project site is located within the westside forest area as defined by TRPA.

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.

If a project would result in substantial tree removal, a tree removal or harvest plan must be prepared by a qualified forester. The required elements of this plan, and TRPA's review process for tree removal plans, are described in Chapter 61, Section 61.1.5 of the Code. Substantial tree removal is defined under Code Section 61.1.8 as activities on project areas of three acres or more and proposing the removal of more than 100 live trees 14 inches dbh or larger.

Code Chapter 62 also provides quantitative requirements for retention and protection of snags and coarse woody debris by forest type, in terms of size, density, and decay class.

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 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.

No project or activity will be implemented within the boundaries of an SEZ except as otherwise permitted for habitat improvement, dispersed recreation, vegetation management, or as provided in Chapter 30 of the Code.

Fish Resources

Chapter 63, Fish Resources, of the Code includes provisions for the protection of fish habitat, enhancement of degraded habitat, and prevention of the introduction and spread of aquatic invasive species. For instream habitats, protection provisions include prohibiting stream channel alterations, facilitating fish movement at stream crossings, removing barriers to fish movement, mitigating impacts on fish habitat from development, maintaining instream flows, preventing sediment entry into the stream system, and encouraging native vegetative cover.

The maintenance of essential habitat serves as the fisheries management emphasis for the Conservation Element of TRPA's Goals and Policies. The first goal of the Conservation Element for fisheries is to "improve aquatic habitat essential for the growth, reproduction and perpetuation of existing and threatened fish resources in the Lake Tahoe Basin." For streams within the Tahoe Basin, management focus is on the quality and quantity of habitat provided for fish species, including spawning and rearing habitat, food supply, and cover. The Conservation Element identifies the following five policies related to instream fish habitat.

- ▲ Development proposals affecting streams, lakes, and adjacent lands will evaluate impacts on the fishery.
- ▲ Unnatural blockages and other impediments to fish movement will be prohibited and removed wherever appropriate.
- ▲ Habitat improvement projects in streams and lakes will be encouraged.
- ▲ Instream flows will be maintained or enhanced.
- ▲ State and federal efforts to reintroduce Lahontan cutthroat trout will be supported.

Aquatic Invasive Species

Code Section 63.4, Aquatic Invasive Species, states that aquatic invasive species pose a serious threat to the waters of the Lake Tahoe Region and can have a disastrous impact to the ecology and economy of the Lake Tahoe Region. Section 63.4 includes various provisions related to watercraft necessary to prevent the introduction and spread of aquatic invasive species; however, because the project alternatives do not include the use of watercraft, these provisions would not apply.

STATE

California Endangered Species Act

The California Endangered Species Act (CESA) prohibits the taking of state-listed endangered or threatened species, as well as candidate species being considered for listing. Applicants may obtain a Section 2081 incidental take permit if the impacts of the take are minimized and fully mitigated and the take would not jeopardize the continued existence of the species. A “take” of a species, under CESA, is defined as an activity that would directly or indirectly kill an individual of a species. The CESA definition of take does not include “harm” or “harass” as is included in the federal ESA.

California Fish and Game Code Section 1602 – Streambed Alteration

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources are subject to regulation by the California Department of Fish and Wildlife (CDFW) (formerly California Department of Fish and Game) under Sections 1600 *et seq.* of the California Fish and Game Code. Under Section 1602, it is unlawful for any person to substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by CDFW, or use any material from the streambeds, without first notifying CDFW of such activity and obtaining a Lake or Streambed Alteration Agreement authorizing such activity. “Stream” is defined as a body of water that flows at least periodically or intermittently through a bed or channel having banks and that supports fish or other aquatic life. CDFW’s jurisdiction within altered or artificial waterways is based on the value of those waterways to fish and wildlife.

California Fish and Game Code Sections 3503–3503.5—Protection of Bird Nests and Raptors

Section 3503 of the California 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 specifically states that it is unlawful to take, possess, or destroy any raptors (i.e., hawks, owls, eagles, and falcons), including their nests or eggs. Violations of these codes include destroying active nests by removing the vegetation in which the nests are located and disturbance of nesting pairs that results in the failure of active raptor nests.

California Native Plant Protection Act

In addition to CESA, the California Native Plant Protection Act provides protection to endangered and rare plant species, subspecies, and varieties of wild native plants in California. The California Native Plant Protection Act definitions of “endangered” and “rare” closely parallel the CESA definitions of endangered and threatened plant species.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act requires that each of the nine RWQCBs prepare and periodically update basin plans for water quality control. Each basin plan sets forth water quality standards for surface water and groundwater and actions to control nonpoint and point sources of pollution to achieve and maintain these standards. Basin plans offer an opportunity to protect wetlands through the establishment of water quality objectives. The RWQCBs’ jurisdiction includes waters of the United States as well as areas that meet the definition of “waters of the state.” Waters of the state are defined as any surface water or groundwater, including saline waters, within the boundaries of the state. The RWQCBs have the discretion to take jurisdiction over areas not federally protected under Clean Water Act Section 404 provided they meet the definition of waters of the state. Mitigation requiring no net loss of wetland functions and values of waters of the state is typically required by the RWQCBs.

Z’Berg-Nejedly Forest Practice Act

The Z’Berg-Nejedly Forest Practice Act (Forest Practice Act) and the associated California Public Resource Code (Division 4, Chapter 8) establish the authority for California Department of Forestry and Fire Protection (CAL FIRE) to act as the lead agency for timber harvest activities on non-federal land in the state. The Forest Practice Act was enacted to ensure that logging is done in a manner that will preserve and protect our fish, wildlife, forests, and streams. The California Forest Practice Rules (Title 14, California Code of Regulations)

provide the explicit requirements by which Registered Professional Foresters prepare Timber Harvest Plans (THP) and by which CAL FIRE serves as the lead agency and reviews their completeness, adequacy, and enforceability. CAL FIRE is responsible for administering THP Regulations throughout California on all non-federal timberland. This applies regardless of zoning and includes lands inside of city limits. The removal of commercial timber species from forested areas is included under these regulations and may require a THP, a Timberland Conversion Permit, or another type of timber harvest plan exemption or emergency document, depending on project type.

LOCAL AGENCIES

Placer County

Policies and Ordinances

The following regulations from the Placer County Code of Ordinances are applicable to biological resources in portions of the project within the jurisdiction of Placer County:

Article 12.16. Tree Preservation Generally (Countywide)

Riparian Zone Requirements. No tree permit or discretionary approval for any development activity within a riparian zone shall be approved until environmental impacts within the riparian zone are identified, an environmental determination is made and the mitigation measures identified (Chapter 18, Placer County Code). Additionally, no development activity shall be permitted until any stream alteration agreement or mitigation agreements required by CDFW have been completed.

Removal of More than Fifty Percent of Trees. Except for developed, single-family residential lots that cannot be subdivided, the removal of more than 50 percent of existing native trees, 6 inches dbh or greater, shall be subject to the issuance of a tree permit.

Article 12.20. Tree Preservation in Area East of Sierra Summit

No person shall cut down, move, remove, kill, or materially damage any live tree 6 inches dbh or over, or attach any appurtenance to a tree, without first having obtained a tree cutting permit from the permit-issuing authority, unless such tree is located on lands devoted to the growing and harvesting of timber for commercial purposes for which permits have been granted permitting timber harvesting. Such permit shall be unnecessary for the removal of trees proposed to be removed as approved in connection with the approval by the agency of a tentative map under the subdivision ordinance, except where such subdivision involves a land use conversion, or for the removal of trees as permitted under a permit issued pursuant to the grading ordinance, provided, however, that the standards contained in this article shall also be applicable to the approval of a tentative and final subdivision map and to the issuance of a grading permit.

4.3.3 Affected Environment

This section describes the common and sensitive terrestrial and aquatic biological resources known or with potential to occur in the study area, and incorporates information and mapping from the following technical studies conducted for the project:

- ▲ SR 89/Fanny Bridge Community Revitalization Project Baseline Biological Resources Report (Ascent Environmental 2012).
- ▲ Delineation of Waters of the United States; State Route 89/Fanny Bridge Community Revitalization Project 33.23 Acre Survey Area, Tahoe City, Placer County, California (NCE 2012).

- ▲ Delineation of Waters of the United States; State Route 89/Fanny Bridge Community Revitalization Project 33.23 Acre Survey Area, 26.75 Acre Expanded Study Area, Tahoe City, Placer County, California (NCE 2013).
- ▲ SR 89/Fanny Bridge Community Revitalization Project Draft Natural Environment Study, Discussions of Baseline Biological Resources Report and Wetland Delineation, Tahoe City, Placer County, California (AECOM 2014).

METHODS FOR DEVELOPING EXISTING BIOLOGICAL CONDITIONS

The project site encompasses approximately 60 acres. The disturbance area for each alternative is a subset of the full project site, specifically where permanent and temporary disturbances are planned as a result of project construction. Depending on the action alternative, the disturbance area ranges from 5.6 acres (Alternative 6a) to 19 acres (Alternative 1).

To assess and document existing biological resources on the project site, an Ascent Environmental wildlife biologist and botanist with expertise in Tahoe Basin natural resources reviewed existing data and conducted field surveys of the project site. Prior to the field surveys, biologists reviewed existing data to preliminarily identify special-status species and other sensitive resources known or with potential to occur on the project site. The data review included: review of TRPA and USFS survey and Geographic Information System (GIS) data; a records search of the California Natural Diversity Database (CNDDB) (CNDDB 2011) for the nine U.S. Geological Survey (USGS) quadrangles centered on the Tahoe City quadrangle (accessed on August 4, 2011); the California Native Plant Society (CNPS) Electronic Inventory (2011); and USFWS database of Federal Endangered and Threatened Species that occur in or may be affected by projects in the Lake Tahoe Basin (USFWS 2011); consultation with resource agency staff; and review of relevant literature and previous analyses conducted for the project.

On August 2, 8, and 17, 2011, a wildlife biologist and botanist conducted the field studies to verify information collected during the data review and augment that information with current project-specific survey results. Field studies consisted of reconnaissance level surveys and habitat assessments for terrestrial wildlife and aquatic resources, surveys for special-status plants and noxious weeds, and land cover/vegetation mapping. During the reconnaissance field survey and habitat assessment, information about land cover type, hydrology, vegetation stand composition and structure, and habitat suitability for special-status species was recorded. The special-status plant and noxious weed surveys were conducted during the appropriate summer blooming period, and vegetation communities were mapped and classified according to *A Manual of California Vegetation* (Sawyer et al. 2009). Botanical surveys were floristic in nature and attempts were made to identify all plants encountered in the field. No protocol level surveys for wildlife species were conducted.

PHYSICAL SITE CONDITIONS

Much of the project site occurs within National Forest System lands known as the “64-Acre Tract.” This parcel was transferred from the US Bureau of Reclamation to the U.S. Forest Service in 1984. After acquiring the site, the Forest Service removed some development and revegetated some of the site before opening the area for public use to provide picnic areas and access to Lake Tahoe and the Truckee River (C. Beyer, pers. comm., 2011). Current land uses in the vicinity of the project site include single-family residential, visitor accommodations (hotel/motel), public utilities, commercial uses, recreation, and industrial uses. A Caltrans maintenance yard is located at the west end of the project site. The Truckee River Bike Path is adjacent to the maintenance yard, parallel to SR 89, and a paved connector trail joins it with the trail that runs parallel to the Truckee River. Site topography is nearly level but includes scattered depressions throughout the open space, as well as the incised channel of the Truckee River.

Forest lands in the project site are dominated by Jeffrey pine forest and the Truckee River. Originally, the Truckee River and Lake Tahoe had a broad floodplain across the entire area that allowed the formation of

hydric soils (NCE 2012). The Natural Resources Conservation Service (NRCS) has mapped two soil units onsite; the Tahoe complex and the Kingsbeach stony sandy loam (USDA NRCS 2007). The majority of the project site is mapped as Tahoe complex (7042), which is an alluvial soil derived from granitic and volcanic rock. On the project site, hydric soils that support typical meadow vegetation consisting of sedges, meadow grasses, and lodgepole pine are scattered in this unit. The Kings beach stony sandy loam (7161), consists of very deep, moderately well drained soils that formed in alluvium and/or colluvium derived from andesite over lacustrine deposits. This unit occurs primarily on the southern portion of the project site (NCE 2012).

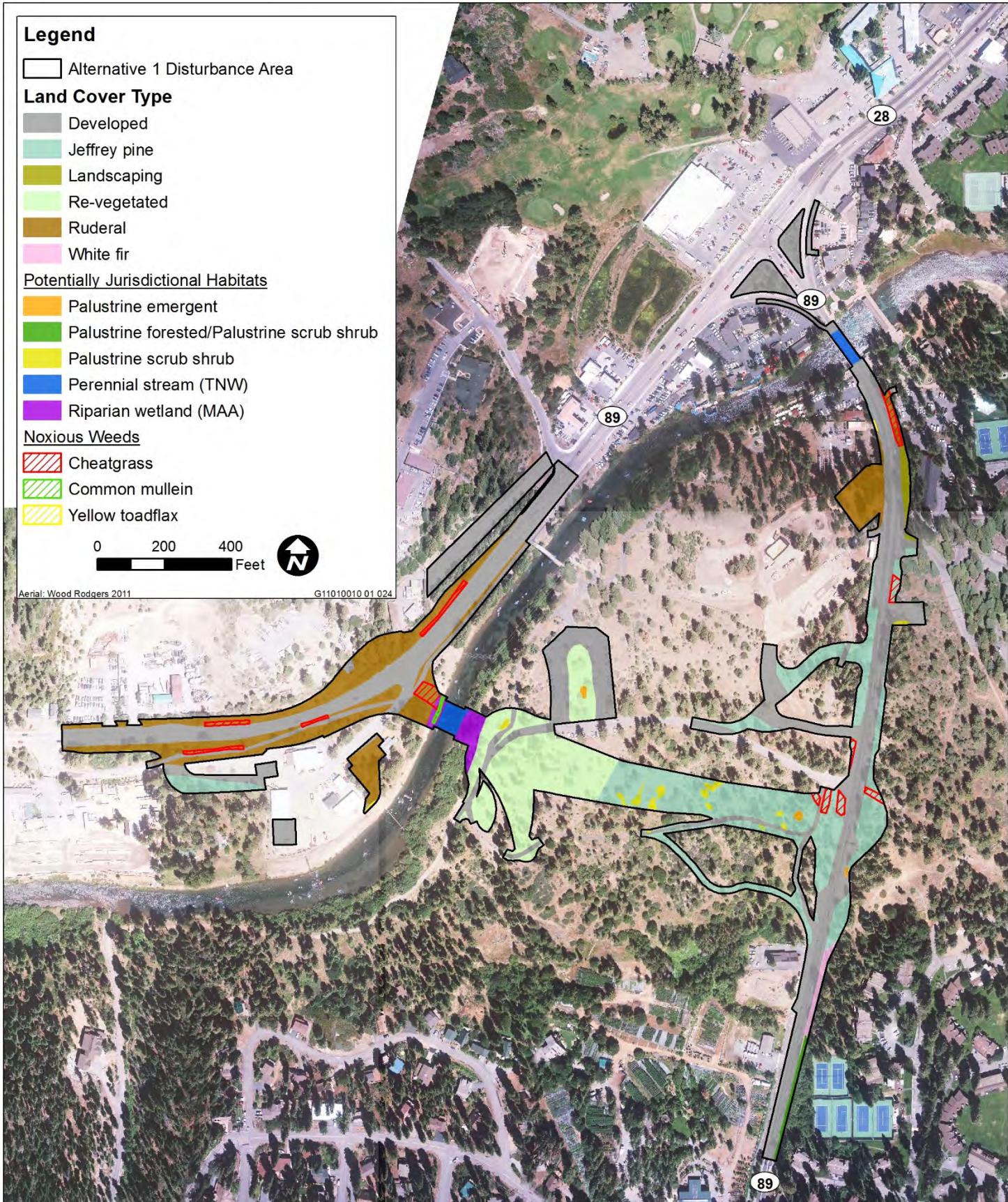
VEGETATION/LAND COVER TYPES

Fourteen upland, wetland, and aquatic land cover types covering approximately 60 acres were classified and mapped on the project site. Upland types are Jeffrey pine, white fir, re-vegetated, landscaping, ruderal, and developed. Wetland and aquatic types are riparian wetland, palustrine emergent, palustrine scrub-shrub, palustrine forested, palustrine forested scrub-shrub, riverine emergent, intermittent drainage, and perennial stream/water. Each of these types is briefly described below. Vegetated types are mapped and, where possible, classified by vegetation Alliance according to *A California Manual of Vegetation* (Sawyer et al. 2009). Exhibits 4.3-1 through 4.3-6 display the distribution of each land cover type within the disturbance areas for each of the action alternatives.

The wetland and aquatic types (riparian wetland, palustrine emergent, palustrine scrub-shrub, palustrine forested, palustrine forested scrub-shrub, riverine emergent, intermittent drainage, and perennial stream/water) are mapped and described based on the preliminary wetland delineation reports for the project site (NCE 2012, 2013). These features are also considered sensitive habitats and additionally discussed as such under “Sensitive Biological Resources,” below.

Jeffrey Pine

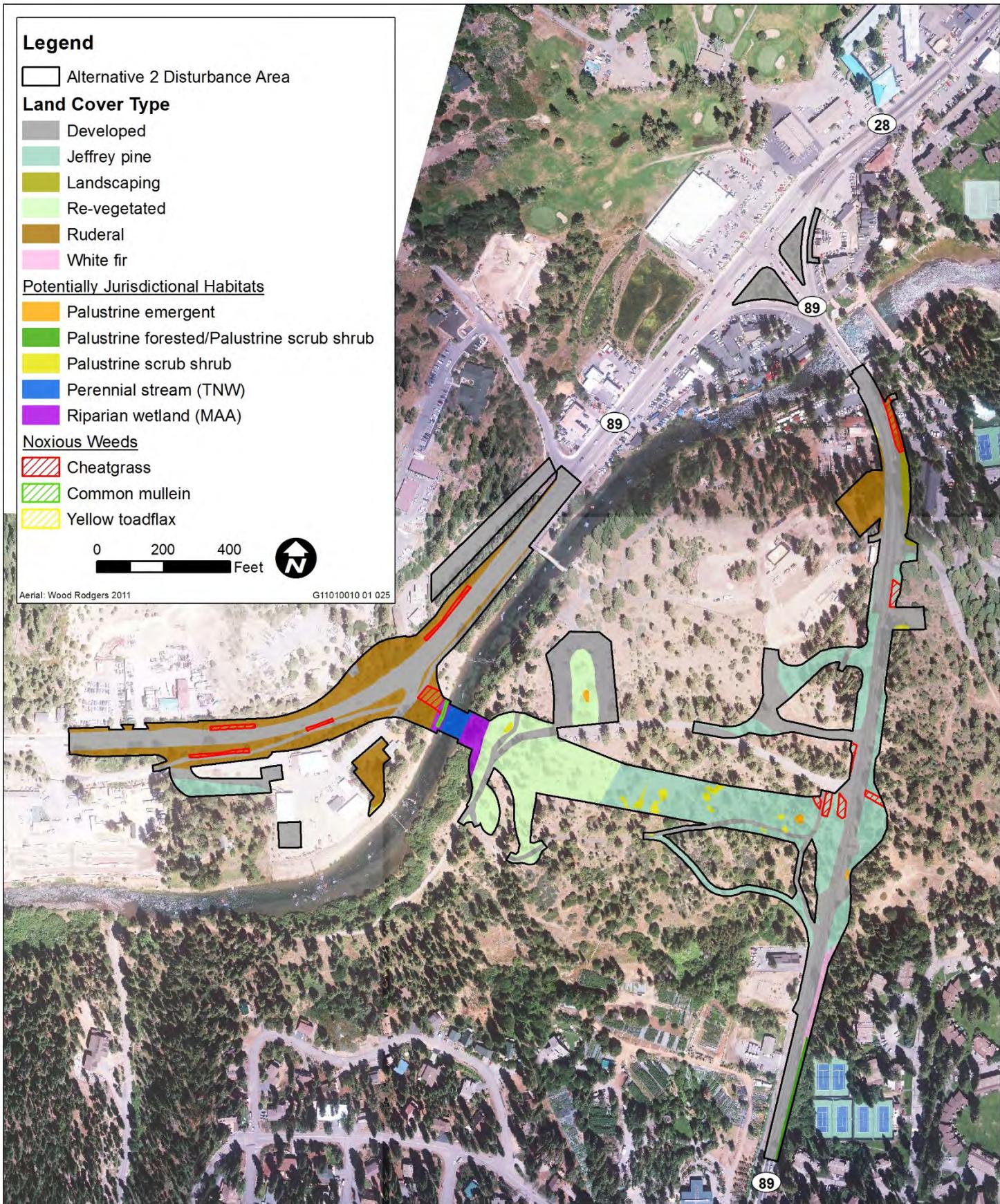
Jeffrey pine (*Pinus jeffreyi*) forest occupies 16.7 acres in the central and eastern portion of the project site. Canopy cover is sparse (10–24 percent) to open (25–39 percent) and the stands are mostly even-aged, consisting of an overstory of large trees (> 24 inches in dbh) and abundant pine saplings (< 6 inches dbh) in the understory, but no mid-canopy. Jeffrey pine is the dominant species, with a few large white firs (*Abies concolor*) present on the east side of SR 89 at the entrance of the road to Tavern Shores. Some white firs are scattered in the overstory, but a few shade-tolerant white fir saplings grow in the understory because of the open exposure. A few incense cedar (*Calocedrus decurrens*) saplings are also present but this species is absent from the overstory. Shrub cover is variable within Jeffrey pine forest on the project site. West of SR 89, dense thickets of bitter cherry (*Prunus emarginata*) and thickets of Scouler's and Lemmon's willow (*Salix scouleriana* and *S. lemmontii*) are present, but the shrub layer is sparse throughout most of this portion of the project site. Between SR 89 and Lake Tahoe, a diverse shrub layer composed of whitethorn (*Ceanothus cuneatus*), tobacco bush (*C. velutinus*), greenleaf manzanita (*Arctostaphylos patula*), gooseberry (*Ribes* sp.), and creeping snowberry (*Symphorocarpus mollis*) is present. The herbaceous layer is diverse throughout the project site, with perennial grasses including squirrel tail (*Elymus elymoides*) and western needle grass (*Stipa occidentalis*, formerly *Achnatherum occidentale*), and forbs including groundsmoke (*Gayophytum diffusum*), Sierra Nevada lotus (*Acmispon nevadensis* var. *nevadensis*, formerly *Lotus nevadensis* var. *nevadensis*), and sticky cinquefoil (*Drymocallis glandulosa*, formerly *Potentilla glandulosa*). A few small wet depressions or seeps are scattered within the Jeffrey Pine forest on the west side of SR 89; these wetland features were classified as palustrine emergent and palustrine scrub-shrub and are discussed below.



Source: Ascent Environmental 2012 and data received from AECOM in 2014, adapted by Ascent Environmental

Exhibit 4.3-1 Vegetation/Land Cover Types in the Project Disturbance Area – Alternative 1

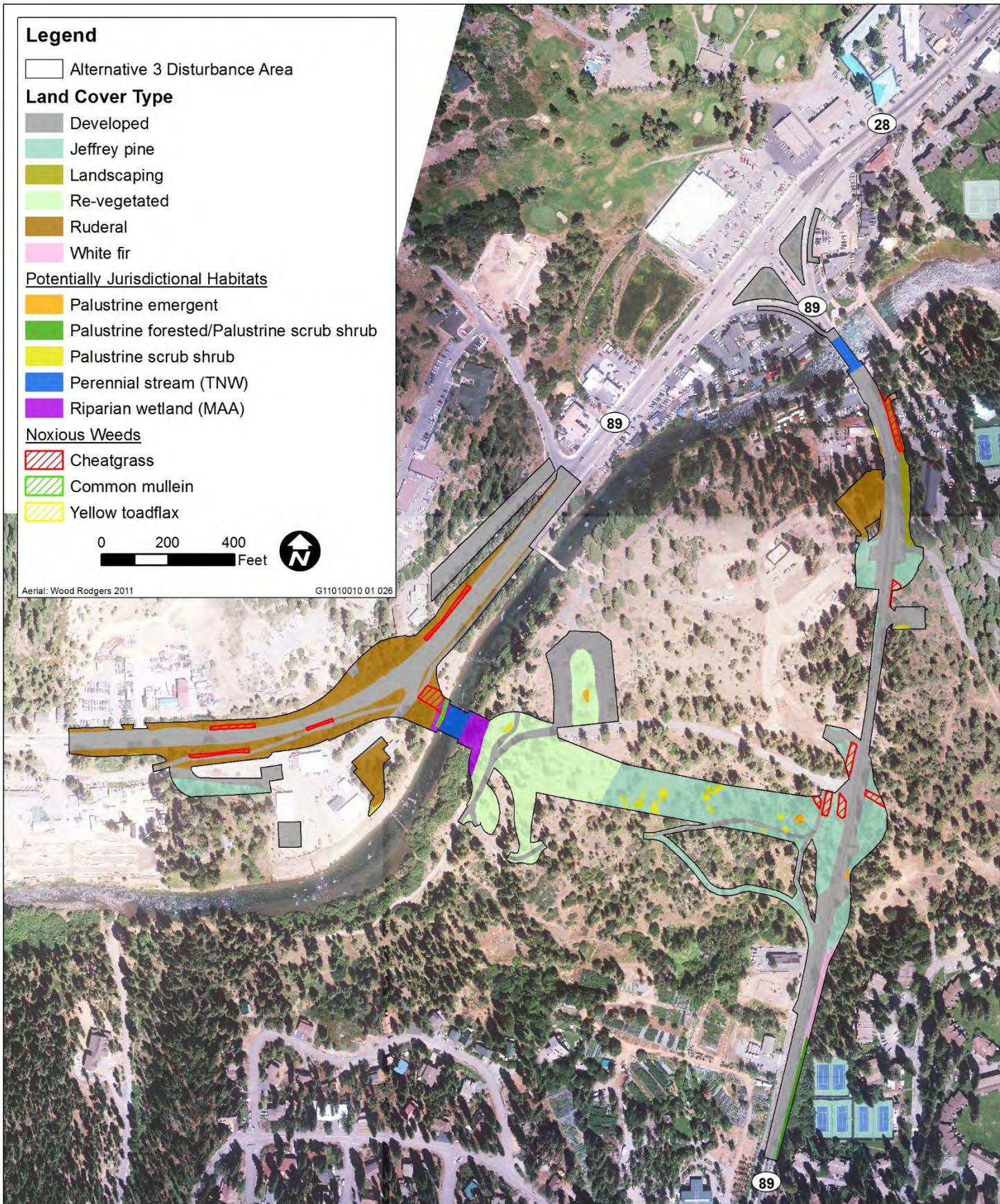




Source: Ascent Environmental 2012 and data received from AECOM in 2014, adapted by Ascent Environmental

Exhibit 4.3-2 Vegetation/Land Cover Types in the Project Disturbance Area – Alternative 2

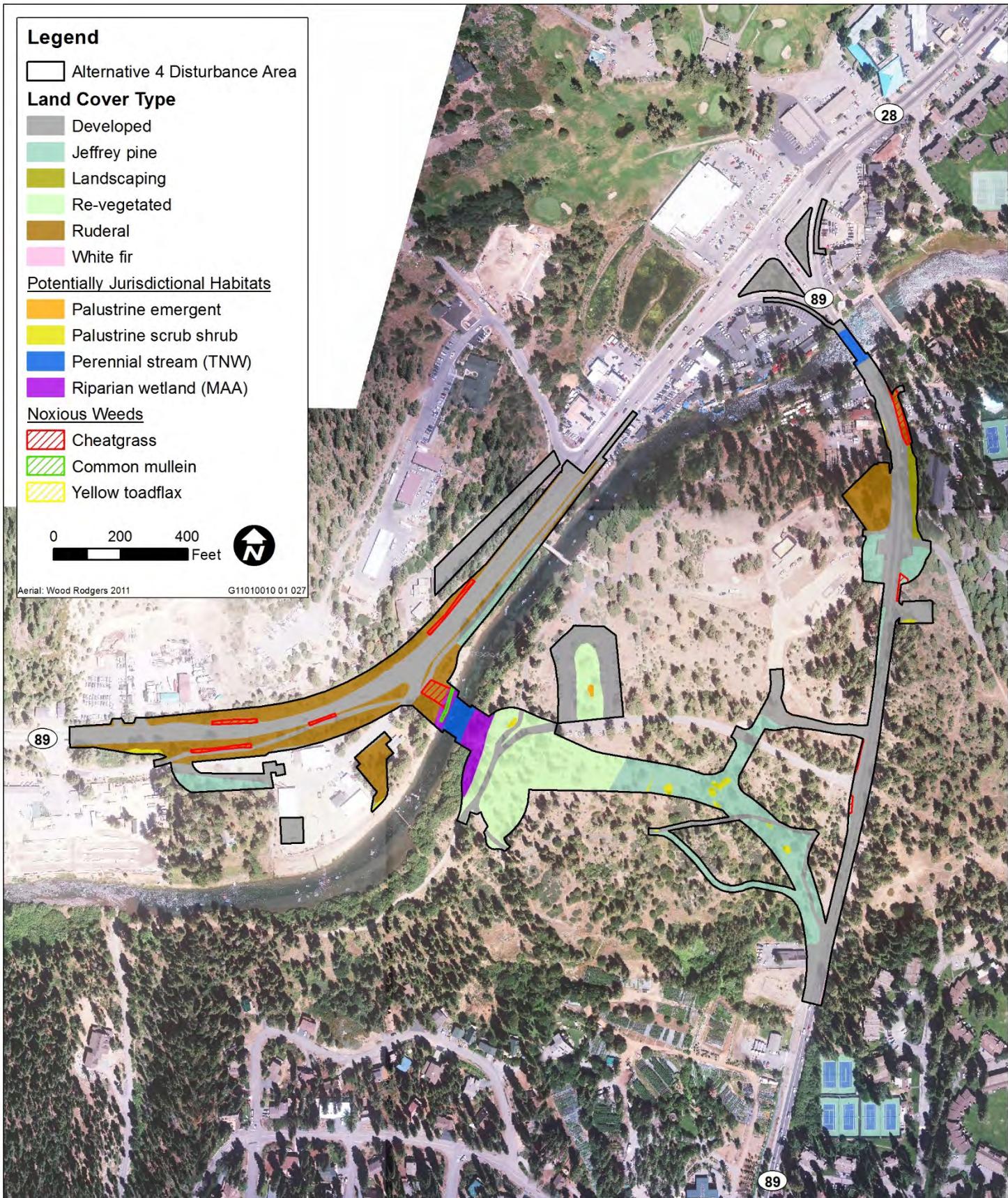




Source: Ascent Environmental 2012 and data received from AECOM in 2014, adapted by Ascent Environmental

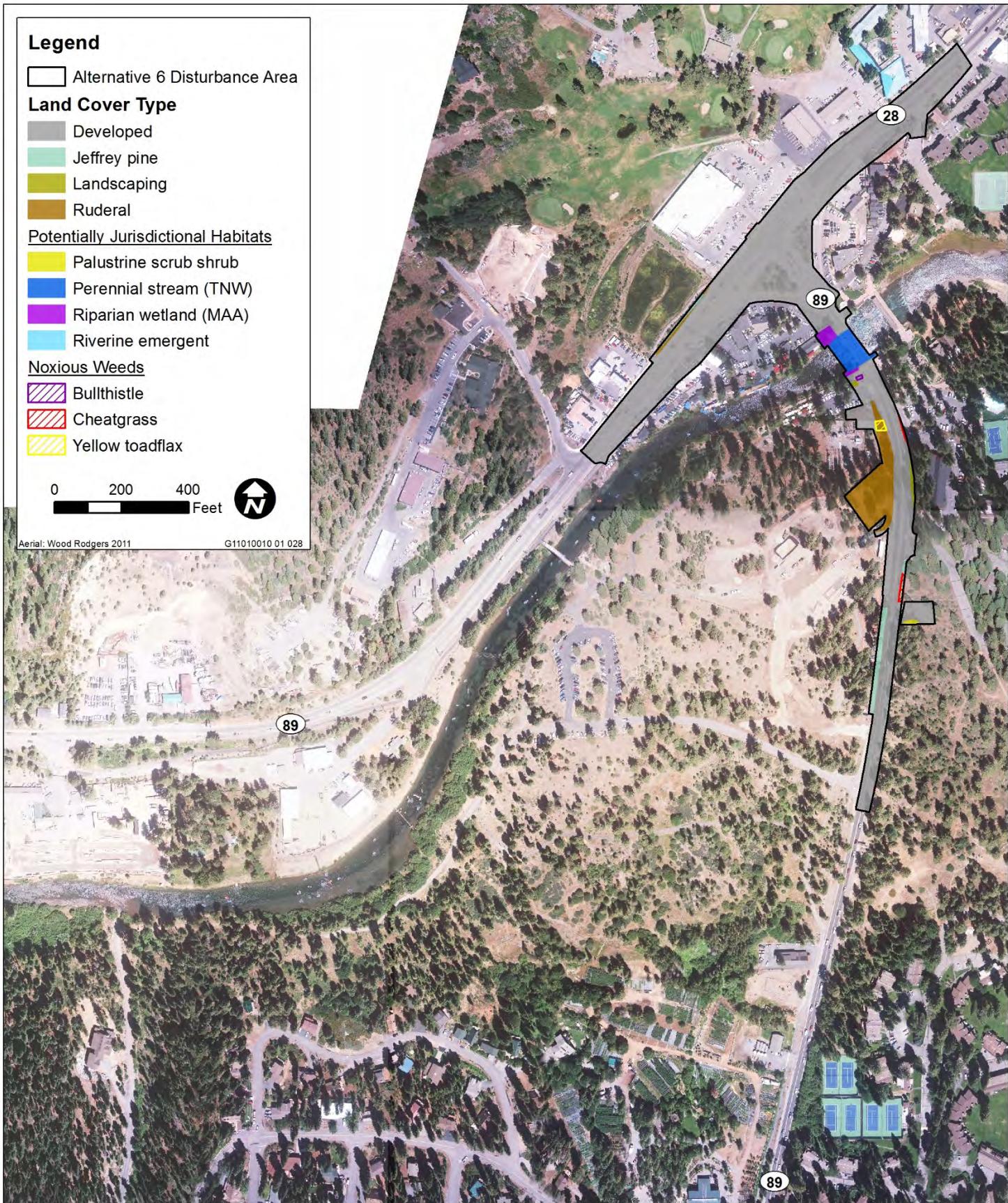
Exhibit 4.3-3 Vegetation/Land Cover Types in the Project Disturbance Area – Alternative 3





Source: Ascent Environmental 2012 and data received from AECOM in 2014, adapted by Ascent Environmental

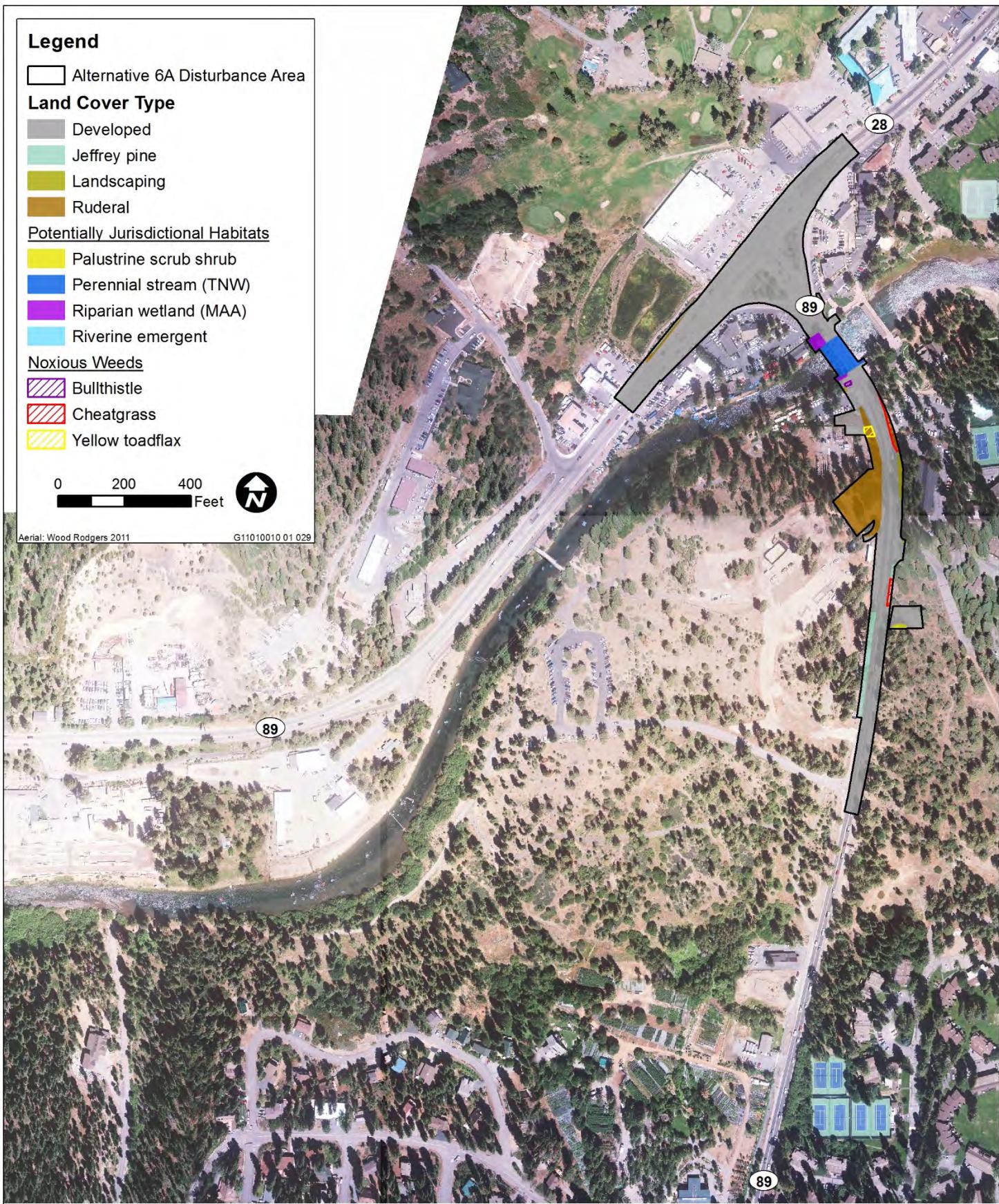
Exhibit 4.3-4 Vegetation/Land Cover Types in the Project Disturbance Area – Alternative 4



Source: Ascent Environmental 2012 and data received from AECOM in 2014, adapted by Ascent Environmental

Exhibit 4.3-5 Vegetation/Land Cover Types in the Project Disturbance Area – Alternative 6





Source: Ascent Environmental 2012 and data received from AECOM in 2014, adapted by Ascent Environmental

Exhibit 4.3-6 Vegetation/Land Cover Types in the Project Disturbance Area – Alternative 6a

White Fir

White fir (*Abies concolor*) forest occupies 1.1 acres adjacent to SR 89 on the east side in the southernmost part of the project site. Canopy cover in this vegetation community is dense (>60 percent) with multiple layers of trees ranging from large (>24 inches dbh) overstory trees to saplings (<6 inches dbh). White fir is the dominant species, contributing well over 60 percent relative cover. At least three large sugar pines (*Pinus lambertiana*) intermixed within the white fir community were observed. Sugar pines were likely more prominent in the past and may have been co-dominant before they were selectively harvested. The forest understory consists of a low subshrub layer of creeping snowberry (*Symphorocarpus mollis*) and mahala mat (*Ceanothus prostratus*), and common herbs that include hairy brackenfern (*Pteridium aquilinum* var. *pubescens*), dogbane (*Apocynum androsaemifolium*), Anderson's thistle (*Cirsium andersonii*), and Fendler's meadowrue (*Thalictrum fendleri*). A relatively thick duff and litter layer, characteristic of more mature forests, supports the mycotrophic snowplant (*Sarcodes sanguine*).

JURISDICTIONAL WATERS OF THE UNITED STATES

A preliminary delineation of Jurisdictional Waters of the United States was completed by Nichols Consulting Engineers in September of 2011 and verified by USACE on July 24, 2012. An updated delineation was completed and submitted and verified by USACE on December 8, 2014. Waters of the United States include essentially all surface waters, such as all navigable waters (waters used for transport or commerce) and their tributaries, all interstate waters and their tributaries, all wetlands with a clear connection to these waters, and all impoundments of these waters. The USACE distinguishes between wetland and non-wetland waters (commonly referred to as "other waters"). Wetlands are defined as areas that are inundated or saturated by surface or groundwater for a sufficient duration to support a prevalence of vegetation adapted for life in saturated soil conditions (Title 33 CFR Section 328.3[b]).

The preliminary delineation identified 3.52 acres of Jurisdictional Waters of the United States including both wetlands and other waters as described in Table 4.3-2.

Table 4.3-2 Jurisdictional Waters of the United States on the Project Site

Class	Description	Total Acreage
Riparian Wetlands	Wetlands along the banks a stream or river. On the project site, hydrology is closely tied to river flows and vegetation is dominated by willow species.	1.23
Palustrine scrub-shrub	An inland, non-riverine wetland dominated by scrub-shrub vegetation. On the project site, hydrology is supported dominantly by snowmelt.	0.36
Palustrine emergent	An inland, non-riverine wetland dominated by vegetation which is rooted below the water, but grows to emerge above the surface (i.e. reeds and rushes).	0.05
Perennial Stream	A stream that has continuous flow in parts of its stream bed all year round during years of normal rainfall.	1.87
Intermittent drainages	A drainage that flows seasonally, such as during and after heavy or steady rain or during periods of snowmelt.	0.01
Total		3.52

Source: TTD 2013a

Riparian Wetland (Riparian Mountain Alder Alliance)

On the project site, riparian wetland occupies 1.23 acres along the Truckee River. Riparian wetland habitat on the project site is composed primarily of mountain alder (*Alnus incana*) and willow (*Salix* sp.). Other common species within riparian wetland habitat include alpine knotweed (*Aconogonon phytolaccifolium*, formerly *Polygonum phytolaccifolium*), mountain rose (*Rosa woodsii* var. *ultramontane*), sedges (*Carex* sp.),

reed canary grass (*Phalaris arundinacea*), and muhly (*Muhlenbergia richardsonis* and *M. filiformis*). Along the south bank of the Truckee River, white fir and black cottonwood are sparsely distributed. On the north bank, the riparian vegetation and corridor are sparse and highly degraded from heavy recreation use, and a few Jeffrey pines are present. Bank erosion and channel incision of the Truckee River is occurring throughout much of the project site where access to the river is easy; however, a few scattered, dense patches of alder and willow prevent easy access to the river and provide stability for the river bank at those locations.

Palustrine Emergent

Three small patches of palustrine emergent wetland occupying 0.36 acre were delineated on the project site. The wet depression to the west of SR 89 and south of the parking lot road is the result of a culvert. At this location, a sedge (*Carex simulata*) forms the dominant vegetation and moss was present. Moss samples were not collected for species-level identification because these mesic habitats are not considered suitable to support any special-status moss species with potential to occur in the area. The palustrine emergent wetland feature on the east side of SR 89 is also present due to a culvert creating hydric conditions.

Palustrine Scrub-shrub

Characteristic palustrine scrub-shrub vegetation is variable depending on moisture, aspect, and local substrate. This wetland type was delineated as 16 patches, occupying 0.5 acre, primarily clustered to the south of the proposed Transit Center parking lot. The wet swales and seeps are generally influenced by culverts. Some of the wetter patches were dominated by sedges (*Carex* sp.) and rushes (*Juncus* sp.) as well as obligate wetland grasses such as short awn foxtail (*Alopecurus aequalis*). One of the wettest patches occupying an area of about 75 square meters within the largest polygon is dominated by dwarf wooly marbles (*Psilocarphus brevissimus* var. *brevissimus*) and needle navarretia (*Navarretia intertexta* ssp. *propinquua*), which are both obligate wetland plants. More disturbed wet areas are dominated by groundsmoke (*Gayophytum diffusum*), marsh gnaphalium (*Gnaphalium palustre*), or dense patches of sticky cinquefoil (*Potentilla glandulosa*). Other common species include Spanish clover (*Acmispon americanus* var. *americanus*) and dwarf knotweed (*Polygonum polgaloides* ssp. *kelloggi*). The small patch of palustine scrub-shrub on the south side of SR 89 in the westernmost portion of the project site is the result of two culverts that drain into a low basin. The vegetation is similar to a riparian type with willows (*Salix* sp.), black cottonwood, sedges, and grasses. Ruderal species are also present, including as alfalfa (*Medicago sativa*) and an infestation of cheatgrass (*Bromus tectorum*) at the road entrance to the Tahoe City Lumber Company.

Intermittent Drainages

North of the Caltrans maintenance yard, an intermittent drainage runs along the south side of the existing bike path and flows through a culvert to the west. This feature, while not a wetland, could be considered jurisdictional due to surface water connection to the Truckee River. The intermittent drainage occupies 0.01 acre of the project site and is mostly unvegetated, most likely flowing during snow-melt or after rainfall events (TTD 2013a).

Palustrine Forested Wetlands/Forested Scrub-shrub

A total of 0.2 acre of palustrine forested wetland was delineated on the project site. Dominated by aspen (*Populus tremuloides*) trees greater than 20 feet tall and supporting hydrophytic plant species and hydric soils, these wetlands are likely to be considered jurisdictional by the USACE (NCE 2013, AECOM 2014). An additional 0.2 acre of palustrine forested scrub/shrub wetland was delineated. These features include trees and shrubs of the forested wetlands and palustrine scrub-shrub types, support hydrophytic plant species and hydric soils, and are likely to be considered jurisdictional by the USACE (NCE 2013, AECOM 2014).

Perennial Stream/Water

The Truckee River and the area at the dam occupy 1.87 acres of the project site. The river on the project site is approximately 60 feet wide, widening to approximately 125 feet at the dam.

Riverine Emergent

A small riverine emergent wetland connected to a manmade wetland system north of the project site occupies 0.02 acre on the project site. This wetland may have a surface water connection to the Truckee River and is likely to be considered jurisdictional by USACE (NCE 2013, AECOM 2014).

Re-vegetated

Re-vegetated areas occupy 5.5 acres, primarily on the south side of the Truckee River. This unusual vegetation type is semi-natural and is not described in the *Manual of California Vegetation* (Sawyer et al. 2009). The area is characterized by an even-aged stand of sparse Jeffrey pine in the overstory with scattered white fir and an understory dominated by tall wheat grass (*Elymus pontica*, formerly *Elytrigia pontica*). The USFS conducted an extensive planting of this non-native perennial grass around 1984, after it acquired the property from the U.S. Bureau of Reclamation (C. Beyer, pers. comm., 2011). Native to southeast Europe, tall wheat grass has been planted extensively along road sides in the Lake Tahoe basin for soil stabilization. This species does not spread into undisturbed areas and therefore is not considered a noxious weed. The persistent perennial grass layer has prevented development of a diverse shrub or other herbaceous layer, but Jeffrey pine saplings are distributed throughout the re-vegetated area. On the east side of SR 89, tall wheatgrass was planted along Tavern Shores Road and in a more interior area that appears to be a decommissioned road or logging landing.

Landscaping

Landscaping covers 0.58 acre of the project site. Most of it consists of turf and flower beds in front of the Gatekeeper's Museum and the Bank of the West on the east side of SR 89 just south of Fanny Bridge. The overstory of mature Jeffrey pines has been retained and the trees grow directly through the turf or as small remnant patches along the highway. A narrow strip of landscaping is also located along the path outside of the Bridgetender restaurant which overlooks the Truckee River on the south bank. A small infestation of bullthistle is located within this landscaping (see "Noxious Weeds," below).

Ruderal

Ruderal vegetation is present along the SR 89 corridor and the Truckee River bike path in the westernmost part of the project site. This area includes a sparse Jeffrey pine overstory, but the vegetation is primarily composed of ruderal species, including white sweet clover (*Melilotus albus*) and sow thistle (*Lactuca serriola*). Sparse grass cover of both perennial (*Poa secunda*) and annual species, some sedges, and an occasional willow grow along the roadside. Scattered occurrences of cheatgrass (*Bromus tectorum*) grow along the bike paths and both sides of the highway. The ruderal land cover type occupies 7.2 acres on the project site.

Developed

Developed hardscape occupies 23.2 acres of the project site, more than any other cover type. The majority of developed area is contained within the two highways south and west of the wye (SR 89 and SR 28).

WILDLIFE AND FISHERIES

A variety of wildlife and fish habitat types that closely follow the land cover types described above are present on the project site. Overall, the project site is highly disturbed by commercial/urban and recreational uses; however, the matrix of open conifer forest, montane riparian, and riverine communities support a variety of native wildlife species. The native vegetation and aquatic communities likely to be affected by the project can be grouped into the following primary native wildlife habitat types, based partly on the California Wildlife Habitat Relationships classification system: conifer forest (Jeffrey pine and white fir), montane riparian, and riverine. The following sections summarize the general conditions and functions of these wildlife habitat types, and the species detected or with potential to occur on the project site. Special-status species and other sensitive resources are addressed in "Sensitive Biological Resources," below.

Conifer Forest (Jeffrey Pine and White Fir)

Conifer forest on the project site consists of 17.8 acres of Jeffrey pine and white fir forest (combined), and 5.5 acres of re-vegetated forest. The habitat composition and structure of these communities are described in “Vegetation/Land Cover Types,” above. Additionally, down woody debris and standing dead trees (snags), which provide important wildlife habitat functions, are limited on the project site. Generally, conifer forest supports a variety of wildlife species, including common bird species such as woodpeckers, nuthatches, and chickadees. The structural complexity created by patches of shrubs, dense trees, and more open areas with herbaceous ground cover also provides foraging, resting, and breeding habitat for other bird and small mammal species. Common species such as Steller’s jay (*Cyanocitta stelleri*), Brewer’s blackbird (*Euphagus cyanocephalus*), and brown-headed cowbird (*Molothrus ater*) were observed on the project site during reconnaissance surveys. Other bird species observed or likely to occur on the project site include mountain chickadee (*Poecile gambeli*), pygmy nuthatch (*Sitta pygmaea*), red-breasted nuthatch (*S. Canadensis*), white-breasted nuthatch (*S. carolinensis*), hairy woodpecker (*Picoides villosus*), tree swallow (*Tachycineta bicolor*), fox sparrow (*Passerella iliaca*), dark-eyed junco (*Junco hyemalis*), and American robin (*Turdus migratorius*).

Common small mammal species observed or likely to occur in the conifer forest on the project site include golden-mantled ground squirrel (*Spermophilus lateralis*), California ground squirrel (*S. beecheyi*), Douglas’ squirrel (*Tamiasciurus douglasii*), yellow-pine chipmunk (*Neotamias amoenus*), and long-eared chipmunk (*Neotamias quadrimaculatus*). Conifer forest also provides important habitat for various bat species, which use the trees for roosting, as well as larger mammals such as raccoon (*Procyon lotor*), coyote (*Canis latrans*), and black bear (*Ursus americanus*). Several tree-roosting bat species have been detected near the project site (e.g., Blackwood Canyon and Ward Canyon) and may also use the project site; these species include hoary bat (*Lasiorurus cinereus*) and silver-haired bat (*Lasionycteris noctivagans*) (Borgmann and Morrison 2004). Common amphibians and reptiles likely to inhabit the project site include Pacific treefrog (*Hyla regilla*) and western fence lizard (*Sceloporus occidentalis*).

Montane Riparian

Montane riparian habitat covers 1.6 acres of the project site, and is distributed primarily as a narrow corridor (5–25 feet wide) along the south bank of the Truckee River. The riparian corridor on the project site is highly disturbed and fragmented. However, this area provides cover, forage, and nesting habitat for a variety of songbird species such as flycatchers, warblers, and sparrows. Riparian-associated birds such as song sparrow (*Melospiza melodia*) were detected on the project site during the reconnaissance surveys. Other avian species that are primarily associated with conifer forest habitats, such as mountain chickadee, western wood-peewee (*Contopus sordidulus*), and yellow-rumped warbler (*Dendroica coronata*), also use riparian communities as foraging habitat.

Amphibian and reptile species use a variety of microhabitats found within riparian communities for cover and breeding. Common amphibian and reptile species with the potential to occur in riparian habitat within or adjacent to the project site include Pacific treefrog and western terrestrial garter snake (*Thamnophis elegans*). Some bat species may use the edge habitat along the river corridor for foraging, and the larger trees within the riparian zones for roosting. For example, western red bat (*Lasirurus blossevillii*) has not been detected in but may use the project site for foraging or a temporary roost site.

Riverine

Riverine habitat consists of the Truckee River and comprises 2.1 acres of the project site. The riverine habitat is located immediately west of where the Truckee River exits Lake Tahoe through a dam, which regulates the River flow seasonally for lake levels and water use demand downstream. The Truckee River consists primarily of even surface flow interspersed with a few shallow riffles and deeper pools. The river bed surface on the project site consists of a mosaic of decomposed granite soils, small cobbles, and organic muds, especially along the river banks. A few larger boulders are located along the river margin, but they are limited within this reach. Eurasian milfoil (*Myriophyllum spicatum*), an aquatic invasive plant species, is also present in this reach of the Truckee River.

In the Tahoe Basin, several variables determine suitability of aquatic habitat for various aquatic organisms and can limit the presence, abundance, and viability of native fish and other aquatic species. These habitat components include the frequency and diversity of habitat types, substrate conditions, bank and riparian canopy conditions, and food availability, and they interact to various degrees and are also influenced by stream flow. High-quality stream habitats are generally characterized by a diversity of riffles, runs, glides, and pools; stable banks that support intact riparian vegetation that overhangs or protrudes into the water, providing shade, cooler water temperatures, and refugia; and substrate conditions composed of a variety of size classes (e.g., sand, gravel, cobbles, boulders). Substrate conditions influence production of aquatic invertebrates that are important food for native fish. Many fish species, including salmonids, rely on relatively loose, clean gravel substrate with low amounts of fine sediments for reproduction. Larger substrate, such as cobbles and boulders, can provide hiding areas and velocity refugia for juveniles of many species. High levels of silt and sand fill spaces between the larger substrate elements and reduce the ability to support benthic macroinvertebrate production, habitat for spawning, egg incubation, and escape cover (Bjornn and Reiser 1991, Harrington and Born 2000).

Overall, the quality of riverine habitat on the project site for native fish species is low. Limits to the aquatic habitat functions and quality include channel incision throughout most of this reach, the high level of recreational activity that continues to erode and deteriorate the river banks, lack of complex and continuous aquatic and riparian habitat structure and shading, and the presence of invasive non-native plant and fish species. However, the aquatic habitat found on the project site does provide habitat for several aquatic species. A deep pool located just below the dam circulates a variety of nutrients as it flows from Lake Tahoe and provides foraging habitat for non-native fish species such as rainbow trout (*Oncorhynchus mykiss*), as well as resting and foraging habitat for waterbirds such as gulls and ducks. Additionally, people standing on Fanny Bridge often feed fish and wildlife from this location, which results in concentrations of common fish and wildlife in the pool. On the project site, fish habitat downstream of the deep pool is likely limited to foraging habitat; the potential to support fish spawning is considered low due to the level of recreational disturbance and amount of fine sediment along the river bottom. However, where small riffles occur, exposed gravels may be suitable for macroinvertebrates.

Riverine habitat on the project site provides water for terrestrial wildlife, foraging habitat for waterbirds, and foraging opportunities for bat species that feed on emergent insects. Bat species may also roost in trees within the montane riparian habitat along the Truckee River, and temporarily roost on the bridges that span the river (i.e., Fanny Bridge and the pedestrian bridge). Shallow, muddy, or vegetated areas along the river edge can support aquatic insects and amphibians (e.g., Pacific treefrog), which also provide forage for species such as American dipper (*Cinclus mexicanus*) and great-blue heron (*Ardea herodias*). Waterfowl use these margin areas and the deeper pools for foraging and resting. Waterfowl species observed or likely to use riverine habitat on the project site include mallard (*Anas platyrhynchos*), common merganser (*Mergus merganser*), and Canada goose (*Branta canadensis*).

NOXIOUS WEEDS

Infestations of four noxious weed species were documented on the project site during surveys and are discussed briefly below. Noxious weed occurrences identified in the disturbance areas for each action alternative are shown on Exhibits 4.3-1 through 4.3-6.

Bullthistle

Approximately 10 bullthistle (*Cirsium vulgare*) plants are located in the landscaping near the Bridgetender restaurant, located on the southern bank of the Truckee River at Fanny Bridge. This area is irrigated, but repeated hand removal of bullthistle would likely deplete any soil seed bank that has formed.

Cheatgrass

Cheatgrass occurs in sparse strips along SR 89 both south and west of the wye, and in several disturbed areas of Jeffrey pine forest on the east side of SR 89. The disturbed areas appear to be decommissioned

roads and may also be associated with past logging and/or developments. A large but sparse infestation is also located on a highly degraded north bank of the Truckee River.

Common Mullein

Common mullein (*Verbascum thapsus*) is located in a very thin strip on the north bank of the Truckee River, in an easily accessible area that is heavily degraded. The infestation consists of fewer than 50 plants.

Yellow Toadflax

One small infestation of yellow toadflax (*Linaria vulgaris*) is located behind the second building to the south of the Bridgetender. A second infestation is in an area that was re-vegetated on the east side of SR 89; this area also supports cheatgrass. Signage indicates that USFS made an herbicide application of Roundup (glyphosphate) in August 2008. Residual dye from the application was still evident during surveys but the plants are re-emerging.

NONNATIVE FISH AND AQUATIC INVASIVE SPECIES

Nonnative aquatic invasive species have become a priority for prevention and control in the Tahoe Basin. The Lake Tahoe Region Aquatic Invasive Species Management Plan (USACE 2009) details past introductions of aquatic nonnative and invasive species, their current status, priority threats, and future management strategies to avoid additional introductions and spread of current nonnative invasive populations (USACE 2009). Two invasive nonnative aquatic mussels – quagga mussel (*Dreissena bugensis*) and zebra mussel (*Dreissena polymorpha*) – and an invasive aquatic snail – New Zealand mudsnail (*Potamopyrgus antipodarum*) – are not present in the Tahoe Basin and are of particular concern due to their expanding range elsewhere, highly invasive nature, and potential to disrupt ecosystem functions. Aquatic invasive species of serious concern that are present in the Lake Tahoe area include Asian clam (*Corbicula fluminea*), bullfrog (*Rana catesbeiana*), Eurasian watermilfoil (*Myriophyllum spicatum*; an aquatic weed), and curlyleaf pondweed (*Potamogeton crispus*; an aquatic weed).

Nonnative introduced salmonid species that are present in Tahoe area streams and lakes are lake trout (*Salvelinus namaycush*), brook trout (*S. fontinalis*), rainbow trout (*Oncorhynchus mykiss*), and brown trout (*Salmo trutta*). Several warm-water fish species have also been introduced into Lake Tahoe and some tributary streams, including bluegill sunfish (*Lepomis macrochirus*), largemouth bass (*Micropterus salmoides*), smallmouth bass (*M. dolomieu*), and brown bullhead catfish (*Ictalurus nebulosus*) (California State Parks et al. 2010). Several of these species have potential to occur on the project site.

SENSITIVE BIOLOGICAL RESOURCES

In this analysis, sensitive biological resources include those species and biological communities that receive special consideration through the TRPA Code, ESA, CESA, CWA, USFS Manual, 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 Habitats and Natural Communities

Sensitive communities are those of special concern to resource agencies because of their rarity and/or value as wildlife habitat, or those that are afforded specific consideration under Section 404 of the CWA. Delineated wetland habitats on the project site are considered sensitive habitats as defined above.

Preliminary wetland delineation reports for the project site were prepared by Nichols Consulting Engineers (NCE 2012, 2013) and identifies 3.52 acres of wetland habitats including palustrine emergent, palustrine scrub-shrub, riparian wetland, intermittent drainages, palustrine forested wetland/forested scrub-shrub, riverine emergent, and the perennial stream. These habitats are discussed above under “Vegetation/Land Cover Types” and displayed on Exhibits 4.3-1 through 4.3-6, and they would likely be considered

jurisdictional by USACE and the Lahontan RWQCB under Section 404 of the CWA and the Porter-Cologne Act. Nearly half of the total acreage of delineated waters of the U.S. is the Truckee River, a Traditional Navigable Water.

Some of the areas within wetland/riparian habitats 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 Lake 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 its biological and physical characteristics. Based on the preliminary land capability verification completed for the project in February 2012 (Cardno-Entrix 2012), the riparian corridor of the Lower Truckee River is mapped as SEZ (LCD 1b). The preliminary verification is subject to concurrence by TRPA, but is suitable to describe the existing conditions of the project site for this environmental document.

Special-Status Species

Special-status species include plants and animals that are legally protected or otherwise considered sensitive by federal, state, or local resource agencies and conservation organizations. Special-status species are defined as plants and animals in the following categories.

- ▲ Listed or proposed for listing as threatened or endangered under ESA.
- ▲ Designated as a candidate for listing as threatened or endangered under ESA.
- ▲ Designated as a sensitive, special-interest, or threshold species by TRPA.
- ▲ Designated as sensitive by the USFS Regional Forester in Region 5.
- ▲ Listed or proposed for listing as threatened or endangered under CESA.
- ▲ Listed or a candidate for listing by the state of California as threatened or endangered under CESA.
- ▲ Listed as fully protected under the California Fish and Game Code.
- ▲ Animals identified by CDFW as species of special concern.
- ▲ Plants considered by CDFW to be “rare, threatened or endangered in California” (California Rare Plant Ranks [CRPR] of 1A, presumed extinct in California; 1B, considered rare or endangered in California and elsewhere; and 2, considered rare or endangered in California but more common elsewhere). The California Rare Plant Ranks correspond with and replace former CNPS listings. While these rankings do not afford the same type of legal protection as ESA or CESA, the uniqueness of these species requires special consideration under CEQA.
- ▲ Considered a locally significant species, that is, a species that is not rare from a statewide perspective but is rare or uncommon in a local context such as within a county or region (CEQA Section 15125 (c)) or is so designated in local or regional plans, policies, or ordinances (State CEQA Guidelines, Appendix G).
- ▲ Otherwise meets the definition of rare or endangered under CEQA Section 15380(b) and (d).

Plants

A preliminary list of special-status plant species with potential to occur in the study area was developed based on a review of the following:

- ▲ the California Native Plant Society (CNPS) online Inventory of Rare and Endangered Plants.
- ▲ a list of special-status species known to occur within the Tahoe City and eight surrounding U.S. Geological Survey 7.5-minute quadrangles, obtained from the California Natural Diversity Database.

- ▲ a list of taxa designated by TRPA as sensitive or threshold species (TRPA 2012a);
- ▲ a list of federally endangered, threatened, or candidate species that may be affected by projects in the Tahoe Basin (USFWS 2011); and
- ▲ the USFS Regional Forester's list of sensitive plant species (updated June 2013).

The data review identified 42 special-status plant species that could occur on or near the project site. Table 4.3-3 summarizes the regulatory status, habitat and flowering period, and potential for occurrence on the project site of each special-status plant species evaluated during this analysis. No special-status plant species were observed during the plant surveys conducted in 2011, and none of the 42 species identified in the data review have a moderate or high potential to exist on the project site. Suitable habitat was either not present or very limited, or the species' elevational range is outside the project site. As discussed in Table 4.3-3, 25 special-status plant species have a low potential for occurrence based on limited amounts of suitable habitat present on the project site. The other 17 species were determined to have no potential to occur on the project site because either no habitat is present or because known occurrences occur outside the elevational range of the project site.

Animals

A preliminary list of special-status animal species known or with potential to occur in the study area was developed based on a review of the following:

- ▲ a list of species that are Federally listed as endangered or threatened, or candidate species that may be affected by projects in the Tahoe Basin (USFWS 2011);
- ▲ a list of special-status species known to occur within the Tahoe City and eight surrounding U.S. Geological Survey 7.5-minute quadrangles, obtained from the California Natural Diversity Database;
- ▲ CDFW's Special Animals report (CDFW 2011), which includes Federally listed and State-listed taxa, CDFW species of special concern, and other special-status animals;
- ▲ a list of taxa designated by TRPA as special-interest or threshold species (TRPA 2012);
- ▲ the USFS Regional Forester's list of sensitive animal species (updated June 30, 2013); and
- ▲ TRPA and USFS GIS data for wildlife surveys and special-interest species monitoring.

The preliminary data review identified 37 special-status wildlife species and two special-status fish species that could occur on or near the project site. Of these 37 species, 35 are not expected to occur or have a low potential to occur, and two (olive-sided flycatcher and waterfowl) have a moderate to high likelihood to occur or are known to occur. This determination was based on the types, extent, and quality of habitats on the project site determined during the reconnaissance level field surveys; the proximity of the project site to known occurrences of the species; and the regional distribution and abundance of the species.

Table 4.3-4 summarizes the potential for occurrence of each special-status animal species that was evaluated during this analysis. Species known or with a moderate potential to occur on the project site are described below.

Table 4.3-3 Special-Status Plant Species Evaluated for the SR 89/Fanny Bridge Community Revitalization Project

Common Name and Scientific Name	Regulatory Status ¹			Habitat and Flowering Period	Potential to Occur on the Project Site
	TRPA/ Federal	State	Other		
Galena Creek (Carson Range) rockcress <i>Arabis rigidissima</i> var. <i>demota</i>	TRPA, FSS	CRPR-1B	-	Rocky areas along edges of conifer and/or aspen stands. Usually found on moderate to steep northerly aspects in moisture accumulating microsites; 7,400–8,400 ft. elev. Blooms August.	Low. No moderate to steep slopes present on site. Two known occurrences from 3 miles north of project site are at higher elevations.
Threetip sagebrush <i>Artemisia tripartita</i> ssp. <i>tripartita</i>	-	CRPR-2	-	Openings in upper montane coniferous forest, on rocky/volcanic soils; 7,200–8,530 ft. elev. Blooms August.	Low. The project site is located below the range of this species.
Tiehm's rock cress <i>Boechera tiehmii</i>	FSS	CRPR-1B	-	Granitic alpine boulder and rock fields; 9,700 to 12,000 ft. elev. Blooms July-August.	None. The project site is located below the range of this species; no alpine rocky habitats present.
Upswept moonwort <i>Botrychium ascendens</i>	FSS	-	-	Wet or moist soils, mostly of meadows and riparian areas in lower montane coniferous forest; 5,000–10,200 ft. elev. Fertile in August.	Low. The seep and riparian habitat present on site is generally too exposed and disturbed.
Scalloped (dainty) moonwort <i>Botrychium crenulatum</i>	FSS	CRPR-2	-	Bogs, fens, meadows, and seeps, in upper montane coniferous forest, primarily moist meadows near creeks; 4,000–11,000 ft. elev. Fertile July–August.	Low. The seep and riparian habitat present on site is generally too exposed and disturbed.
Common moonwort <i>Botrychium lunaria</i>	FSS	CRPR-2	-	Wet or moist soils, mostly of meadows, seeps, and springs in subalpine and upper montane coniferous forest; 6,400–11,200 ft. elev. Fertile in August.	Low. The seep and riparian habitat present on site is generally too exposed and disturbed. Nearest known occurrence from near Sagehen Creek near Truckee.
Mingan moonwort <i>Botrychium minganense</i>	FSS	CRPR-2	-	Wet or moist soils, mostly of riparian areas, small streams, or fens in upper and lower montane coniferous forest; 5,000–10,000 ft. elev. Fertile July–Sept.	Low. The seep and riparian habitat present on site is generally too exposed and disturbed. Nearest known occurrence from north of Kings Beach.
Western goblin <i>Botrychium montanum</i>	FSS	CRPR-2	-	Wet or moist soils, mostly of meadows and seeps in upper and lower montane coniferous forest; 5,000–7,000 ft. elev. Fertile July–Sept.	Low. The seep and riparian habitat present on site is generally too exposed and disturbed and there is very little incense cedar on the project site.
Bolander's candle moss <i>Bruchia bolanderi</i>	FSS	CRPR-2	-	Wet or moist soils of meadows, seeps, and stream banks in upper and lower montane coniferous forest; 5,300–11,000 ft. elev. Fertile period not specified.	Low. The disturbed seeps and river margin could provide suitable habitat; however these areas are not sufficiently open for this species. Species not observed during surveys. Known occurrences are generally higher elevation than the project site.
Davy's sedge <i>Carex davyi</i>	-	CRPR-1B	-	Subalpine and upper montane coniferous forests; 4,800–10,600 ft. elev. Blooms May–August.	Low. Type locality is from along the Truckee River but nearest known occurrence is east of Martis Peak at 8,230 ft on volcanic soil; and species not observed during surveys.
Woolly-fruited sedge <i>Carex lasiocarpa</i>	-	CRPR-2	-	Bogs and fens, and lake margin marshes and swamps at elevations; of 1,980–6,850 ft. elev. Blooms June–July.	None. No suitable habitat present in project site.
Mud sedge <i>Carex limosa</i>	-	CRPR-2	-	Upper montane coniferous forest, lower montane coniferous forest, bogs and fens, meadows and seeps, marshes and swamps (in floating bogs and soggy meadows, often at edges of lakes); 4,000–9,000 ft. elev. Blooms June–August.	Low. Boggy habitats that typically support this species are not present.

Table 4.3-3 Special-Status Plant Species Evaluated for the SR 89/Fanny Bridge Community Revitalization Project

Common Name and Scientific Name	Regulatory Status ¹			Habitat and Flowering Period	Potential to Occur on the Project Site
	TRPA/ Federal	State	Other		
Northern meadow sedge <i>Carex praticola</i>	-	CRPR-2	-	Wet meadows and seeps; 0-10,500 ft. elev. Blooms May-July.	Low. Limited mesic habitat present on site. Nearest known occurrence is from near Barker Pass at 7,800 ft.
Clustered lady's slipper <i>Cypripedium fasciculatum</i>	FSS	CRPR-4	-	Moist, shady coniferous forests, often on slopes, usually in serpentine seeps or streambanks; 300 to 8,000 ft. elev. Blooms March-August.	Low. Not known to occur in the Tahoe Basin or surrounding region and no serpentine habitat preferred by this species is present.
Branched collybia <i>Dendrocollybia racemosa</i>	FSS	-	-	Fungus growing on old decayed or blackened mushrooms or occasionally in coniferous duff, usually within old growth stands. Fertile late fall to mid-winter.	Low. Suitable habitat could occur in deeper duff present in the white fir forest on the project site; however species not observed during surveys. Nearest known collection is from 1982 from a general location in "Tahoe City."
Tahoe draba <i>Draba asterophora var. asterophora</i>	TRPA, FSS	CRPR-1B	-	Alpine boulder and rock fell field in rock crevices and open granite talus slopes, subalpine coniferous forest, usually on northeast-facing slopes; 8,200-10,500 ft. elev. Blooms July-September.	None. Species occurs at much greater elevations than occur on the project site. No suitable habitat present in project site
Cup Lake draba <i>Draba asterophora var. macrocarpa</i>	TRPA, FSS	CRPR-1B	-	Subalpine coniferous forest on steep, gravelly or rocky slopes; 8,200-9,200 ft. elev. Blooms July-August.	None. Species occurs at much greater elevations than occur on the project site. No suitable habitat present in project site
Subalpine fireweed <i>Epilobium howellii</i>		CRPR 4	-	Wet meadows and mossy seeps in subalpine coniferous forest; 6,500-8,500 ft. elev. Blooms July-August.	Low. The disturbed seeps and river margin could provide suitable habitat but known occurrences are generally higher elevation than the project site.
Oregon fireweed <i>Epilobium oreganum</i>	-	CRPR-1B	-	Upper montane coniferous forest, lower montane coniferous forest, in or near streams, bogs, or fens; often in serpentine soils (broad endemic); 1,600-7,300 ft. elev. Blooms June-September.	Low. Limited mesic habitat is present on site and elevations of known occurrences generally lower than that of project site.
Marsh willowherb <i>Epilobium palustre</i>	-	CRPR-2	-	Bogs and fens, meadows, and seeps; 7,218 ft. elev. Blooms July-August.	Low. Known in California only from Grass Lake in El Dorado County and Willow Lake in Plumas County.
Nevada daisy <i>Erigeron eatonii var. nevadina</i>	-	CRPR-2	-	Rocky flats, generally in sagebrush scrub or pinyon and juniper woodland; 4,500-9,500 ft. elev. Blooms May-July.	None. No suitable open rocky habitat present in project site.
Starved daisy <i>Erigeron miser</i>	FSS	CRPR-1B	-	Cracks or clefts in granite outcrops; 6,000-8,500 ft. elev. Blooms June-October.	None. No suitable open rocky habitat present in project site and elevations of known occurrences generally much higher than that of project site.
Torrey (Donner Pass) buckwheat <i>Eriogonum umbellatum var. torreyanum</i>	FSS	CRPR-1B	-	Highly erosive, shallow, rocky volcanic soils with sparse vegetation; 6,000-8,600 ft. elev. Blooms July-September.	None. No suitable volcanic soils or habitat present in project site and known occurrences generally from higher elevation than that of project site.
American manna grass <i>Glyceria grandis</i>	-	CRPR-2	-	Bog, fens, meadows, seeps, marshes, and swamps; streambanks and lake margins; 50-6,500 ft. elev. Blooms June-August.	Low. Known occurrences from along Truckee River are from lower elevations than occur on the project site. River margin on the project site is highly disturbed.

Table 4.3-3 Special-Status Plant Species Evaluated for the SR 89/Fanny Bridge Community Revitalization Project

Common Name and Scientific Name	Regulatory Status ¹			Habitat and Flowering Period	Potential to Occur on the Project Site
	TRPA/ Federal	State	Other		
Blandow's bog-moss <i>Helodium blandowii</i>	FSS	CRPR-2	-	Bogs and fens with calcareous groundwater in subalpine coniferous forest; 5,000-9,500 ft. elev. Fertile period unknown.	None. No suitable fen habitat present in project site. A main criterion for fen determinations is the presence of at least 40 cm of peat in the upper 80 cm of the soil profile. No peat or other fen indicators, or suitable microhabitat for this species, were detected in any wetland during the surveys.
Short-leaved hulsea <i>Hulsea brevifolia</i>	FSS	CRPR-1B	-	Upper and lower montane coniferous forest, primarily red fir forests, on volcanic or granitic gravel or sand, or on slate; 4,200-10,500 ft. elev. Blooms May-August.	None. No suitable habitat present in project site and known occurrences are generally from higher elevations than occur on the project site.
Plumas ivesia <i>Ivesia sericoleuca</i>	FSS	CRPR-1B	-	Vernally wet portions of meadows and alkali flats, and in vernal pools within sagebrush scrub or lower montane coniferous forest, often on volcanic soils; 4,300-7,200 ft. elev. Blooms May–October.	None. No suitable volcanic soils or habitat present in project site.
Webber's ivesia <i>Ivesia webberi</i>	FC, FSS	CRPR-1B, NCE	-	Shallow, clayey soils derived from andesitic rock. Typically found on sparsely to moderately densely vegetated sites in low sage scrub in association with dwarfed or cushion-like perennial herbs; 3,000-7,000 ft. elev. Blooms May-July.	Low. No suitable habitat present and species known in California only from Sierra and Dog Valleys.
Santa Lucia dwarf rush <i>Juncus luciensis</i>	-	CRPR-1B	-	Wet, sandy soils in riparian habitats, meadows and seeps, and vernal pools within chaparral, sagebrush scrub, and lower montane coniferous forest; 1,000-6,700 ft. elev. Blooms April–July.	Low. Nearest known occurrences from Placer County are in scrub habitat at lower elevations than that of project site.
Sierra Valley lewisia <i>Lewisia kelloggii</i> ssp. <i>hutchisonii</i>	FSS	CRPR-3	-	Ridge tops or flat open spaces with widely spaced trees and sandy granite, slate or volcanic rubble in upper montane coniferous forest; 5,000 to 7,000 ft. elev. Blooms May-August.	None. No suitable volcanic soils or habitat present in project site.
Kellogg's lewisia <i>Lewisia kelloggii</i> ssp. <i>kelloggii</i>	FSS	-	-	Ridge tops in decomposed granite, volcanic ash, or rubble in upper montane coniferous forest; 4,500-8,000 ft. elev. Blooms June-August.	None. No suitable volcanic soils or habitat present in project site.
Long-petaled lewisia <i>Lewisia longipetala</i>	TRPA, FSS	CRPR-1B	-	Northerly exposures on slopes and ridge tops in alpine boulder and rock field, subalpine coniferous forest; often found near the margins of persistent snow banks in wet soils 8,200-9,400 ft. elev. Blooms July–August.	None. No suitable fell field habitat present on project site.
Broad-nerved hump moss <i>Meesia uliginosa</i>	FSS	CRPR-2	-	Bogs and fens, and permanently wet meadows, typically spring fed, in subalpine and upper montane coniferous forest; 4,200-8,200 ft. elev. Fertile period not specified.	None. No suitable fen habitat present on project site. A main criterion for fen determinations is the presence of at least 40 cm of peat in the upper 80 cm of the soil profile. No peat or other fen indicators, or suitable microhabitat for this species, were detected in any wetland during the surveys.

Table 4.3-3 Special-Status Plant Species Evaluated for the SR 89/Fanny Bridge Community Revitalization Project

Common Name and Scientific Name	Regulatory Status ¹			Habitat and Flowering Period	Potential to Occur on the Project Site
	TRPA/ Federal	State	Other		
Veined water lichen <i>Peltigera gowardii</i>	FSS	-	-	Grows on rocks in cold, unpolluted, partially shaded, perennial streams in old-growth mixed conifer forests (Peterson 2010). Typically in spring-fed, first or second order streams in upper watersheds, with relatively stable flows and not subject to heavy scour (Peterson 2010); 3,000-8,500 ft. elev.	None. No suitable habitat present on project site.
Whitebark pine <i>Pinus albicaulis</i>	FC, FSS	-	-	Thin, rocky, cold soils at or near timberline in subalpine forests; 7,000-12,000 ft. elev.	None. Known occurrences in the Lake Tahoe basin are from much higher elevations than occur on the project site.
Alder buckthorn <i>Rhamnus alnifolia</i>	-	CRPR-2	-	Meadows, seeps, and riparian scrub within lower and upper montane coniferous forests; 4,500-7,000 ft. elev. Blooms May-July.	Low. Limited seep and riparian habitat present on site and known occurrences are generally from lower elevations than occur on the project site.
Tahoe yellow cress <i>Rorippa subumbellata</i>	TRPA, FC, FSS	CA-CE, CRPR-1B		Decomposed granitic beaches on Lake Tahoe; species is endemic to Lake Tahoe Basin beaches; 6,217-6,234 ft. elev. Blooms May-Sept.	None. Only occurs on beaches of Lake Tahoe.
Water bulrush <i>Schoenoplectus subterminalis</i>	-	CRPR-2	-	Bogs and fens, marshes and swamps (montane lake margins in shallow water); 2,461-7,661 ft. elev. Blooms July-August.	Low. No suitable habitat present.
Marsh skullcap <i>Scutellaria galericulata</i>	-	CRPR-2	-	Meadows, seeps, marshes, and swamps in sunny openings in lower montane coniferous forest; 0-7,000 ft. elev. Blooms June-September.	Low. No marsh habitat is present on site and although the limited seep habitat could potentially provide habitat, it is likely too disturbed.
Munro's desert mallow <i>Sphaeralcea munroana</i>	-	CRPR-2	-	Sagebrush scrub; 6,560 ft. elev. Blooms May-June.	Low. Known in CA from a single herbarium specimen from 1922 "near Squaw Creek in Placer County at about 6,500 ft."
Slender-leaved pondweed <i>Stuckenia filiformis</i>	-	CRPR-2	-	Shallow, clear water of lakes and rivers; 900-8,000 ft. elev. Blooms May-July.	Low. The Truckee River may provide potentially suitable habitat for this species on the project site. However, focused botanical surveys did not identify this species on the project site.
Crème-flowered bladderwort <i>Utricularia ochroleuca</i>	-	CRPR-2	-	Meadows and seeps, marshes and swamps (lake margins); shallow acidic waters. 4,691-4,724 ft. elev. Blooms June-July.	Low. No suitable habitat is present.

¹Regulatory Status Codes:**TRPA/Federal:**

TRPA = TRPA sensitive/threshold species

FC = Federal candidate for listing

FT = Federal Threatened

FSS = Forest Service Sensitive

State:

CA (California Department of Fish and Wildlife)

CE = California Endangered

CRPR = California Rare Plant Rank

1A = Plants presumed extinct in California

1B = Plants considered rare or endangered in California and elsewhere

2 = Plants considered rare or endangered in California, but more common elsewhere.

3 = Plants about which more information is needed - a review list.

4 = Plants of limited distribution in California - a watch list.

Table 4.3-4 Special-Status Animal Species Evaluated for the SR 89/Fanny Bridge Community Revitalization Project

Common Name and Scientific Name	Regulatory Status ¹		Habitat Associations	Potential to Occur on the project site ²
	TRPA/Federal	State/Other		
Invertebrates				
Great Basin rams-horn <i>Helisoma newberryi</i>	FSS		Snail associated with larger lakes and slow rivers, including larger spring sources and spring-fed creeks. Snails burrow in soft mud.	Low. Species has been documented in Lake Tahoe. Historically, it has been observed in the Truckee River directly downstream of Lake Tahoe on the LTBMU (Tahoe National Forest data). Currently, this snail has not been sighted or surveyed for in Tahoe National Forest. Potential habitat on the project site occurs within slow segments of the Truckee River near Segment 625-1; however, the level of suitability is considered low due to high levels of disturbance in this section of the river. Although the species could be washed through the dam into the Truckee River or otherwise occur, it is not expected to persist in the Truckee River on the project site due to the limited amount of suitable burrowing substrate within the channel and variable flow conditions caused by dam releases, including moderate flows and pulses below the dam during some periods.
Western bumble bee <i>Bombus occidentalis</i>	FSS		Forage on a variety of flowering plants for pollen ad nectar; queens overwinter in the ground in abandoned rodent nests at depths from 6-18 inches, and typically emerge about mid-March.	Low. Although suitable forage (pollen and nectar) plants may occur, there is only one known collection record of western bumble bee on LTBMU lands since 2000.
Fish				
Lahontan lake tui chub <i>Gila bicolor pectinifer</i>	FSS-LTBMU	C-SSC	Pelagic fish that feed on zooplankton in the open water of Lake Tahoe.	None. Not known nor expected to occur outside of Lake Tahoe.
Lahontan cutthroat trout <i>Oncorhynchus clarki henshawi</i>	TRPA, FT		Only trout species native to lakes and streams in the Tahoe Basin. Found in both lake and stream habitats, but spawn in stream environments. Lahontan cutthroat trout (LCT) requires gravels and riffles for spawning and generally does not persist or occur with nonnative salmonids.	Low. Although LCT could occur on the project site in the Truckee River, it is not presently known nor expected to occur on the project site. The nearest known occurrence of LCT is in Pole Creek, a tributary of the Lower Truckee River downstream of Tahoe City, approximately 8 miles from the project site; additionally, LCT were recently released in the Lower Truckee River at Granite Flat Campground, approximately 12 miles from the project site. USFWS considers all of the Truckee River as having potential

Table 4.3-4 Special-Status Animal Species Evaluated for the SR 89/Fanny Bridge Community Revitalization Project

Common Name and Scientific Name	Regulatory Status ¹		Habitat Associations	Potential to Occur on the project site ²
	TRPA/Federal	State/Other		
				to be occupied by LCT, given past stocking efforts in the Truckee River and in Lake Tahoe; however, USFWS considers the potential for LCT to occur in this reach of the Truckee River to be low. In the Tahoe Region, LCT is absent from most of its historic range. LCT has been stocked in a few streams and lakes within the Lake Tahoe Basin, including the Upper Truckee River, Fallen Leaf Lake/Glen Alpine watershed, and Lake Tahoe. Recent efforts toward reintroducing LCT into Lake Tahoe, for recreational purposes, began during the summer of 2011. The Nevada Department of Wildlife (NDOW) stocked approximately 22,000 LCT in Lake Tahoe (near Cave Rock) as part of their efforts to begin stocking native aquatic species for the benefit of anglers. Additionally, in 2011, NDOW, in cooperation with CDFW and the University of Nevada-Reno, stocked LCT on the California side of Lake Tahoe in Emerald Bay. Individuals may move from the lake into stream environments to spawn; however, the reach of the Truckee River on the project site is not currently expected to support this species due to limited habitat function, potential barriers to movement, presence of introduced species, and overall rarity of LCT in the watershed.
Amphibians				
Yosemite toad <i>Bufo canorus</i>	FT	C-SSC	Endemic California toad found in wet meadows between 4,000 and 12,000 feet in the Sierra Nevada from Alpine County south to Fresno County.	None. Suitable habitat is not present on the project site; also, the project site is outside the known range of this species.
Mount Lyell salamander <i>Hydromantes platycephalus</i>		C-SSC	Isolated populations occur in the Sierra Nevada, from Sierra County south to Tulare County, at approximately 4,000–12,000 feet elevation. Associated with large rock outcrops in mixed conifer, red fir, lodgepole pine, and subalpine habitats. Individuals usually found on the ground surface, in areas of open water in the form of seeps, drips, or spray.	Low Suitable habitat is not present.

Table 4.3-4 Special-Status Animal Species Evaluated for the SR 89/Fanny Bridge Community Revitalization Project

Common Name and Scientific Name	Regulatory Status ¹		Habitat Associations	Potential to Occur on the project site ²
	TRPA/Federal	State/Other		
Sierra Nevada yellow-legged frog <i>Rana sierrae</i>	FE, FSS	C-ST	Occurs in upper elevation lakes, ponds, bogs, and slow-moving alpine streams. Most Sierra Nevada populations are found between 6,000–12,000 feet elevation. Almost always found within 3.280853 feet of water, and associated with montane riparian habitats in lodgepole pine, ponderosa pine, Jeffrey pine, sugar pine, white fir, whitebark pine, and wet meadow vegetation types. Alpine lakes inhabited by mountain yellow-legged frogs generally have grassy or muddy margin habitat, although below treeline sandy and rocky shores may be preferred. Suitable stream habitat can be highly variable, from high gradient streams with plunge pools and waterfalls, to low gradient sections through alpine meadows. Low-gradient streams are preferred because breeding and tadpole development cannot occur in streams with fast-moving water. Small streams are generally unoccupied and have no potential breeding locations because of the lack of depth for overwintering and refuge. Although Sierra Nevada yellow-legged frogs have been observed successfully breeding in shallow locations less than 7 feet deep, typically depth is an important factor for breeding locations since adults and larvae require overwintering habitat. For up to nine months, adults and larvae will live/hibernate below ice, or in nonfrozen portions of ponds or lakes, so adequate depth (greater than 2 m) is necessary to avoid having the pond or lake freeze through.	Low. The only known population in the Tahoe Basin occurs at Hell Hole bog, in the southern end of the Lake Tahoe Basin, over 25 miles south of the project site. Several occurrence records are located just outside the Tahoe Basin in Desolation Wilderness. Limited occurrence records are also present on the Tahoe National Forest, with the largest known population in the Soda Springs area more than 12 miles northwest of the project site. However, no known occurrences are near the project site. Additionally, suitable habitat is not known to occur on the project site because of hydrologic conditions, presence of predators (e.g., bullfrogs, nonnative trout), and disturbed aquatic habitat.
Birds				
Waterfowl species (collectively)	TRPA		Nest and roost in wetlands and around waters such as lakes, creeks, drainages, marshes, and wet meadows.	Present. Marginal nesting habitat is present on the project site, primarily due to the level of recreational disturbance. However, waterfowl species (primarily mallards) use the area for resting and foraging.
Northern goshawk <i>Accipiter gentilis</i>	TRPA, FSS	C-SSC	In the Sierra Nevada, this species generally requires mature conifer forests with large trees, snags, downed logs, dense canopy cover, and open understories for nesting; aspen stands also are used for nesting. Foraging habitat includes forests with dense to moderately open overstories and open understories interspersed with meadows, brush patches, riparian areas, or other natural or artificial openings. Goshawks reuse old nest structures and maintain alternate nest sites.	Low. Potential foraging habitat is present on the project site, however it is highly disturbed. Species has been detected within approximately 1 mile of the project site.
Northern harrier <i>Circus cyaneus</i>		C-SSC	Found in a variety of open grassland, wetland, and agricultural habitats. Open wetland habitats used for breeding include marshy meadows, wet and lightly grazed pastures, and freshwater and brackish marshes. Breeding habitat also includes dry upland habitats, such as grassland, cropland, drained marshland, and shrub-steppe in cold deserts. Winters throughout California where suitable habitat occurs. Wintering habitat includes open areas dominated by herbaceous vegetation, such as grassland, pastures, cropland, coastal sand dunes, brackish and freshwater marshes, and estuaries (Grinnell and Miller 1944, MacWhirter and Bildstein 1996).	Low. Suitable habitat is not present on the project site.

Table 4.3-4 Special-Status Animal Species Evaluated for the SR 89/Fanny Bridge Community Revitalization Project

Common Name and Scientific Name	Regulatory Status ¹		Habitat Associations	Potential to Occur on the project site ²
	TRPA/Federal	State/Other		
Bald eagle <i>Haliaeetus leucocephalus</i>	TRPA, FSS	C-SSE, C-FP	Use ocean shorelines, lake margins, and river courses for both nesting and wintering. Most nests are within 1 mile of water, in large trees with open branches. Roost communally in winter.	Low. In the Tahoe Basin, bald eagle is known to nest only in two locations (Emerald Bay and Marlette Lake). Potential perch sites may be located on the project site, due to the close proximity to Lake Tahoe, and the project site could be used during winter. However, use of the project site would be limited due to the level of disturbance and the presence of more suitable habitat located nearby.
Golden eagle <i>Aquila chrysaetos</i>	TRPA, BGEPA	C-FP	Mountains and foothills throughout California. Nest on cliffs and escarpments or in tall trees.	Low. Suitable nesting habitat is not present on the project site, and golden eagle is rare in the Tahoe area. Due to disturbance levels and habitat quality on the project site, and higher quality habitat outside the project site, golden eagle is not expected to nest or forage on the project site. Golden Eagle surveys were conducted by TRPA and USFS in selected areas of suitable nesting habitat in four of the past 12 years. These surveys never resulted in the detection of more than one active nest. Four mapped areas of potentially suitable habitat have been identified by TRPA for the protection of the Golden Eagle population Threshold Standard (TRPA 2012). None of these areas are on the project site.
Osprey <i>Pandion haliaetus</i>	TRPA		Associated with large fish-bearing waters. Nest usually within 0.25 mile of fish-producing water, but may nest up to 1.5 miles from water. In the Tahoe Basin, osprey nests are distributed primarily along the Lake Tahoe shoreline, at the northern portion of the east shore and southern portion of the west shore. Other osprey nest sites in the Tahoe Basin occur along the shorelines of smaller lakes (e.g., Fallen Leaf Lake) and in forest uplands up to 1.5 miles from lakes.	Low. Osprey nests and forages in suitable habitat throughout the Tahoe Region; however, osprey does not nest on the project site. Suitable perch sites and foraging habitat are present on the project site. However, use of the project site by osprey would likely be limited due to the presence of more suitable habitat located nearby on Lake Tahoe.
Peregrine falcon <i>Falco peregrinus</i>	TRPA	C-FP	Nest and roost on protected ledges of high cliffs, usually adjacent to water bodies and wetlands that support abundant avian prey.	Low. Suitable nesting habitat not present on the project site.

Table 4.3-4 Special-Status Animal Species Evaluated for the SR 89/Fanny Bridge Community Revitalization Project				
Common Name and Scientific Name	Regulatory Status ¹		Habitat Associations	Potential to Occur on the project site ²
	TRPA/Federal	State/Other		
California spotted owl <i>Strix occidentalis occidentalis</i>	FSS	C-SSC	Occur in several forest vegetation types including mixed conifer, ponderosa pine, red fir, and montane hardwood. Nesting habitat is generally characterized by dense canopy closure (i.e., greater than 70 percent) with medium to large trees and multistoried stands (i.e., at least two canopy layers). Foraging habitat can include intermediate to late-successional forest with greater than 40 percent canopy cover.	Low. Potential foraging habitat is present on the project site, but the area is highly disturbed. More suitable habitat exists nearby, and the species has been detected within 0.85 mile of the project site.
Long-eared owl <i>Asio otus</i>		C-SSC	Found in a variety of habitat types throughout its range. Nest in woodland, forest, and open settings (e.g., grassland, shrub-steppe, and desert). Occupy wooded and nonwooded areas that support relatively dense vegetation (e.g., trees, shrubs) adjacent to or within larger open areas such as grasslands or meadows (i.e., habitat edges) (Bloom 1994; Marks, Evans, and Holt 1994). This species also has been documented breeding in contiguous conifer forest habitat with heavy mistletoe infestation (Bull, Wright, and Henjum 1989). Trees and shrubs used for nesting and roosting include oaks, willows, cottonwoods, conifers, and junipers (Marks, Evans, and Holt 1994).	Low. Potential habitat is present on the project site, but it is highly disturbed. The area is isolated from areas of more suitable habitat.
Great gray owl <i>Strix nebulosa</i>	FSS	C-SE	Found in Central Sierra mature mixed conifer forests near meadows. Scattered along the west slope of the Sierra, between 4,500 and 7,500 feet elevation, from Plumas County to Yosemite National Park.	Not expected. Suitable habitat is not present on the project site, and the species has not been documented in the area.
Black-backed woodpecker <i>Picoides arcticus</i>		C-C	Occurs in a variety of conifer forest types, but strongly associated with unlogged, severely-burned forest with abundant snags. Also strongly associated with areas of high tree mortality from beetles.	Low. Stands of high-severity postfire forest highly suitable for breeding are not present on the project site.
Willow flycatcher <i>Empidonax traillii</i>	FSS	C-SE	In the Sierra Nevada, suitable habitat typically consists of montane meadows that support riparian deciduous shrubs (particularly willows) and remain wet through the nesting season (i.e., midsummer). Important characteristics of suitable meadows include a high water table that results in standing or slow-moving water, or saturated soils (e.g., "swampy" conditions) during the breeding season; abundant riparian deciduous shrub cover (particularly willow); and riparian shrub structure with moderate to high foliar density that is uniform from the ground to the shrub canopy. Most breeding occurrences are in meadows larger than 19 acres, but the average size of occupied meadows is approximately 80 acres. Although less common in the Sierra Nevada, riparian habitat along streams also can function as suitable habitat for willow flycatcher. However, those areas must support the hydrologic and vegetation characteristics described for suitable meadows (e.g., standing or slow-moving water, and abundant and dense riparian vegetation).	Low. Suitable habitat is not present on the project site.

Table 4.3-4 Special-Status Animal Species Evaluated for the SR 89/Fanny Bridge Community Revitalization Project

Common Name and Scientific Name	Regulatory Status ¹		Habitat Associations	Potential to Occur on the project site ²
	TRPA/Federal	State/Other		
Olive-sided flycatcher <i>Contopus cooperi</i>		C-SSC	Summer resident and migrant that breeds primarily in late-succession conifer forest with open canopy. Species prefers to forage near forest openings or edges.	Moderate. Suitable habitat for this species is present on the project site, though the area is highly disturbed. Large trees are present within the open Jeffrey pine forest, especially in the southern portion of the project site and on the east side of HWY 89.
Bank swallow <i>Riparia riparia</i>		C-ST	Nests in fine-textured or sandy banks or cliffs along rivers, streams, ponds, or lakes. Typically nests in colonies.	Low No suitable habitat present on the project site. Additionally, the Tahoe Basin is not within the current breeding range of bank swallow (see Garrison 1998). The only documented records are from the Tahoe Keys area in 1962 (10 birds) and 1976 (one bird).
Black swift <i>Cypseloides niger</i>		C-SSC	Nests on canyon walls near water and sheltered by overhanging rock or moss, preferably near waterfalls or on sea cliffs. It breeds in California from May to September.	Low. No suitable habitat present on the project site.
Yellow warbler <i>Dendroica petechia</i>		C-SSC	In the Sierra Nevada, yellow warbler typically breed in wet areas with dense riparian vegetation. Breeding habitats primarily include willow patches in montane meadows, and riparian scrub and woodland dominated by willow, cottonwood, aspen, or alder with dense understory cover. Localized breeding has been documented in more xeric sites including chaparral, wild rose (<i>Rosa</i> spp.) thickets, and young conifer stands (Siegel and DeSante 1999, RHJV 2004).	Low. Suitable riparian habitat with dense vegetation on the project site is limited.
Yellow-headed blackbird <i>Xanthocephalus xanthocephalus</i>		C-SSC	Typically breeds in marshes that have tall emergent vegetation such as cattails or tules, in open areas near and over relatively deep water.	Low. No suitable marsh habitat present.
Mammals				
Pallid bat <i>Antrozous pallidus</i>	FSS	C-SSC, WBWG-H	Locally common at lower elevations in California and occurs in grassland, shrubland, woodland, and mixed conifer forests. Absent from highest elevation locations in the Sierra Nevada. Rocky outcrops, caves, crevices, and occasional tree cavities or buildings provide roosts.	Low. Suitable habitat is limited on the project site and this species is more commonly found at lower elevations.
Sierra Nevada mountain beaver <i>Aplodontia rufa californica</i>		C-SSC	Use riparian habitats with soft, deep soils for burrowing, lush growth of preferred food sources such as willow and alder, and a variety of herbaceous species for bedding material. Vegetation types preferred include wet meadows and willow-alder-dominated riparian corridors typically near water sources. Suitable riparian habitats are characterized by dense growth of small deciduous trees and shrubs near permanent water. Mountain beaver is generally solitary, except during its short breeding season; beavers spend a high proportion of their time in extensive underground burrow systems with multiple openings, tunnels, and food caches.	Low. Suitable habitat is very limited on the project site, and the area is heavily disturbed by recreation activities.

Table 4.3-4 Special-Status Animal Species Evaluated for the SR 89/Fanny Bridge Community Revitalization Project

Common Name and Scientific Name	Regulatory Status ¹		Habitat Associations	Potential to Occur on the project site ²
	TRPA/Federal	State/Other		
Pale Townsend's big-eared bat <i>Corynorhinus townsendii pallescens</i>	FSS	C-SSC, WBWG-H	Range throughout California, mostly in mesic habitats. Limited by available roost sites (i.e., caves, tunnels, mines, and buildings).	Low. Suitable habitat not present on the project site. Until 2007, no occurrences reported within the Tahoe Basin. However, this species was detected several miles from the project site in Blackwood Canyon and Cookhouse Meadow in 2007.
California wolverine <i>Gulo gulo luteus</i>	FPT, FSS	C-ST, C-FP	Inhabit upper montane and alpine habitats of Sierra Nevada, Cascades, Klamath, and north Coast Ranges. Need water source and denning sites. Rarely seen. Sensitive to human disturbance.	Low. Suitable habitat not present on the project site. Very few documented occurrences in or near the Tahoe Basin.
Western red bat <i>Lasiurus blossevillii</i>		C-SSC, WBWG-H	Day roosting common in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. An association with intact riparian habitat may exist (particularly willows, cottonwoods, and sycamores).	Low. Suitable habitat on the project site is limited. Cottonwoods that may provide suitable roosting habitat are present along the Truckee River, and the species has been detected in the Lake Tahoe Basin. However, the level of disturbance and lack of depth and continuity in the riparian hardwood component make this habitat marginal.
Fringed myotis <i>Myotis thysanodes</i>	FSS		Associated with a variety of habitats; optimal habitat includes pinyon-juniper, valley foothill hardwood, and hardwood-conifer. Uses open habitats, streams, lakes, and ponds as foraging areas. Roosts in caves, mines, buildings, and crevices.	Low. Species has been detected in the Tahoe Basin; however, no known occurrences on or near the project site, and optimal habitat is not present.
Sierra Nevada snowshoe hare <i>Lepus americanus tahoensis</i>		C-SSC	In the Sierra Nevada, found in boreal zones, typically inhabiting riparian communities with thickets of deciduous trees and shrubs such as willows and alders.	Low. The project site is at the lower elevational limits of this species range. Habitat present on the project site is limited, of marginal quality, and is highly disturbed. Species last detected in this area in 1929 (CNDDB 2011).
Western white-tailed jackrabbit <i>Lepus townsendii</i>		C-SSC	Year-round resident in sagebrush, subalpine conifer, juniper, and other habitats along the crest and the eastern slope of the Sierra Nevada. Uncommon to rare.	Low. Suitable habitat is not present on the project site. Species was last detected here in 1920 (CNDDB 2011).
American marten <i>Martes caurina</i>	FSS		Inhabits dense canopy conifer forests with large snags and downed logs. Prefers old growth stands with multiple age classes in vicinity.	Low. Suitable habitat is not present on the project site.
Pacific fisher <i>Martes pennanti pacifica</i>	FC	C-SSC	Inhabits stands of pine, Douglas fir, and true fir in northwestern California and Cascade-Sierra ranges. Fishers are considered extirpated throughout much of the Central and Northern Sierra Nevada (Zielinski, Kucera, and Ba 1995). No longer considered present in the Tahoe Basin; no current records.	None. Considered extirpated from the Tahoe Region.

Table 4.3-4 Special-Status Animal Species Evaluated for the SR 89/Fanny Bridge Community Revitalization Project

Common Name and Scientific Name	Regulatory Status ¹		Habitat Associations	Potential to Occur on the project site ²
	TRPA/Federal	State/Other		
Mule deer <i>Odocoileus hemionus</i>	TRPA		Year-long resident or elevational migrant that prefer a wide distribution of various-aged vegetation for cover, meadow, and forest openings, and free water. In the Sierra Nevada, early to mid-successional forests, woodlands, and riparian and brush habitats are preferred because of the greater diversity of shrubby vegetation and woody cover. In addition to forage, vegetative cover is critical for thermoregulation. Suitable habitats include a mosaic of vegetation such as forest or meadow openings, dense woody thickets and brush, edge habitat, and riparian areas. Fawning habitat, used by does during birth and by newborn fawns, is of critical importance for reproductive success. A diversity of thermal cover, hiding cover, succulent forage, and water are needed during fawning. Optimal deer fawning habitat has been described as having moderate to dense shrub cover near forest cover and water, such as riparian zones. A source of surface water (e.g., creek or river) is especially important to mule deer. Typical fawning habitat varies in size, but an area of 5-26 acres is adequate, with optimal fawn-rearing habitat of around 400 acres.	Low. Suitable habitat on the project site is marginal and highly disturbed. There is no suitable fawning habitat present on the project site.
American badger <i>Taxidea taxus</i>		C-SSC	Primarily occupy open habitats, such as grasslands, but can also be found in mountain meadows, marshes, brushy areas, open forests and deserts at elevations up to 12,000 feet. Habitats contain friable soils and ample rodent prey.	Low. Suitable habitat is not present on the project site.
Sierra Nevada red fox <i>Vulpes vulpes necator</i>		C-ST	Inhabits upper montane and alpine habitats of Sierra Nevada, Cascades, Klamath, and north Coast Ranges. Need water source and denning sites. Rarely seen. Sensitive to human disturbance. No longer considered present in the Tahoe Basin; no current records.	None. Considered extirpated from the Tahoe area.

¹ Regulatory Status Definitions:

TRPA/Federal:

TRPA = TRPA sensitive/special interest (threshold) species
FT = Threatened species under the Federal Endangered Species Act
FE = Endangered species under the Federal Endangered Species Act
FPT = Proposed for listing as Threatened under the Federal Endangered Species Act
FC = Candidate for listing under the Federal Endangered Species Act
FSS = USDA Region 5 Sensitive Species (FSM 2672)
BGEPA = Protected under the Bald and Golden Eagle Protection Act

State/Other:

CA—California Department of Fish and Game:
C-SE = Endangered
C-ST = Threatened

C-FP = Fully Protected
C-C = Candidate for listing
C-SSC = Species of special concern

Western Bat Working Group

WBWG-H = Designated as High Priority by the Western Bat Working Group

² Potential for Occurrence Definitions:

Present—Species was observed in the study area during site visits conducted for this analysis or was documented there by another reputable source.

High—All of the species' specific life history requirements can be met by habitat present in the study area, and populations are known to occur in the immediate vicinity.

Moderate—Some or all of the species life history requirements are provided by habitat in the study area; populations may not be known to occur in the immediate vicinity, but are known to occur in the Region.

Low—Species not likely to occur because of marginal habitat quality or distance from known occurrences.

None—None of the species' life history requirements are provided by habitat in the study area and/or the study area is outside of the known distribution for the species. Any occurrence would be very unlikely.

Olive-sided Flycatcher

Olive-sided flycatcher is designated by CDFW as a species of special concern. In general, this species breeds in open canopy, late-succession forest. Open conifer forests are used within the Sierra Nevada, and forest edges are important for foraging. Tree species used for nesting varies throughout the species range; snags provide valuable habitat and nesting features throughout the range. Olive-sided flycatcher uses lofty perches for foraging and singing, and can often be found perched on the apical tip of trees, above the surrounding canopy (Shuford and Gardali 2008). Although the species was not documented on the project site, suitable foraging and nesting habitat for olive-sided flycatcher is present within the open canopy conifer forest; and this species is not uncommon in the Tahoe Basin.

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 Region during spring and summer months including Canada goose (*Branta canadensis*), mallard (*Anas platyrhynchos*), green-winged teal (*Anas crecca*), common merganser (*Mergus merganser*), and ruddy duck (*Oxyura jamaicensis*). In the Tahoe Basin, wetlands provide nesting, resting, and foraging habitat for waterfowl. Waterfowl species nest along shallow-water margins of streams or lakes, in areas of emergent vegetation or other vegetation that provides concealment, often in marshes or meadows. Important areas for waterfowl include Pope Marsh, Truckee Marsh, Taylor Creek Marsh, Grass Lake, and Spooner Lake. Most of the ducks are dabblers and feed on vegetation in water approximately six to ten inches deep. Some species, such as common mergansers, feed by diving under water in aquatic areas that are anywhere from three feet to ten feet deep.

Common waterfowl species use the Truckee River corridor and adjacent uplands for foraging, resting, and possibly nesting. Although nesting habitat is highly limited on the project site, foraging and resting habitat is present within and adjacent to the Truckee River, especially for species that are less sensitive to human disturbance. Waterfowl species known or likely to occur on the project site include Canada goose (*Branta canadensis*), mallard (*Anas platyrhynchos*), green-winged teal (*Anas crecca*), common merganser (*Mergus merganser*), and ruddy duck (*Oxyura jamaicensis*). No TRPA-designated waterfowl threshold areas occur on the project site.

4.3.4 Environmental Consequences and Mitigation Measures

METHODS AND ASSUMPTIONS

The analysis of potential impacts to biological resources from project implementation is based on the data review, project-specific biological surveys, and technical studies described previously in Section 4.3.3, “Affected Environment.” The following summarizes the impact mechanisms and assumptions considered for this analysis, and how potential impacts were evaluated for the project alternatives.

Primary Impact Mechanisms and Assumptions

Potential impacts associated with the project can be classified as either temporary or permanent. Temporary impacts generally include ground disturbances associated with temporary construction activities, including:

- ▲ construction staging,
- ▲ minor cut and fill that would be restored to existing conditions after project completion,
- ▲ potential construction disturbances assumed to occur within 10 feet of permanent project features, and
- ▲ noise, ground vibration, and airborne particulate (dust) generated by construction activities

Permanent impacts generally include effects associated with permanent tree or other vegetation removal as a result of:

- ▲ earthwork/excavation;
- ▲ new paving for bridge, roadway, bike path, and parking facilities;

- ▲ cut and fill that changes the existing ground elevation;
- ▲ landscaping; and
- ▲ installation of bridge footings.

The following summarizes the methodology for determining potential impacts on vegetation and wildlife and fisheries and aquatic resources, including key assumptions about their relative effects.

Vegetation and Wildlife

Potential impacts of each action alternative on vegetation and wildlife resources were initially identified by overlaying GIS layers of project components on the land cover maps of the project site and maps of sensitive biological resources. Any natural community and wildlife habitat that overlapped with an area of proposed modification was considered to be directly affected during project construction. An estimate of the amount of vegetation removal planned for the clearing of work areas and access ways was determined. Short-term construction impacts would occur where natural vegetation would be removed to construct new features and facilities or modify existing features. Construction-related impacts could affect biological resources through stormwater runoff, erosion, and the introduction of invasive or non-native species. Long-term impacts to biological resources would occur in or adjacent to habitats that would experience a permanent conversion in land use and cover (i.e., conversion of natural vegetation to paved areas, other facilities, and landscaping).

Impacts to sensitive species could occur either through temporary or permanent habitat loss, disturbance of normal activity or dispersal patterns, or through direct mortality. Potential impacts to sensitive species were determined by analyzing species life history requirements and known occurrences or potential to occur on the project site. Once the species and habitats were identified, impacts from project activities were analyzed.

No substantial changes in biological resources would occur as a result of modified recreation opportunities. The study area currently experiences high levels of recreation use and other human activity. The SR 89/Fanny Bridge Project alternatives would not create new or substantially alter recreation opportunities in ways that could substantially increase the number of visitors or intensity of activities.

Fisheries and Aquatic Resources

Potential impacts of each action alternative on fisheries and aquatic resources were identified by overlaying GIS layers of project alternative components on aquatic habitats. Impacts to aquatic resources were determined by the proximity of these resources to project work areas, taking into account the construction needs within those areas. Hydrologic and flow characteristics and vegetation were also considered.

SIGNIFICANCE CRITERIA

Significance criteria relevant to biological resources are summarized below.

NEPA Criteria

An environmental document prepared to comply with NEPA must consider the context and intensity of the environmental effects that would be caused by or result from the proposed action. Under NEPA, the significance of an effect is used solely to determine whether an EIS must be prepared. Under NEPA, the following criteria were used related to biological resources:

- ▲ substantially reduce the size, continuity, or integrity of a plant community through temporary or permanent removal, interruption of natural processes that support it, and/or disturbance that favors the establishment of invasive nonnative species;
- ▲ substantially reduce the size, continuity, or integrity of wildlife or fish habitat, or result in unnatural changes in the abundance, diversity, or distribution of wildlife or fish species; substantially affect, either directly or through habitat modifications, any species listed as threatened or endangered under the ESA, or designated as sensitive by the Regional Forester (i.e., “Forest Service sensitive”);

- ▲ substantially affect the habitat for any Forest Service Management Indicator Species; or
- ▲ conflict with the Forest Service land management practices and requirements provided in the LTBMU Forest Plan, which are summarized in the Forest Plan consistency matrix.

These factors are taken into account under NEPA to determine the significance of an action in terms of the context and the intensity of its effects; most of these are encompassed by the CEQA criteria used for this analysis.

TRPA Criteria

The “Vegetation” and “Wildlife” criteria from the TRPA Initial Environmental Checklist were used to evaluate the biological resources impacts of the alternatives. The checklist asks whether the project would result in the following conditions.

- ▲ Removal of riparian vegetation or other vegetation associated with critical wildlife habitat, either through direct removal or indirect lowering of the groundwater table?
- ▲ Introduction of new vegetation that will require excessive fertilizer or water, or will provide a barrier to the normal replenishment of existing species?
- ▲ Introduction of a new species of animals into an area, or result in a barrier to the migration or movement of animals?
- ▲ A change in the diversity or distribution of species, or number of any species of plants (including trees, shrubs, grass, crops, micro flora, and aquatic plants) or animals (birds, land animals including reptiles, fish and shellfish, benthic organisms, insects, mammals, amphibians, or microfauna)?
- ▲ A reduction in the numbers of any unique, rare, or endangered species of plants or animals?
- ▲ Removal of stream bank and/or backshore vegetation, including woody vegetation such as willows?
- ▲ Removal of any native live, dead, or dying trees 30-inches or greater dbh within TRPA’s Conservation or Recreation land use classifications?
- ▲ A change in the natural functioning of an old growth ecosystem?
- ▲ Deterioration of existing fish or wildlife habitat quantity or quality?

CEQA Criteria

Under CEQA, an alternative was determined to result in a significant impact related to biological resources if it would:

- ▲ substantially reduce the habitat of a fish or wildlife species;
- ▲ cause a fish or wildlife species to drop below self-sustaining levels;
- ▲ threaten to eliminate a plant or animal community;
- ▲ substantially reduce the number or restrict the range of an endangered, rare, or threatened species;
- ▲ 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 or USFWS;

- ▲ have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS;
- ▲ have a substantial adverse effect on federally-protected wetlands, as defined by Section 404 of the CWA, through direct removal, filling, hydrological interruption, or other means;
- ▲ 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; or
- ▲ conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state conservation plan.

ISSUES NOT WARRANTING DETAILED EVALUATION

Section 4.3.3, “Affected Environment,” discusses all special-status plant and animal species evaluated in this analysis, and Tables 4.3-3 and 4.3-4 summarize the potential for each of these species to occur on the project site. Generally, those plant and animal species not expected to occur, or with a low probability to occur (because of a lack of suitable habitat, or lack of other occurrence records) are not addressed further in this analysis. Implementation of this project is not expected to affect those species. One federally listed species that is not expected to occur in the study area, Lahontan cutthroat trout, is addressed in this analysis. Although its presence is unlikely due to lack of suitable habitat conditions in the study area and overall rarity of Lahontan cutthroat trout, this species could potentially have access to the project site, because the Truckee River connects to known occupied habitats well downstream of the study area. Additionally, the analysis of Lahontan cutthroat trout is provided to support informal Section 7 ESA consultation with USFWS on the project. Because no special-status plant species were identified during focused botanical surveys, and no special-status plants evaluated for the project are expected to occur on the project site or be affected by project implementation, the following analysis does not further discuss any special-status plant species.

None of the project alternatives would be constructed within an area covered under an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state conservation plan. Therefore, project implementation would not conflict with the provisions of an adopted conservation plan and this issue is not evaluated further.

Section 4.1, “Agricultural and Forestry Resources,” addresses tree removal. Although the biological effects of tree and other vegetation removal are considered in the following analysis, the impacts of tree removal as they relate specifically to consistency with applicable regulations and policies (e.g., TRPA Code) are covered in Section 4.1 and not here.

As described above in Section 4.3.2, “Regulatory Setting,” the consistency of the action alternatives with the LTBMU Forest Plan is considered in a separate matrix prepared by the Forest Service and referenced here. As described in the matrix, the action alternatives would be consistent with the LTBMU standards, guidelines, and management practices. Therefore, the potential for conflicts with the Forest Service’s land management practices and requirements provided in the Forest Plan are not evaluated further.

ENVIRONMENTAL EFFECTS OF THE PROJECT ALTERNATIVES

Impact 4.3-1. Disturbance or loss of common vegetation communities and wildlife habitats.

Under all action alternatives (Alternatives 1, 2, 3, 4, 6, and 6a), project implementation would result in the removal or disturbance of 0.1 to 3.2 acres of common vegetation communities and habitats, including Jeffrey pine and white fir forest. Because these habitats are locally and regionally common and abundant, and the project site is presently affected by high levels of commercial/urban and recreational uses, none of the action alternatives would substantially reduce the size, continuity, or integrity of any common vegetation community or habitat type. Therefore, this impact would be **less than significant** under Alternatives 1, 2, 3, 4, 6, and 6a. Under the no project alternative (Alternative 5), no project-related vegetation removal would occur; therefore, there would be **no impact** to common vegetation communities and habitats from this alternative.

Under all action alternatives (Alternatives 1, 2, 3, 4, 6, and 6a), Jeffrey pine and white fir forest are the common native vegetation and habitat types that would be directly removed or temporarily disturbed primarily from construction or expansion of roadway alignments and bike path realignment. (Impacts on sensitive habitats are addressed separately below.) Table 4.3-5 summarizes permanent and temporary effects on common vegetation for each action alternative.

Table 4.3-5 Acreage of Permanent and Temporary Effects on Common Vegetation Community/Habitat Types

Vegetation Community/Habitat Type	Alt 1		Alt 2		Alt 3		Alt 4		Alt 6		Alt 6A	
	Perm	Temp	Perm	Temp	Perm	Temp	Perm	Temp	Perm	Temp	Perm	Temp
Jeffrey Pine	3.3	0.8	3.3	0.8	2.9	0.7	2.3	0.4	0.1	0.1	0.1	0.1
White Fir	0.1	0.02	0.1	0.02	0.1	0.02	-	0.02	-	-	-	-
Total of Native Habitats	3.4	0.8	3.4	0.8	3.0	0.7	2.3	0.4	0.1	0.1	0.1	0.1
Ruderal	2.2	1.1	2.2	1.1	2.2	1.1	2.2	1.1	0.3	0.3	0.3	0.3
Re-vegetated	1.8	0.8	1.8	0.8	1.6	0.8	1.6	0.7	-	-	-	-
Landscaping	0.1	0.03	0.1	0.03	0.1	0.02	0.1	0.02	0.1	-	0.1	-
Developed	6.9	2.0	6.9	2.0	6.5	1.9	6.6	1.7	6.6	0.2	4.9	0.2
Total	14.4	4.8	14.4	4.8	13.4	4.5	12.8	3.9	7.1	0.6	5.4	0.6

Source: Data compiled by Ascent Environmental Inc. in 2014

Notes: Temporary impacts include construction staging areas.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

Under Alternative 1, 3.4 acres of common natural habitat (Jeffrey pine and white fir) would be permanently converted and 0.8 acre would be temporarily disturbed. The loss of this amount of common habitat from the Tahoe Region would not substantially reduce the quantity or quality of these habitats in the Region and would not result in a change in diversity or distribution of species in the Region or 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. Jeffrey pine and white fir forest are common and widely distributed in the Lake 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, the number, distribution, and sizes of trees removed would not substantially affect overall canopy cover or reduce the abundance of this vegetation type on the landscape.

Permanent and temporary loss and disturbance that would occur under Alternative 1 would not substantially reduce the size, continuity, or integrity of any common vegetation community or habitat type or interrupt the natural processes that support common vegetation communities in the study area. Additionally, because the

project site is already highly disturbed and fragmented by commercial/urban and recreational uses, project-related disturbances on the biological functions of common habitats are not considered substantial. Therefore, this impact would be **less than significant**.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Under Alternative 2, 3.4 acres of common natural habitat would be permanently converted and 0.8 acre would be temporarily disturbed. This impact would be almost identical to that described above for Alternative 1 because project construction under Alternative 2 would be located in the same locations and would include the same construction effects as Alternative 1. For the reasons discussed above, this impact would be **less than significant**.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Under Alternative 3, 3.0 acres of common natural habitat would be permanently converted and 0.7 acre would be temporarily disturbed. This impact would be almost identical to that described above for Alternative 1 because project construction under Alternative 3 would be located in the same locations and would include the same construction effects as Alternative 1. For the reasons discussed above, this impact would be **less than significant**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Under Alternative 4, 2.3 acres of common natural habitat would be permanently converted and 0.4 acre would be temporarily disturbed. This impact would be similar to that described above for Alternative 1 because project construction under Alternative 4 would be located mostly in the same locations and would include the same construction effects as Alternative 1. For the reasons discussed above, this impact would be **less than significant**. The magnitude of this impact would be less than that for Alternative 1 because Alternative 4 would not include the proposed eastern roundabout and would use a shorter route to access the Transit Center.

ALTERNATIVE 5: NO ACTION

Because no project-related vegetation removal would occur under Alternative 5, there would be **no impact** from this alternative.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Under Alternative 6, 0.1 acre of common natural habitat would be permanently converted and 0.1 acre would be temporarily disturbed. For the reasons discussed above, this impact would be **less than significant**. The magnitude of this impact would be less than that for Alternative 1 because Alternative 6 would not include construction of a new bridge over the Truckee River or realignment of SR 89, and construction would not occur on the 64-Acre Tract.

ALTERNATIVE 6a: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Under Alternative 6a, 0.1 acre of common natural habitat would be permanently converted and 0.1 acre would be temporarily disturbed. For the reasons discussed above, this impact would be **less than significant**. The magnitude of this impact would be less than that for Alternative 1 because Alternative 6 would not include construction of a new bridge over the Truckee River or realignment of SR 89, and construction would not occur on the 64-Acre Tract.

Impact 4.3-2. Disturbance or loss of sensitive habitats (jurisdictional wetlands, riparian vegetation, and SEZ).

Implementing any action alternative (Alternative 1, 2, 3, 4, 6, or 6a) would result in direct removal and disturbance of sensitive habitats, including waters of the United States, waters of the state, riparian habitat, and SEZs. This impact would be **significant**. Under the no project alternative (Alternative 5), no project-

related ground disturbances or vegetation removal would occur; therefore, there would be **no impact** to sensitive habitats from this alternative.

Roadway and bridge construction under any of the action alternatives would result in permanent loss or temporary disturbance of the following sensitive habitat types: riparian wetland, palustrine emergent, palustrine scrub-shrub, palustrine forested, palustrine forested scrub-shrub, riverine emergent, intermittent drainage, and perennial stream/water. Table 4.3-6 summarizes and compares the acreage of sensitive habitats present in the permanent and temporary impact zone of each action alternative. Permanent and temporary acreage was calculated as described above for common habitat impacts.

Table 4.3-6 Acreage of Permanent and Temporary Effects on Sensitive Habitats

Vegetation Community/Habitat Type	Alt 1		Alt 2		Alt 3		Alt 4		Alt 6		Alt 6A	
	Perm	Temp	Perm	Temp								
Palustrine Emergent	0.03	0.02	0.03	0.02	0.03	0.02	-	0.02	-	-	-	-
Palustrine Scrub Shrub	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	0.01	-	0.01
Perennial Stream	0.2	0.004	0.1	0.01	0.2	0.01	0.2	0.01	0.1	-	0.1	-
PFO-Palustrine Scrub Shrub	0.1	0.02	0.1	0.02	0.1	0.02	-	-	-	-	-	-
Riparian Wetland	0.2	0.1	0.2	0.1	0.2	0.1	0.3	0.1	0.1	-	0.1	-
Riverine Emergent	-	-	-	-	-	-	-	-	0.03	-	0.03	-
Total	0.6	0.2	0.5	0.3	0.6	0.3	0.6	0.5	0.2	0.01	0.2	0.01

Source: Data compiled by Ascent Environmental Inc. in 2014

Notes: Temporary impacts including construction staging areas.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

Under Alternative 1, 0.6 acre of sensitive habitats occur in the permanent disturbance area, and 0.2 acre is within the temporary disturbance area (see Table 4.3-5). However, the values presented here are considered a maximum and likely an overestimate of the area of actual impacts. For example, under Alternative 1, 0.2 acre of perennial stream overlaps with the permanent disturbance area where the proposed new bridge crosses the Truckee River; however, the actual impact footprint there would be limited to a smaller portion of this area where the new bridge footings would be placed.

Construction or expansion of roadway alignments, roadway features (e.g., curbs, gutters, retaining walls), bike path realignment, and other project elements could result in minor vegetation removal or trampling, fill of wetlands, hydrologic changes, deposition of dust or debris, soil compaction, or other disturbances that could temporarily affect the condition and function of sensitive habitats. Additionally, any project-related construction adjacent to wetlands or other sensitive habitat could similarly indirectly or directly affect those resources unless effective best management practices (BMPs) and other appropriate resource protection measures are implemented.

Sensitive habitats affected by implementation of Alternative 1 would likely be considered jurisdictional by USACE and the LRWQCB under Section 404 of the federal CWA and the state's Porter-Cologne Act. Based on the preliminary land capability verification completed for the project in February 2012 (Cardno-Entrix 2012), the riparian wetland along the Lower Truckee River is also mapped as SEZ (LCD 1b) and protected under TRPA Code 61.3. Fill or reconfiguration of jurisdictional waters of the United States requires a permit from USACE pursuant to Section 404 of the Clean Water Act. In addition, the deciduous riparian vegetation within most or all SEZs would likely be considered jurisdictional habitat by the USACE and would require a permit and mitigation. Under Section 1602 of the California Fish and Game Code, CDFW has jurisdiction over activities affecting the bed and bank of drainages, including associated riparian habitat. Additionally, 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.

Implementing Alternative 1 would result in loss or degradation of jurisdictional waters of the U.S. and waters of the state, stream and riparian habitat protected under Section 1602 of the Fish and Game Code, and SEZs protected under TRPA Code 61.3. These riparian and wetland habitats are considered sensitive because they are declining in quantity and condition throughout the Region and because they provide important habitat functions. The loss or degradation of sensitive habitats would be a **significant** impact.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Under Alternative 2, 0.5 acre of sensitive habitat occurs in the permanent disturbance area, and 0.3 acre is within the temporary disturbance area. Potential impacts to these habitats would be almost identical to those described above for Alternative 1 because project construction under Alternative 2 would be located in the same locations and would include the same construction effects as Alternative 1. For the reasons discussed above, this impact would be **significant**.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Under Alternative 3, 0.6 acre of sensitive habitat occurs in the permanent disturbance area, and 0.3 acre is within the temporary disturbance area. Potential impacts to these habitats would be almost identical to those described above for Alternative 1 because project construction under Alternative 3 would be located in the same locations and would include the same construction effects as Alternative 1. For the reasons discussed above, this impact would be **significant**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Under Alternative 4, 0.6 acre of sensitive habitat occurs in the permanent disturbance area, and 0.5 acre is within the temporary disturbance area. Potential impacts to these habitats would be almost identical to those described above for Alternative 1 because project construction, where it would occur within or adjacent to sensitive habitats, under Alternative 4 would be located in the same locations and would include the same construction effects as Alternative 1. For the reasons discussed above, this impact would be **significant**.

ALTERNATIVE 5: NO ACTION

Because no project-related ground disturbance or vegetation removal would occur under Alternative 5, there would be **no impact** to sensitive habitats from this alternative.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Under Alternative 6, 0.2 acre of sensitive habitat occurs in the permanent disturbance area. For the reasons discussed above, this impact would be **significant**. The magnitude of this impact would be less than that for Alternative 1 because Alternative 6 would not include construction of a new bridge over the Truckee River or realignment of SR 89, and construction would not occur on the 64-Acre Tract, resulting in less impact to riparian and perennial stream habitats.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Under Alternative 6a, 0.2 acre of sensitive habitat occurs in the permanent disturbance area. For the reasons discussed above, this impact would be **significant**. The magnitude of this impact would be less than that for Alternative 1 because Alternative 6 would not include construction of a new bridge over the Truckee River or realignment of SR 89, and construction would not occur on the 64-Acre Tract, resulting in less impact to riparian and perennial stream habitats.

Impact 4.3-3. Introduction and spread of invasive plants.

Under all action alternatives (Alternatives 1, 2, 3, 4, 6, and 6a), project implementation has the potential to introduce and spread terrestrial and aquatic invasive plants during construction and revegetation periods. Noxious weeds and other invasive plants could inadvertently be introduced or spread in the project area during grading and construction activities, if nearby source populations passively colonize disturbed ground, or if construction and personnel equipment is transported to the site from an infested area. Soil, vegetation, and other materials transported to the study area from off-site sources for best management practices (BMPs), revegetation, or fill for project construction could contain invasive plant seeds or plant material that could become established in the study area. Additionally, terrestrial and aquatic invasive species currently present in or near the study area have the potential to be spread by construction disturbances. The introduction and spread of terrestrial or aquatic invasive species would degrade terrestrial plant, wildlife, and aquatic habitats, including habitats of special significance (riparian) within the study area. The potential introduction and spread of terrestrial or aquatic invasive species under Alternatives 1, 2, 3, 4, 6, and 6a would be a **potentially significant** impact. Under the no project alternative (Alternative 5), no project-related ground disturbance or vegetation removal would occur; therefore, there would be **no impact** related to the introduction or spread of invasive plants from this alternative.

Infestations of four noxious weed species – bullthistle, cheatgrass, common mullein, and yellow toadflax – were documented on the project site during botanical surveys conducted for the project. Noxious weed occurrences identified on the project site are described in section 4.3.3, Affected Environment, and those identified in the disturbance areas for each action alternative are shown on Exhibits 4.3-1 through 4.3-6. Additionally, Eurasian milfoil (*Myriophyllum spicatum*), an aquatic invasive plant species, is also present on the project site in the Truckee River. Other invasive plant species may occur or become established on the project site prior to project construction.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

Implementing Alternative 1 could result in the spread of noxious weeds that are present on the project site. Additionally, new noxious weed species and other invasive plants could be introduced into the project site during construction. Construction under any action alternative would involve temporary ground-disturbing activities in disturbed and native vegetation types. Constructing or expanding roadway alignments, roadway features (e.g., curbs, gutters, retaining walls), bike path realignment, and other project elements would temporarily create areas of open ground that could be colonized by invasive plant species from inside or outside of the study area. Invasive weeds and other species could inadvertently be introduced or spread in the study area during grading and construction activities, if nearby source populations passively colonize disturbed ground, or if weed seeds or propagules are inadvertently transported and distributed by construction equipment and personnel from an infested area. Project BMPs would reduce the potential for introducing or spreading weed populations in the study area by reducing the amount of open ground during construction; however, the potential for this effect would still exist. Erosion-control materials, seed mixes, and unwashed construction equipment can transport propagules of invasive plants to construction sites where disturbed areas can provide ideal conditions for their establishment, and aid their spread into adjacent native plant communities. Additionally, construction equipment used for in-channel activities in the Truckee River (e.g., placement of bridge footings) could harbor aquatic invasive species that could invade the Truckee River below the dam, if equipment were exposed to those species in another water body and not sufficiently cleaned and sanitized.

Once established, invasive plant species can alter ecosystem processes and cause serious deleterious effects on native biological communities. Potential impacts to native species and ecosystems include altered hydrologic patterns, fire cycles, and soil chemistry; reduced nutrient, water, and light availability; and reduced biodiversity (Coblenz 1990, Vitousek et al. 1996, CallPC 2006). The effects of invasive plant species can also decrease wildlife habitat values. Nonnative terrestrial and aquatic invasive species compete with native plant and animal species; their introduction and proliferation in ecosystems can substantially alter the dynamics of native aquatic and terrestrial communities. This conversion can indirectly

affect wildlife and fish species by changing and often reducing food sources and habitat structure and can lead to competition between native plant species and the weeds, often resulting in loss of native vegetation.

The TRPA Code specifically prohibits the release of nonnative species in the Tahoe Basin because they can invade important wildlife habitats and compete for resources. Additionally, in its recent Regional Plan Update, TRPA adopted a new policy to explicitly prohibit and prevent the release of invasive, exotic, or undesirable nonnative aquatic species into the Tahoe Basin and control existing populations of those species. Under Alternative 1 some of the construction BMPs would reduce the potential for introducing or spreading weed populations in the study area by reducing the amount of open ground during construction; however, the potential for this effect would still exist. Any introduction or spread of invasive weeds or aquatic invasive species would degrade plant and wildlife habitat, including habitats of special significance (riparian) on or near the project site. This construction-related impact would be **potentially significant**.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

The potential construction-related introduction and spread of invasive species under Alternative 2 would generally be the same as that described for Alternative 1, because project construction and ground disturbance under Alternative 2 would be located in the same locations and would include the same construction effects as Alternative 1. For the reasons discussed above, this impact would be **potentially significant**.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

The potential construction-related introduction and spread of invasive species under Alternative 3 would generally be the same as that described for Alternative 1, because project construction and ground disturbance under Alternative 3 would be located in the same locations and would include the same construction effects as Alternative 1. For the reasons discussed above, this impact would be **potentially significant**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

The potential construction-related introduction and spread of invasive species under Alternative 4 would be similar to that described for Alternative 1, because project construction and ground disturbance under Alternative 2 would be located mostly in the same locations and would include the same construction effects as Alternative 1. For the reasons discussed above, this impact would be **potentially significant**. The potential for and magnitude of this impact may be less than that for Alternative 1. Because Alternative 4 would not include the proposed eastern roundabout and would use a shorter route to access the Transit Center, Alternative 4 would require less ground disturbance and native vegetation removal, possibly resulting in a lower risk or magnitude of invasive plant introduction and spread.

ALTERNATIVE 5: NO ACTION

Because no project-related ground disturbance or vegetation removal would occur under Alternative 5, there would be **no impact** related to invasive species introduction and spread from this alternative.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

The potential construction-related introduction and spread of invasive species under Alternative 6 would be similar to that described for Alternative 1, because project construction and ground disturbance under Alternative 6 would include some of the same construction effects as Alternative 1. For the reasons discussed above, this impact would be **potentially significant**. The potential for and magnitude of this impact would be less than that for Alternative 1. Alternative 6 would not include construction of a new bridge over the Truckee River or realignment of SR 89, and construction would not occur on the 64-Acre Tract. Therefore, Alternative 6 would require less ground disturbance and native vegetation removal, resulting in a lower risk or magnitude of invasive plant introduction and spread.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

The potential construction-related introduction and spread of invasive species under Alternative 6a would be similar to that described for Alternative 1, because project construction and ground disturbance under Alternative 6a would include some of the same construction effects as Alternative 1. For the reasons discussed above, this impact would be **potentially significant**. The potential for and magnitude of this impact would be less than that for Alternative 1. Alternative 6a would not include construction of a new bridge over the Truckee River or realignment of SR 89, and construction would not occur on the 64-Acre Tract. Therefore, Alternative 6a would require less ground disturbance and native vegetation removal, resulting in a lower risk or magnitude of invasive plant introduction and spread.

Impact 4.3-4. Disturbance or loss of special-status wildlife species and habitats.

Under all action alternatives (Alternatives 1, 2, 3, 4, 6, and 6a), constructing or expanding roadway alignments, roadway features (e.g., curbs, gutters, retaining walls), bike path realignment, and other project elements could result in disturbances to two special-status wildlife species (waterfowl and olive-sided flycatcher). Disturbances resulting in loss of individuals or nests, or disruptions to nesting attempts by special-status species would be a **potentially significant** impact. Because no project-related ground disturbance or vegetation removal would occur under the no project alternative (Alternative 5), there would be **no impact** to special-status species from this alternative.

Overall, the project site is highly disturbed by commercial/urban and recreational uses and its potential to support special-status species is limited. However, “waterfowl” is a TRPA special-interest group of species that occurs on the project site, and one additional special-status wildlife species – olive-sided flycatcher – has a moderate potential to occur (see section 4.3.3, Affected Environment).

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

Under Alternative 1, 3.4 acres of conifer forest (Jeffrey pine and white fir) that could support olive-sided flycatcher would be permanently converted and 0.8 acre would be temporarily disturbed. Additionally, 0.6 acre of riparian, wetland, and aquatic habitat that provides potential habitat for waterfowl occurs in the permanent disturbance area, and 0.2 acre is within the temporary disturbance area.

If olive-sided flycatcher or waterfowl use the project site for nesting, project-related construction and vegetation removal within occupied habitat could impair breeding and nesting activities and result in loss of nests and mortality of individuals. In addition to direct removal of individuals and habitat during grading, removing or disturbing occupied nesting habitat could result in a substantial effect if individuals of these species would be deterred from occupying breeding and nesting locations. Construction could also result in noise, dust, and other disturbances to nesting birds in the vicinity, potentially resulting in nest abandonment and mortality to eggs and chicks. This potential impact to special-status wildlife species under Alternative 1 would be **potentially significant**.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Under Alternative 2, 3.4 acres of conifer forest (Jeffrey pine and white fir) that could support olive-sided flycatcher would be permanently converted and 0.8 acre would be temporarily disturbed. Additionally, 0.5 acre of riparian, wetland, and aquatic habitat that provides potential habitat for waterfowl occurs in the permanent disturbance area, and 0.3 acre is within the temporary disturbance area. Potential impacts to special-status wildlife would be almost identical to that described above for Alternative 1 because project construction under Alternative 2 would be located in the same locations and would include the same construction effects as Alternative 1. For the reasons discussed above, this impact would be **potentially significant**.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Under Alternative 3, 3.0 acres of conifer forest (Jeffrey pine and white fir) that could support olive-sided flycatcher would be permanently converted and 0.7 acre would be temporarily disturbed. Additionally, 0.6

acre of riparian, wetland, and aquatic habitat that provides potential habitat for waterfowl occurs in the permanent disturbance area, and 0.3 acre is within the temporary disturbance area. Potential impacts to special-status wildlife would be almost identical to that described above for Alternative 1 because project construction under Alternative 3 would be located in the same locations and would include the same construction effects as Alternative 1. For the reasons discussed above, this impact would be **potentially significant**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Under Alternative 4, 2.3 acres of conifer forest (Jeffrey pine and white fir) that could support olive-sided flycatcher would be permanently converted and 0.4 acre would be temporarily disturbed. Additionally, 0.6 acre of riparian, wetland, and aquatic habitat that provides potential habitat for waterfowl occurs in the permanent disturbance area, and 0.5 acre is within the temporary disturbance area. Potential impacts to special-status wildlife would be similar to those described above for Alternative 1 because project construction under Alternative 4 would be located mostly in the same locations and would include the same construction effects as Alternative 1. For the reasons discussed above, this impact would be **potentially significant**. The potential for and magnitude of this impact may be less than that for Alternative 1, because Alternative 4 would not include the proposed eastern roundabout and would use a shorter route to access the Transit Center, less conifer forest that may support olive-sided flycatcher would be affected than under Alternative 1.

ALTERNATIVE 5: NO ACTION

Because no project-related ground disturbance or vegetation removal would occur under Alternative 5, there would be **no impact** to special-status species from this alternative.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Under Alternative 6, 0.1 acre of conifer forest (Jeffrey pine and white fir) that could support olive-sided flycatcher would be permanently converted and 0.1 acre would be temporarily disturbed. Additionally, 0.2 acre of riparian, wetland, and aquatic habitat that provides potential habitat for waterfowl occurs in the permanent disturbance area. The types of potential impacts to special-status wildlife would be similar to those described above for Alternative 1 because project construction under Alternative 6 would include some of the same construction effects as Alternative 1. For the reasons discussed above, this impact would be **potentially significant**. The potential for and magnitude of this impact would be less than that for Alternative 1 because Alternative 6 would not include construction of a new bridge over the Truckee River or realignment of SR 89, and construction would not occur on the 64-Acre Tract, resulting in less impact to riparian, perennial stream, and conifer forest habitats that may support waterfowl or olive-sided flycatcher.

ALTERNATIVE 6a: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Under Alternative 6a, 0.1 acre of conifer forest (Jeffrey pine and white fir) that could support olive-sided flycatcher would be permanently converted and 0.1 acre would be temporarily disturbed. Additionally, 0.2 acre of riparian, wetland, and aquatic habitat that provides potential habitat for waterfowl occurs in the permanent disturbance area. The types of potential impacts to special-status wildlife would be similar to those described above for Alternative 1 because project construction under Alternative 6a would include some of the same construction effects as Alternative 1. For the reasons discussed above, this impact would be **potentially significant**. The potential for and magnitude of this impact would be less than that for Alternative 1 because Alternative 6 would not include construction of a new bridge over the Truckee River or realignment of SR 89, and construction would not occur on the 64-Acre Tract, resulting in less impact to riparian, perennial stream, and conifer forest habitats that may support waterfowl or olive-sided flycatcher.

Impact 4.3-5. Short-term effects on aquatic resources resulting from construction.

Under Alternatives 1, 2, 3, 4, 6, and 6a, project construction and staging near aquatic habitats could temporarily result in adverse impacts to aquatic resources in the Truckee River. Additionally, the action alternatives would require construction and/or rehabilitation of bridge foundations and footings below the ordinary high water mark and within the river channel, dewatering, and water diversion. Because TRPA, State and Regional WQCB, and Placer County regulations are in place to minimize erosion and transport of sediment and other pollutants during construction, and appropriate project-specific measures would be defined to secure necessary permits and approvals, construction-related impacts to aquatic resources would be minimized and would not result in substantial adverse effects on water quality or aquatic habitat quality and functions in the Truckee River. However, even with incorporation of these measures and requirements into the project, project construction could result in loss or degradation of stream or riparian habitat protected under Section 1602 of the Fish and Game Code. Additionally, construction would include dewatering activities that would result in the temporary loss of aquatic habitat. Any disturbance to the bed and bank of a waterway that provides habitat functions and requiring a Streambed Alteration Agreement from CDFW, and potential injury or mortality to native fish during dewatering activities, would be considered a **potentially significant** impact to aquatic resources. Because no project-related ground disturbance or in-channel construction would occur under the No Project Alternative (Alternative 5), there would be **no impact** to aquatic resources from this alternative.

This impact discussion addresses fisheries and aquatic habitat in general. Potential effects of project implementation on Lahontan cutthroat trout are discussed separately under Impact 4.3-6 (Potential Effects on Lahontan Cutthroat Trout), below. This analysis is based substantially on and incorporates the assumptions and conclusions presented in section 4.7, Hydrology and Water Quality.

Alternatives 1, 2, 3, and 4 would include construction of a new bridge to be located approximately 1,800 feet southwest of the existing Fanny Bridge, the construction of a realigned SR 89 through the 64-Acre Tract, realignment of existing bike paths, modifications to the existing SR 89 to become a local road for approximately 2,000 feet south of SR 28, the rehabilitation or replacement of Fanny Bridge, modifications to the Caltrans maintenance facility, realignment of the T-TSA sewer line, and modifications related to the free-right-turn lanes at the wye. Construction activities associated with the project alternatives would include grading and other earthmoving activities. Alternatives 6 and 6a would include the rehabilitation or replacement of Fanny Bridge and modifications to the wye intersection.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

Ground Disturbance

Project construction and staging near aquatic habitats could temporarily affect aquatic resources due to removal of riparian vegetation, which provides shade, cover, and bank stability; accidental spill and contamination from construction chemicals, fuels, or other hazardous materials; increased erosion, downstream sedimentation, and turbidity; small amounts of fill placed in aquatic habitats; and direct mortality or injury of fish and other aquatic species caused by in-channel construction activities.

Alternative 1 would create ground disturbance along the river bank and in upland areas, which could accelerate soil erosion and sediment leading to a temporary increase in sedimentation and turbidity levels in the Truckee River. Construction activities would include removal of existing pavement, vegetation removal, grading, excavation, and temporary stockpiling of soil. Temporary disturbance areas (such as staging areas) would be stabilized and revegetated following construction as required by TRPA Code Section 61.4. Disturbed areas of the river bed and bank would be stabilized using boulders and/or rip-rap to prevent scouring and to preserve bank stability and to meet Caltrans hydromodification requirements.

Project construction would be subject to a Placer County grading permit and the Caltrans Statewide NPDES Permit and Statewide Construction General NPDES Permit from Lahontan RWQCB. One condition of the NPDES permits would be the preparation of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP

would be prepared by a qualified SWPPP practitioner and/or a qualified SWPPP developer that identifies water quality controls consistent with LRWQCB and TRPA requirements, and would ensure that runoff quality meets TRPA water quality requirements under the TRPA Code and maintains beneficial uses of the Truckee River. The SWPPP would describe the site controls, erosion and sediment controls, means of waste disposal, implementation of approved local plans, control of post-construction sediment and erosion control measures, and management controls unrelated to stormwater. Best management practices (BMPs) identified in the SWPPP would be implemented during all site development activities. All construction site BMPs would follow the latest edition of the Caltrans Storm Water Quality Handbooks: Construction Site BMPs Manual (Caltrans 2003) and the Lake Tahoe BMP Handbook (TRPA 2011) to control and minimize the impacts of construction-related activities, materials, and pollutants on the watershed. The following would be required elements of the SWPPP, and would also protect and minimize impacts to aquatic habitat:

- ▲ Temporary BMPs to prevent the transport of earthen materials and other construction waste materials from disturbed land areas, stockpiles, and staging areas during periods of precipitation or runoff, including: filter fence, fiber roll, erosion control blankets, mulch (such as pine needles and wood chips); and temporary drainage swales and settling basins.
- ▲ TRPA pre-grade inspection a minimum of 48-hours prior to commencement of construction-related activities to ensure proper and adequate installation of the temporary erosion control measures.
- ▲ Designated contractor staging areas for materials and equipment storage outside of stream environment zone (SEZ) areas. Designated staging and storage areas would be protected by construction fencing and/or silt barriers, as appropriate. Following project completion, all areas used for staging would be restored in accordance with TRPA Code Section 61.4.
- ▲ Temporary BMPs to prevent the tracking of earthen materials and other waste materials from the project site to offsite locations, including stabilized points of entry/exit for construction vehicles/equipment and designated vehicle/equipment rinse stations, and sweeping.
- ▲ Temporary BMPs to prevent wind erosion of earthen materials and other waste materials from the project site, including routine application of water to disturbed land areas and covering of stockpiles with plastic or fabric sheeting.
- ▲ Earthmoving activities would be limited to May 1 through October 15, unless a grading ordinance exemption is granted by TRPA. At the end of the grading season or before completion of the project, all surplus or waste earthen materials from the project site would be removed and disposed of at a TRPA-approved disposal site or stabilized on-site in accordance with TRPA regulations.
- ▲ A spill prevention and containment plan would be prepared and implemented. Project contractors would be responsible for storing on-site materials and temporary BMPs capable of capturing and containing pollutants from fueling operations, fuel storage areas, and other areas used for the storage of hydrocarbon-based materials. This would include maintaining materials on-site (such as oil absorbent booms and sheets) for the cleanup of accidental spills, drip pans beneath construction equipment, training of site workers in spill response measures, immediate cleanup of spilled materials in accordance with directives from the LRWQCB and TRPA, and proper disposal of waste materials at an approved off-site location that is licensed to receive such wastes.
- ▲ Temporary BMPs to capture and contain pollutants generated by concrete construction including lined containment for rinsate to collect runoff from washing of concrete delivery trucks and equipment.
- ▲ Protective fencing to prevent damage to trees and other vegetation to remain after construction, including tree protection fencing and individual tree protection such as wood slats strapped along the circumference of trees.

- ▲ Temporary BMPs for the containment of removal of drilling spoils generated from construction of bridge foundations and abutments.
- ▲ Daily inspection and maintenance of temporary BMPs. The prime contractor would be required to maintain a daily log of Temporary Construction BMP inspections and keep the log on site during project construction for review by LRWQCB and TRPA.
- ▲ Tree removal activities, including the dropping of trees, would be confined to the construction limit boundaries.
- ▲ Construction boundary fencing to limit disturbance and prevent access to areas not under active construction.

Construction associated with Alternative 1 would require the use and handling of hazardous materials such as fuels, lubricants, coolants, hydraulic fluids, and cleaning solvents. The use and handling of these materials presents the potential to degrade water quality through accidental spills. Implementation of the Hazardous Materials spill response plan (a required component of the NPDES permit Stormwater Pollution Prevention Plan) would reduce the potential of directly and indirectly affecting water quality and aquatic habitat functions through construction-related hazardous material spills.

Under Alternative 1, project implementation would require the removal of a small amount of riparian wetland vegetation (0.2 acre; see Table 4.3-5), which provides important aquatic habitat functions such as shade, cover, and bank stability. The riparian vegetation corridor in this area is presently highly disturbed, narrow, and fragmented. Multiple user-created access points are present along the corridor, which have contributed to bank erosion and fragmentation of the riparian corridor. Therefore, any effects of riparian vegetation disturbance on aquatic habitats (e.g., loss of shading) in the Truckee River are expected to be negligible.

In-Channel Construction of Bridge Foundations

Alternative 1 would require construction and/or rehabilitation of bridge foundations and footings below the ordinary high water mark and within the river channel, which would directly affect aquatic habitats temporarily. In-channel construction activities would occur during summer months and the river bottom would be restored to its original condition and elevation when work within the river is completed.

In-channel construction activities could result in a plume of sediments generated from the channel bottom and the channel side becoming suspended in the water. Suspended sediments could potentially generate turbidity levels during construction that exceed the water quality objectives (turbidity may not be raised above 3 Nephelometric Turbidity Units (NTU) of the monthly mean) established by Lahontan RWQCB (Lahontan RWQCB 1995). For all work within the river channel, water-tight coffer dams would be temporarily installed to isolate the construction area from the flow of the river. Coffer dams would minimize the temporary increase in turbidity within the river, prevent scour and maintain soil- and water-free footings to allow for pile driving. Coffer dams would not be used for work related to Fanny Bridge, because bypass pipes attached to the Tahoe Dam gates would route river flows around the bridge and return the water to the channel downstream of the construction area.

After the footings are constructed, the coffer dams would be removed and the remaining portion of the bridge would be constructed. Additional BMPs such as barriers, silt fencing, slope terracing, and dust control would be implemented to avoid or minimize the movement of soils into the water; however, some temporary increase in turbidity and effects on aquatic habitats would occur. This direct increase in turbidity levels would not be considered substantial because turbidity would be monitored and construction work would be slowed or stopped if turbidity nears regulation thresholds. Turbidity levels would return to pre-project conditions after construction is completed.

Dewatering and Diversion

Construction of the new bridge and replacement of Fanny Bridge would require dewatering for installing in-channel bridge footings and temporary diversion of the Truckee River for the removal of the existing Fanny

Bridge and construction of the new bridge. Section 4.7, Hydrology and Water Quality, analyzes the effects of dewatering and diversion on water quality in detail. As described in Section 4.7, as required under an approved Lahontan RWQCB discharge exemption and in compliance with the NPDES California general construction permit and TRPA regulations, filtration devices and systems would be provided to remove pollutants and suspended sediments generated during dewatering activities. A dewatering plan approved by both Lahontan RWQCB and TRPA would be prepared as a component of the SWPPP, and all dewatering waste discharged to soil or to the Truckee River would meet the applicable water quality standards or hauled off to an approved location for disposal. After the completion of in-channel construction, the diversion dam would be removed and the river bed restored.

During dewatering of the active channel, native fish and macroinvertebrate species occupying aquatic habitats could be injured or killed by heavy equipment during site access, preparation, or construction activities, if present in the affected area. Dewatering activities could cause these fish and macroinvertebrates to become stranded and could dry out their habitat or lead to predation by birds or mammals.

Impact Summary

Because TRPA, State and Regional WQCB, and Placer County regulations are in place to minimize erosion and transport of sediment and other pollutants during construction, and appropriate project-specific measures would be defined to secure necessary permits and approvals, construction-related impacts to aquatic resources under Alternative 1 would be minimized and would not result in substantial adverse effects on water quality or aquatic habitat quality and functions in the Truckee River. However, even with incorporation of these measures and requirements into the project, project construction could result in loss or degradation of stream or riparian habitat protected under Section 1602 of the Fish and Game Code. Additionally, construction would include dewatering activities that would result in the temporary loss of aquatic habitat. Fish and macroinvertebrates could become stranded during dewatering activities, and habitat could dry out or predation by birds or mammals could occur; or the organisms could be injured or killed by heavy equipment during site access, preparation, or construction activities. Any disturbance to the bed and bank of a waterway that provides habitat functions and requiring a Streambed Alteration Agreement from CDFW, and potential injury or mortality to native fish during dewatering activities, would be considered a **potentially significant** impact to aquatic resources.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Under Alternative 2, potential impacts to aquatic habitat would be almost identical to those described above for Alternative 1 because project construction under Alternative 2 would be located in the same locations and would include the same construction effects on aquatic resources as Alternative 1. For the reasons discussed above, this impact would be **potentially significant**.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Under Alternative 3, potential impacts to aquatic habitat would be almost identical to those described above for Alternative 1 because project construction under Alternative 3 would be located in the same locations and would include the same construction effects on aquatic resources as Alternative 1. For the reasons discussed above, this impact would be **potentially significant**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Under Alternative 4, potential impacts to aquatic habitat would be almost identical to those described above for Alternative 1 because project construction under Alternative 4 would be located in the same locations and would include the same construction effects on aquatic resources as Alternative 1. For the reasons discussed above, this impact would be **potentially significant**.

ALTERNATIVE 5: NO ACTION

Because no project-related grading, ground disturbance, vegetation removal, or in-channel construction would occur under Alternative 5, there would be **no impact** to aquatic resources from this alternative.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Under Alternative 6, the types of potential impacts to aquatic resources would be similar to those described above for Alternative 1 because project construction under Alternative 6 would include some of the same construction effects as Alternative 1. For the reasons discussed above, this impact would be **potentially significant**. The potential for and magnitude of this impact would be less than that for Alternative 1. Because Alternative 6 would not include construction of a new bridge over the Truckee River or realignment of SR 89, and construction would not occur on the 64-Acre Tract, the amount and duration of impact to perennial stream and riparian habitat would be reduced.

ALTERNATIVE 6a: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Under Alternative 6a, the types of potential impacts to aquatic resources would be similar to those described above for Alternative 1 because project construction under Alternative 6 would include some of the same construction effects as Alternative 1. For the reasons discussed above, this impact would be **potentially significant**. The potential for and magnitude of this impact would be lower than that for Alternative 1. Because Alternative 6a would not include construction of a new bridge over the Truckee River or realignment of SR 89, and construction would not occur on the 64-Acre Tract, the amount and duration of impact to perennial stream and riparian habitat would be reduced.

Impact 4.3-6. Potential effects on Lahontan cutthroat trout.

Lahontan cutthroat trout is listed as endangered under the ESA. Although LCT could potentially occur in the Truckee River on the project site due to hydrologic connectivity with occupied habitat, LCT is not known or expected to occur there due to degraded habitat conditions and overall rarity in the watershed. Under Alternatives 1, 2, 3, 4, 6, and 6a, project construction and staging near the Truckee River could temporarily result in adverse impacts to fish habitat. Because TRPA, State and Regional WQCB, and Placer County regulations are in place to minimize erosion and transport of sediment and other pollutants during construction, and appropriate project-specific measures would be defined to secure necessary permits and approvals, construction-related impacts to aquatic resources would be minimized and would not result in substantial adverse effects on fish habitat quality and functions in the Truckee River within or downstream of the project site. Additionally, because Lahontan cutthroat trout is not known or expected to occur on the project site, potential impacts to Lahontan cutthroat trout are considered **less than significant**. Because no project-related grading, ground disturbance, vegetation removal, or in-channel construction would occur under Alternative 5, there would be **no impact** to Lahontan cutthroat trout from this alternative.

Lahontan cutthroat trout (LCT) is listed as threatened under the ESA. The Truckee River reach on the project site is not presently known or expected to support LCT, despite stocking efforts in the Truckee River watershed. The nearest known occurrence of LCT is in Pole Creek, a tributary of the Lower Truckee River downstream of Tahoe City, approximately 8 miles from the project site; additionally, LCT were released in the Lower Truckee River at Granite Flat Campground, approximately 12 miles from the project site. Individuals may move from Lake Tahoe into stream environments to spawn; however, the project site is not currently expected to support this species due to habitat degradation and limited function (particularly for spawning), potential barriers to movement, presence of nonnative salmonids, and overall rarity of LCT in the watershed.

Although LCT could potentially occur in the Truckee River on the project site due to hydrologic connectivity with Pole Creek and Lake Tahoe, LCT is not expected to occur there. The river reach at this location is immediately below the dam and Fanny Bridge at Tahoe City. USFWS considers all of the Truckee River as having potential to be occupied by LCT, given past stocking efforts in the Truckee River watershed (including Lake Tahoe); however, USFWS considers the potential for LCT to occur in this reach to be low (Werdon, pers. comm., 2013). Overall, the quality of aquatic habitat for LCT in the Truckee River on the project site is low. Limits to the aquatic habitat functions and quality for native fish species, including LCT, are described previously in Section 4.3.3, Affected Environment. If LCT did occur in this reach, the abundance of nonnative salmonids and habitat degradation would make their persistence unlikely.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

Potential impacts to fish habitat under Alternatives 1, 2, 3, 4, 6, and 6a are discussed under Impact 4.3-5 (Short-term effects on aquatic resources resulting from construction.). As described previously for Impact 4.3-5, because TRPA, State and Regional WQCB, and Placer County regulations are in place to minimize erosion and transport of sediment and other pollutants during construction, appropriate project-specific measures would be defined to secure necessary permits and approvals, and effects of the small amount of riparian vegetation loss on aquatic habitat would be negligible, construction-related impacts to aquatic resources under Alternatives 1 would be minimized and would not result in substantial adverse effects on fish habitat quality and functions in the Truckee River within or downstream of the project site. Additionally, because Lahontan cutthroat trout is not known or expected to occur on the project site, based on degraded habitat conditions and overall rarity in the watershed, potential impacts to Lahontan cutthroat trout are considered **less than significant**.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Under Alternative 2, potential impacts to aquatic habitat would be almost identical to those described above for Alternative 1 because project construction under Alternative 2 would be located in the same locations and would include the same construction effects on aquatic resources as Alternative 1. Additionally, Lahontan cutthroat trout is not known or expected to occur on the project site, based on degraded habitat conditions and overall rarity in the watershed. For the reasons discussed above, potential impacts to Lahontan cutthroat trout would be **less than significant**.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Under Alternative 3, potential impacts to aquatic habitat would be almost identical to those described above for Alternative 1 because project construction under Alternative 3 would be located in the same locations and would include the same construction effects on aquatic resources as Alternative 1. Additionally, Lahontan cutthroat trout is not known or expected to occur on the project site, based on degraded habitat conditions and overall rarity in the watershed. For the reasons discussed above, potential impacts to Lahontan cutthroat trout would be **less than significant**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Under Alternative 4, potential impacts to aquatic habitat would be almost identical to those described above for Alternative 1 because project construction under Alternative 4 would be located in the same locations and would include the same construction effects on aquatic resources as Alternative 1. Additionally, Lahontan cutthroat trout is not known or expected to occur on the project site, based on degraded habitat conditions and overall rarity in the watershed. For the reasons discussed above, potential impacts to Lahontan cutthroat trout would be **less than significant**.

ALTERNATIVE 5: NO ACTION

Because no project-related grading, ground disturbance, vegetation removal, or in-channel construction would occur under Alternative 5, there would be **no impact** to Lahontan cutthroat trout from this alternative.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Under Alternative 6, the types of potential impacts to aquatic resources would be similar to those described above for Alternative 1 because project construction under Alternative 6 would include some of the same construction effects as Alternative 1. The potential for and magnitude of this impact to aquatic habitat would be less than that for Alternative 1. Because Alternative 6 would not include construction of a new bridge over the Truckee River or realignment of SR 89, and construction would not occur on the 64-Acre Tract, the amount and duration of impact to perennial stream and riparian habitat would be reduced. Additionally, Lahontan cutthroat trout is not known or expected to occur on the project site, based on degraded habitat conditions and overall rarity in the watershed. For the reasons discussed above, potential impacts to Lahontan cutthroat trout would be **less than significant**.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Under Alternative 6a, the types of potential impacts to aquatic resources would be similar to those described above for Alternative 1 because project construction under Alternative 6a would include some of the same construction effects as Alternative 1. The potential for and magnitude of this impact to aquatic habitat would be less than that for Alternative 1. Because Alternative 6a would not include construction of a new bridge over the Truckee River or realignment of SR 89, and construction would not occur on the 64-Acre Tract, the amount and duration of impact to perennial stream and riparian habitat would be reduced. Additionally, Lahontan cutthroat trout is not known or expected to occur on the project site, based on degraded habitat conditions and overall rarity in the watershed. For the reasons discussed above, potential impacts to Lahontan cutthroat trout would be **less than significant**.

4.3.5 Avoidance, Minimization, and/or Mitigation Measures

With the exception of Mitigation Measure 4.3-2c (Obtain and Comply with a Lake and Streambed Alteration Agreement; Compensate for Unavoidable Loss of Stream and Riparian Habitat), the following mitigation measures were included in or adapted from those in the RTP/SCS EIR/EIS, which included the SR 89/Fanny Bridge Community Revitalization Project as one of the TTD Capital Improvement Program projects in the RTP. These mitigation measures would apply for Alternatives 1, 2, 3, 4, 6, and 6a.

Mitigation Measure 4.3-2a: Implement vegetation protection measures and revegetate disturbed areas.

Vegetation will not be disturbed, injured or removed, except in accordance with the Code or conditions of Project approval. All trees, major roots, and other vegetation, not specifically designated and approved for removal in connection with a project will be protected according to methods approved by TRPA. All vegetation outside the construction site boundary, as well as other vegetation designated on the approved plans, will be protected by installing temporary fencing pursuant to subsections 33.6.9 and 33.6.10. Areas outside the construction site boundary that sustain vegetation damage during construction will be revegetated according to a revegetation plan in accordance with Section 61.4.

Mitigation Measure 4.3-2b: Conduct delineation of waters of the United States and obtain authorization for fill and required permits.

Two delineations of wetlands and other waters of the U.S. within the project site have been completed (NCE 2012, 2013). The first delineation (NCE 2012), which was verified by USACE, covered most but not all the current project site, because the project site configuration changed after the delineation was completed and submitted to USACE. The second delineation (NCE 2013) covered the current, expanded project site. The following would apply, as applicable, to any potentially affected jurisdictional resources that have not been delineated or verified by USACE prior to project implementation.

Prior to the start of on-site construction activities on any potentially affected jurisdictional resource that has not been previously delineated or verified by the USACE, a qualified biologist will survey the project site for sensitive natural communities. Sensitive natural communities or habitats are those of special concern to resource agencies or those that are afforded specific consideration, based on Section 404 of the CWA and other applicable regulations. If sensitive natural communities or habitats that are afforded specific consideration, based on Section 404 of the CWA are determined to be present, a delineation of waters of the United States, including wetlands that would be affected by the project, will be prepared by a qualified biologist through the formal Section 404 wetland delineation process. The delineation will be submitted to and verified by USACE. If, based on the verified delineation, it is determined that fill of waters of the United States would result from implementation of the project, authorization for such fill will be secured from USACE through the Section 404 permitting process. The acreage of riparian habitat (deciduous riparian vegetation) that would be removed or disturbed during project implementation will be quantified and replaced or restored/enhanced in accordance with USACE and TRPA regulations. Habitat restoration, enhancement, and/or replacement will be

at a location and by methods agreeable to USACE as determined during the permitting processes for CWA Section 404 and by TRPA during the permitting process for SEZ.

Mitigation Measure 4.3-2c: Obtain and comply with a lake and streambed alteration agreement; compensate for unavoidable loss of stream and riparian habitat.

The following measures would be implemented to avoid or compensate for the loss or degradation of stream or riparian habitat, ensure consistency with Fish and Game Code Section 1602, and further reduce potential adverse effects on riparian habitats:

- ▲ The project proponent will notify CDFW before commencing any activity within the bed, bank, or riparian corridor of any waterway. If activities trigger the need for a Streambed Alteration Agreement, the proponent will obtain an agreement from CDFW. The project proponent will conduct construction activities in accordance with the agreement, including implementing reasonable measures in the agreement necessary to protect the fish and wildlife resources, when working within the bed or bank of waterways that function as a fish or wildlife resource or in riparian habitats associated with those waterways.
- ▲ The project proponent shall compensate for permanent riparian habitat impacts at a minimum of a 1:1 ratio through contributions to a CDFW approved wetland mitigation bank or through the development and implementation of a Compensatory Stream and Riparian Mitigation and Monitoring Plan aimed at creating or restoring in-kind habitat in the surrounding area. If mitigation credits are not available, stream and riparian habitat compensation shall include establishment of riparian vegetation on currently unvegetated bank portions of streams affected by the project and enhancement of existing riparian habitat through removal of nonnative species, where appropriate, and planting additional native riparian plants to increase cover, continuity, and width of the existing riparian corridor along streams in the project site and surrounding areas. Construction activities and compensatory mitigation shall be conducted in accordance with the terms of a streambed alteration agreement as required under Section 1602 of the Fish and Game Code.
- ▲ The Compensatory Stream and Riparian Mitigation and Monitoring Plan shall include the following:
 - ▶ identification of compensatory mitigation sites and criteria for selecting these mitigation sites;
 - ▶ in kind reference habitats for comparison with compensatory riparian habitats (using performance and success criteria) to document success;
 - ▶ monitoring protocol, including schedule and annual report requirements (Compensatory habitat shall be monitored for a minimum of 5 years from completion of mitigation, or human intervention (including recontouring and grading), or until the success criteria identified in the approved mitigation plan have been met, whichever is longer.);
 - ▶ ecological performance standards, based on the best available science and including specifications for native riparian plant densities, species composition, amount of dead woody vegetation gaps and bare ground, and survivorship; at a minimum, compensatory mitigation planting sites must achieve 80% survival of planted riparian trees and shrubs by the end of the five-year maintenance and monitoring period or dead and dying trees shall be replaced and monitoring continued until 80 percent survivorship is achieved;
 - ▶ corrective measures if performance standards are not met;
 - ▶ responsible parties for monitoring and preparing reports; and
 - ▶ responsible parties for receiving and reviewing reports and for verifying success or prescribing implementation or corrective actions.

Significance after Mitigation

Implementation of Mitigation Measures 4.3-2a, 4.3-2b, and 4.3-2c would reduce the significant impacts on sensitive habitats (Impact 4.3-2) to a **less-than-significant** level because they would require that sensitive habitat is avoided to the extent feasible and that sensitive habitats that cannot be avoided are restored following construction, or if the habitat cannot be restored, that the applicant compensates for unavoidable losses in a manner that results in no net loss of sensitive habitats.

Mitigation Measure 4.3-3a: Implement invasive plant management practices during project construction.

In consultation with TRPA and USFS, the project proponent shall implement appropriate invasive plant management practices during project construction. Recommended practices generally include the following:

- ▲ For project activities on USFS land, a Noxious Weed Risk Assessment will be prepared for all areas to be temporarily impacted. Applicable LTBMU Invasive Plant Management Measures will be implemented under the direction of the Forest Botanist.
- ▲ Before construction activities begin, invasive plant infestations will be treated where feasible. Treatments will be selected based on each species ecology and phenology. All treatment methods—including the use of herbicides—will be conducted in accordance with the law, regulations, and policies governing the land owner (e.g., TRPA and/or LTBMU). Land owners will be notified prior to the use of herbicides for invasive treatment. In areas where treatment is not feasible, noxious weed areas will be clearly flagged or fenced in order to clearly delineate work exclusion.
- ▲ To ensure that fill material and seeds imported to the project site are free of invasive plants/noxious weeds, the project will use on-site sources of fill and seeds whenever available. Fill and seed materials that need to be imported to the project site will be certified weed-free. In addition, only certified weed-free imported materials (or rice straw in upland areas) will be used for erosion control.
- ▲ Vehicles and equipment will arrive at the study area clean and weed-free. All equipment entering the project site from weed-infested areas or areas of unknown weed status will be cleaned of all attached soil or plant parts before being allowed into the project site. Vehicles and equipment will be cleaned using high-pressure water or air at designated weed-cleaning stations after exiting a weed-infested area. Cleaning stations will be designated by a botanist or noxious weed specialist and located away from aquatic resources. Equipment will be inspected by the on-site environmental monitor for mud or other signs that weed seeds or propagules could be present prior to use in the study area. If the equipment is not clean, the monitor will deny entry into work areas.
- ▲ If designated weed-infested areas are unavoidable, the plants will be cut, if feasible, and disposed of in a landfill in sealed bags or disposed of or destroyed in another manner acceptable to the USFS, TRPA, or other agency as appropriate. If cutting weeds is not feasible, layers of mulch, degradable geotextiles, or similar materials will be placed over the infestation area to minimize the spread of seeds and plant materials by equipment and vehicles during construction. These materials will be secured so they are not blown or washed away.
- ▲ Locally collected native seed sources for revegetation shall be used when possible. Plant and seed material will be collected from or near the study area, from within the same watershed, and at a similar elevation when possible and with approval of the appropriate authority (e.g., USFS botanist for collection on USFS land). Persistent nonnatives such as cultivated timothy (*Phleum pretense*), orchard grass (*Dactylis glomerata*), or ryegrass (*Lolium spp.*) shall not be used.
- ▲ After the project is completed, the USFS noxious weed coordinator shall be notified so that the USFS portion of the project site can be monitored by the USFS if desired. Monitoring could be for up to three years (as feasible) subsequent to project implementation to ensure additional nonnative invasive species

do not become established in the areas affected by the project and to ensure that known nonnative invasive species do not spread.

Mitigation Measure 4.3-3b: Implement aquatic invasive species management practices during project construction.

In consultation with TRPA and consistent with USFWS Hazard Analysis and Critical Control Point (HACCP) planning guidance, the project proponent shall develop and implement a plan that includes appropriate aquatic invasive species management practices during project construction. Recommended practices include the following:

- ▲ All equipment, including individual equipment such as waders, wading boots, etc., entering the study area that will be used in or around the Truckee River or Lake Tahoe shall be decontaminated using methods recommended in the *Lake Tahoe Region Aquatic Invasive Species Management Plan* (USACE 2009) before being allowed into the study area.
- ▲ If applicable, all equipment, including individual equipment such as waders, wading boots, etc., used in known infested areas within the study area shall be decontaminated using the above mentioned methods before entering any other areas of the study area not known to contain aquatic invasive species.
- ▲ Aquatic invasive species encountered during fish removal and relocation efforts will be euthanized and/or removed from the watershed.

Significance after Mitigation

Implementing Mitigation Measures 4.3-3a and 4.3-3b would reduce potentially significant impacts from the spread of invasive species (Impact 4.3-3) to a **less-than-significant** level because invasive plant and aquatic invasive species management practices would be implemented during project construction and the inadvertent introduction and spread of invasive plants or aquatic invasive species from project construction would be prevented.

Mitigation Measure 4.3-4: Conduct pre-construction surveys for nesting special-status birds, and implement a limited operating period if necessary.

For construction activities that would occur in suitable habitat during the nesting season (generally April 1–August 31, depending on snowpack and other seasonal conditions), a qualified wildlife biologist shall conduct focused surveys for waterfowl and olive-sided flycatcher nests no more than 14 days before construction activities are initiated each construction season. If an active nest is located during the preconstruction surveys, the biologist shall notify TRPA and/or CDFW. If necessary, modifications to the project design to avoid removal of occupied habitat while still achieving project objectives shall be evaluated, and implemented to the extent feasible. If avoidance is not feasible or conflicts with project objectives, appropriate buffers around nests and limited operating periods will be established through consultation with TRPA and/or CDFW to avoid disturbances during the sensitive nesting season.

Significance after Mitigation

Because implementation of Mitigation Measure 4.3-4 would avoid the loss of individuals and nests of special-status wildlife species (olive-sided flycatcher and waterfowl), potential impacts to special-status wildlife species (Impact 4.3-4) would be reduced to a **less-than-significant** level.

Mitigation Measure 4.3-5a

Implement Mitigation Measure 4.3-2b.

Mitigation Measure 4.3-5b

Implement Mitigation Measure 4.3-2c.

Mitigation Measure 4.3-5c: Conduct preconstruction surveys and develop and implement native-fish capture and translocation plan.

The project proponent shall develop and implement measures to prevent the construction-related loss of native fish occupying habitat within the study area. In accordance with existing regulations, before any construction activities that require dewatering commence, a qualified biologist shall conduct preconstruction surveys and implement native-fish relocation activities (if native fish are present) within the construction dewatering area. All captured native fish species shall be immediately released to a suitable habitat near the study area. The qualified biologist shall place nets with 1/8-inch mesh at the upstream and downstream extents of the area to be dewatered to keep fish out of the area during fish removal activities. After completion of removal activities, the work area will be cleared for dewatering. Fish rescue and relocation will continue until the area is completely dewatered or until it is determined that no fish remain in the dewatering area. This fish translocation plan will apply only to native fish species. Nonnative species captured during the pre-dewatering effort will be humanely killed and disposed of. These activities shall take place in consultation with TRPA and CDFW.

Significance after Mitigation

Implementation of Mitigation Measures 4.3-5a, 4.3-5b, and 4.3-c would reduce potentially significant impacts to aquatic resources (Impact 4.3-5) to a **less-than-significant** level because it would require that: 1) aquatic habitat is avoided to the extent feasible; 2) aquatic habitats that cannot be avoided are restored following construction; 3) any unavoidable losses would be compensated for in a manner that results in no net loss of aquatic habitat; and 4) project implementation is consistent with the aquatic and riparian habitat protection provisions of Fish and Game Code Section 1602.

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4.4 CULTURAL RESOURCES

4.4.1 Introduction

This section describes the cultural resources that are known, or have the potential, to occur in the project site. Cultural resources include archaeological, paleontological and historical resources. Federal, state, and local regulations related to cultural resources are summarized. Potential impacts of the proposed alternatives are analyzed, and mitigation measures are provided for those impacts determined to be significant.

Two comment letters were received on the Notice of Preparation that pertain to cultural resources and included concerns regarding the historic importance of Fanny Bridge. These comments are addressed in this section.

The primary sources of information referenced for this section are the *Historical Resources Evaluation Report* (TTD 2014a) and the *Archaeological Survey Report* (TTD 2014b) and the *Lake Tahoe Regional Transportation Plan and Sustainable Communities Strategy Draft EIR/EIS* (Ascent Environmental 2012).

4.4.2 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). Federal and federally-sponsored programs and projects are reviewed pursuant to Section 106 of the NHPA. Section 106 of the NHPA requires federal agencies to consider the effects of proposed federal undertakings on historic properties. NHPA requires federal agencies to initiate consultation with the State Historic Preservation Officer (SHPO) as part of the Section 106 review process. FHWA has initiated informal consultation with the U.S. Fish and Wildlife Service on the proposed SR 89/Fanny Bridge Project. The Final EIR/EIS/EA will disclose the results of the consultation.

Section 106 of the NHPA and accompanying regulations (36 Code of Federal Regulations [CFR] Part 800) constitutes the main federal regulatory framework guiding cultural resources investigations and requires 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:

- a. Association with events that have made a significant contribution to the broad patterns of history (events).
- b. Association with the lives of persons significant in the past (persons).
- 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).
- d. Has yielded, or may be likely to yield, information important to prehistory or history (information potential).

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]) reads:

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.

Paleontological Resource Protection Act

On March 30, 2009, the Paleontological Resources Preservation Act (PRPA) became law when President Barack Obama signed the Omnibus Public Land Management Act (OPLMA) of 2009, Public Law 111-011. P.L. 111-011, Title VI, Subtitle D on Paleontological Resources Preservation (known by its popular name, the PRPA) (123 Stat. 1172; 16 U.S.C. 470aaa) requires the Secretaries of the Interior and Agriculture to manage and protect paleontological resources on Federal land using scientific principles and expertise. The PRPA includes specific provisions addressing management of these resources by the Bureau of Land Management (BLM), the National Park Service (NPS), the Bureau of Reclamation (BOR), the Fish and Wildlife Service (FWS), and the U.S. Forest Service (USFS) of the Department of Agriculture.

The PRPA affirms the authority for many of the policies the Federal land managing agencies already have in place for the management of paleontological resources such as issuing permits for collecting paleontological resources, curation of paleontological resources, and confidentiality of locality data. The statute establishes new criminal and civil penalties for fossil theft and vandalism on Federal lands.

The PRPA only applies to Federal lands and does not affect private lands. It provides authority for the protection of paleontological resources on Federal lands including criminal and civil penalties for fossil theft and vandalism.

Consistent with existing policy, the PRPA also includes provisions allowing for casual or hobby collecting of common invertebrate and plant fossils without a permit on Federal lands managed by the BLM and the U.S. Forest Service, under certain conditions. Casual collecting is not allowed within the National Parks or other lands managed by the National Park Service, or lands administered by the Fish and Wildlife Service and the Bureau of Reclamation.

TAHOE REGIONAL PLANNING AGENCY

Lake Tahoe Regional Plan

The Tahoe Regional Planning Agency (TRPA) regulates growth and development in the Lake Tahoe Region through the Regional Plan, which includes the Goals and Policies, Code of Ordinances, and other components.

Goals and Policies

The Goals and Policies document establishes guiding policies for each resource element. The Conservation Element (Chapter 4) of the Goals and Policies document includes a Cultural Subelement, with the following goal:

Goal C-1: Identify and preserve sites of historical, cultural, and architectural significance within the Region. The Tahoe Region has a heritage that should be recognized and appropriately protected. Due to the harsh weather conditions, changing development standards, and changing uses of the Region, many structures that had significant historical or architectural value have been destroyed or lost.

- ▲ **Policy C-1.1.** Historical or culturally significant landmarks in the Region shall be identified and protected from indiscriminate damage or alteration; and
- ▲ **Policy C-1.2.** Sites and structures designated as historically, culturally, or archaeologically significant shall be given special incentives and exemptions to promote the preservation and restoration of such structures and sites.

Code of Ordinances

The Code is a compilation of the rules, regulations, and standards to implement the Regional Plan Goals and Policies. 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 also provides for consultation with state historical agencies 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 historical 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.

Environmental Threshold Carrying Capacities

TRPA has not established any environmental threshold carrying capacities related to cultural resources.

Tahoe City Community Plan

Planned land uses adopted by TRPA and Placer County for the project site are designated in the Tahoe City Community Plan. There are no objectives or policies that regarding cultural resources that apply to the project alternatives.

STATE

California Register of Historical Resources

All properties listed in or formally determined eligible for listing in the NRHP are eligible for the California Register of Historical Resources (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 (CCR) Title 15, Chapter 11.5, Section 4850. 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 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 both “historical resources” and “unique archaeological resources.” Pursuant to Public Resources Code (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 proposed 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 (Public Resources Code, Section 5024.1), including the following:
 - a) Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
 - b) Is associated with the lives of persons important in our past;
 - c) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
 - d) Has yielded, or may be likely to yield, information important in prehistory or history.

- 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. Public Resources Code, Section 21083.2, subdivision (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.

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). The NAHC then notifies those persons most likely to be descended from the Native American's remains. The Act stipulates the procedures the descendants may follow for treating or disposing of the remains and associated grave goods.

California Health and Safety Code

Section 7050.5 (b) of the California Health and Safety code specifies protocol when human remains are discovered. The code states:

In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27492 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code.

California Public Resources Code Section 5024.5 and State-owned Lands

Historical and archaeological resources on state-owned lands are subject to the requirements of Section 5024.5 PRC. The provisions are intended to protect significant historical and prehistorical features by requiring notification of the State Historic Preservation Officer (SHPO) during the planning process. If the SHPO determines that a proposed action would have an adverse effect on a listed historical resource, California State Parks and the SHPO shall adopt prudent and feasible measures that will eliminate or mitigate the adverse effects. California State Parks maintains written documentation of the SHPO's concurrence with proposed actions that would have an effect on an historical resource on the master list.

LOCAL

Placer County General Plan

The Recreational and Cultural Resources Section (Section 5) of the Placer County General Plan (Placer County 2013) includes a goal to “identify, protect, and enhance Placer County’s important historical, archaeological, paleontological, and cultural sites and their contributing environment.” This plan also includes policies to protect and enhance cultural resources through various means, including: incentive programs for private property owners, public education, avoidance and mitigation of cultural resource impacts in discretionary development projects, coordination with the local Native American community and NAHC, and assisting private citizens seeking historic landmark designations for their property.

4.4.3 Affected Environment

AREA OF POTENTIAL EFFECT

Consistent with general cultural resource practices, the archaeological area of potential effect (APE) follows the project footprint and all potential staging areas. It includes the total right-of-way (existing and required) throughout the project site. The APE for the built environment encompasses areas that might be either directly or indirectly affected by construction—that is, those areas within which the project alternatives could cause a change in character or use of historic properties (Exhibit 4.4-1).

ENVIRONMENT

According to the Geologic Map of the Lake Tahoe Basin, the portion of the project area south of the Truckee River is situated on Pleistocene-age till (material deposited by glacial ice) from the last glacial maxima (the Tioga) in the Sierra Nevada. North of the Truckee River, the geology of the project area is characterized by Holocene-age talus and lake deposits and Pliocene-age basalt. The upper soils of the project area consist of gravelly silt loams, gravelly loams, and gravelly fine sand. The parent material of these soils is alluvium derived from granitic and volcanic rock. Also found in the southern portion of the project area are stony sandy loams, loam, sandy clay loam, and clay loam from parent materials of alluvium and/or colluvium derived from andesite over lacustrine deposits.

PREHISTORY

Archaeological research in the Sierra Nevada over the last 50 years has resulted in the accumulation of a substantial body of knowledge. Investigations that began in the 1950s revolved around examining sites throughout the Lake Tahoe vicinity, including the lake shoreline, and the high Sierran crest east of the lake. These investigations led to the identification of the Martis and Kings Beach complexes. More recent investigations have led to important modifications of earlier archaeological sequences. Excavations and analyses have identified the presence of two early archaeological manifestations named the Tahoe Reach and Spooner Phases, and the division of the Martis and Kings Beach Complexes into more refined phases. Each phase is described briefly below.

The Tahoe Reach Phase, dated from approximately 10,000 to 8000 years before present (BP), marks the earliest reliable presence of human occupation in the Region. The phase was first identified by Elston along tributaries of the Truckee River, including Squaw Creek and Deer Creek, which are located between Truckee and Tahoe City. The presence of stone tools, made from a variety of sources on both the east and west sides of the Sierra Nevada, implies a wide-ranging subsistence-settlement pattern. There has been increasing evidence to suggest that the Region was inhabited soon after the last glacial maximum at the terminal Pleistocene/early Holocene—in other words, as soon as the area was habitable by humans. Diagnostic artifacts for this phase include Great Basin Stemmed series points.

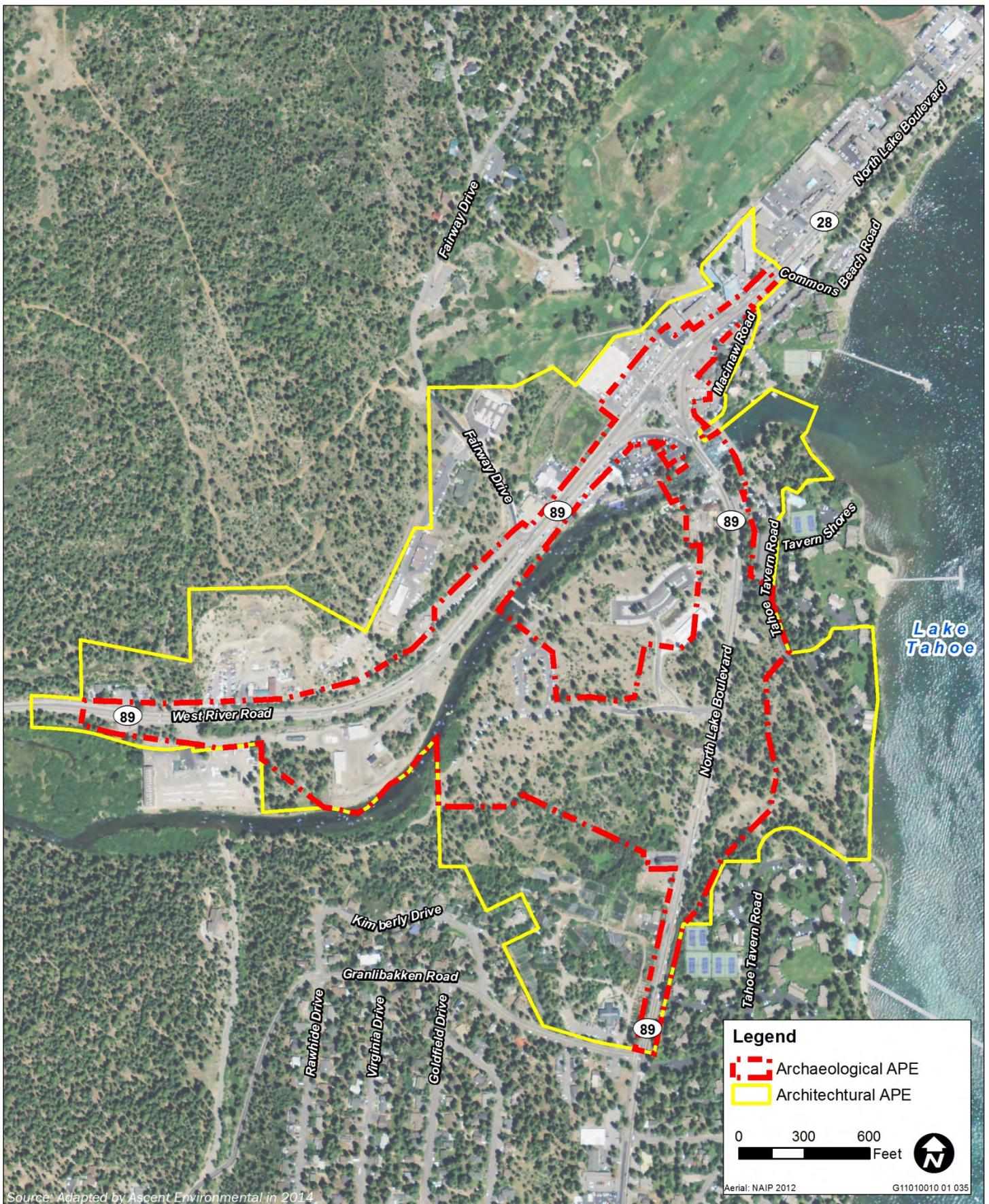


Exhibit 4.4-1

Area of Potential Effect



The Spooner Phase dates from approximately 8000 to 4000 BP. The climate was hot and dry. Lake Tahoe was much lower than it is today, and there is little evidence of human occupation in the Region, probably because of a reduction of available food resources compared to earlier in time. Also, no artifacts such as a specific bead or projectile point type have been identified as a marker for this phase. Alternatively, the apparent lack of human occupation may be at least partly the result of inundation of sites by rising lake levels in more recent times, and of the use of projectile point styles for longer periods than previously thought; that is, the sites may be there but have been assigned to the wrong phase.

The Early and Late Martis Phases date from 5000 to 3000 BP and from 3000 to 1300 BP, respectively. The climate became cooler and wetter during this time, increasing the productivity of the environment. Large bifaces (two sided stone tool used as a multi-purpose knife), made of basalt were in wide use during both of these phases, making the Early and Late Martis Phases the most recognizable and often encountered phases of any in this cultural sequence; biface production requires a relatively large amount of raw material and subsequently produces a large amount ofdebitage. There are several basalt quarries that appear to have been used the most during these phases. In addition, research indicates an increase in cultural complexity, as evidenced by larger and more formal structures, craft specialization, an increase in textiles, and evidence for far-reaching trade networks. The Early Martis Phase is marked by Martis and Elko Series contracting stem points, while Martis and Elko Series corner-notched and eared projectile points are diagnostic of the Late Martis Phase.

The Early and Late Kings Beach phases date from approximately 1300 to 150 BP. The Early Kings Beach Phase had a warm climate compared to the modern day, and there may have been extended periods when Lake Tahoe did not overflow. One of the most important technological changes during these phases was the switch to bow and arrow technology, as evidenced by smaller projectile point types. Bedrock mortars increased in number as small seeds became more important in the diet, as did the role of fishing. This phase also likely marks the introduction of the Washoe into the Region. The Early Kings Beach Phase is marked by Rosegate Series projectile points, a greater use of chert tools, M1a sequin beads, and possibly shallow, saucer-shaped house pits. The Late Kings Beach Phase has similar markers but contain Desert Series projectile points and not Rosegate Series.

ETHNOGRAPHY

The project area is located within the traditional territory of the Washoe. The Washoe language is a part of the Hokan linguistic stock. There are several subdivisions of Washoe; the Southern Washoe, Eastern Washoe, and Northern Washoe. The project area would have been used primarily by the Northern Washoe, whose territory also included the modern-day areas of Reno, Truckee, Loyalton, Sierra Valley, Long Valley, and Honey Lake. Unlike the Southern and Eastern Washoe, Lake Tahoe may have been less important economically to the Northern Washoe because they had several other sources of fish, although the project area was considered excellent for deer hunting.

The Washoe mobilized to various locations seasonally to take advantage of food resources as they became available. Seasonal rounds were more restricted for the Washoe than for surrounding groups, however, because of an abundance of reliable resources within their territory. Despite these resources, they often made long trips to gather acorns, hunt, and trade with neighboring tribes. Several of the routes they developed would later be used as modern trail systems. Roots used for medicinal purposes and food, and seeds, berries, and marsh plants were collected in mountain valleys and on mountainsides during the summer. Hunting of large game, such as mountain sheep and deer, and small animal trapping occurred at higher elevations. Washoe groups tended to travel to lower elevations during more harsh seasons of the year. Not only were plants used for medicine and food, but several plants were used to make baskets for both personal use and trade.

Lake Tahoe had great spiritual importance for the Washoe, who considered it the center of their world. The Washoe name for Lake Tahoe is *Da ow a ga*, meaning “edge of lake”; the lake’s modern name is derived from a mispronunciation of this Washoe term. Several Washoe camps have been identified along the edge of Lake

Tahoe, including one near the Lake Tahoe Dam named *daubayodú'E* ("running over") and another at the outlet of the Truckee River named *debeyumewe* ("coming out"). The camp near the Tahoe outlet was destroyed by the construction of State Route (SR) 89. Several camps used by the Washoe are now underwater.

HISTORY

Early History—Lake Tahoe

In 1844, John C. Frémont and his companion Charles Preuss recorded the first sighting of Lake Tahoe by a Euro-American. Later that same year, members of the westward-bound Stevens-Murphy-Townsend party were likely the first Euro-Americans to venture onto the shore of the lake. The California Gold Rush, centered mainly in the Sierra Nevada foothills, and the subsequent Comstock Lode silver rush that occurred a decade later in Nevada, drew thousands of miners and entrepreneurs through the Tahoe Sierra on their way to the mining locales. During this period, the lake was known by various names, including Mountain Lake and Lake Bigler. It was officially designated Lake Tahoe by the California Legislature in 1945.

The proximity of the Tahoe Basin to the Mother Lode in California and the Comstock Lode in Nevada promoted related development in lumbering, grazing, transportation, market hunting and fishing, tourism, and urban development in the Region to provide materials to meet the demand of those areas.

Lumbering

As the rich placer diggings were played out in the Sierra Nevada foothills, timber became the chief economic driver in the Tahoe Region. Taking advantage of the abundant supply, major timber companies were established along the shores of Lake Tahoe. The lumber boom lasted from 1860 into the 1890s in response to a growing demand of timber for mine supports in the Comstock Lode, and for housing, fuel, and industrial structures, buildings, and the railroad. Within a relatively short period of time, the hills on the east side of the Carson Range were stripped of most commercially desirable timber and harvesting was directed to the Lake Tahoe Basin. As trees were cut, logs were brought to the lakeshore by a network of flumes, chutes, and teams of oxen to be pulled across Lake Tahoe by steamer to mills where they were sawed into lumber. By the 1870s, the industry was dominated by several large firms such as the Sierra Nevada Wood and Lumber Company, Donner Lumber and Boom Company, and the Pacific Wood, Lumber, and Flume Company. The largest firm was the Carson and Tahoe Lumber and Fluming Company.

At the peak of the lumber boom, consumption of lumber in the Tahoe Region totaled 25 million board-feet per year, of which nearly 18 million was used in the nearby mines. By 1883 it was estimated that more than 600 million board-feet of lumber was used in the Comstock mines and 2 million cords of wood had been burned as fuel. As the logging industry in the Tahoe Basin declined, large firms such as the Carson and Tahoe Lumber and Fluming Company either went out of business or, for a time, engaged in secondary endeavors. The Carson and Tahoe Lumber and Fluming Company, for example, continued as a real estate venture, selling and leasing large tracts of former timber lands, primarily to ranchers.

By the early twentieth century, much of the Tahoe Basin had been stripped of lumber; with the introduction of paper mills, attention turned to harvesting fir trees for pulp wood. Successful logging operations sustained several communities in the Tahoe area including Tahoe City, Kings Beach, and Truckee. However, as the forests were logged out, timber companies shut down. By the 1970s and 1980s, logging was curtailed as the Region became more valuable as a recreational and commercial resource than as a timber resource.

Transportation

Steamship and Railroad

By the early twentieth century, Tahoe City served as a transit point between steamship and rail travel to and around the lake. Steamship was a popular mode of travel at Lake Tahoe, especially in the latter part of the nineteenth century. Tahoe City in particular served as an important port of call in the steam transport of mail, supplies, lumber, and passengers around Lake Tahoe.

Reliable rail travel to the Tahoe Region began in the early twentieth century. The Lake Tahoe Railway and Transportation Company (LTR&T Co.) operated a line along the Truckee River canyon between the Central Pacific Railroad (CPRR) at Truckee and Tahoe City. The LTR&T Co. commissioned steamers including the Tahoe, Meteor, Emerald, and Nevada (once known as the Tallac). The LTR&T Co. narrow-gauge line functioned as a tourist railroad operated by the Bliss family of Lake Tahoe. Over time, the LTR&T Co. incorporated several branch lines into its operations around Lake Tahoe. The company moved mail, freight, and passengers around the lake and hauled logs by rail to neighboring lumber companies. In 1925, the narrow-gauge railroad was leased to the Southern Pacific Railroad and later converted to a standard-gauge railroad. After the conversion, the line offered nonstop overnight service between San Francisco and Tahoe City. The line was abandoned in 1943 as more automobiles made their way to the lake, negating the need for rail travel.

Roads

Few roads were constructed in the Tahoe Basin in the 1850s because travelers looked to avoid crossing the often-treacherous mountains. As a result, most traffic traversed the mountains to the north and south of the basin, where more gradual routes could accommodate wagons. In the early 1850s, Scott's route (Placer County Emigrant Road) connected Auburn to the Comstock mines. The road entered the Tahoe Basin at Tahoe City and wound its way along the Lake's North Shore, following the route of present-day SR 28. When the CPRR was completed over Donner Pass in 1868, the Tahoe Basin ceased to be the major way station in crossing the Sierra. By the turn of the twentieth century, the Old West Shore Road (also known as Tahoe Tavern Highway) was in place. The road follows the same general alignment as present-day SR 89 in the vicinity of Tahoe City. Present-day Mackinaw Road served as the original route from Truckee to Tahoe City. Most of the transportation routes during the late nineteenth and early twentieth centuries were developed by private promoters and local business boosters. The passage of the Federal-Aid Road Act in 1916 led to the upgrade and improvement of roads in the Tahoe area, with many upgrades occurring on the North and West Shores of Lake Tahoe. The completion in the early 1930s of a highway (the Brockway Highway, now SR 28) that encircled the lake took away much of the freight and passenger business from railroad and steamers. During this same period, the Lincoln Highway (present-day U.S. Highway 50) became the major access road to the lake, and all roads connecting Lake Tahoe to Nevada and California were paved.

The Truckee River Bridge (Fanny Bridge) was constructed in 1928 by the State of California Department of Public Works (now California Department of Transportation [Caltrans]). The bridge, located near the outlet of Truckee Dam, apparently replaced a wooden bridge. Fanny Bridge was designed as part of the extensive highway system being put in place in the Tahoe Region during that period, which included SR 89, SR 28, and U.S. Highway 50. The bridge is known as "Fanny Bridge" because of the lineup of "fannies" of those watching the huge trout feeding below the outlet gates.

Tourism

With improved transportation routes, Lake Tahoe became more accessible to the public and quickly became a summer destination spot. The Tahoe area was increasingly seen as a pleasure and health resort; fishing, hunting, swimming, and gambling were all popular pastimes. As the Region attracted more tourists, diverse resorts appeared along the lakeshore. These included the Lake House at Al Tahoe, E. J. Baldwin's Tallac, and the Tahoe Tavern in Tahoe City. Visitors from San Francisco's elite and from mining and business interests on the Comstock came to enjoy the hotels, while those of more modest means vacationed in the rustic cottages and campgrounds. The Tahoe Tavern, located just south of Tahoe City, was operated by the Bliss family. The resort was accessed by the LTR&T Co. line and served as a terminal point for telegraph wire services. The tavern survived into the 1960s, when it was dismantled to make room for the area's first condominium complex, also called the Tahoe Tavern.

By the 1950s and 1960s, several ski resorts and casinos were established in the Tahoe area, changing the character of the lake into a year-round destination. At the same time, the states of California and Nevada as well as the U.S. Forest Service (USFS) acquired large parcels of land immediately adjacent to the lake in efforts to control development around the lake. The 1960 Olympic Games in Squaw Valley further established Lake Tahoe as a year-round recreation area.

Tahoe City

In 1861, settler John McDonald constructed a log cabin near the lake in present-day Tahoe City. By 1863, a settlement was laid out by a party of men that included William Pomin, who saw the potential commercial value of the site at the outlet of Lake Tahoe. The community was briefly known as Tahoe Landing before it became Tahoe City. The CPRR laid track through nearby Truckee in 1868 and the new town quickly grew into a destination resort and became an official townsite in 1871.

Located at the mouth of the Truckee River, Tahoe City became the most heavily populated community on the lake in the mid-nineteenth century. Farming, lumber, and some fishing supported the town in its early years. Feed was in great demand for livestock used in the timber and mining industries in the latter part of the twentieth century. As the need for horses and therefore feed dwindled, the former meadow near the SR 28/SR 89 junction and north of Fanny Bridge that was used for haying was replaced with a golf course.

Fishing also played a role in the local economy because of the abundance of fish in the lake. Trout caught in the lake waters were shipped to markets as far away as San Francisco and Chicago. By 1887, the California Fish Commission established two hatcheries at the lake, including one near Tahoe City, east of the project area. However, within a relatively short period of time, the construction of dams, excessive catches, and disturbance of spawning grounds resulted in the decline of the native fishery. The California Legislature banned commercial fishing at Lake Tahoe in 1917, although the law proved to have little effect on the local fishing industry.

As the lumbering business began to wane toward the end of the nineteenth century, locals turned their attention to tourism. As described previously, the Bliss family focused on large-resort development and transportation to further attract affluent Bay Area travelers. The Blisses also focused on improving transportation to the lake. This resulted in the construction of a narrow-gauge railroad (the LTR&T Co.) from Truckee to the Tahoe City area, which was in place by 1901. During this time, the Tahoe City community also became a major transshipment point for goods and materials delivered from the West because of the piers built along its shore.

Construction of the Lake Tahoe Dam began in 1909 to replace a five-gate wooden dam, built by the Donner Lumber and Boom Company, which were designed to back up a head of water to flush accumulated logs to nearby lumber mills. Stone and Webster Power Company completed the replacement dam in 1913 after years of court battles related to water jurisdiction in the Tahoe area. In 1915, the U.S. government assumed control of the outlet dam, following a federal court decree. A gatekeeper's house was constructed near the dam between 1910 and 1913. The gatekeeper oversaw water flow to the Truckee River and parts of Nevada.

By the 1920s, automobiles and improved roads generated growth in the community of Tahoe City. Businesses along Main Street (later Lake Street and presently North Lake Boulevard) included a service station, lodging houses and motels, restaurants, grocery stores, saloons, a lumber company, and fishing tackle shops. After some lean years in the 1930s and during World War II, Tahoe City and other nearby communities gradually grew into a year-round destination as roads and bus and rail service to the Region improved.

However, it was the arrival of the 1960 Olympic Games that permanently transformed the small community of Tahoe City into a bustling town. The Olympics ushered in new highway construction, the development of game facilities, and the expansion of public and private services of the area. New businesses in Tahoe City included restaurants, stores, a hotel built by the local Henrikson brothers, and the establishment of a year-round Bank of America. The community continued to grow throughout the twentieth century; over time, modest family-oriented dwellings gave way to modern subdivisions and exclusive homes as lake dwellers increased the size and use of their properties throughout the Lake Tahoe Region.

RECORDS SEARCH

NCIC Records Search

A confidential records search for the APE and a surrounding one-half-mile buffer was conducted at the Northern California Information Center (NCIC) on November 3, 2011. The search included a review of the following documents and sources:

- ▲ NRHP
- ▲ CRHR
- ▲ *California Inventory of Historic Resources* (1976)
- ▲ *California Points of Historical Interest* (May 1992 and updates)
- ▲ *California Historical Landmarks* (1996)
- ▲ Directory of Properties in the Historic Property Data File
- ▲ Archaeological Determinations of Eligibility (State Office of Historic Preservation computer lists dated August 9, 2011, and August 15, 2011)
- ▲ Survey of Surveys (1989)
- ▲ U.S. General Land Office Plats
- ▲ Base maps indicating reported cultural resources and reported previous investigations

The records search identified 12 cultural resources located at least partially within the APE and 15 cultural resources within one-half mile of the APE. The cultural resources identified within the APE consist of one prehistoric cultural resource, 10 historic-era cultural resources, and one multiple-component cultural resource (containing both prehistoric and historic-era resources). Two of the cultural resources located within the APE have been determined eligible for listing in the NRHP. These include the multiple-component site located in the northeast portion of the APE on the south side of the Truckee River at the Gatekeeper's Museum, and the Truckee River Dam and Gates located in the same vicinity. The Truckee River Dam and Gates are also listed in the CRHR as State Historical Landmark #797.

Of the 15 cultural resources located within one-half mile of the APE, five have no available information, one is a prehistoric cultural resource, and nine are historic-era cultural resources. The prehistoric site is a Native American Traditional Cultural Property. One of the cultural resources—the Tahoe Arts Center—is listed in both the CRHR and the NRHP. This resource is located very close to, but outside of, the northern portion of the APE. Three of the cultural resources—the Pepper Tree Inn, a fence line, and the Tahoe Inn/Mi Casa Too—have been determined not eligible for listing in the NRHP.

The records search identified a total of nine previous investigations that have occurred at least partially within the APE. The investigations were conducted for a variety of project types such as sewer line relocations, trail construction, and river restoration. Likewise, the investigations were performed for a variety of organizations, such as Placer County, USFS, and the Tahoe City Public Utility District.

U.S. Forest Service Consultation

In addition to the record search conducted at the NCIC, a records search was conducted by Thomas L. Fuller, Heritage Resource Manager for the Lake Tahoe Basin Management Unit for the USFS of Forest Service records in April 2014. The USFS record search identified two additional reports that had been completed at least partially within the project area. The record search did not identify any additional cultural resources.

Native American Consultation

The NAHC was contacted to request a search of its sacred lands file, along with contact information for Native American representatives who might have details about cultural resources in the project area. In its response, dated December 21, 2011, the NAHC stated that its search of the sacred lands file had failed to identify any Native American cultural resources in the immediate project area. The NAHC also provided a list of 11 Native American representatives, recommending that these individuals be contacted for information regarding cultural resources. The NAHC also recommended making follow-up telephone calls to any representatives from whom no response was received after two weeks, to ensure that they received the original contact letters.

Contact letters were sent to the 11 Native American representatives identified by the NAHC. The contact letters briefly described the project alternatives, presented a map indicating the project area boundary, and requested any information about cultural resources or comments and concerns about the project alternatives.

No replies were received as a result of initial contact efforts; however, several individuals responded to follow-up efforts. Follow-up phone calls to Native American representatives were made on March 6 and March 13, 2012. During subsequent contact, Mr. Darrel Cruz, cultural resources coordinator of the Washoe Tribe of Nevada and California, recommended that identified Native American site boundaries be flagged and avoided during project activities. He also recommended that Native American monitoring be provided during ground-disturbing activities in sensitive areas in the immediate vicinity of Fanny Bridge and along the Truckee River, including areas near the Caltrans maintenance yard.

Additional Built Environment Research and Consultation

Additional background research was conducted regarding the history of Lake Tahoe, Tahoe City, and Placer County in general. Research efforts included a search of resources at the California State Library, Sacramento; the North Lake Tahoe Historical Society; and the Building Division of Placer County.

On March 7, 2012, letters of inquiry were sent to the North Lake Tahoe Historical Society in Tahoe City and the Placer County Historical Society and the Placer County Department of Parks and Museums in Auburn. As of January 2014, no responses had been received.

PEDESTRIAN SURVEYS

Two archaeologists conducted a pedestrian survey on November 16, 2011. The archaeologists systematically walked the APE at 15-meter transects to ensure adequate, intensive-level survey coverage. Pin flags were carried to mark any artifacts identified during the survey and Trimble GPS units were carried to plot the location of any newly identified cultural resources. The pedestrian survey did not identify any previously unrecorded archaeological resources within the APE.

BUILT ENVIRONMENT SURVEY

Architectural historians surveyed and recorded built-environment cultural resources in the APE on January 11, 2012. The resources were recorded through photography and written notes and documented on the appropriate forms. Eighteen buildings and structures in the APE that predate 1967 were evaluated in terms of their historical significance. Three additional properties (Caltrans maintenance yard, Lake Tahoe Dam, and Fanny Bridge) were previously evaluated for NRHP and CRHR criteria. The built environment survey did not identify any additional historically significant properties within the APE.

RESOURCES ON THE PROJECT SITE

P-31-844

This archaeological resource consists of a low-density lithic scatter with two areas of higher concentration, as well as a historic-era component consisting primarily of historic-era artifacts in the upper 8 inches of the site deposit. Test excavations conducted in 2001 recommended that a portion of the site was eligible for listing in the NRHP. Only the western edge of P-31-844 is located within the APE; this portion of the site was noted as not being a contributing element to the resource's eligibility for listing and is, therefore, not historically significant for the purposes of CEQA, NEPA, or the TRPA Code of Ordinances.

P-31-1889

This archaeological resource consists of the Ward Creek Spur of the Lake Tahoe Railway & Transportation Company line. The railroad was constructed to facilitate tourism, specifically with the Tahoe Tavern, which was located approximately one-half mile south of Tahoe City. The resource was previously evaluated and recommended not eligible for listing in the NRHP, but recommend eligible for listing in the CRHR. It was noted, however, that most of the portions of the resource were not contributing elements to its eligibility for listing in the CRHR because they lacked integrity. A map showing the level of integrity for various portions of the resource indicates that the portions within the current APE either are completely destroyed or paved or have been severely damaged. The pedestrian survey confirmed that there are no portions of the resource within the APE that are contributing elements to its eligibility for listing in the CRHR. Therefore, this resource is not historically significant for the purposes of CEQA, NEPA, or the TRPA Code of Ordinances for this project.

Fanny Bridge

This bridge is officially named the Truckee River Bridge, but is locally known as "Fanny Bridge," as described above. The structure is not significant for associations with the development of Tahoe City, nor did any persons associated with Tahoe City make significant contributions to history at the local, state, or national level, and its architectural style is not an important example of a master builder or designer. Therefore, Fanny Bridge was determined to be not eligible for listing in the NRHP or CRHR and is not historically significant for the purposes of CEQA, NEPA, or the TRPA Code of Ordinances.

Lake Tahoe Dam (and associated Outlet Gates)

The Outlet Gates and the Gatekeeper's Cabin were listed in the NRHP in 1972 as part of a district. The Outlet Gates are also listed as California Historical Landmark No. 797. The Lake Tahoe Dam was listed in the NRHP in 1981 as an individual resource. In 2006, as part of the Lake Tahoe Outlet Lakeside Trail Crossing Project, alterations were made to the dam and outlet gate's setting. In January 2012, the resources were surveyed by architectural historians as part of the *State Route 89 Realignment/Fanny Bridge Community Revitalization Project, Placer County* project. It was determined that the changes that occurred in 2006 did not alter the two resources' integrity of location, design, materials, workmanship, feeling and association. The dam and gates remain eligible for the NRHP.

The Gatekeeper's Cabin

The Gatekeeper's Cabin was listed in the NRHP in 1972 as part of the same district as the Outlet Gates. The Gatekeeper's Cabin was also listed as a California Point of Historical Interest in 1974. The Gatekeeper's Cabin was destroyed by fire in the 1978 and is no longer extant. A replica of the cabin was built on top of the original cabin's foundation in 1981. The replica is less than 45 years old and is considered an exempt property under the *Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservations, the California State Preservation Officer, and the California Department of Transportation Property Type 4: Buildings, Structures, Objects, Districts, and Sites 30 to 50 Years Old*. Therefore, the replica was not evaluated for NRHP/CRHR significance and is not historically significant for the purposes of CEQA or NEPA.

4.4.4 Environmental Consequences and Mitigation Measures

METHODS AND ASSUMPTIONS

The impact analysis for cultural resources is based on the findings and recommendations of the reports titled *Historical Resources Evaluation Report* and the *Archaeological Survey Report* and additional records searches and surveys, as described above. This section includes a joint NEPA/CEQA/TRPA analysis of impacts to cultural resources and evaluates impacts of the project alternatives using NEPA, CEQA, and TRPA criteria.

SIGNIFICANCE CRITERIA

NEPA Criteria

An environmental document prepared to comply with NEPA must consider the context and intensity of the environmental effects that would be caused by or result from the proposed action. Under NEPA, the significance of an effect is used solely to determine whether an EIS must be prepared. The factors that are taken into account under NEPA to determine the significance of an action in terms of the context and the intensity of its effects are encompassed by the CEQA criteria used for this analysis. No specific factors related to cultural resources are contained in NEPA, CEQ Regulations Implementing NEPA, or FHWA NEPA regulations in 23 CFR 771 et seq.

TRPA Criteria

The “Archeological/Historical” criteria from the TRPA Initial Environmental Checklist were used to evaluate the impacts of the alternatives for TRPA compliance. The checklist asks whether the project would result in the following conditions.

- ▲ Will the proposal result in an alteration of or adverse physical or aesthetic effect to a significant archaeological or historical site, structure, object, or building?
- ▲ Is the proposed project located on a property with any known cultural, historical, and/or archaeological resources, including resources on TRPA or other regulatory official maps or records?
- ▲ Is the property associated with any historically significant events and/or sites or persons?
- ▲ Does the proposal have the potential to cause a physical change which would affect unique ethnic cultural values?
- ▲ Will the proposal restrict historic or pre-historic religious or sacred uses within the potential impact area?

CEQA Criteria

To determine whether environmental impacts to cultural resources are significant environmental effects, Appendix G of the State CEQA Guidelines asks whether a project would do any of the following:

- ▲ cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5 of the CEQA Guidelines;
- ▲ cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5 of the CEQA Guidelines;
- ▲ directly or indirectly destroy a unique paleontological resource or site or unique geologic feature (CEQA Guidelines); or
- ▲ disturb any human remains, including those interred outside of formal cemeteries.

ENVIRONMENTAL EFFECTS OF THE PROJECT ALTERNATIVES

Impact 4.4-1. Historical resources.

The action alternatives have the potential to affect the NRHP-listed Lake Tahoe Dam and associated Outlet Gates through the rehabilitation or replacement of the adjacent Fanny Bridge. The action alternatives would not physically alter the dam or gates; however, construction would occur immediately adjacent to the resources. Overall, the replacement or rehabilitation of Fanny Bridge would result in a bridge that would be similar in size and scale to the existing bridge and the new elements would be of comparable visual relationship to that of the existing bridge. Therefore, while there would be no change in the significance of the resource, because of the risk of construction damage to the resource this impact would be **potentially significant** for Alternatives 1, 2, 3, 4, 6, and 6a. There would be **no impact** under Alternative 5.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

This alternative would include construction of a new bridge to be located approximately 1,800 feet southwest of the existing Fanny Bridge, the construction of a realigned SR 89 through the 64-Acre Tract, realignment of existing bike paths, modifications to the existing SR 89 to become a local road for approximately 2,000 feet south of SR 28, the rehabilitation or replacement of Fanny Bridge, and modifications to the Caltrans maintenance yard, T-TSA sewer line and NSEF sewer export main, and the layout of the wye.

The *Historical Resources Evaluation Report* prepared for the SR 89/Fanny Bridge Project identified two resources (the Lake Tahoe Dam and associated Outlet Gates) as being eligible for and listed in the NRHP and CRHR. The SR 89/Fanny Bridge Project has the potential to affect these resources through the rehabilitation or replacement of the adjacent Fanny Bridge. The SR 89/Fanny Bridge Project would not cause the physical destruction, alteration, or removal of the dam or gates and would not change the character of the property or cause its neglect or transfer, lease or sale. However, with regard to criterion v of ACHP's Criteria of Adverse Effect 36 CFR 800.5 (a)(2), the SR 89/Fanny Bridge Project would introduce new visual elements (the construction of a new bridge or potential reconstruction of existing bridge elements) to the surrounding environment of the dam and gates.

Architectural treatments for the new bridge would likely include rock veneers, rock form liners, wood grained textures, and stained concrete. The new bridge would be in the same proximity to the dam and gates; however, these new elements would be of comparable visual relationship to that of the existing bridge. Overall, the proposed construction would be similar in size and scale to the existing bridge and the new bridge would be commensurate with the existing bridge and view shed.

The replacement of Fanny Bridge or the potential reconstruction of existing bridge elements would occur in close proximity to the Lake Tahoe Dam and associated Outlet Gates, including the stilling basin structure that extends downstream of the dam on the riverbed to the immediate vicinity of the existing bridge. The stilling basin is a part of the dam structure. Modifications to the pile supports of the bridge could crack or otherwise damage the stilling basin structure, based on their proximity. Fanny Bridge rehabilitation or reconstruction actions could cause damage to the historic property. Therefore, while there would be no change in the significance of the Lake Tahoe Dam and associated Outlet Gates as historical resources, because of the risk of construction damage to the resource, this alternative would result in a **potentially significant** impact.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Alternative 2 includes the project components described above under Alternative 1 except that bollards would be placed to the north and south of Fanny Bridge to prohibit vehicular traffic, and access would be provided only for pedestrians, bicyclists, and emergency vehicles. The rehabilitation or replacement of Fanny Bridge would occur under this alternative; therefore, the same new visual elements would be introduced to the environment surrounding the dam and gates and the same potential for construction-related damage as

under Alternative 1 (please see Alternative 1 under Impact 4.4-1 for a complete discussion). This impact would be **potentially significant**.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Alternative 3 includes the project components described above under Alternative 1, except that access to Fanny Bridge would only be available from the north, via SR 28. A cul-de-sac would be constructed on the southern side of Fanny Bridge, near the transit center (please see Alternative 1 under Impact 4.4-1 for a complete discussion). The rehabilitation or replacement of Fanny Bridge would occur under this alternative; therefore the same new visual elements would be introduced to the environment surrounding the dam and gates and the same potential for construction-related damage as under Alternative 1. This impact would be **potentially significant**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Alternative 4 includes the project components described above under Alternative 1 (please see Alternative 1 under Impact 4.4-1 for a complete discussion). However, the two-lane roundabout at the SR 89/SR 28 junction would be replaced with a traditional signalized intersection, and a sweeping curve diverting vehicles onto realigned SR 89 would replace the eastern roundabout. The rehabilitation or replacement of Fanny Bridge would occur under this alternative; therefore the same new visual elements would be introduced to the environment surrounding the dam and gates and the same potential for construction-related damage as under Alternative 1. This impact would be **potentially significant**.

ALTERNATIVE 5: NO ACTION

Because there would be no improvements under the No Action alternative, there would be no rehabilitation or replacement of Fanny Bridge and therefore **no impact** to historical resources.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

This alternative would include the rehabilitation or replacement and widening of Fanny Bridge and modifications to the free-right-turn lane at the wye. The rehabilitation or replacement of Fanny Bridge would occur under this alternative; therefore the same new visual elements would be introduced to the environment surrounding the dam and gates and the same potential for construction-related damage as under Alternative 1 (please see Alternative 1 under Impact 4.4-1 for a complete discussion). This impact would be **potentially significant**.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Alternative 6a is similar to Alternative 6 except that it would rehabilitate or replace the existing bridge with a four-lane structure instead of a five-lane structure and would have a roundabout at the location of the current wye rather than a traffic signal. The rehabilitation or replacement of Fanny Bridge would occur under this alternative; therefore the same new visual elements would be introduced to the environment surrounding the dam and gates and the same potential for construction-related damage as under Alternative 1 (please see Alternative 1 under Impact 4.4-1 for a complete discussion). This impact would be **potentially significant**.

Impact 4.4-2. Archaeological resources.

Construction and excavation activities associated with the action alternatives could result in sediment disturbance and removal, which can adversely affect archaeological resources. Because Alternatives 1, 2, 3, 4, 6, and 6a would include excavation and other ground-disturbing activities, these alternatives could result in adverse physical effects to known and unknown archaeological resources. This impact is **potentially significant** for Alternatives 1, 2, 3, 4, 6, and 6a. There would be **no impact** under Alternative 5.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

This alternative would include construction of a new bridge to be located approximately 1,800 feet southwest of the existing Fanny Bridge, the construction of a realigned SR 89 through the 64-Acre Tract, realignment of existing bike paths, modifications to the existing SR 89 to become a local road for approximately 2,000 feet south of SR 28, the rehabilitation or replacement of Fanny Bridge, and modifications to the Caltrans maintenance yard. These elements would involve excavation, construction, grading, and pavement. Realignment of the T-TSA sewer line and modification to the NSEF sewer export main would occur within existing disturbed areas (e.g., within roadway) but would require excavation at a new location. Less ground disturbance would be required related to the modification options at the wye as this component would mostly be surface work on an already paved area.

The records search prepared for the SR 89/Fanny Bridge Project identified 12 cultural resources located at least partially within the APE. One of the archaeological resources located within the APE has been determined eligible for listing in the NRHP and another has been recommended eligible for listing in the CRHR. These include a multiple-component site and the Ward Creek Spur of the Lake Tahoe Railway & Transportation Company line. For both of these, the portion of the resources located within the APE have been determined not to be a contributing element to the site's eligibility for listing and are, therefore, not historically significant for the purposes of CEQA or NEPA.

However, given the findings of the pedestrian survey, background research, and records searches, the project area has high sensitivity for prehistoric and historic-era archaeological resources. Project construction could encounter previously undiscovered or unrecorded archaeological sites and materials during project-related preconstruction or construction-related ground disturbing activities. These activities could damage or destroy these archaeological resources.

Because all of the elements in Alternative 1 would involve some level of ground disturbing activities, archaeological resources could be damaged or destroyed and this impact would be **potentially significant**.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Alternative 2 includes the components described above under Alternative 1, except that bollards would be placed to the north and south of Fanny Bridge to prohibit vehicular traffic and access would be provided only for pedestrians, bicyclists, and emergency vehicles. Construction activities would occur at the same locations as under Alternative 1; therefore the same types and magnitude of physical activities and ground disturbance would occur (please see Alternative 1 under Impact 4.4-2 for a complete discussion). This impact would be **potentially significant**.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Alternative 3 includes the components described above under Alternative 1, except that access to Fanny Bridge would only be available from the north, via SR 28. A cul-de-sac would be constructed on the southern side of Fanny Bridge, near the transit center. Construction activities would occur at the same locations as under Alternative 1; therefore the same types and magnitude of physical activities and ground disturbance would occur (please see Alternative 1 under Impact 4.4-2 for a complete discussion). This impact would be **potentially significant**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Alternative 4 includes the components described above under Alternative 1, except the two-lane roundabout at the SR 89/SR 28 junction would be replaced with a traditional signalized intersection, and a sweeping curve diverting vehicles onto realigned SR 89 would replace the eastern roundabout. Construction activities would occur at the same locations as under Alternative 1; therefore the same types and magnitude of physical activities and ground disturbance would occur (please see Alternative 1 under Impact 4.4-2 for a complete discussion). This impact would be **potentially significant**.

ALTERNATIVE 5: NO ACTION

Because there would be no improvements under the No Action alternative, there would be no construction-related ground disturbance and therefore **no impact**.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

This alternative would include the rehabilitation or replacement of Fanny Bridge and modifications to the free-right-turn lane at the wye. While the magnitude of physical activities and ground disturbance would be less, these elements would involve ground-disturbing activities, such as grading, excavation, and other earth-moving activities, in which archaeological resources could be damaged or destroyed. Therefore this impact would be **potentially significant**.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

This alternative would include the rehabilitation or replacement of Fanny Bridge and modifications to the free-right-turn lane at the wye. While the magnitude of physical activities and ground disturbance would be less, these elements would involve ground-disturbing activities, such as grading, excavation, and other earth-moving activities, in which archaeological resources could be damaged or destroyed. Therefore this impact would be **potentially significant**.

Impact 4.4-3. Accidental discovery of human remains.

Construction and excavation activities associated with development activities result in sediment disturbance and removal, which can unearth human remains if they are present. Because the project would allow excavation and other ground-disturbing activities, this impact is **potentially significant** for Alternatives 1, 2, 3, 4, 6, and 6a. There would be **no impact** under Alternative 5.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

This alternative would include construction of a new bridge to be located approximately 1,800 feet southwest of the existing Fanny Bridge, the construction of a realigned SR 89 through the 64-Acre Tract, realignment of existing bike paths, modifications to the existing SR 89 to become a local road for approximately 2,000 feet south of SR 28, the rehabilitation or replacement of Fanny Bridge, and modifications to the Caltrans maintenance yard. These elements would involve large amounts of excavation, construction, grading, and pavement. Realignment of the T-TSA sewer line and modifications to the NSEF sewer export main would occur within existing disturbed areas (e.g., within roadway) but would require excavation at a new location. Less ground disturbance would be required related to the modification options at the wye as this component would mostly be surface work on an already paved area.

Based on documentary research, no evidence suggests that any prehistoric or historic-era marked or unmarked human interments are present within or in the immediate vicinity of the APE. However, there is a possibility that unmarked, previously unknown Native American or other graves could be present within the APE, and could be uncovered by project-related construction activities.

The location of grave sites and Native American remains are potentially not known in advance, and can occur outside of identified cemeteries or burial sites. As with archaeological resources, disturbance of human remains are more likely to occur in previously undisturbed and undeveloped areas, where excavation and ground-disturbing activities have not already resulted in discovery. However, human remains may be discovered in developed and disturbed areas, as well, and may also be of recent origin.

Because all of the elements in Alternative 1 would involve some level of ground disturbing activities, human remains could be damaged or destroyed and this impact would be **potentially significant**.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Alternative 2 includes the project components described above under Alternative 1, except that bollards would be placed to the north and south of Fanny Bridge to prohibit vehicular traffic and access would be provided only for pedestrians, bicyclists, and emergency vehicles. Construction activities would occur at the same locations as under Alternative 1; therefore the same types and magnitude of physical activities and ground disturbance would occur (please see Alternative 1 under Impact 4.4-3 for a complete discussion). This impact would be **potentially significant**.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Alternative 3 includes the project components described above under Alternative 1, except that access to Fanny Bridge would only be available from the north, via SR 28. A cul-de-sac would be constructed on the southern side of Fanny Bridge, near the transit center. Construction activities would occur at the same locations as under Alternative 1; therefore the same types and magnitude of physical activities and ground disturbance would occur (please see Alternative 1 under Impact 4.4-3 for a complete discussion). This impact would be **potentially significant**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Alternative 4 includes the project components described above under Alternative 1, except the two-lane roundabout at the SR 89/SR 28 junction would be replaced with a traditional signalized intersection, and a sweeping curve diverting vehicles onto realigned SR 89 would replace the eastern roundabout. Construction activities would occur at the same locations as under Alternative 1; therefore the same types and magnitude of physical activities and ground disturbance would occur (please see Alternative 1 under Impact 4.4-3 for a complete discussion). This impact would be **potentially significant**.

ALTERNATIVE 5: NO ACTION

Because there would be no improvements under the No Action alternative, there would be no construction-related ground disturbance and, therefore, a **no impact** conclusion is warranted.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

This alternative would include the rehabilitation or replacement of Fanny Bridge and modifications to the free-right-turn lane at the wye. While the magnitude of physical activities and ground disturbance would be less, these elements would involve ground-disturbing activities, such as grading, excavation, and other earth-moving activities, in which human remains resources could be damaged or destroyed. Therefore this impact would be **potentially significant**.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

This alternative would include the rehabilitation or replacement of Fanny Bridge and modifications to the free-right-turn lane at the wye. While the magnitude of physical activities and ground disturbance would be less, these elements would involve ground-disturbing activities, such as grading, excavation, and other earth-moving activities, in which human remains resources could be damaged or destroyed. Therefore this impact would be **potentially significant**.

Impact 4.4-4. Undiscovered paleontological resources.

Although ground disturbing activities associated with the project could affect subsurface resources, because the area has a low likelihood to contain paleontological resources, this impact would be **less than significant** for Alternatives 1, 2, 3, 4, 6, and 6a. There would be **no impact** under Alternative 5.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

This alternative would include construction of a new bridge to be located approximately 1,800 feet southwest of the existing Fanny Bridge, the construction of a realigned SR 89 through the 64-Acre Tract,

realignment of existing bike paths, modifications to the existing SR 89 to become a local road for approximately 2,000 feet south of SR 28, the rehabilitation or replacement of Fanny Bridge, and modifications to the Caltrans maintenance yard. These elements would involve large amounts of excavation, construction, grading, and pavement. Realignment of the T-TSA sewer line and modifications to the NSEF sewer export main would occur within existing disturbed areas (e.g., within roadway) but would require excavation at a new location. Less ground disturbance would be required related to the free-right-turn lane modification options at the wye as this component would mostly be surface work on an already paved area.

There is no evidence identifying any sensitivity for paleontological resources in the Tahoe Region. Basin surfaces were created by geologic uplift and have deep granitic bedrock and shallow surface soils. Because the Region is not underlain with sedimentary rock formations (which are most likely to contain fossils), it is not likely to contain major paleontological resources. Ground-disturbing activities, such as grading and excavation, are activities that can result in the disturbance of paleontological resources in areas where they may be present. Although ground-disturbing activities associated with this alternative could affect subsurface resources, because the area has a low likelihood to contain paleontological resources, this impact would be **less than significant**.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Alternative 2 includes the components described above under Alternative 1, except that bollards would be placed to the north and south of Fanny Bridge to prohibit vehicular traffic and access would be provided only for pedestrians, bicyclists, and emergency vehicles. Construction activities would occur at the same locations as under Alternative 1; therefore the same types and magnitude of physical activities would occur (please see Alternative 1 under Impact 4.4-4 for a complete discussion). Although ground-disturbing activities associated with this alternative could affect subsurface resources, because the area has a low likelihood to contain paleontological resources, this impact would be **less than significant**.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Alternative 3 includes the components described above under Alternative 1, except that access to Fanny Bridge would only be available from the north, via SR 28. A cul-de-sac would be constructed on the southern side of Fanny Bridge, near the transit center. Construction activities would occur at the same locations as under Alternative 1; therefore the same types and magnitude of physical activities would occur (please see Alternative 1 under Impact 4.4-4 for a complete discussion). Although ground disturbing activities associated with this alternative could affect subsurface resources, because the area has a low likelihood to contain paleontological resources, this impact would be **less than significant**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Alternative 4 includes the components described above under Alternative 1, except the two-lane roundabout at the SR 89/SR 28 junction would be replaced with a traditional signalized intersection, and a sweeping curve diverting vehicles onto realigned SR 89 would replace the eastern roundabout. Construction activities would occur at the same locations as under Alternative 1; therefore the same types and magnitude of physical activities would occur (please see Alternative 1 under Impact 4.4-4 for a complete discussion). Although ground disturbing activities associated with this alternative could affect subsurface resources, because the area has a low likelihood to contain paleontological resources, this impact would be **less than significant**.

ALTERNATIVE 5: NO ACTION

Because there would be no improvements under the No Action alternative, there would be no construction-related ground disturbance and therefore **no impact**.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

This alternative would include the rehabilitation or replacement of Fanny Bridge and modifications to the free-right-turn lane at the wye. These elements would involve ground-disturbing activities, such as grading,

excavation, and other earth-moving activities; however, because the area has a low likelihood to contain paleontological resources, this impact would be **less than significant**.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

This alternative would include the rehabilitation or replacement of Fanny Bridge and modifications to the free-right-turn lane at the wye. These elements would involve ground-disturbing activities, such as grading, excavation, and other earth-moving activities; however, because the area has a low likelihood to contain paleontological resources, this impact would be **less than significant**.

Impact 4.4-5. Ethnic and cultural values.

Because the project could result in physical changes to historic and prehistoric sites, unique ethnic cultural values could be affected, and historic or prehistoric religious or sacred uses within the APE could be restricted. Consultation with the Washoe tribe is required by federal, state and TRPA regulations, however, project activities could still uncover or destroy historic or archaeological resources as identified in Impacts 4.4-1 (historic) and 4.4-2 (archaeological). Additionally, as described in Impact 4.4-3 (human remains), project activities could result in accidental discovery of remains during grading and excavation. Accidentally discovered remains could be of Native American origin. Therefore, this impact is **potentially significant** for Alternatives 1, 2, 3, 4, 6, and 6a. There would be **no impact** under Alternative 5.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

This alternative would include construction of a new bridge to be located approximately 1,800 feet southwest of the existing Fanny Bridge, the construction of a realigned SR 89 through the 64-Acre Tract, realignment of existing bike paths, modifications to the existing SR 89 to become a local road for approximately 2,000 feet south of SR 28, the rehabilitation or replacement of Fanny Bridge, and modifications to the Caltrans maintenance yard. These elements would involve large amounts of excavation, construction, grading, and pavement. Realignment of the T-TSA sewer line and modifications to the NSEF sewer export main would occur within existing disturbed areas (e.g., within roadway) but would require excavation at a new location. Less ground disturbance would be required related to the free-right-turn lane modification options at the wye as this component would mostly be surface work on an already paved area.

Alternative 1 could result in physical changes to sites, structures, and areas that have religious or sacred significance. These could be permanent changes that alter or remove features or temporary changes that involve restriction of access to sites during construction activities for projects. These changes could infringe on sacred sites or uses that are adjacent to or within the boundaries of projects. For example, the proposed alignments of roads or the bike path could go through existing sacred sites, reducing the intactness of the site.

Consultation with Mr. Darrel Cruz, cultural resources coordinator of the Washoe Tribe of Nevada and California, concluded with the recommendation that identified Native American site boundaries be flagged and avoided during project activities. The record searches performed at NCIC and USFS revealed no cultural resources that would have particular religious or sacred significance. The NAHC stated that its search of the sacred lands file had failed to identify any Native American cultural resources in the immediate project area. Project construction is not expected to affect known historic or prehistoric religious or sacred uses within the APE. However, because construction-related ground-disturbing activities could encounter previously undiscovered or unrecorded resources, this alternative could result in physical changes to sites, structures, and areas that have religious or sacred significance or other cultural significance to the Washoe people. Therefore, this impact would be **potentially significant**.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Alternative 2 includes the components described above under Alternative 1, except that bollards would be placed to the north and south of Fanny Bridge to prohibit vehicular traffic and access would be provided only for pedestrians, bicyclists, and emergency vehicles. Construction activities would occur at the same

locations as under Alternative 1; therefore the same types and magnitude of physical activities would occur (please see Alternative 1 under Impact 4.4-5 for a complete discussion). This impact would be **potentially significant**.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Alternative 3 includes the components described above under Alternative 1, except that access to Fanny Bridge would only be available from the north, via SR 28. A cul-de-sac would be constructed on the southern side of Fanny Bridge, near the transit center. Construction activities would occur at the same locations as under Alternative 1; therefore the same types and magnitude of physical activities would occur (please see Alternative 1 under Impact 4.4-5 for a complete discussion). This impact would be **potentially significant**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Alternative 4 includes the components described above under Alternative 1, except the two-lane roundabout at the SR 89/SR 28 junction would be replaced with a traditional signalized intersection, and a sweeping curve diverting vehicles onto realigned SR 89 would replace the eastern roundabout. Construction activities would occur at the same locations as under Alternative 1; therefore the same types and magnitude of physical activities would occur (please see Alternative 1 under Impact 4.4-5 for a complete discussion). This impact would be **potentially significant**.

ALTERNATIVE 5: NO ACTION

Because there would be no improvements under the No Action alternative, there would be no construction-related ground disturbance and therefore **no impact**.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

This alternative would include the rehabilitation or replacement of Fanny Bridge and modifications to the free-right-turn lane at the wye. While the magnitude of physical activities and ground disturbance would be less, these elements would involve ground-disturbing activities, such as grading, excavation, and other earth-moving activities, in which archaeological resources could be damaged or destroyed. Therefore this impact would be **potentially significant**.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

This alternative would include the rehabilitation or replacement of Fanny Bridge and modifications to the free-right-turn lane at the wye. While the magnitude of physical activities and ground disturbance would be less, these elements would involve ground-disturbing activities, such as grading, excavation, and other earth-moving activities, in which archaeological resources could be damaged or destroyed. Therefore this impact would be **potentially significant**.

4.4.5 Avoidance, Minimization, and/or Mitigation Measures

Mitigation Measure 4.4-1: Ensure historic integrity during construction.

This mitigation would apply for Alternatives 1, 2, 3, 4, 6, and 6a.

During design development, engineering design and specifications will be prepared to account for the proximity of construction activities associated with rehabilitation or replacement of Fanny Bridge to the Lake Tahoe Dam, Outlet Gates, and stilling basin and define separation distances, construction techniques, and other protective design details to avoid damage to the dam-related structures. This measure will include attention to the construction activity related to the bridge's pile support structures. Where project construction activities will take place in the vicinity of the Lake Tahoe Dam, Outlet Gates, and stilling basin, those facilities shall be clearly identified in the field to facilitate maintenance of a

physical separation from construction activities and other protection actions to adequately protect historically important features of the dam structure.

Significance after Mitigation

Implementation of Mitigation Measure 4.4-1 would reduce potentially significant impacts to historic resources because it would ensure the historic integrity of the Lake Tahoe Dam and Gates will be protected and maintained throughout the construction period, thereby avoiding a significant impact on the historic property. By ensuring adherence to the Secretary of the Interior's Standards, this impact would be reduced to a **less-than-significant** level for all action alternatives.

Mitigation Measure 4.4-2a: Conduct archaeological monitoring.

The following mitigation was included in the RTP/SCS EIR/EIS, which included the SR 89/Fanny Bridge Community Revitalization Project as one of the TTD Capital Improvement Program projects in the RTP. This mitigation would apply for Alternatives 1, 2, 3, 4, 6, and 6a.

In accordance with existing regulations, for ground-disturbing activities that have the potential to impact archaeological remains and that will occur in an area that has been determined by a qualified archaeologist to be an area that is sensitive for the presence of buried archaeological remains, the project proponent (e.g., TTD, local county, Caltrans, NDOT) will require the construction contractor to retain a qualified archaeologist to monitor those activities. Archaeological monitoring will be conducted in areas where there is likelihood that archaeological remains may be discovered but where those remains are not visible on the surface. Monitoring will not be considered a substitute for efforts to identify and evaluate cultural resources prior to the project initiation. Where necessary, the project proponent will seek Native American input and consultation.

Mitigation Measure 4.4-2b: Stop work in the event of an archaeological discovery.

The following mitigation was included in the RTP/SCS EIR/EIS, which included the SR 89/Fanny Bridge Community Revitalization Project as one of the TTD Capital Improvement Program projects in the RTP. This mitigation would apply for Alternatives 1, 2, 3, 4, 6, and 6a.

If potentially significant cultural resources are discovered during ground-disturbing activities associated with individual project preparation, construction, or completion, the project proponent will require the construction contractor to stop work in that area until a qualified archaeologist can assess the significance of the find, and, if necessary, develop appropriate treatment measures in consultation with TRPA and other appropriate agencies and interested parties. A qualified archaeologist will follow accepted professional standards in recording any find including submittal of the standard Department of Parks and Recreation (DPR) Primary Record forms (Form DPR 523) and location information to the California Historical Resources Information Center office (North Central Information Center) for California projects. The consulting archaeologist will also evaluate such resources for significance per California Register of Historical Resources eligibility criteria (PRC Section 5024.1; Title 14 CCR Section 4852). Consultation with the Nevada State Historic Preservation Officer will be undertaken for Nevada projects.

If the archaeologist determines that the find does not meet the TRPA standards of significance for cultural resources, construction may proceed. If the archaeologist determines that further information is needed to evaluate significance, the lead agency will be notified and a data recovery plan will be prepared.

Significance after Mitigation

Implementation of Mitigation Measures 4.4-2a and 4.4-2b would reduce potentially significant impacts to archaeological resources because mitigation would be developed in coordination with the appropriate federal, state, and/or local agency(ies) to avoid, move, record, or otherwise treat the resource appropriately, in accordance with pertinent laws and regulations. By providing an opportunity to avoid disturbance, disruption, or destruction of archaeological resources, this impact (Impact 4.4-2) would be reduced to a **less-than-significant** level for all action alternatives.

Mitigation Measure 4.4-3: Stop work if human remains are discovered.

The following mitigation was included in the RTP/SCS EIR/EIS, which included the SR 89/Fanny Bridge Community Revitalization Project as one of the TTD Capital Improvement Program projects in the RTP. This mitigation would apply for Alternatives 1, 2, 3, 4, 6, and 6a.

In accordance with existing regulations, if any human remains are discovered or recognized in any location on an individual project site, the project proponent will ensure that there will be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:

- a) The applicable County Coroner/Sheriff has been informed and has determined that no investigation of the cause of death is required; and
- b) If the remains are of Native American origin,
 1. The descendants of the deceased Native Americans have made a recommendation to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98, or
 2. The Native American Heritage Commission was unable to identify a descendant or the descendant failed to make a recommendation within 24 hours after being notified by the commission.
 3. The site shall be flagged and avoided during construction.
- c) If human remains, grave goods, or items of cultural patrimony (as defined in the Native American Graves Protection and Repatriation Act [NAGPRA]) are discovered during ground disturbing activities on Federal Property, work will cease until the provisions of NAGPRA are met.

Significance after Mitigation

Implementation of Mitigation Measure 4.4-3 would reduce potentially significant impacts to human remains because mitigation would be developed in coordination with the appropriate federal, state, and/or local agency(ies) to avoid, move, record, or otherwise treat the resource appropriately, in accordance with pertinent laws and regulations. By providing an opportunity to avoid disturbance, disruption, or destruction of archaeological resources, this impact (Impact 4.4-3) would be reduced to a **less-than-significant** level for all alternatives.

Mitigation Measure 4.4-5: Implement other cultural resources mitigation measures.

The following mitigation applies for Alternatives 1, 2, 3, 4, 6, and 6a.

Implement Mitigation Measures 4.4-2a, 4.4-2b, and 4.4-3.

Significance after Mitigation

Mitigation Measures 4.4-2a, 4.4-2b, and 4.4-3 would reduce this impact to a **less-than-significant** level for all alternatives because they would require 1) consultation with the Native American Heritage Commission and the Washoe Tribe; 2) require avoidance, preservation in place, excavation, documentation, and/or data recovery of historical and archaeological resources, and 3) require assessment of and adherence to a formal recommendation for any discovered human remains.

4.5 GEOLOGY, SOILS, LAND CAPABILITY, AND COVERAGE

4.5.1 Introduction

This section contains an evaluation of the potential impacts to geology, soils, land capability, and coverage associated with the implementation of the SR 89/Fanny Bridge Community Revitalization Project alternatives. The analysis includes a description of existing conditions and an analysis of changes to geologic conditions, relevant soil properties, and associated elements of land capability and coverage. Regulations and guidelines established by the Tahoe Regional Planning Agency (TRPA) and local jurisdictions, along with the California Environmental Quality Act (CEQA) statute and guidelines, provide the regulatory background that guides the assessment of potential environmental effects to these resources. Potential environmental effects related to water quality resulting from soil erosion and other stormwater issues are addressed in Section 4.7, "Hydrology and Water Quality." Cumulative impacts to geology, soils, land capability, and coverage are addressed in Chapter 5, "Cumulative Impacts."

Comments received on the Notice of Preparation related to geology, soils, land capability and coverage include requests for erosion hazard mapping and coverage analysis. These topics items are discussed in the analysis below.

4.5.2 Regulatory Setting

Regulations protecting the soil resources in the Tahoe Region are enforced by TRPA, the Lahontan Regional Water Quality Control Board (RWQCB) (through water quality regulations), and Placer County. Other regulations aid in the establishment of safe structures to ensure minimal, if any, impact on earth resources. The following discussion provides the background for applicable earth resource requirements in the Tahoe Region.

FEDERAL AGENCIES

National Earthquake Hazards Reduction Act

The National Earthquake Hazards Reduction Act was passed to reduce the risks to life and property resulting from earthquakes. To accomplish this, the act established the National Earthquake Hazards Reduction Program (NEHRP). The mission of NEHRP includes improved understanding, characterization, and prediction of hazards and vulnerabilities; improved building codes and land use practices; risk reduction through post-earthquake investigations and education; development and improvement of design and construction techniques; improved mitigation capacity; and accelerated application of research results. NEHRP designates the Federal Emergency Management Agency (FEMA) as the lead agency of the program and assigns several planning, coordinating, and reporting responsibilities. Other NEHRP agencies include the National Institute of Standards and Technology, National Science Foundation, and the U.S. Geological Survey (USGS).

TAHOE REGIONAL PLANNING AGENCY

Environmental Threshold Carrying Capacities

TRPA has established threshold carrying capacity standards and indicators for soil conservation. TRPA threshold standards are minimum standards of environmental quality to be achieved in the Tahoe Region. Every five years, TRPA evaluates the attainment status of all TRPA threshold standards. The 2011 Threshold Evaluation was completed in 2012 (TRPA 2012a).

TRPA has two soil conservation threshold standard indicator reporting categories, as follows:

- Land Coverage (impervious cover) Threshold Standard to comply with allowable land coverage limitations established in the Land Capability Classification of the Lake Tahoe Basin. This threshold standard indicator reporting category consists of nine different standards for the nine separate land capability districts (LCDs). All soils within the Region have been assigned an LCD based on their ability to tolerate disturbance and development while retaining their natural function. LCDs 1a to 3 are considered sensitive and LCD 7 is considered the most tolerant.

Stream environment zone (SEZ) Threshold Standard to restore 25 percent of the SEZ lands that have been identified as disturbed, developed or subdivided to attain a 5 percent increase in the area of naturally functioning SEZ lands.

See Table 4.5-1 for the Tahoe Region's 2011 status of the soil conservation threshold standards.

Table 4.5-1 2011 Status of the Soil Conservation Threshold Standards

Threshold Standard	Status
Land Coverage	
Land Capability District 1a	Considerably Better than Target
Land Capability District 1b	Considerably Worse than Target
Land Capability District 1c	Somewhat Better than Target
Land Capability District 2	Somewhat Better than Target
Land Capability District 3	Considerably Better than Target
Land Capability District 4	Considerably Better than Target
Land Capability District 5	Considerably Better than Target
Land Capability District 6	Considerably Better than Target
Land Capability District 7	Somewhat Better than Target
Stream Environment Zone Restoration	Considerably Worse than Target

Source: TRPA 2012a

Water Quality Management Plan

The Lake Tahoe Water Quality Management Plan (also known as the Section 208 Plan, in reference to the pertinent section of the Clean Water Act) (TRPA 2012b) is a framework that sets forth the components of the water quality management system in the Lake Tahoe Region, the desired water quality outcomes for the Tahoe Basin, and the mechanisms adopted by all the relevant entities to achieve and maintain those outcomes. The Handbook of Best Management Practices (BMPs) provides technical guidance and assistance to engineers, architects, consultants, builders, homeowners, and other agencies who are proposing a project in the Tahoe Basin that may affect water quality. It identifies and recommends BMPs for various situations (TRPA 2011). Elements of the 208 Plan relevant to Geology, Soils, Land Capability and Coverage are as follows.

Best management practices: Use of BMPs is mandatory for all new development, must be retrofitted for existing development, and is required for resource management uses (e.g., timber harvest, livestock grazing).

Land coverage restrictions: The land capability system limits the amount of allowable impervious surface coverage, especially on high erosion hazard lands and in SEZs. This element contains limited exceptions for public projects, coverage transfer, and coverage relocation (see Code of Ordinances, Chapter 30, below).

Roads and rights-of-way: RWQCB requires controls for potential erosion from new and existing roads, road maintenance activities, and snow and ice control.

Lake Tahoe Regional Plan

Several components of the Lake Tahoe Regional Plan address policies and regulations pertaining to geology, soils, land capability, and coverage: Goals and Policies, Code of Ordinances, and Water Quality Management Plan (TRPA 2012c; TRPA 2012b).

Goals and Policies

Goals and policies applicable to geology, soils, land capability, and coverage are included in several elements and subelements of the Goals and Policies document of the Regional Plan. The Natural Hazards Subelement addresses risks from natural hazards (e.g., flood, fire, avalanche, and earthquake). Specifically, Goal 1, Policy 2 prohibits new construction on, or disturbance of land within the 100-year floodplain and in the area of wave run-up except as necessary to implement the goals and policies of the Plan; and requires all public utilities, transportation facilities, and other necessary public uses located in the 100-year floodplain and area of wave run-up to be constructed or maintained to prevent damage from flooding and to not cause flooding. The Water Quality Subelement includes goals to reduce loads of sediment and algal nutrients to Lake Tahoe; meet sediment and nutrient objectives for tributary streams, surface runoff, and subsurface runoff; and restore 80 percent of the disturbed lands and specifies that the implementation of BMPs shall be required as a condition of approval for all projects. The Soils Subelement addresses soil erosion and loss of soil productivity through policies pertaining to coverage, including allowable coverage for categories of land uses in specific LCDs. This subelement also addresses special regulations regarding construction and soil disturbing activities occurring between October 15 and May 1.

Goals and policies of the Regional Plan that are related to erosion and coverage are located in the Conservation Element.

Soils GOAL 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-1.2.** No new land coverage or other permanent disturbance shall be permitted in land capability districts 1-3 except for those uses as noted in a, b, and c below:
 - A. Single family dwellings may be permitted in land capability districts 1-3 when reviewed and approved pursuant to the individual parcel evaluation system (IPES).
 - B. Public outdoor recreation facilities may be permitted in land capability districts 1-3 if:
 - i. The project is a necessary part of a public agency's long range plans for public outdoor recreation;
 - ii. The project is consistent with the recreation element of the Regional Plan;
 - iii. The project, by its very nature must be sited in land capability districts 1-3;
 - iv. There is no feasible alternative which avoids or reduces the extent of encroachment in land capability districts 1-3;
 - v. The impacts are fully mitigated;
 - vi. Land capability districts 1-3 lands are restored in the amount of 1.5 times the area of land capability districts 1-3 which is disturbed or developed beyond that permitted by the Bailey coefficients; and

vii. Alternatively, because of their public and environmental benefits, special provisions for non-motorized public trails may be allowed and defined by ordinances.

C. Public service facilities are permissible uses in land capability districts 1-3 if:

- i. The project is necessary for public health, safety or environmental protection;
- ii. There is no reasonable alternative, which avoids or reduces the extent of encroachment in land capability districts 1-3;
- iii. The impacts are fully mitigated;
- iv. Land capability districts 1-3 lands are restored in the amount of 1.5 times the area of land capability districts 1-3 which is disturbed or developed beyond that permitted by the Bailey coefficient; and
- v. Alternatively, because of their public and environmental benefits, special provisions for non-motorized public trails may be allowed and defined by ordinances.

- ▲ **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.
- ▲ **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 may be treated to reduce the risk of catastrophic wildfires.

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 SR 89/Fanny Bridge Community Revitalization Project.

Chapter 30 – Land Coverage Standards

Since the late 1970s, TRPA has used the land capability classification system known as the Bailey System (*Land-Capability Classification of the Lake Tahoe Basin, California-Nevada: A Guide to Planning* [Bailey 1974]) to guide land use planning, policy formulation related to the impacts of development on soil erosion and permitting of development. The Bailey System was developed as a threat assessment and planning tool to identify and mitigate adverse impacts to water quality and stream systems that occur from surface runoff and erosion related to development. The Bailey system is the basis of the land coverage standards and limitations set forth in Chapter 30 of the TRPA Code of Ordinances.

Coverage is defined by TRPA as a human-built structure or other impervious surface that prevents normal precipitation from directly reaching the surface of the land underlying the structure, therefore precluding or slowing the natural infiltration of water into the soil (Chapter 90 of the Code). TRPA further defines coverage as impervious surface (hard coverage) or compacted soil (soft coverage). Research has established the connection between impervious surfaces and water quality. Specifically, coverage may affect water quality as it reduces the amount of soil available to infiltrate water and has the potential to result in surface runoff, erosion, and delivery of pollutants to receiving waters.

To determine the level of coverage that would be appropriate in the Region, TRPA adopted the Bailey Land Classification system (Bailey 1974). The 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 (see Table 4.5-2). 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 4.5-2 Land Capability Districts for Lake Tahoe Region					
Capability Levels	Tolerance for Use	Slope Percent	Relative Erosion Potential	Runoff Potential	Disturbance Hazards
7	Most	0-5	Slight	Low to moderately low	Low hazard
6		0-16		Moderately high to high	
5		0-16		Low to moderately low	
4		9-30	Moderate	Moderately high to high	Moderate hazard lands
3		9-30		Low to moderately low	
2		30-50	High	Moderately high to high	High hazard lands
1a	Least				
1b	(Poor Natural Drainage)	30+	High	Moderately high to high	High hazard lands
1c	(Fragile Flora and Fauna)				

Source: Bailey 1974

In general (i.e., a parcel of up to 20 acres), a project site used to determine the amount of allowable coverage is based on the parcel size. However, as described in Code Section 30.4.1.C.3.b.i, highways, streets, roads, and the easements or right-of-ways allowing potential land coverage for linear public facilities, highways streets, and roads is not included within a project site.

Code Section 30.4.6.D. Exemption from Land Coverage Calculations for Non-Motorized Trails.

Section 30.4.6.D.3 of the TRPA Code provides an exemption from land coverage calculations for Non-Motorized Public Trails. To qualify for this exemption, the non-motorized trail must be a component of the trail networks identified in the Lake Tahoe Region Bike Trail and Pedestrian Plan; open to the public in perpetuity, at no cost; be routed to minimize disturbance of sensitive land and removal of large trees and riparian vegetation; meet industry standard engineering criteria; provide elevated stream crossings; incorporate appropriate BMPs; and minimize disturbance to sensitive wildlife habitat.

Code Section 30.5.2. Exceptions to Prohibition in Land Capability District 1b (Stream Environment Zone)

Section 30.5 of the TRPA Code of Ordinances prohibits additional land coverage in low capability LCD unless the project meets certain exemptions. The following exception applies to the prohibition of land coverage and disturbance in Land Capability District 1b (Stream Environment Zone):

C. Public Service Facilities

Land coverage and disturbance for public service facilities may be permitted in Land Capability District 1b (Stream Environment Zone) if TRPA finds that:

1. The project is necessary for public health, safety, or environmental protection;
2. There is no reasonable alternative, including a bridge span or relocation, that avoids or reduces the extent of encroachment in the stream environment zone; and
3. The impacts of the land coverage and disturbance are fully mitigated through application of Best Management Practices and restoration in accordance with Section 30.5.3 in the amount of 1.5 times the area of SEZ land covered or disturbed by the project.

Linear Public Facilities (LPFs) are a sub-category of the TRPA defined Public Service Facilities. The allowable land coverage permitted for an LPF is limited to the minimum amount needed to achieve its public purpose (TRPA Code Section 30.4.2.D). If an LPF requires more land coverage than allowed by Table 4.5-2 (above), the additional coverage may be purchased from a land coverage bank, or transferred from another parcel. In order to qualify for this special consideration, the LPF must be necessary (Per TRPA Code Section 50.8.1), minimize the amount of new coverage, and be operated by a public agency.

Chapter 60 – Water Quality

Chapter 60 of the TRPA Code of Ordinances sets forth requirements for installation of BMPs for the protection or restoration of water quality and attainment of minimum discharge standards. Projects shall comply with temporary and permanent BMP programs as a condition of project approval.

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, due to such conditions as exposed soils, unstable earthworks, or groundwater interference.

Tahoe City Community Plan

After adoption of the 1987 Regional Plan, TRPA developed community plans as a localized implementation documents. The Conservation Element of the Tahoe City Community Plan (TRPA 1994) established land coverage reduction goals for the Tahoe City area. Two areas targeted for land coverage reduction are partially located within the project site. One area is the Upper River corridor which is located between Fanny Bridge and Lake Tahoe. As river frontage is acquired or improved through redevelopment, existing land coverage could be reduced by up to one acre. Additionally, the Lower River area, which includes the California Department of Transportation (Caltrans) maintenance facility, is targeted for land coverage reduction of up to 5.4 acres as properties are acquired or improved.

As discussed in Section 4.9, Land Use and Planning, Placer County is currently preparing the Placer County Tahoe Basin Community Plan Policy Document and associated zoning/development standards and design guidelines to serve as four separate area plans for the Placer County portion of the Tahoe Basin, per the 2012 TPRA Regional Plan Update. The 2013 *Policy Framework* states that human activity increases erosion potential, primarily through the development of structures and impervious surfaces, and the removal of vegetative cover. Soil policies seek to maintain soil productivity and vegetative cover, and prevent excessive sediment and nutrient runoff into streams and Lake Tahoe (Dyett and Bhatia, December 2013, page 3).

STATE

Lahontan Regional Water Quality Control Board

The nine regional water quality control boards within California provide regional specific water quality standards and control measures to implement the federal Clean Water Act. The Lahontan Regional Water Quality Control Board is responsible to surface and ground water quality within the project site. The water quality control plan for the Lahontan region (LRWQCB 1995) establishes water quality objectives enforced through federal National Pollutant Discharge Elimination System (NPDES) permits. NPDES permits are intended to address land uses and activities that could create erosion or sediment transporation and potentially degrade water quality. Compliance with these permits requires implementation of erosion control BMPs and preparation of a Storm Water Pollution Prevention Plan (SWPPP) to minimize erosion and sediment transport adjacent waterbodies. Refer to Section 4.7, “Hydrology and Water Quality” for a more detailed discussion.

California Tahoe Conservancy

The mission of the California Tahoe Conservancy (CTC) is to preserve, protect, restore, enhance and sustain the unique and significant natural resources and recreational opportunities of the Lake Tahoe Region (California Government Code - Title 7.42 Sections 66905. to 66908.3). CTC's jurisdiction extends

throughout the California side of the Lake Tahoe Region, as defined in California Government Code Section 66905.5. In 1987, CTC authorized staff to develop and implement a Land Coverage (Land Bank) Program. Through this program, CTC acquires properties eligible for purchase through willing sellers. The development potential on these properties is retired. All rights and credits acquired by CTC are stored in a Land Bank. Through a Memorandum of Understanding (MOU) with TRPA, CTC is authorized to receive disbursements of TRPA excess coverage mitigation fees to perform coverage reduction through its Land Bank (TRPA/CTC 1988). The MOU also authorizes CTC to sell coverage rights on the open market and conduct SEZ restoration or mitigation for private or public service projects through the Land Bank.

The benefits of CTC's Land Coverage Program include: acquisition and restoration of developed areas that have become degraded and that are, or have the potential to, contribute to water quality problems; protecting land prior to the development activities generating the need for mitigation; ongoing management to ensure that resource benefits are sustained; assisting property owners in complying with Regional land coverage policies so they may construct or rehabilitate homes and businesses; and simplifying and expediting public and private projects.

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) (Public Resources Code Sections 2621–2630) was passed in 1972 to mitigate the hazard of surface faulting to structures designed for human occupancy. The main purpose of the law is to prevent the construction of buildings used for human occupancy on the surface trace, the intersection of a fault with the ground surface, of active faults. The law addresses only the hazard of surface fault rupture and is not directed toward other earthquake hazards. The Alquist-Priolo Act requires the State Geologist to establish regulatory zones known as “Earthquake Fault Zones” around the surface traces of active faults and to issue appropriate maps. The maps are distributed to all affected cities, counties, and state agencies for their use in planning efforts. Before a project can be permitted in a designated Alquist-Priolo Earthquake Fault Zone, cities and counties must require a geologic investigation to demonstrate that proposed buildings would not be constructed across active faults.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 (Public Resources Code Sections 2690–2699.6), addresses earthquake hazards from nonsurface fault rupture, including liquefaction and seismically induced landslides. The act established a mapping program for areas that have the potential for liquefaction, landslide, strong ground shaking, or other earthquake and geologic hazards. The Act also specifies that the lead agency for a project may withhold development permits until geologic or soils investigations are conducted for specific sites and mitigation measures are incorporated into plans to reduce hazards associated with seismicity and unstable soils.

National Pollutant Discharge Elimination System Permit

In California, the State Water Resources Control Board (SWRCB) administers regulations promulgated by the U.S. Environmental Protection Agency (55 Code of Federal Regulations [CFR] 47990) requiring the permitting of stormwater-generated pollution under NPDES. In turn, the SWRCB's jurisdiction is administered through nine regional water quality control boards. Under these federal regulations, an operator must obtain a General Permit through the NPDES Stormwater Program for all construction activities with ground disturbance of one acre or more. The General Permit requires the implementation of BMPs to reduce sedimentation into surface waters and control erosion. One element of compliance with the NPDES permit is preparation of a SWPPP that addresses control of water pollution, including sediment, in runoff during construction. (See Section 4.7, “Hydrology and Water Quality,” for more information about the NPDES and SWPPPs.)

California Building Standards Code

The state of California provides minimum standards for building design through the California Building Standards Code (California Code of Regulations, Title 24). Where no other building codes apply, Chapter 29 regulates excavation, foundations, and retaining walls. The California Building Standards Code (CBC) applies to building design and construction in the state and is based on the federal Uniform Building Code used

widely throughout the country (generally adopted on a state-by-state or district-by-district basis). The CBC has been modified for California conditions with more detailed and/or more stringent regulations.

The state earthquake protection law (California Health and Safety Code Section 19100 et seq.) requires that structures be designed to resist stresses produced by lateral forces caused by wind and earthquakes. 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, and Chapter 33 regulates grading activities, including drainage and erosion control and construction on unstable soils, such as expansive soils and areas subject to liquefaction.

LOCAL

PLACER COUNTY

Placer County General Plan

The Placer County General Plan (2013) contains goals, policies, and implementation programs in the Health and Safety Section that are aimed at reducing seismic and geological hazards. The goals, policies, and implementation programs applicable to the project alternatives are described below:

Seismic and Geological Hazards

GOAL 8.A.: To minimize the loss of life, injury, and property damage due to seismic and geological hazards.

- ▲ **Policy 8.A.1.** The County shall require the preparation of a soils engineering and geologic-seismic analysis prior to permitting development in areas prone to geological or seismic hazards (i.e., ground shaking, landslides, liquefaction, critically expansive soils, avalanche).
- ▲ **Policy 8.A.2.** The County shall require submission of a preliminary soils report, prepared by a California registered civil engineer and based upon adequate test borings, for every major subdivision and for each individual lot where critically expansive soils have been identified or are expected to exist.
- ▲ **Policy 8.A.4.** The County shall ensure that areas of slope instability are adequately investigated and that any development in these areas incorporates appropriate design provisions to prevent landsliding.
- ▲ **Policy 8.A.6.** The County shall require the preparation of drainage plans for development in hillside areas that direct runoff and drainage away from unstable slopes.
- ▲ **Policy 8.A.9.** The County shall require that the location and/or design of any new buildings, facilities, or other development in areas subject to earthquake activity minimize exposure to danger from fault rupture or creep.
- ▲ **Policy 8.A.10.** The County shall require that new structures permitted in areas of high liquefaction potential be sited, designed, and constructed to minimize the dangers from damage due to earthquake-induced liquefaction.

Placer County Grading Ordinance

Placer County Code Article 15.48, “Grading, Erosion and Sediment Control,” contains ordinances enacted for the purpose of regulating grading on property within the unincorporated area of Placer County to safeguard life, limb, health, property and public welfare; to avoid pollution of watercourses with hazardous materials, nutrients, sediments, or other earthen materials generated on or caused by surface runoff on or across the permit area; and to ensure that the intended use of a graded site is consistent with the Placer County General

Plan, any specific plans, and applicable Placer County ordinances. The most common activities requiring a grading permit include the following: fill or excavation greater than 250 cubic yards, cuts or fills exceeding four feet in depth; structural retaining walls exceeding four feet in total height, as measured from the bottom footing to the top of the wall and/or supporting a surcharge; soil or vegetation disturbances exceeding 10,000 square feet; grading within or adjacent to a drainage course or wetland; or grading within a floodplain.

4.5.3 Affected Environment

GEOLOGY AND TOPOGRAPHY

Regional Geology

The project is located in the northeast portion of the Sierra Nevada geomorphic province of California, adjacent to the Basin and Range geomorphic province to the east. The Sierra Nevada is a tilted fault block with a gentle western slope and a steep, rugged eastern escarpment. It runs through eastern California, from the Mojave Desert in the south to the Cascade Range and Modoc Plateau on the north, for more than 400 miles and averages 50 to 80 miles wide. Its east face is a high, rugged multiple scarp, contrasting with the gentle western slope (about 2°) that disappears under sediments of the Great Valley geomorphic province (California's large Central Valley). The Sierra Nevada geomorphic province is primarily composed of cretaceous granitic plutons and remnants of Paleozoic and Mesozoic metavolcanic and metasedimentary rocks, and Cenozoic volcanic and sedimentary rocks. The northern Sierra boundary is marked where bedrock disappears under the Cenozoic volcanic sheets extending south from the Cascade Range (CGS 2002).

The terrain in the vicinity of the project is generally defined by plateaus, mountains, and valleys, which are dissected by streams in moderately steep-sided canyons. It is located on the margin between two geophysical regions: the Lake Tahoe Basin to the east and south (characteristic of the Basin and Range geomorphic province), and the Truckee River Canyon to the west and north (characteristic of the Sierra Nevada geomorphic province). The Lake Tahoe Basin is confined 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 (Saucedo 2005a: pg. 1). Faulting and volcanism created the Lake Tahoe Basin over two million years ago, and as a result, the Basin contains granitic, metamorphic, and volcanic rock (TRPA and USFS 1971: p. 7-8). Granitic rocks underlie the entire Basin; however, in the northern and northwestern parts, basement rocks are covered by younger Tertiary and Quaternary volcanic rocks derived through erosions of the volcanic and granitic rocks (TRPA and USFS 1971: pg. 8). The Truckee River is the sole outlet of Lake Tahoe. It exits the lake through a dam just upstream of Fanny Bridgeproject site and passes through the project site in the pre-dam flood plain before entering the Truckee River canyon to the west.

A review of the Geologic Map of the Lake Tahoe Basin, California and Nevada (Saucedo 2005b) shows that the project site is located on three different rock types ranging in age from Holocene to Pleistocene (2.5 million years ago [mya] to present). The youngest geologic materials are the Holocene aged (present day to 11,700 years ago) lake deposits found near the outlet to the Truckee River. Pleistocene age (2.5 mya to 11,700 years ago) glacial till borders the southern portion of the project site, and the Pliocene age (5.3 mya to 2.5 mya) Tahoe City Basalt occupies the northern portion of the project site, underlying Tahoe City and forming a bench along the northern side of the Truckee River.

Site Topography

The project site consists of nearly level land that slopes gently west toward the Truckee River. There is considerable microtopography or "bumpy" ground that appears to have resulted from minor grading associated with previous land uses. The project site lies outside of the Lake Tahoe watershed, and runoff from the site enters the Truckee River. Elevations range from 6,232 near the north corner of the site to approximately 6,219 along the edge of the Truckee River. Most of the project site has an elevation of approximately 6,230 feet. This compares to the maximum Lake Tahoe level elevation of 6,228 feet according to the National Geodetic Vertical Datum.

Seismic Setting

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: p. 3).

Faulting was a key element in the formation of Lake Tahoe. The Lake Tahoe Basin lies in a graben (a trench between two faults) between the Sierra Nevada and the Carson Range (as shown in Exhibit 4.5-1). The outlet of the Basin was repeatedly dammed by volcanic eruptions and glacial ice dams (Schweickert et al. 2000). The nature of the seismic hazard in the Lake Tahoe Region was not appreciated for many years because the active faults within the Lake Tahoe Basin are covered by the lake itself. The portions of the 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 Lake Tahoe Basin (including the ancient, catastrophic, five-mile wide landslide that formed McKinney Bay) were triggered by earthquakes (Dingler 2007).

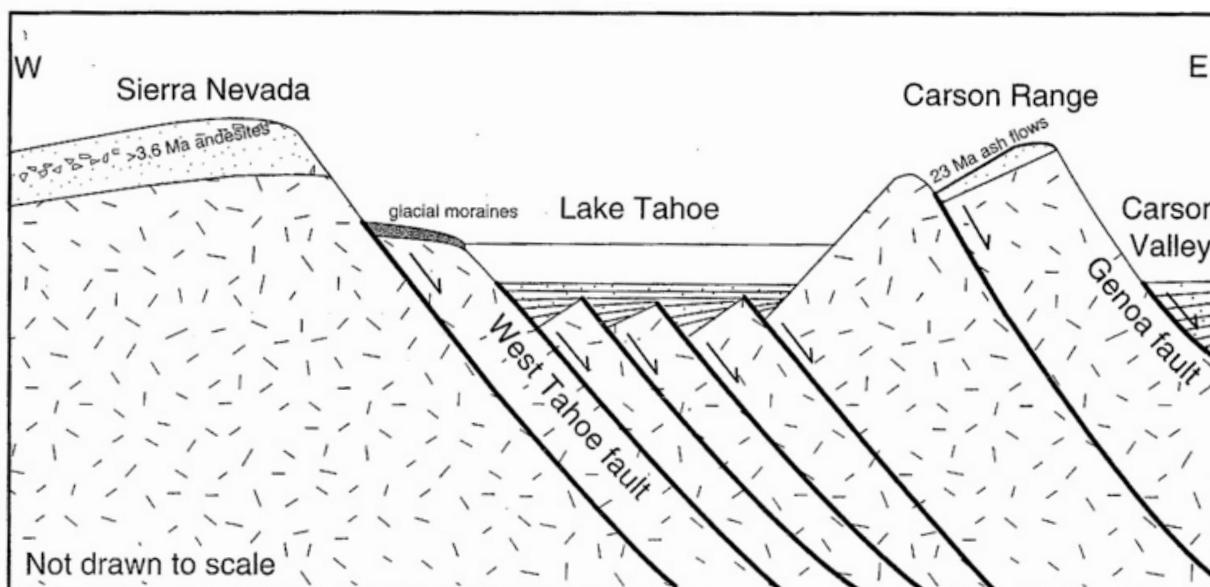


Exhibit 4.5-1

Model of Lake Tahoe Basin Half-Graben (Schweickert et al. 2000)

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 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 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 Region, 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 commensurate with many parts of California (dePolo et al. 1997: p. 3).

The nearest mapped Alquist-Piolo Earthquake Fault Zone is located in the Minden-Gardnerville, NV area, approximately 30 miles south-east of the project site (CGS 2010).

Ground Failure/Liquefaction

Soil liquefaction occurs when ground shaking from an earthquake causes a sediment layer saturated with groundwater to lose strength and take on the characteristics of a fluid. Factors determining the liquefaction potential are soil type, the level and duration of seismic ground motions, the type and consistency of soils, and the depth to groundwater. Loose sands and peat deposits are susceptible to liquefaction, while clayey silts, silty clays, and clays deposited in freshwater environments are generally stable under the influence of seismic ground shaking (CGS 2008: pp. 35-37). Liquefaction poses a hazard to engineered structures. The loss of soil strength can result in bearing capacity insufficient to support foundation loads, increased lateral pressure on retaining or basement walls, and slope instability. Sites underlain by relatively loose sandy soils and saturated deposits of fill combined with a shallow groundwater table, which typically are located in alluvial river valleys/basins and floodplains, are susceptible to liquefaction. Generally, the liquefaction potential in the project site is low due to the relatively dense granular soils and very stiff clay soils. Soil borings have indicated that some areas along the northern bank of the Truckee River may be susceptible to liquefaction to a depth of 8 feet (Wood Rodgers 2014b).

Subsidence

Land surface subsidence can be induced by both natural and human phenomena. Natural phenomena include: subsidence resulting from tectonic deformations and seismically induced settlements; soil subsidence from consolidation, hydrocompaction, or rapid sedimentation; subsidence from oxidation or dewatering of organic rich soils; and subsidence related to subsurface cavities. Subsidence related to human activity includes subsurface fluid or sediment withdrawal. Pumping of water for residential, commercial, and agricultural uses from subsurface water tables causes more than 80 percent of the identified subsidence in the United States (Galloway et al. 1999: p. 1). Lateral spreading 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. The potential for failure from subsidence and 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. There is no evidence that the Region has experienced subsidence from groundwater extraction and the conditions within the project site are not conducive to naturally occurring subsidence.

Slope Stability

A landslide is the downhill movement of masses of earth material under the force of gravity. The factors contributing to landslide potential are steep slopes, unstable terrain, and proximity to earthquake faults. This process typically involves the surface soil and an upper portion of the underlying bedrock. Expansive soil on slopes tends to shrink and swell in response to moisture content changes. During this shrinking and swelling process, gravity tends to work the soil downslope. Movement may be very rapid, or so slow that a change of

position can be noted only over a period of weeks or years (creep). The size of a landslide can range from several square feet to several square miles. The project site is located in an area where topography is fairly gentle. There are some short slopes with a greater than 2:1 height to depth ratio along the banks of the Truckee River. Slopes and gradients that would present rockfall concerns are not present in the project site (Wood Rodgers 2014a).

SOILS

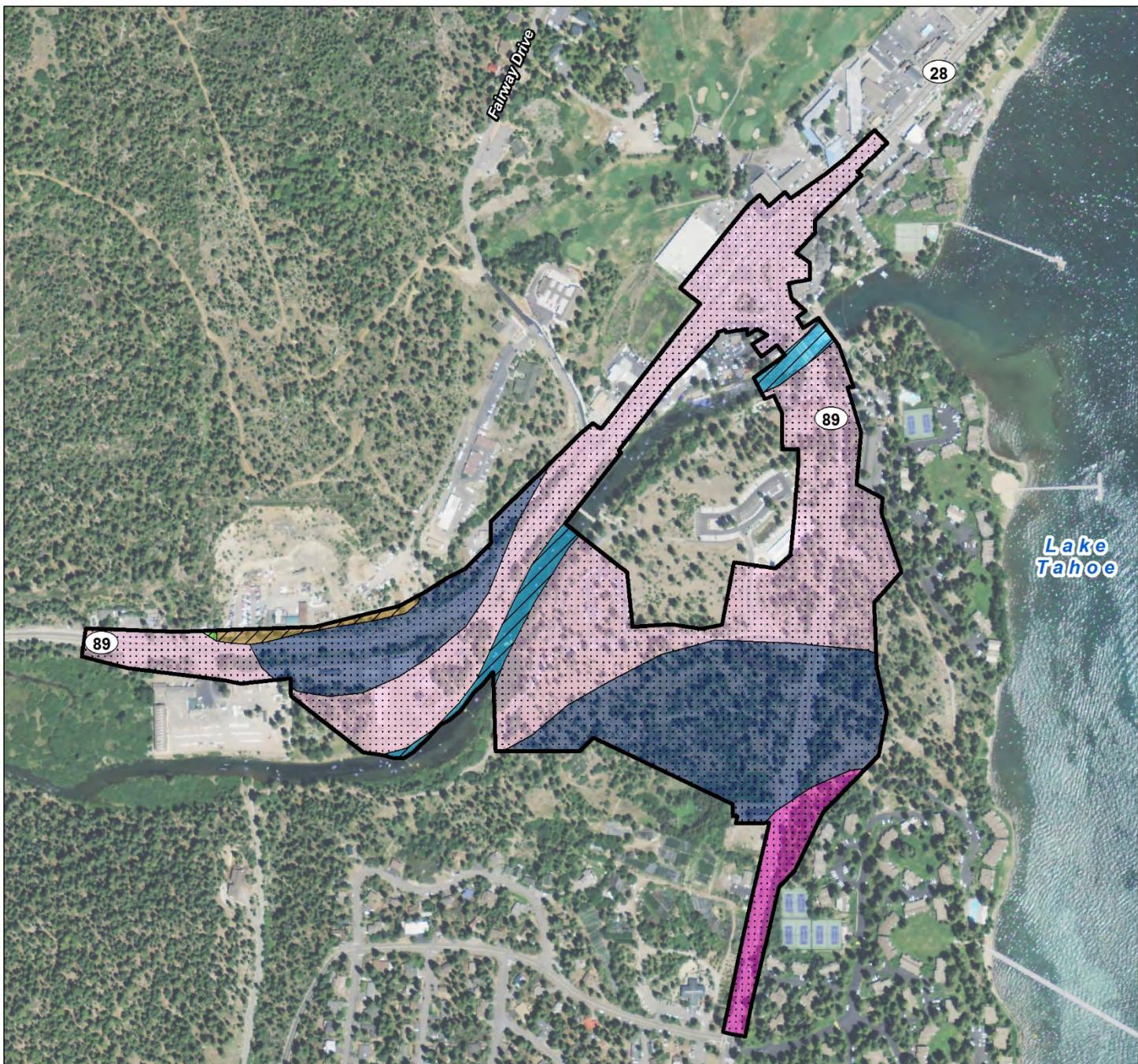
Mapped soil units within the project site (Exhibit 4.5-2) consist of the Tahoe complex (7041), gravelly (0 to 5 percent slopes; Kingsbeach stony sandy loam (7161), 2 to 15 percent slopes; Kneeridge gravelly sandy loam (7173), 2-5 percent slopes, very stony; and Jorge-Tahoma complex (7156), 15-30 percent slopes. Paige medial sandy loam (7182), 15 to 30 percent slopes and Watah peat (7071), 0-2 percent slopes occur within the project site but are outside of the disturbance area. General characteristics associated with the dominant mapping units are described below:

- ▲ **Tahoe complex (7042), 0 to 5 percent slopes, gravelly:** This soil complex is listed as Loamy Alluvial land in the 1974 soil survey. Its parent material is alluvium derived from granitic and volcanic rock. It consists of small areas of recent alluvium adjacent to stream channels and in meadows. It is nearly level to gently sloping, and typical vegetation consists of sedges, meadow grasses, and scattered lodgepole pine. There are hydric soils in this unit. These soils are poorly drained and have moderate permeability, and the surface runoff class is “Low”
- ▲ **Jorge-Tahoma complex (7156), 15 to 30 percent slopes:** This soil complex is located on hillslopes and is dominated by the Jorge and Tahoma soil types. Both soils are formed in colluvium (material that has been moved down hill by gravity) weathered from volcanic rock. Typical vegetation includes mixed conifer forest overstory with an understory of greenleaf manzanita, western serviceberry, creeping snowberry. These soils are described as well drained but have slow permeability and the surface runoff class is “Medium.”
- ▲ **Kingsbeach stony sandy loam (7161), 2 to 15 percent slopes:** The Kingsbeach series consists of very deep, moderately well-drained soils that formed in alluvium and/or colluvium derived from andesite formed over old lakebed sediments. The surface is sandy loam, which overlies a loam to clay loam horizon to a depth of 18 to 48 inches. Under this horizon lie the lake sediments, which have a clay loam texture. Permeability is described as moderately slow in the subsoil and very slow in the substratum of lakebed sediments, however, the surface runoff class is “Medium.”
- ▲ **Kneeridge gravelly sandy loam (7173), 2 to 5 percent slopes, very stony:** The Kneeridge series is found on glacial moraines and consists of very deep, moderately well-drained soils that formed in colluvium and glacial till derived from volcanic mudflows. The surface is a gravelly sandy loam and typical vegetation includes an overstory of Jeffery pine and white fir with an understory of whitethorn and snowberry. Permeability is described as moderate and the surface runoff class is “very low.”

Pits and Dumps are soils typical of disturbed sites, these areas are scattered within the project site and do not contain hydric soils. Exhibit 4.5-2 shows the soil map units within the project site and their respective erosion hazard rating (discussed below).

Erosion Potential and Hazard Rating

Erosion is the process by which surface soils are detached and transported by water and/or wind. Erosion has a detrimental effect on soil productivity because erosion begins with the upper horizons of a soil profile, which contain organic matter and microbial communities vital to supporting plant growth. Factors that influence the erosion potential of a soil include: vegetative cover; soil properties such as soil texture, structure, rock fragments and depth; steepness and slope length; and climatic factors such as the amount and intensity of precipitation. 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



Legend

Project Site

Erosion Hazard (Off-Road, Off-Trail)

Moderate

Slight

Not rated

0 300 600
Feet



Soil Type

Jorge-Tahoma complex, 15-30% slopes

Kingsbeach stony sandy loam, 2-15% slopes

Kneeridge gravelly sandy loam, 2-5% slopes, very stony

Pits and dumps

Tahoe complex, 0-5% slopes, gravelly

Water

Aerial: NAIP 2012

G11010010 01 022

Source: SSURGO 2006, adapted by Ascent Environmental in 2014

Exhibit 4.5-2

Soil Map Units and Erosion Hazard



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 all soils within the project site is rated as “Slight.” The erosion hazard rating of the soils within the project site is low to moderate as shown in Exhibit 4.5-2.

Compaction Potential

Soil compaction refers to an increase in soil density or a loss of pore space. Soil pores provide storage space for the oxygen and water needed to facilitate biological activity within the soil. Compaction negatively impacts soil productivity and hydrologic function because compacted soils resist water absorption, restrict air movement around roots, and create a physical barrier to root development. All soils are more vulnerable to compaction when they are wet; however, fine textured, poorly drained soils with little organic matter are the most susceptible.

The Tahoe Complex soil map unit, described by the USDA NRCS Soil Survey for the area (NRCS 2007), may occur in the southern portions of the project site. This mapping unit contains poorly drained soils with fine textured surface horizons, which could be susceptible to compaction.

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 4.5-3 lists the linear extensibility of the dominant soil component for the soil mapping units within the project site. As shown below, the Kingsbeach Stony Loam is a moderately expansive soil.

Table 4.5-3 Shrink-Swell Potential of Project site Soils

Map Unit Symbol	Map Unit Name	Linear Extensibility of Dominant Component
Soil Survey of the Tahoe Basin Area, California and Nevada		
7042	Tahoe Complex 2-15% Slopes	0.4%
7156	Jorge-Tahoe Complex, 15-30% Slopes	1.3%
7161	Kingsbeach Stony Sandy Loam 2-15% Slopes	5.8%
7173	Kneeridge gravelly sandy loam, 2-5% slopes	0.8%

Source: NRCS 2007

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). As explained above, this 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 project site contains the TRPA LCD 5 (which allows up to 25 percent of the parcel to contain Coverage) and LCD 1b (allowing only 1 percent of the parcel to contain Coverage) based on the preliminary land capability verification completed for the project in February 2012 (Cardno-Entrix 2012). The majority of the project site is LCD 5. The riparian corridor of the Lower Truckee River is mapped as SEZ (LCD 1b). The preliminary verification is subject to concurrence by TRPA, but is suitable to describe the existing conditions of the project site for this environmental document.

The project site contains approximately 12.26 acres of exiting land coverage within LCD 1b and approximately 16.24 acres of existing land coverage within LCD 5. In addition, the project site contains the USFS parcel known as the 64-Acre Tract. This parcel contains approximately 6.87 acres of compacted soil known as “soft coverage” which has been in existence since before 1972 (Cardno-Entrix 2012). These compacted soil areas can be restored and their associated land coverage transferred to other areas of the parcel as needed, in accordance with TRPA Code Section 30.5.

4.5.4 Environmental Consequences and Mitigation Measures

METHODS AND ASSUMPTIONS

The evaluation of coverage changes 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 2007 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. The information obtained from these sources was reviewed and summarize 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 project alternatives 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 erosion. Permanent impacts would be associated with proposed facilities, such as new impervious land coverage and potential seismic or geologic hazards associated with the project elements.

SIGNIFICANCE CRITERIA

Significance criteria relevant to geology and soils are summarized below.

NEPA Criteria

An environmental document prepared to comply with NEPA must consider the context and intensity of the environmental effects that would be caused by or result from the proposed action. Under NEPA, the significance of an effect is used solely to determine whether an EIS must be prepared. The factors that are taken into account under NEPA to determine the significance of an action in terms of the context and the intensity of its effects are encompassed by the CEQA criteria used for this analysis. No specific factors related to geology and soils are contained in NEPA, CEQ Regulations Implementing NEPA, or FHWA NEPA regulations in 23 CFR 771 et seq.

TRPA Criteria

The “Land” criteria from the TRPA Initial Environmental Checklist were used to evaluate the geology and soils impacts of the alternatives. The checklist asks if the project would result in the following conditions.

- ▲ Compaction or covering of the soil beyond the limits allowed in the land capability districts?

- ▲ A change in the topography or ground relief features of the site inconsistent with the natural surrounding conditions?
- ▲ Unstable soil conditions during or after completion of the project?
- ▲ Changes in the undisturbed soil or native geologic substructures or grading in excess of 5 feet?
- ▲ The continuation of or increase in wind or water erosion of soils, either on or off the site?
- ▲ Exposure of people or property to geologic hazards such as earthquakes, landslides, backshore erosion, avalanches, mud slides, ground failure, or similar hazards?

TRPA has established environmental thresholds, goals, and policies for geology, soils, and land coverage in several categories: natural hazards, water quality, soils, and SEZs. The goals and policies are designed to achieve and maintain adopted environmental threshold carrying capacities, and are implemented through the TRPA Code. A conflict with these goals, policies, and ordinances would be a significant impact. Refer to Section 4.2, "Land Use," for a discussion of the project's consistency with these provisions.

CEQA Criteria

To determine whether environmental impacts to geology and soils are significant environmental effects, Appendix G of the State CEQA Guidelines asks whether a project would do any of the following:

- ▲ expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
 - ▶ rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault;
 - ▶ strong seismic ground shaking,
 - ▶ seismic-related ground failure, including liquefaction, or
 - ▶ landslides;
- ▲ result in substantial soil erosion or the loss of topsoil;
- ▲ be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or offsite landslide, lateral spreading, subsidence, liquefaction or collapse;
- ▲ be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property;
- ▲ have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water;
- ▲ result in the loss of availability of a known mineral resource that would be of value to the Region and the residents of the state; or
- ▲ result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

ISSUES NOT WARRANTING DETAILED EVALUATION

Issues dismissed from further evaluation in this section include groundwater impacts, septic tanks or wastewater disposal systems, avalanche hazards, and mineral resources. Refer to Section 4.7, “Hydrology and Water Quality,” for a discussion of grading in excess of 5 feet as it relates to the potential to intercept and adversely affect groundwater. This issue is not discussed further in this section. The project alternatives would not construct septic tanks or wastewater disposal systems; therefore, the potential for impacts related to capability of soils to support use of septic tanks or alternative wastewater disposal systems is not addressed in this section. Additionally, the project site vicinity does not contain areas with a high risk of avalanche; therefore, avalanche hazard is not addressed further in this section.

Impacts to mineral resources (loss of a known mineral resource or a locally important mineral resource recovery site) were dismissed from further evaluation, because there are no known mineral resources within the project site (USGS 2014) and because the current zoning of the area prohibits mining (TRPA 1994).

ENVIRONMENTAL EFFECTS OF THE PROJECT ALTERNATIVES

Impact 4.5-1. Project site grading and erosion.

Implementation of the action alternatives could expose soils and SEZs to adverse effects from soil erosion during construction activities related to roadway, bridge, and bike path construction. Grading and earthmoving activities would be required to obtain grading and excavation permits and approvals in accordance with TRPA Code Chapter 33 and the Placer County grading ordinance. Adherence to existing, standard regulations and permit requirements would maintain the potential for substantial soil erosion or loss of topsoil for all action alternatives (Alternatives 1, 2, 3, 4, 6 and 6a) at a **less-than-significant** level. Implementation of Alternative 5 would result in **no impact**.

The construction activities associated with project implementation 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, the project would result in ground disturbance within and directly adjacent to the Truckee River and SEZ areas. The amount of temporary and permanent ground disturbance resulting from each alternative is shown in Table 4.5-4, below.

Table 4.5-4 Temporary and Permanent Ground Disturbance¹

Alternative/Segment	Disturbance in Acres		Total Disturbance
	Temporary	Permanent	
Alternative 1 (Proposed)	2.90	7.89	10.76
Alternative 2	2.8	7.78	10.58
Alternative 3	2.77	7.39	10.16
Alternative 4	2.42	6.76	9.18
Alternative 5 (No Action)	0	0	0
Alternative 6	0.05	0.59	0.64
Alternative 6a	0.05	0.56	0.61

Source: data provided by TTD 2014

¹ Permanent ground disturbance includes developed areas, cut and fill slopes, landscaping, and areas underneath bridges.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

Alternative 1 involves the construction of a new bridge over the Truckee River, which would require widening of the existing SR 89 and construction of embankments and retaining walls to support the highway, roundabout, bridge abutments, and bike path on the north side of the Truckee River. Construction of retaining walls could require temporary slope terracing for the safety of construction personnel.

Installation of bridge foundations would require excavation to a minimum depth of 5.5 feet for abutments (for depth of the planned foundation and required engineered fill material) and pre-drilling to a minimum depth of 30 feet for pile driven piers (Wood Rodger 2014a). All soft or unstable soil materials would be removed and replaced with engineered fill before bridge foundations and abutments are constructed or installed.

Configuring the alignments of SR 89, SR 28, and West Lake Boulevard would require grading, excavation, and removal of existing asphalt and road materials. Excavation would also be required for the modification or installation of storm drain systems and relocation of underground utilities. The access road to the Caltrans maintenance yard would be relocated to facilitate the realignment of SR 89 and the new bridge over the Truckee River. This would involve the demolition of some existing structures and construction of a ramped entry and exit road supported by retaining walls on either side.

For the majority of the project site, sites for abutments, retaining wall footings, and utility trenches would be excavated with standard equipment, such as a rubber-tired backhoe (see Exhibit 4.5-3). In areas where large boulders or large cobbles are present and areas near the river bank, particularly the south bank west of the existing Fanny Bridge, excavation work may require the use of specialized earth moving equipment, such as a track-mounted excavator equipped with a ripper tooth (MDA 2005).



Source: Wikipedia Commons 2014

Rubber Tired Backhoe



Source: Wikipedia Commons 2014

Caterpillar D-9 with Ripper tooth.

Exhibit 4.5-3 Anticipated Excavation Equipment

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 site have low to moderate runoff potential and the topography (with the exception of the immediate river bank and channel) is gently sloped, the NRCS described the Erosion Hazard rating at “Slight.” This means that substantial erosion would be unlikely under normal conditions.

For areas outside of the river corridor, this characterization of erosion potential is appropriate. The BMPs required by TRPA and LRWQCB as conditions of construction permits would minimize the potential for soil erosion and protect SEZ areas. One condition in the LRWQCB NPDES permit is a SWPPP, prepared by a qualified SWPPP practitioner. This plan would detail the BMPs that would be implemented to minimize erosion, reduce sediment transport, and control stormwater flow from the project site. 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 4.7 “Hydrology and Water Quality.” After construction is completed, temporarily disturbed areas would be stabilized and revegetated in accordance with TRPA Code of Ordinances Section 61.4.

Bridge construction or rehabilitation activities that take place on the river bank would have a higher potential of causing soil erosion due to the exposure of steeper slopes. Excavation work would expose the soil profile to wind and water erosion. Additionally, removal of 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. The soil borings completed for the Preliminary Geotechnical Report (MDA 2005) indicate that soils in the areas of the proposed new bridge consist of varying depths of sand and gravels over very stiff ancient lake deposits with high silt and clay content typically beginning at a depth between 2.5 to 10 feet, depending on the amount of fill material present above the native soil (MDA 2005). The deposition of alluvial sands and gravels (approximately 2 feet deep) over the ancient lakebed is characteristic of the Kingsbeach soil type (NRCS 2007). Although the upper sands and gravels of the native soil and imported fill material may be highly permeable and have a limited risk of water erosion, they could be susceptible to sloughing once disturbed. The lower portions of the soil profile would be resistant to sloughing due to their high clay and silt content. The potential for sloughing or slope failure would be reduced through proper use of standard excavation BMPs, such as maintaining the appropriate moisture content of the soil, temporary slope terracing where needed, and prohibiting vehicle traffic and material stockpiling within a distance of 1/3 of the height of any excavation. Project specific BMPs will be detailed for excavations deeper than 5 feet in the excavation safety plan prepared by the project engineer, as required by the Caltrans Standard Specifications, Section 5-1,02A.

The TRPA Code of Ordinances Section 33.3.6.B prohibits excavation beyond 5 feet in depth in areas where there is a reasonable possibility of interception of a water table, unless:

- (1) a Soils/Hydrologic Report has been prepared by a qualified professional,
- (2) no damage occurs to mature trees (except under an approved Tree Removal Plan),
- (3) excavated material is disposed of in accordance with TRPA Code Section 33.3.6.A.2, and
- (4) The area's natural topography is restored.

If the Soils/Hydrologic Report shows that groundwater interception would occur, the excavation can only be permitted under certain conditions, including situations where there are no feasible alternatives and measures are taken to prevent groundwater from leaving the project site as surface flow and groundwater is re-routed to avoid adverse impacts to riparian vegetation.

A Soils/Hydrologic Report would be completed for project prior to final design. The Preliminary Geotechnical Report (MDA 2005) completed for the project indicates that groundwater may be intercepted at approximately 11.5 feet in depth near the existing Fanny Bridge, depending on the time of year and river stage. In the area around the proposed SR 89 roadway realignment (the U.S. Forest Service 64-Acre Tract) groundwater may be encountered at or near the soil surface. Excavation that encounters groundwater would follow the TRPA-approved dewatering plan prepared as a component of the LRWQCB NPDES construction permit and SWPPP. As described in Section 4.7 "Hydrology and Water Quality," all dewatering discharge would be required to meet the stringent water quality standards of the LRWQCB and TRPA. Additionally, project elements installed in deep excavations (such as bridge footings or retaining wall foundations) would not be large, continuous structures that could change the rate or direction of groundwater flow.

Because (1) the soils of the project site are not highly susceptible to erosion, (2) temporary and permanent BMPs would be installed as requirements of the necessary TRPA and LRWQCB permits, (3) excavation greater than 5 feet in depth would take place in accordance with the TRPA Code, and (4) areas of temporary disturbance would be revegetated and regraded to match the natural topography of the site, the potential for Alternatives 1 to increase erosion or adversely affect the topography of the area would be **less than significant**.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Impacts associated with increased erosion or the potential to adversely affect the topography of the area would be the same as under Alternative 1 because construction would occur in the same areas and would use the same construction methods as described above. As shown in Table 4.5-4, construction under Alternative 2 would result in slightly less temporary disturbance (2.8 acres) than under Alternative 1 (2.9 acres). Thus, this impact would be **less than significant**.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Impacts associated with increased erosion or the potential to adversely affect the topography of the area would be the same as under Alternative 1 because construction would occur in the same areas and would use the same construction methods as described above. As shown in Table 4.5-4, construction under Alternative 3 would result in slightly less temporary disturbance (2.77 acres) than under Alternative 1 (2.9 acres). Thus, this impact would be **less than significant**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Impacts associated with increased erosion or the potential to adversely affect the topography of the area would be the same as under Alternative 1 because construction would occur in the same areas and would use the same construction methods as described above. As shown in Table 4.5-4, construction under Alternative 4 would result in less temporary disturbance (2.42 acres) than under Alternative 1 (2.9 acres). Thus, this impact would be **less than significant**.

ALTERNATIVE 5: NO ACTION

Because the no action alternative would not result in grading or ground disturbance within the project site there would be **no impact** from this alternative.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Impacts related to rehabilitation or replacement of Fanny Bridge and modifications at the wye intersection would be similar in type, but smaller in scale than Alternatives 1 through 4. Refer to Table 4.5-4 for the amount of temporary and permanent ground disturbance created by Alternative 6. As described under Alternative 1, because (1) the soils of the project site are not highly susceptible to erosion, (2) temporary and permanent BMPs would be installed as requirements of the necessary TRPA and LRWQCB permits, (3) excavation greater than 5 feet in depth would take place in accordance with the TRPA Code, and (4) areas of temporary disturbance would be revegetated and regraded to match the natural topography of the site, the potential for Alternatives 6 to increase erosion or adversely affect the topography of the area would be **less than significant**.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Impacts associated with increased erosion or the potential to adversely affect the topography of the area would be the same as described under Alternative 6 because construction would occur in the same areas and would use the same construction methods as described above. As shown in Table 4.5-4, construction under Alternative 6a would result 0.05 acre of temporary disturbance, which would be the same as Alternative 6, and less than under Alternative 1 (2.9 acres). Thus, this impact would be **less than significant**.

Impact 4.5-2. Seismic hazards.

The vicinity does not contain a regulated Alquist-Priolo Earthquake Fault Zone; however, several active faults are located near to the project site that could subject project components to ground shaking and ground failure. All action alternatives would include the rehabilitation or replacement of the existing Fanny Bridge, which does not meet current Caltrans seismic design standards. Additionally, implementation of Alternatives 1, 2, 3, and 4 would result in a new bridge crossing of the Truckee River. This would provide two options for potential evacuation routes and would reduce the risk to public safety due to damage to one bridge during a large earthquake. Because the project alternatives involve the improvement or realignment of existing roadways and trails, there would be no change in risks related to an earthquake-triggered seiche. For these reasons, implementation of Alternatives 1, 2, 3, 4, 6, and 6a would reduce the risk to people and property from earthquakes or strong seismic shaking and would have an overall **beneficial impact**. The No Action Alternative would continue the existing risk of seismic damage from the deteriorated condition of Fanny Bridge. Because this condition is not a substantial change from the existing conditions however, the impact would be **less than significant**.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

The proposed bridge constructed under Alternative 1 would be located approximately 1,000 feet from the unconfirmed quaternary fault indicated by the Geologic Map of the Lake Tahoe Basin (Saucedo 2005). According to the Caltrans Memo to Designers – Analysis of Ordinary Bridges that Cross Faults (Caltrans 2013), with few exceptions, fault rupture hazard is addressed only for Holocene (<10,000 years) faults identified by the California Geologic Survey in Alquist-Priolo Earthquake Fault Zone maps. Fault rupture hazard should be an important consideration in the design of structures or lifelines that are located near the principal fault, within 100 m (330 ft) of well mapped active faults with a simple trace, and within 300 m (1,000 ft) of faults with poorly defined or complex traces. Although the proposed bridge would be located within 1,000 feet of a fault with a poorly defined trace, the fault in question has never been indicated as Active and the project site is not located within an Alquist-Priolo Fault Zone. The closest confirmed active fault is the West Tahoe-Dollar Point Fault approximately 2 miles to the east.

Alternative 1 would be designed and constructed in accordance with Caltrans Seismic Design methodology which includes design that applies to all highway bridges designed in California (Caltrans 2012). A bridge's category and classification are used to determine how well the bridge must perform during an earthquake and to estimate its seismic demands and structural capacities. Bridges are designed to absorb and distribute earthquake stress and to limit damage to pre-determined locations that can easily be inspected and rehabilitated after an earthquake. All bridges are designed to withstand the location-specific design earthquake without collapse. Bridges that are determined to be "Important" – required to provide post earthquake life safety, designated as critical by a local emergency plan, or who's post-earthquake repair would create a major economic impact – are subject to a higher level of seismic design and are constructed to maintain limited or full functionality following a design earthquake (Caltrans 2012). Caltrans and American Association of State Highway and Transportation Officials (AASHTO) seismic design standards also apply to retaining walls, tunnels, and roadways. Compliance with these design standards would ensure that the effect of seismic ground shaking on structures developed through implementation of Alternative 1 would not create a significant risk to people or property.

Alternative 1 would include the rehabilitation or replacement of the existing Fanny Bridge, which does not meet current Caltrans seismic design standards. The most recent inspection (completed in 2012) reported that the bridge's concrete T beam superstructure and concrete railings are in "poor condition" due to areas of advanced cracking, deterioration, and spalling (Wood Rodgers 2014a). Restoration of the bridge would involve the installation of column casings and the addition of shear keys, restraint cables, and/or increased seat width at each interior bent (the part of the bridge superstructure supporting a row of columns or piles). A detailed foundation investigation would also be completed to identify and address any deficiencies in the bent column footings. If the bridge is replaced, the new structure would be designed in compliance with modern seismic standards.

Modeling of potential earthquakes occurring beneath Lake Tahoe indicate that a fault rupturing seismic event of magnitude 7.0 could trigger a seiche (i.e., a standing wave in an enclosed or partially enclosed body of water) with waves of up to 30 feet high along the shoreline of Lake Tahoe (Ichinose et al. 2000). While the project site is located within a low-lying area that would be inundated by such a wave, Alternative 1 would be limited to the improvement and/or realignment of existing roadways and trails. Therefore, implementation of the project would not expose additional people to tsunami or seiche hazards.

Although the project site is located in a seismically active area, the existing Caltrans and AASHTO seismic design standards would ensure that implementation of Alternative 1 would not result in substantial adverse effects resulting from strong seismic shaking. Alternative 1 would include the rehabilitation or replacement of the existing Fanny Bridge, which does not meet current Caltrans seismic design standards. Additionally, implementation of Alternative 1 would result in an additional bridge crossing of the Truckee River. This would provide two options for potential evacuation routes and would reduce the risk to public safety due to potential damage to one bridge during a large earthquake. For these reasons, implementation of Alternative 1 would reduce the risk to people and property from earthquakes or strong seismic shaking and would have an overall **beneficial** impact.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Potential impacts associated with seismic hazards would be the same as described above under Alternative 2. Although the project site is located in a seismically active area, the existing Caltrans and AASHTO seismic design standards would ensure that implementation of Alternative 2 would not result in substantial adverse effects resulting from strong seismic shaking. Alternative 2 would include the rehabilitation or replacement of the existing Fanny Bridge, which does not meet current Caltrans seismic design standards. Additionally, implementation of Alternative 2 would result in an additional bridge crossing of the Truckee River. This would provide two options for potential evacuation routes and would reduce the risk to public safety due to potential damage to one bridge during a large earthquake. For these reasons, implementation of Alternative 2 would reduce the risk to people and property from earthquakes or strong seismic shaking and would have an overall **beneficial** impact.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Potential impacts associated with seismic hazards would be the same as described above under Alternative 3. Although the project site is located in a seismically active area, the existing Caltrans and AASHTO seismic design standards would ensure that implementation of Alternative 3 would not result in substantial adverse effects resulting from strong seismic shaking. Alternative 3 would include the rehabilitation or replacement of the existing Fanny Bridge, which does not meet current Caltrans seismic design standards. Additionally, implementation of Alternative 3 would result in an additional bridge crossing of the Truckee River. This would provide two options for potential evacuation routes and would reduce the risk to public safety due to potential damage to one bridge during a large earthquake. For these reasons, implementation of Alternative 3 would reduce the risk to people and property from earthquakes or strong seismic shaking and would have an overall **beneficial** impact.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Potential impacts associated with seismic hazards would be the same as described above under Alternative 4. Although the project site is located in a seismically active area, the existing Caltrans and AASHTO seismic design standards would ensure that implementation of Alternative 4 would not result in substantial adverse effects resulting from strong seismic shaking. Alternative 4 would include the rehabilitation or replacement of the existing Fanny Bridge, which does not meet current Caltrans seismic design standards. Additionally, implementation of Alternative 4 would result in an additional bridge crossing of the Truckee River. This would provide two options for potential evacuation routes and would reduce the risk to public safety due to potential damage to one bridge during a large earthquake. For these reasons, implementation of Alternative 4 would reduce the risk to people and property from earthquakes or strong seismic shaking and would have an overall **beneficial** impact.

ALTERNATIVE 5: NO ACTION

The no action alternative would retain the existing Fanny Bridge, which does not meet current Caltrans seismic design standards and is in need of repair. Without action, the bridge would continue to deteriorate and would present an increasing risk of failure from an earthquake over time. However, this alternative would result in the continuation of the existing conditions, which would be a **less-than-significant** impact.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Potential impacts associated with risks to people and property from earthquakes or strong seismic shaking would be similar to the discussion above under Alternative 1, with the exception that Alternative 6 would not include a new evacuation route. Regardless, because Fanny Bridge would be made structurally and seismically sound, this impact would be **beneficial**.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Potential impacts associated with increased erosion or adversely affect topography would be the same as described above under Alternative 6a. Thus, this impact would be **beneficial**.

Impact 4.5-3. Other geologic hazards.

Moderately expansive or unstable soils have the potential to occur within the project site. Expansive soils can change in volume, causing damage to structures or foundations. Construction of proposed bridge components would take place on river banks and in areas where unstable soils have been observed. Through completion of the Geotechnical Engineering Report and adherence to its recommendations, the potential for the project to result in the creation of unstable slopes would be minimized. Additionally, the project would not expose users to risks related to liquefaction and expansive soils. Therefore this would be a **less-than-significant** impact. There would be **no impact** under Alternative 5.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

The project site contains potentially unstable soils. The potential effects of slope instability, liquefaction, and expansive soils are discussed below.

Slope Instability

The project site is relatively flat and does not contain steep slopes. Further, a review of geotechnical reports for other projects within the vicinity reported no signs of instability, surface sloughing or creeping soils (MDA 2006). However, some portions of the project site could become unstable once disturbed by construction activities:

- ▲ Near Fanny Bridge, wet unstable soils may be encountered near the north bank, particularly in the proximity of the river channel (MDA 2006).
- ▲ Trenches required for the construction of bridge and retaining wall footings. These excavations would likely encounter 2 to 10 feet of granular alluvial deposits and/or imported sand and gravel fill materials. These soils can be loose in some areas and may become unstable if the soil moisture content becomes too low or too high.
- ▲ Removal of large cobbles and boulders along the south river bank (west of the existing Fanny Bridge) would be required for construction of bridge footings (MDA 2006), and could create small areas of slope failure and/or sloughing.

Liquefaction

Liquefaction is the loss of strength of saturated granular soils resulting from an increase in pore water pressure during earthquake shaking. The most susceptible soils are loose fine sands and sand/silt mixtures. Based on the existing soil data, including soil cores reviewed during preparation of the Preliminary Geotechnical Report (MDA 2005) and the Preliminary Foundation Report (MDA 2006), the liquefaction potential of subsurface soils within the project site is low due to the relatively dense granular soils and the stiff to very stiff clay soils encountered. The Structure Type Selection Report (Wood Rodgers 2014b) indicates that the upper 8 feet of soil along the northern river bank may be susceptible to liquefaction. Further analysis, such as Cone Penetrometer Testing, would be conducted to determine if liquefiable soils are present. If it is determined through further testing and analysis that liquefiable soils are present, liquefaction risk to the potential bridge structures could be avoided through the installation of deep piles that can readily accommodate any liquefaction or scour that might occur without significant loss of strength or lateral stiffness (Wood Rodgers 2014b).

The potential for seismic settlement or seismically-induced differential compaction is also low due to the laterally consistent, coarse-grained, and moderately dense nature of the near surface soils. The potential for ground lurching, lateral spreading, or seismically induced slope instability is also low for the area due to the relatively strong underlying materials (MDA 2006).

Expansive Soils

The Kingsbeach soil, which underlies much of the project site, has moderate to high shrink swell potential in the buried, silt and clay rich lakebed deposits. The preliminary foundation report completed for the project

reported a range of low to high shrink swell potential in the fine grained soils within the project site (MDA 2006). Expansive soils tend to swell with increases in water content and shrink as they dry out. In the area along the river channel, these soils are typically submerged or at a relatively high degree of saturation at depths greater than 9 feet from the ground surface. As long as these expansive soils remain submerged or highly saturated, there would be no change in the moisture content of the soil and the potential for soil to shrink or swell would be low (MDA 2006).

The potential for slope instability, liquefaction, and expansive or unstable soils would be addressed in a Geotechnical Engineering Report that would be used to develop the final design of all project components. This report would be prepared by a Registered Professional Geologist, or Registered Civil or Geotechnical Engineer and would ensure that all applicable codes and seismic standards are adequately addressed in the design and construction of the project. The Geotechnical Engineering Report would incorporate Caltrans and AASHTO construction standards and would include recommendations on the following:

- ▲ Bridge, retaining wall, and roadway design;
- ▲ Structural foundations;
- ▲ Grading practices;
- ▲ Erosion/winterization;
- ▲ Best practices to address groundwater and expansive or unstable soils;
- ▲ Slope stability; and
- ▲ Post-construction restoration.

Through completion of the Geotechnical Engineering Report and adherence to its recommendations, the project would not result in the creation of unstable slopes and would not expose users to risk related to liquefaction and expansive soils. Therefore this would be a **less-than-significant** impact.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Potential impacts associated with liquefaction and expansive soils would be the same as described above under Alternative 1. Through completion of the Geotechnical Engineering Report and adherence to its recommendations, the project would not result in the creation of unstable slopes and would not expose users to risk related to liquefaction and expansive soils. Therefore this would be a **less-than-significant** impact.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Potential impacts associated with liquefaction and expansive soils would be the same as described above under Alternative 1. Through completion of the Geotechnical Engineering Report and adherence to its recommendations, the project would not result in the creation of unstable slopes and would not expose users to risk related to liquefaction and expansive soils. Therefore this would be a **less-than-significant** impact.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Potential impacts associated with liquefaction and expansive soils would be the same as described above under Alternative 1. Through completion of the Geotechnical Engineering Report and adherence to its recommendations, the project would not result in the creation of unstable slopes and would not expose users to risk related to liquefaction and expansive soils. Therefore this would be a **less-than-significant** impact.

ALTERNATIVE 5: NO ACTION

The no action alternative would not disturb existing slopes or result in the construction of bridges, retaining wall, tunnels, or roadways on expansive soils or soils susceptible to liquefaction. Therefore, Alternative 5 would have **no impact** related to potentially unstable slopes or soils.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Potential impacts associated with liquefaction and expansive soils would be the same as described above under Alternative 1. Through completion of the Geotechnical Engineering Report and adherence to its

recommendations, the project would not result in the creation of unstable slopes and would not expose users to risk related to liquefaction and expansive soils. Therefore this would be a **less-than-significant** impact.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Potential impacts associated with liquefaction and expansive soils would be the same as described above under Alternative 1. Through completion of the Geotechnical Engineering Report and adherence to its recommendations, the project would not result in the creation of unstable slopes and would not expose users to risk related to liquefaction and expansive soils. Therefore this would be a **less-than-significant** impact.

Impact 4.5-4. Land coverage.

Alternatives 1, 2, 3, 4, 6, and 6a would result in increases in land coverage within LCDs 1b and 5. Because the coverage increase associated with the action alternatives would comply with TRPA land coverage regulations, the potential for these alternatives to create an adverse effect related to land coverage would be **less than significant**. There would be **no impact** under Alternative 5.

Alternatives 1, 2, 3, 4, 6, and 6a would create new coverage in accordance with TRPA land coverage regulations within LCDs 1b and 5. Alternatives 1 and 2 would create the largest increase in coverage, followed by Alternative 4, Alternative 3, and Alternatives 6 and 6a. Table 4.5-5 provides a preliminary summary of coverage increases by LCD for the action alternatives. The preliminary coverage numbers would be refined as the design process progresses and prior to TRPA permit review and approval. The information presented here is representative of the nature of the land coverage changes associated with the action alternatives and is sufficient for environmental impact analysis.

Table 4.5-5 Net Increase in Land Coverage

Alternative	Surface Type	Coverage by Land Capability District (acres)		
		1b	5	Total
Alternative 1 (Proposed)	Roadway	0.53	3.66	4.19
	Bike Path	0.07	0.14	0.21
	Total	0.6	3.8	4.4
Alternative 2	Roadway	0.53	3.67	4.2
	Bike Path	0.07	0.14	0.21
	Total	0.6	3.81	4.41
Alternative 3	Roadway	0.5	2.37	2.87
	Bike Path	0.07	0.14	0.21
	Total	0.57	2.51	3.08
Alternative 4	Roadway	0.87	2.73	3.6
	Bike Path	0.03	0.16	0.19
	Total	0.9	2.89	3.79
Alternative 6	Roadway	0.28	-0.03	0.25
	Bike Path	0	0.05	0.05
	Total	0.28	0.02	0.3
Alternative 6a	Roadway	0.29	-0.64	-0.35
	Bike Path	-0.02	0	-0.02
	Total	0.27	-0.64	-0.37

Source: Wood Rodgers 2014

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

As shown in Table 4.5-5, the roadway component of Alternative 1 would create a net increase in land coverage of 0.53 acres within LCD 1b and 3.66 acres within LCD 5. The bike path component would add an additional 0.07 acres of land coverage within LCD 1b and 0.14 acres within LCD 5.

Although TRPA Code Section 30.5 prohibits additional land coverage in low capability land, an exemption is provided for public service facilities (i.e., linear public facilities or LPF). Because the rehabilitation or replacement of Fanny Bridge is necessary because it does not meet current Caltrans seismic design standards; the position of SR 89 in proximity to the river requires the creation of land coverage for the new bridge within LCD 1b soils; and the increased land coverage and disturbance would be minimized and mitigated through application of BMPs and restoration of 1b lands at a ratio of 1.5 acres of restoration for every 1 acre of disturbance (per TRPA Code Section 30.5.3), the action alternatives would qualify for this exemption.

TRPA's base allowable coverage standards by LCD normally limit the amount of coverage permitted for a project on a parcel-by-parcel basis (Section 30.4.1.A of the TRPA Code). However, because the project would be an LPF, per Section 21.4 and 30.4.2.D of the TRPA Code, the allowable land coverage would be limited to the minimum amount needed to achieve its public purpose. If the land coverage proposed by the project exceeds the base allowable coverage for a given parcel, the project proponent would purchase and transfer the required coverage allowance from offsite parcel owners ("sending parcels") in accordance with Chapter 30, "Land Coverage," of the TRPA Code. The amount of coverage allowance that would be required to be purchased and transferred would be determined on a parcel-by-parcel basis and would be a function of: 1) the extent of TRPA-verified legally existing coverage; 2) the land capability and base allowable coverage of the parcel; 3) the type of agreement between the applicant and the affected parcel owners (such as a recorded deed-restricted easement or right-of-way dedication); and 4) the size of the affected parcel, or width of the recorded easement. These details are unknown at this time and will be dependent on the alternative selected. During application review and approval of the TRPA permit, the TTD would be required to demonstrate evidence of the source of coverage, the purchase or transfer of the required coverage allowance, and restoration of any relocated coverage, in accordance with TRPA regulations.

As described in the Regulatory Setting, Section 30.4.6.D.3 of the TRPA Code provides an exemption from land coverage calculations for Non-Motorized Public Trails. Because the bike path portions of Alternative 1 are components of the Truckee River trail network (identified in the Lake Tahoe Region Bike Trail and Pedestrian Plan) and would meet the other exemption criteria including minimization of disturbance of sensitive lands and public ownership, the bike path would be exempt from coverage calculations. The potential environmental impacts of this exemption were analyzed in the TRPA Regional Plan EIS and were found to be less than significant (TRPA 2012d). Because the coverage increase associated with Alternatives 1, 2, 3, and 4 would comply with TRPA land coverage regulations, including mitigation of disturbances in LCD 1b at a ratio of 1.5:1, the potential for these alternatives to create an adverse effect related to land coverage would be **less than significant**.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

The coverage impacts for Alternative 2 are nearly identical to those described under Alternative 1. As shown in Table 4.5-5, the roadway component of Alternative 2 would create a net increase in land coverage of 0.53 acres within LCD 1b and 3.67 acres within LCD 5. The bike path component would add an additional 0.07 acres of land coverage within LCD 1b and 0.14 acres within LCD 5.

Like Alternative 1, Alternative 2 would qualify for the TRPA exemption for creation of land coverage in LCD 1b resulting from public service facilities (specifically LPFs) and the TRPA exemption from land coverage calculations for non-motorized trails. For the same reasons discussed above, the impact related to TRPA regulated Land Coverage resulting from the implementation of Alternative 2 would be **less than significant**.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

The coverage impacts for Alternative 3 are similar, but slightly less than those described under Alternative 1. As shown in Table 4.5-5, the roadway component of Alternative 3 would create a net increase in land coverage of 0.50 acres within LCD 1b and 2.37 acres within LCD 5. The bike path component would add an additional 0.07 acres of land coverage within LCD 1b and 0.14 acres within LCD 5.

Like Alternative 1, Alternative 3 would qualify for the TRPA exemption for creation of land coverage in LCD 1b resulting from public service facilities (specifically LPFs) and the TRPA exemption from land coverage calculations for non-motorized trails. For the same reasons discussed above, the impact related to TRPA regulated Land Coverage resulting from the implementation of Alternative 3 would be **less than significant**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Compared to Alternative 1, Alternative 4 would approximately 0.35 acres more land coverage in LCD 1b and 0.93 acres less land coverage in LCD 5. As shown in Table 4.5-5, the roadway component of Alternative 4 would create a net increase in land coverage of 0.87 acres within LCD 1b and 2.73 acres within LCD 5. The bike path component would add an additional 0.03 acres of land coverage within LCD 1b and 0.16 acres within LCD 5.

Like Alternative 1, Alternative 3 would qualify for the TRPA exemption for creation of land coverage in LCD 1b resulting from public service facilities (specifically LPFs) and the TRPA exemption from land coverage calculations for non-motorized trails. Although Alternative 4 would create more land coverage in LCD 1b, when compared to Alternative 1, this alternative would be required to meet the same mitigation standards. For the same reasons discussed above, the impact related to TRPA regulated Land Coverage resulting from the implementation of Alternative 4 would be **less than significant**.

ALTERNATIVE 5: NO ACTION

Because the no action alternative would not create or remove land coverage within the project site, there would be **no impact** related to TRPA regulated land coverage.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Because Alternative 6 would not involve the creation of a new bridge structure and highway segment, the increase in land coverage associated within this alternative is minimal when compared to Alternative 1. As shown in Table 4.5-5, the roadway component of Alternative 6 would create a net increase in land coverage of 0.28 acres within LCD 1b and a net reduction of 0.03 acres within LCD 5. The bike path component would add an additional 0.05 acres of land coverage within LCD 5.

As described above, Alternative 6 would qualify for the TRPA exemption for creation of land coverage in LCD 1b resulting from public service facilities (specifically LPFs) and the TRPA exemption from land coverage calculations for non-motorized trails. Any relocation or transfer of coverage required for the implementation of Alternative 6 would comply with the TRPA land coverage regulations discussed above. For these reasons, implementation of Alternative 6 would have a **less-than-significant** impact.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

The roadway configuration proposed for Alternative 6a would convert the existing signalized intersection at the wye to a roundabout with a landscaped center. This change would result in a net decrease in land coverage within LCD 5 and for the alternative overall (refer to Table 4.5-5). Any relocation or transfer of coverage required for the implementation of Alternative 6a would comply with the TRPA land coverage regulations discussed above. For these reasons, implementation of Alternative 6a would have a **less-than-significant** impact.

4.5.5 Avoidance, Minimization, and/or Mitigation Measures

No mitigation is required for any of the alternatives.

4.6 GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

4.6.1 Introduction

Greenhouse gas (GHG) emissions have the potential to adversely affect the environment because they contribute, on a cumulative basis, to global climate change. In turn, global climate change has the potential to affect rain and snow fall, leading to changes in alpine hydrology and water supply; to affect habitat, leading to adverse effects on biological and other resources; and to change the frequency and duration of droughts, which can affect wildfire hazards and forest health. Federal, state, and local regulations related to GHG emissions and climate change are summarized. Potential impacts of the alternatives are analyzed. Because the nature of this issue is inherently cumulative, this section serves as the cumulative impact analysis related to GHGs and climate change. Therefore, the cumulative global climate change analysis presented in this chapter of the Draft EIR/EIS/EA examines the GHG emissions associated with construction and operation-related activities of the SR 89/Fanny Bridge Project and the project's role in implementing statewide and regional plans that aim to reduce GHGs. The potential effects of global climate change on the project are also identified based on available scientific data.

Cumulative impacts are the collective impacts of one or more past, present, and future projects that, when combined, result in adverse changes to the environment. In determining the significance of a project's contribution to anticipated adverse future conditions, lead agencies should generally undertake a two-step analysis. The first question is whether the combined effects from both the project and other projects would be cumulatively significant. If this question is answered inquiry in the affirmative, the second question is whether "the project's incremental effects are cumulatively considerable" and thus significant in and of themselves. The cumulative project list for this issue (climate change) comprises anthropogenic (i.e., human-made) GHG emissions sources across the globe, and no project alone would reasonably be expected to contribute to a noticeable incremental change to the global climate. However, legislation and executive orders on the subject of climate change in California have established a statewide context and a process for developing an enforceable statewide cap on GHG emissions. Similarly, implementation of the applicable regional transportation plan and sustainable communities strategy for the Tahoe Region established a regional context for addressing GHG emission associated with transportation and land use. Given the nature of environmental consequences from GHGs and global climate change, TRPA's environmental review process, NEPA, and CEQA require that lead agencies consider evaluating the cumulative impacts of GHGs, even relatively small additions. Small contributions to this cumulative impact (from which significant effects are occurring and are expected to worsen over time) may be potentially considerable and, therefore, significant.

The analysis is presented here, rather than the cumulative impacts chapter of the EIR/EIS/EA (Chapter 5), because this issue is presented in greater project-level detail.

4.6.2 Regulatory Setting

FEDERAL

Supreme Court Ruling

The U.S. Environmental Protection Agency (EPA) is the federal agency responsible for implementing the federal Clean Air Act (CAA). The Supreme Court of the United States ruled on April 2, 2007, that carbon dioxide (CO₂) is an air pollutant as defined under the CAA, and that EPA has the authority to regulate emissions of GHGs. The ruling in this case resulted in EPA taking steps to regulate GHG emissions and lent support for state and local agencies' efforts to reduce GHG emissions.

EPA Actions

Endangerment and Cause or Contribute Findings

On December 7, 2009, EPA adopted its Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under the CAA (Endangerment Finding). The Endangerment Finding is based on Section 202(a) of the CAA, which states that the Administrator (of EPA) should regulate and develop standards for “emission[s] of air pollution from any class or classes of new motor vehicles or new motor vehicle engines, which in [its] judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare.” The rule addresses Section 202(a) in two distinct findings. The first addresses whether or not the concentrations of the six key GHGs (i.e., CO₂, methane [CH₄], nitrous oxide [N₂O], hydrofluorocarbons [HFCs], perfluorocarbons [PFCs], and sulfur hexafluoride [SF₆]) in the atmosphere threaten the public health and welfare of current and future generations. The second addresses whether or not the combined emissions of GHGs from new motor vehicles and motor vehicle engines contribute to atmospheric concentrations of GHGs and therefore the threat of climate change.

The Administrator found that atmospheric concentrations of GHGs endanger the public health and welfare within the meaning of Section 202(a) of the CAA. The evidence supporting this finding consists of human activity resulting in “high atmospheric levels” of GHG emissions, which are very likely responsible for increases in average temperatures and other climatic changes. Furthermore, the observed and projected results of climate change (e.g., higher likelihood of heat waves, wild fires, droughts, sea level rise, higher intensity storms) are a threat to the public health and welfare. Therefore, GHGs were found to endanger the public health and welfare of current and future generations.

The Administrator also found that GHG emissions from new motor vehicles and motor vehicle engines are contributing to air pollution, which is endangering public health and welfare. EPA’s final findings respond to the 2007 U.S. Supreme Court decision that GHGs fit within the CAA definition of air pollutants. The findings do not in and of themselves impose any emission reduction requirements but rather allow EPA to finalize the GHG standards proposed earlier in 2009 for new light-duty vehicles as part of the joint rulemaking with the Department of Transportation.

National Program to Cut Greenhouse Gas Emissions and Improve Fuel Economy for Cars and Trucks

On September 15, 2009, EPA and the Department of Transportation’s National Highway Traffic Safety Administration (NHTSA) proposed a new national program that would reduce GHG emissions and improve fuel economy for all new cars and trucks sold in the United States. EPA proposed the first-ever national GHG emissions standards under the CAA, and NHTSA proposed Corporate Average Fuel Economy (CAFE) standards under the Energy Policy and Conservation Act. This proposed national program would allow automobile manufacturers to build a single light-duty national fleet that satisfies all requirements under both Federal programs and the standards of California and other states.

Mandatory Greenhouse Gas Reporting Rule

On September 22, 2009, EPA issued a final rule for mandatory reporting of GHGs from large GHG emissions sources in the United States. In general, this national reporting requirement will provide EPA with accurate and timely GHG emissions data from facilities that emit 25,000 metric tons (MT) or more of CO₂ per year. This publicly available data will allow the reporters to track their own emissions, compare them to similar facilities, and aid in identifying cost effective opportunities to reduce emissions in the future. Reporting is at the facility level, except that certain suppliers of fossil fuels and industrial greenhouse gases along with vehicle and engine manufacturers will report at the corporate level. An estimated 85 percent of the total U.S. GHG emissions, from approximately 10,000 facilities, are covered by this final rule.

Climate Change Adaptation

Activities are already underway across the federal government to build adaptive capacity and increase resilience to climate change. These activities include efforts to improve understanding of climate science and impacts, to incorporate climate change considerations into policies and practices, and to strengthen

technical support and capacity for adaptation decision making. Some efforts are large collaborative undertakings involving federal and non-federal partners while others are smaller and at the program level. The Climate Change Adaptation Task Force, co-chaired by the White House Council on Environmental Quality (CEQ), the Office of Science and Technology Policy, and the National Oceanic and Atmospheric Administration, makes recommendations to the U.S. President for how federal agency policies and programs can better prepare the United States to respond to the impacts of climate change (CEQ 2011).

TAHOE REGIONAL PLANNING AGENCY

The Tahoe Regional Planning Agency (TRPA) has not specifically identified any goals, policies, or Environmental Threshold Carrying Capacities related to GHG emissions or climate change at this time. As part of the Lake Tahoe Sustainability Collaborative, TRPA also participated in the preparation of the regional transportation plan for the Region that includes strategies for reducing transportation-related GHGs (see below at *Mobility 2035: Lake Tahoe Regional Transportation Plan*) and the *Tahoe Sustainability Action Plan* (see below at *Tahoe Sustainability Action Plan*).

Mobility 2035: Lake Tahoe Regional Transportation Plan

In 2012, the Tahoe Metropolitan Planning Organization (TMPO) prepared the Mobility 2035: Lake Tahoe Regional Transportation Plan (RTP), which seeks to improve mobility and safety for the commuting public while at the same time delivering environmental improvements throughout the transportation network in the Lake Tahoe Basin (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 also supported an update of the Transportation Element of the Tahoe Regional Planning Agency (TRPA) Regional Plan. The RTP update included a Sustainable Communities Strategy (SCS), in accordance with California Senate Bill 375 (Sustainable Communities and Climate Protection Act). The SCS demonstrates how integrated transportation, land use, and housing strategies will help Lake Tahoe meet environmental thresholds and greenhouse gas targets for cars and light trucks on the California side of the Basin by 2035. Both the RTP and the SCS are integrated into the Tahoe Regional Planning Agency's Regional Plan Update.

Best Construction Practices Policy for Construction Emissions

TRPA coordinates implementation of its Best Construction Practices Policy for Construction Emissions through TRPA-approved plans, project-permitting, or projects/programs developed in coordination with local or other governments that require, as a condition of project approval, implementation of feasible measures and Best Management Practices to reduce construction-generated emissions to the extent feasible (TRPA YEAR). TRPA developed its Best Construction Practices Policy pursuant to Mitigation Measure 3.4-2 and Mitigation Measure 3.5-1 of the RTP Environmental Impact Report/Environmental Impact Statement (EIR/EIS), and Mitigation Measure 3.4-2 of the Regional Plan Update EIS.

STATE

California Air Resources Board

The California Air Resources Board (ARB) 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), which was adopted in 1988. Various statewide and local initiatives to reduce the state's contribution to GHG emissions have raised awareness that, even though the various contributors to and consequences of global climate change are not yet fully understood, global climate change is under way, and there is a real potential for severe adverse environmental, social, and economic effects in the long term. Because every nation emits GHGs and therefore makes an incremental cumulative contribution to global climate change, cooperation on a global scale will be required to reduce the rate of GHG emissions to a level that can help to slow or stop the human-caused increase in average global temperatures and associated changes in climatic conditions.

Executive Order S-3-05

Executive Order S-3-05, which was signed by Governor Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra Nevada snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the Executive Order established total greenhouse gas emission targets. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

The Executive Order directed the Secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce greenhouse gas emissions to the target levels. The Secretary will also submit biannual reports to the governor and state legislature describing: progress made toward reaching the emission targets; impacts of global warming on California's resources; and mitigation and adaptation plans to combat these impacts. To comply with the Executive Order, the Secretary of the CalEPA created the California Climate Action Team (CCAT) made up of members from various state agencies and commission. CCAT released its first report in March 2006. The report proposed to achieve the targets by building on voluntary actions of California businesses, local government and community actions, as well as through state incentive and regulatory programs.

Assembly Bill 32, the California Global Warming Solutions Act of 2006

In September 2006, Governor Arnold Schwarzenegger signed the California Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished through an enforceable statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs ARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources.

AB 32 requires that ARB adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrives at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state achieves the reductions in GHG emissions necessary to meet the cap. AB 32 also includes guidance to institute emissions reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions.

Assembly Bill 32 Climate Change Scoping Plan

In December 2008, ARB adopted its *Climate Change Scoping Plan*, which contains the main strategies California will implement to achieve reduction of approximately 118 million metric tons (MMT) CO₂e, or approximately 22 percent from the state's projected 2020 emission level of 545 MMT of CO₂e under a business-as-usual scenario (this is a reduction of 47 MMT CO₂e, or almost 10 percent, from 2008 emissions). ARB's original 2020 projection was 596 MMT CO₂e, but this revised 2020 projection takes into account the economic downturn that occurred in 2008 (ARB 2011). The Scoping Plan reapproved by ARB in August 2011 includes the Final Supplement to the Scoping Plan Functional Equivalent Document, which further examined various alternatives to Scoping Plan measures. The Scoping Plan also includes ARB-recommended GHG reductions for each emissions sector of the state's GHG inventory. ARB estimates the largest reductions in GHG emissions to be achieved by implementing the following measures and standards (ARB 2011):

- ▲ improved emissions standards for light-duty vehicles (26.1 MMT CO₂e),
- ▲ the Low-Carbon Fuel Standard (15.0 MMT CO₂e),
- ▲ energy efficiency measures in buildings and appliances (11.9 MMT CO₂e), and
- ▲ a renewable portfolio and electricity standards for electricity production (23.4 MMT CO₂e).

In 2011, ARB adopted the cap-and-trade regulation. The cap-and-trade program covers major sources of GHG emissions in the State such as refineries, power plants, industrial facilities, and transportation fuels. The cap-and-trade program includes an enforceable emissions cap that will decline over time. The State will distribute allowances, which are tradable permits, equal to the emissions allowed under the cap. Sources under the cap will need to surrender allowances and offsets equal to their emissions at the end of each compliance period (ARB 2012a).

With regard to land use planning, the Scoping Plan expects that reductions of approximately 3.0 MMT CO₂e will be achieved through implementation of Senate Bill (SB) 375, which is discussed further below (ARB 2011).

Senate Bill 375

SB 375, signed in September 2008, aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt an SCS as part of the MPO's RTP that prescribes land use allocation and transportation investments necessary to meet GHG emission reduction targets for the region. If the SCS cannot meet GHG reduction targets, the MPO must prepare an Alternative Planning Strategy (APS) that identifies the additional regional land uses and transportation investments needed to attain the targets.

With the assistance of the Regional Targets Advisory Committee (RTAC) and in consultation with the MPOs, ARB provided each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every 8 years, but can be updated every 4 years if advancements in emissions technologies affect the reduction strategies to achieve the targets. ARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, transportation projects would not be eligible for funding programmed after January 1, 2012. The ARB-issued targets for the California portion of the Tahoe MPO are a 7 percent reduction in GHG emissions per capita by 2020 relative to 2005 per capita GHG emissions and a 5 percent reduction by 2035 (ARB 2011).

Senate Bill 97

As directed by SB 97, the Natural Resources Agency adopted Amendments to the CEQA Guidelines for greenhouse gas emissions on December 30, 2009. On February 16, 2010, the Office of Administrative Law approved the Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The Amendments became effective on March 18, 2010.

Executive Order S-13-08

Governor Arnold Schwarzenegger signed Executive Order S-13-08 on November 14, 2008. This executive order directed the California Natural Resources Agency (CNRA) to develop the *2009 California Climate Adaptation Strategy* (CNRA 2009), which summarizes the best known science on climate change impacts in seven distinct sectors—public health, biodiversity and habitat, ocean and coastal resources, water management, agriculture, forestry, and transportation and energy infrastructure—and provides recommendations on how to manage against those threats. This executive order also directed the Governor's Office of Planning and Research (OPR), in cooperation with the CNRA, to provide land use planning guidance related to sea level rise and other climate change impacts by May 30, 2009, which is also provided in the *2009 California Climate Adaptation Strategy* (CNRA 2009) and OPR continues to further refine land use planning guidance related to climate change impacts.

Caltrans Guidance on Addressing Climate Change Adaptation in Regional Transportation Plans

In February 2013, Caltrans published a report called *Addressing Climate Change Adaptation in Regional Transportation Plans: A Guide for California MPOs and RTPAs* (Cambridge Systematics 2013). This guide was written to help MPOs and RTPAs better incorporate climate assessment and adaptation into the long-range planning process. It discusses potential climate change-related impacts to transportation infrastructure in California and related adaptation strategies. Although there is no requirement to date to incorporate climate

adaptation into regional transportation planning, this guide provides information and tools to help MPOs/RTPAs anticipate the incorporation of climate assessment and adaptation into future planning efforts.

LOCAL

Tahoe Sustainability Action Plan

The *Tahoe Sustainability Action Plan* was completed by the Lake Tahoe Sustainability Collaborative in January 2014 (Lake Tahoe Sustainable Communities Program 2014). The California Strategic Growth Council (SGC) funded the regional collaboration to develop sustainability tools for regional and local agencies, non-profits, the business community, and local residents to use in promoting greenhouse gas reduction, among other sustainability goals. The grant and planning effort was administered by the TMPO and was carried out by the Lake Tahoe Sustainability Collaborative, which is a public and private partnership that includes TRPA and was established to lead the development of sustainability tools and drive coordinated sustainability efforts. The sustainability tools in the Tahoe Sustainability Plan are intended to support development of economic incentives, GHG reduction strategies, and climate change adaptation strategies.

Placer County Air Pollution Control District

Placer County Air Pollution Control District (PCAPCD) adopted Rule 517 regarding “Permitting Requirements for Stationary Sources Emitting Greenhouse Gases” in response to the federal “Greenhouse Gas Permitting Requirements,” discussed above. As described above, facilities with the potential to emit GHGs above a certain level would need to obtain an applicable Federal Operating Permit and meet New Source Review or Prevention of Significant Deterioration (PSD) requirements under the Clean Air Act. PCAPCD implements Federal Operating Permit and New Source Review or PSD permitting programs at the local level under PCAPCD Rules 502, 507, and 518.

4.6.3 Affected Environment

EXISTING CLIMATE

Climate is the accumulation of daily and seasonal weather events over a long period of time, whereas weather is defined as the condition of the atmosphere at any particular time and place (Ahrens 2003). Lake Tahoe lies in a depression between the crests of the Sierra Nevada and Carson ranges on the California-Nevada border at a surface elevation of approximately 6,260 feet above sea level. The Lake Tahoe Air Basin (LTAB) is defined by the 7,000-foot contour, which is continuous around the Lake, except near Tahoe City. The mountains surrounding the Lake are approximately 8,000–9,000 feet in height on average, with some reaching 10,000 feet.

The constant water temperature of Lake Tahoe at 600 feet below the surface is approximately 39 degrees Fahrenheit (°F). This characteristic and the Lake’s topographic location combine to define one of the LTAB’s most important atmospheric regimes: in the absence of strong synoptic weather systems (large-scale system, 620 miles or more), the LTAB develops shallow subsidence and radiation inversions throughout the year (air temperature variations unique to the Basin relative to surrounding areas). In addition, rapid radiation cooling at night regularly generates gentle downslope nocturnal winds that blow from the mountain ridges down to the shore, then fan across the Lake (Cliff and Cahill 2000:1).

ATTRIBUTING CLIMATE CHANGE—THE PHYSICAL SCIENTIFIC BASIS

Certain gases in the earth’s atmosphere, collectively classified as GHGs, play a critical role in determining the earth’s surface temperature. Solar radiation enters the earth’s atmosphere from space. A portion of the radiation is absorbed by the earth’s surface, and a smaller portion of this radiation is reflected back toward space. This absorbed radiation is then emitted from the earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. The earth has a much lower

temperature than the sun; therefore, the earth emits lower frequency 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 CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆. Human-caused emissions of these GHGs in excess of natural ambient concentrations are responsible for intensifying the greenhouse effect and have led to a trend of unnatural warming of the earth’s climate, known as global climate change or global warming. It is *extremely unlikely* that global climate change of the past 50 years can be explained without the contribution from human activities (IPCC 2007). GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants (TACs), which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about 1 day), GHGs have long atmospheric lifetimes (1 year to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule is dependent on multiple variables and cannot be pinpointed, it is understood that more CO₂ is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO₂ emissions, approximately 54 percent is sequestered through ocean uptake, uptake by forest regrowth, and other terrestrial sinks within a year, whereas the remaining 46 percent of human-caused CO₂ emissions remains stored in the atmosphere (Seinfeld and Pandis 1998).

Similarly, impacts of GHGs are borne globally, as opposed to localized air quality effects of criteria air pollutants and TACs. The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; suffice it to say, the quantity is enormous, and no single project alone would measurably contribute to a noticeable incremental change in the global average temperature, or to global, local, or micro climate. From the standpoint of CEQA, GHG impacts to global climate change are inherently cumulative.

ATTRIBUTING CLIMATE CHANGE—GREENHOUSE GAS EMISSION SOURCES

State

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the transportation, industrial/manufacturing, utility, residential, commercial and agricultural sectors (ARB 2008; ARB 2011). Emissions of CO₂ are byproducts of fossil fuel combustion. CH₄, a highly potent GHG, results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices and landfills. N₂O is also largely attributable to agricultural practices and soil management. CO₂ sinks, or reservoirs, include vegetation and the ocean, which absorb CO₂ through sequestration and dissolution, respectively, two of the most common processes that remove CO₂ from the atmosphere.

California is the 12th to 16th largest emitter of CO₂ in the world (CEC 2006a). California produced 478 million gross metric tons of CO₂e in 2008 (ARB 2010). CO₂e is a measurement used to account for the fact that different GHGs have different potential to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. This potential, known as the global warming potential (GWP) of a GHG, is dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. For example, as described in Appendix C, “Calculation References,” of the General Reporting Protocol of the California Climate Action Registry (CCAR 2009), one ton of CH₄ has the same contribution to the greenhouse effect as approximately 21 tons of CO₂. Therefore, CH₄ is a much more potent GHG than CO₂. Expressing emissions in CO₂e takes the contributions of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO₂ were being emitted.

Combustion of fossil fuel in the transportation sector was the single largest source of California’s GHG emissions in 2008, accounting for 37 percent of total GHG emissions in the state (ARB 2010). This sector was followed by the electric power sector (including both in-state and out-of-state sources) (24 percent) and

the industrial sector (19 percent) (ARB 2010). California GHG emissions inventory and projections are summarized in Table 4.6-1 below.

Table 4.6-1 California Greenhouse Gas Emissions Inventory and Projections					
Emissions Sector	MMT CO ₂ e/yr				
	1990	2000	2005	2008	2020
Electrical Generation ¹	110.6	103.9	111.0	116.4	110.4
Residential/Commercial	44.1	42.9	40.8	43.1	45.3
Transportation	150.7	171.1	184.3	175.0	183.9
Industrial	103.0	97.3	90.7	92.7	91.5
High GWP Processes	-2.0	11.0	14.2	15.7	37.9
Agriculture	23.4	25.4	29.0	28.1	29.1
Waste Management	-2.0	6.2	6.5	6.7	8.5
Forestry	0.2	0.2	0.2	0.2	0.2
Gross Total Emissions³	433	458.0	476.7	477.7	506.8
Carbon Sequestration	-6.7	-4.7	-4.2	-4.0	0.0
Net Emissions³	427	453.3	472.6	473.8	506.8

Notes: GWP = global warming potential; MMT CO₂e/yr = million metric tons carbon dioxide equivalent per year.

¹ Includes in-state-generated and imported electricity production.

² Contained within Industrial Sector emissions.

³ Totals may not sum exactly because of rounding.

Source: ARB 2011, ARB 2010, ARB 2007.

Local

Mobile Sources

As discussed above under Regulatory Background, regarding SB 375, the TMPO was issued per-capita mobile-source GHG reduction targets by ARB of 7 percent by 2020 and 5 percent by 2035 (from 2005 levels). These targets apply to California-generated GHG and to the portion of the vehicle fleet comprised of automobiles and light-duty trucks. The SB 375 Regional Targets Advisory Committee (RTAC) developed guidance for how interregional vehicle miles traveled (VMT) should be attributed between MPOs. According to the RTAC guidance, 50 percent of internal-external and external-internal (i.e., trips that originate or terminate in the applicable MPO) VMT and trips, 100 percent of internal-internal (i.e., trips that originate and terminate in the applicable MPO) VMT and trips, and 0 percent of external-external (i.e., pass-through) VMT and trips should be attributed to the MPO (RTAC 2009:26). This method was applied to calculate VMT for the California portion of the Basin. Existing GHG emissions from mobile sources were estimated using VMT obtained from the transportation analysis prepared for the RTP/SCS per the RTAC method and the mobile-source emission factor model EMFAC 2011, available from ARB (ARB 2012b). In 2005, the California side of the Basin generated 949,750 daily VMT and 139,996 trips (TRPA and TMPO 2012:3.5-9).

Local Greenhouse Gas Emissions Inventories

In 2010, the Basin-wide daily VMT was 1,459,299 miles and 198,340 trips (TRPA and TMPO 2012: Appendix C). The results of baseline GHG emissions modeling (for mobile-source emissions) are summarized in Table 4.6-2 below.

Table 4.6-2 TMPO Mobile-Source Activity Data and Greenhouse Gas Emissions

2005		2010	
California Portion of Region ¹		Entire Tahoe Region ¹	
Daily VMT	949,750	Daily VMT	1,459,299
Daily Vehicle Trips	139,996	Daily Vehicle Trips	198,340
Population	41,213	Population	54,473
GHG Emissions (tons/day)	460	GHG Emissions (tons/day)	918
GHG Emissions (MT/year)	152,281	GHG Emissions (MT/year)	303,877
GHG Emissions/Capita (MT/person/year)	3.69	GHG Emissions/Capita (MT/person/year)	5.58
GHG Emissions/Capita (pounds/person/day)	22.32	GHG Emissions/Capita (pounds/person/day)	33.70

Notes: GHG = greenhouse gas; MT = metric tons; TMPO = Tahoe Metropolitan Planning Organization; VMT = vehicle miles traveled.

¹ VMT and vehicle trips were attributed to TMPO using the RTAC method, which excludes through-trips. The method for determining VMT Threshold Standard attainment includes all in-Basin VMT, as described in Section 3.3, Transportation. 2005 data serves as the baseline for SB 375 compliance on the California side of the Region. 2010 data serves as the baseline for environmental impact analysis of Region-wide GHG emissions.

Source: Fehr & Peers 2012, as cited and contained in Appendix C of TRPA and TMPO 2012.

In addition, a local, community-wide GHG emissions inventory was prepared as part of the Tahoe Regional Sustainability Plan and is presented in Table 4.6-3. The GHG inventory in Tahoe Regional Sustainability Plan informs the GHG reduction strategies and serves as the baseline against which emissions reduction targets are established and against which GHG emissions reductions are measured.

Table 4.6-3 Baseline Greenhouse Gas Emissions for the Tahoe Region

Source Sector	Baseline (MT CO ₂ e/year) ¹
Transportation (on-road mobile sources)	314,815
Electricity Consumption	498,692
Natural Gas Consumption	239,654
Wood Combustion	100,999
Solid Waste	68,608
Water Consumption	26,366
Wastewater Treatment	2,279
Wildfires and Prescribed Burns	47,968
Livestock	12,734
Recreational Boats	19,199
Other Off-road Equipment	56,306
Other Combustion	6,010
Aircraft	4,935
Total	1,398,565

Notes: MTCO₂e/yr = metric tons carbon dioxide equivalent per year.

Baseline GHG emissions were calculated based on the average of emissions from year 2005 and year 2010 emissions to smooth out non-linear factors and other sources of variation, such as the economic downturn.

Numbers may not add up exactly due to rounding.

Source: California Tahoe Conservancy 2013, data compiled by Ascent Environmental, Inc. in 2013, as cited in Lake Tahoe Sustainable Communities Program 2014:3-1.

ADAPTATION TO CLIMATE CHANGE

According to the Intergovernmental Panel on Climate Change (IPCC), which was established in 1988 by the World Meteorological Organization and the United Nations Environment Programme, global average temperature is expected to increase by 3–7 °F by the end of the century, depending on future GHG emission scenarios (IPCC 2007). Resource areas other than air quality and global average temperature could be indirectly affected by the accumulation of GHG emissions. For example, an increase in the global average temperature is expected to result in a decreased volume of precipitation falling as snow in California and an overall reduction in snowpack in the Sierra Nevada. Snowpack in the Sierra Nevada provides both water supply (runoff) and storage (within the snowpack before melting), which is a major source of supply for the state (including the project site). According to the CEC (CEC 2006b), the snowpack portion of the water supply could potentially decline by 30–90 percent by the end of the 21st century. A study cited in a report by the California Department of Water Resources (DWR) projects that approximately 50 percent of the statewide snowpack will be lost by the end of the century (Knowles and Cayan 2002). Although current forecasts are uncertain, it is evident that this phenomenon could lead to challenges in securing an adequate water supply for a growing population. An increase in precipitation falling as rain rather than snow also could lead to increased potential for floods because water that would normally be held in the Sierra Nevada until spring could flow into the Central Valley concurrently with winter storm events. This scenario would place more pressure on California's levee/flood control system (DWR 2006).

A recent report compiled the latest research of the effects of climate change on Lake Tahoe. The report uses downscaled climate model data to predict that the average snowpack in the northern Sierra Nevada Mountains would decline by 40-60 percent under the most optimistic projections, as warming temperatures could result in precipitation falling as rain instead of snow toward the end of the 21st century. Warmer temperatures could also result in accelerated runoff, erosion, and further impaired Lake clarity. Finally, disruptions to normal precipitation patterns could result in drought and increased risk of wildfire in the Basin (Reuter, et. al. 2010).

As noted in mapping prepared for Cal-Adapt, a climate change scenario planning tool developed by California Energy Commission, temperatures in the Tahoe Region on average are projected to rise between four and seven degrees by 2100, based on low and high emissions scenarios (Cal-Adapt 2013). Cal-Adapt uses a method to downscale global climate model data to local and regional resolution under two emissions scenarios; the A-2 scenario represents a business-as-usual future emissions scenario, and the B-1 scenario represents a lower GHG emissions future. Exhibits 4.6-1 and 4.6-2 below depict graphical output from Cal-Adapt of future snowpack and wildfire risk in the Tahoe Region under both emissions scenarios. In either scenario, snowpack is projected to be reduced and wildfire risk is projected to increase by the end of the century.

Expected Climate Change Impacts in the Tahoe Region

The *Tahoe Sustainability Action Plan* provides an overview of the expected climate change-related impacts in the Tahoe Region. The climate change-related impacts most relevant to the SR 89/Fanny Bridge Project are summarized as follows (Lake Tahoe Sustainable Communities Program 2014:5-1 to 5-13):

- ▲ **Increasing Temperatures.** Temperature data collected at weather stations in the Lake Tahoe Region show a strong upward trend in air temperatures that is consistent with global and regional changes (Coats et al., 2006), primarily in spring and late summer (Coats 2010). Average daily temperature records in the Lake Tahoe Region show an increase in the daily minimum temperatures by approximately 1.5 °F and nightly minimum temperatures have increased by more than 4 °F since 1910. Annual average temperatures in the Lake Tahoe Region are projected to increase 4-7 °F by 2100 (Cal-Adapt 2013).

2010

2090: Low Emissions Scenario

2090: High Emissions Scenario

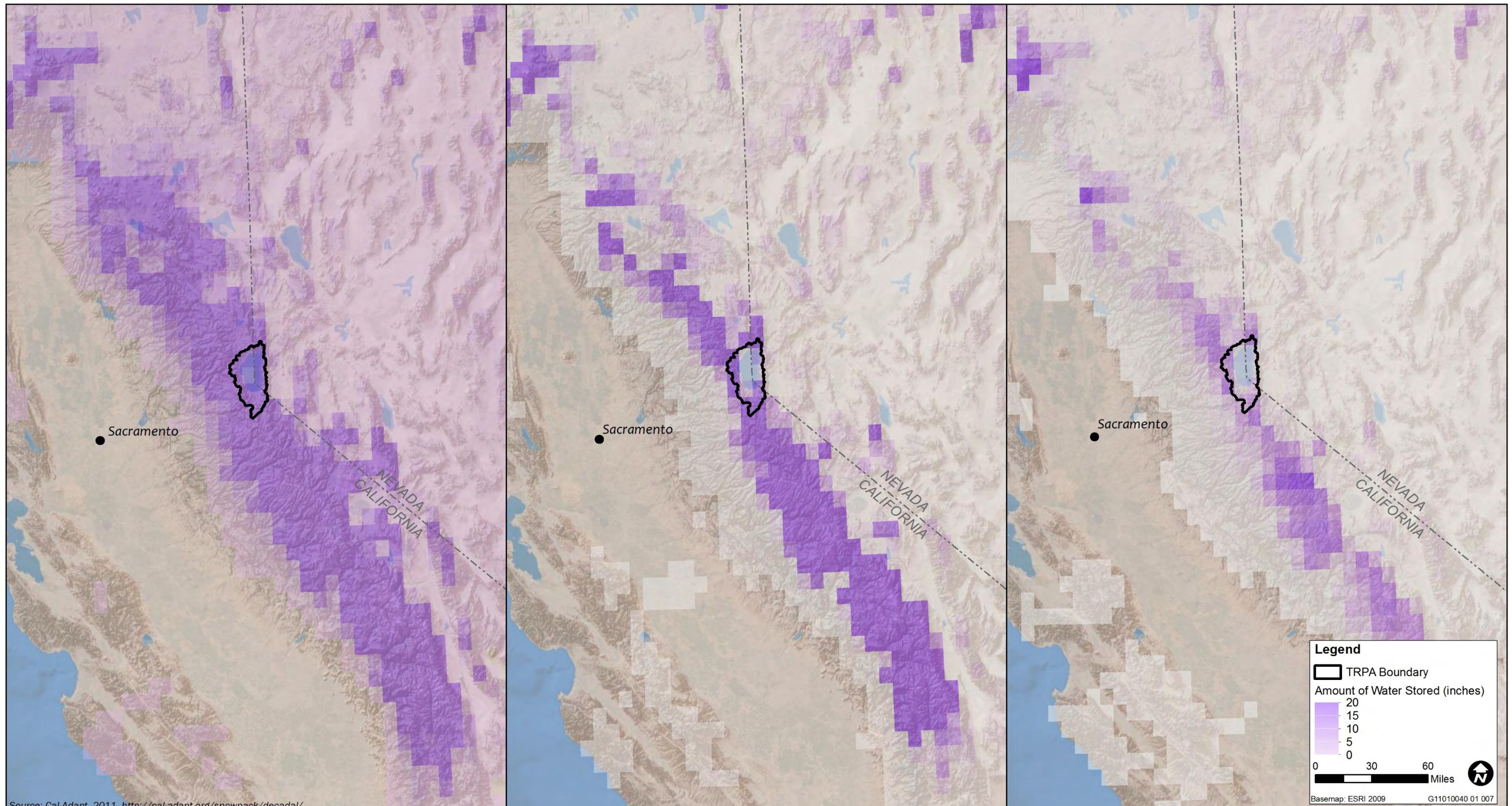
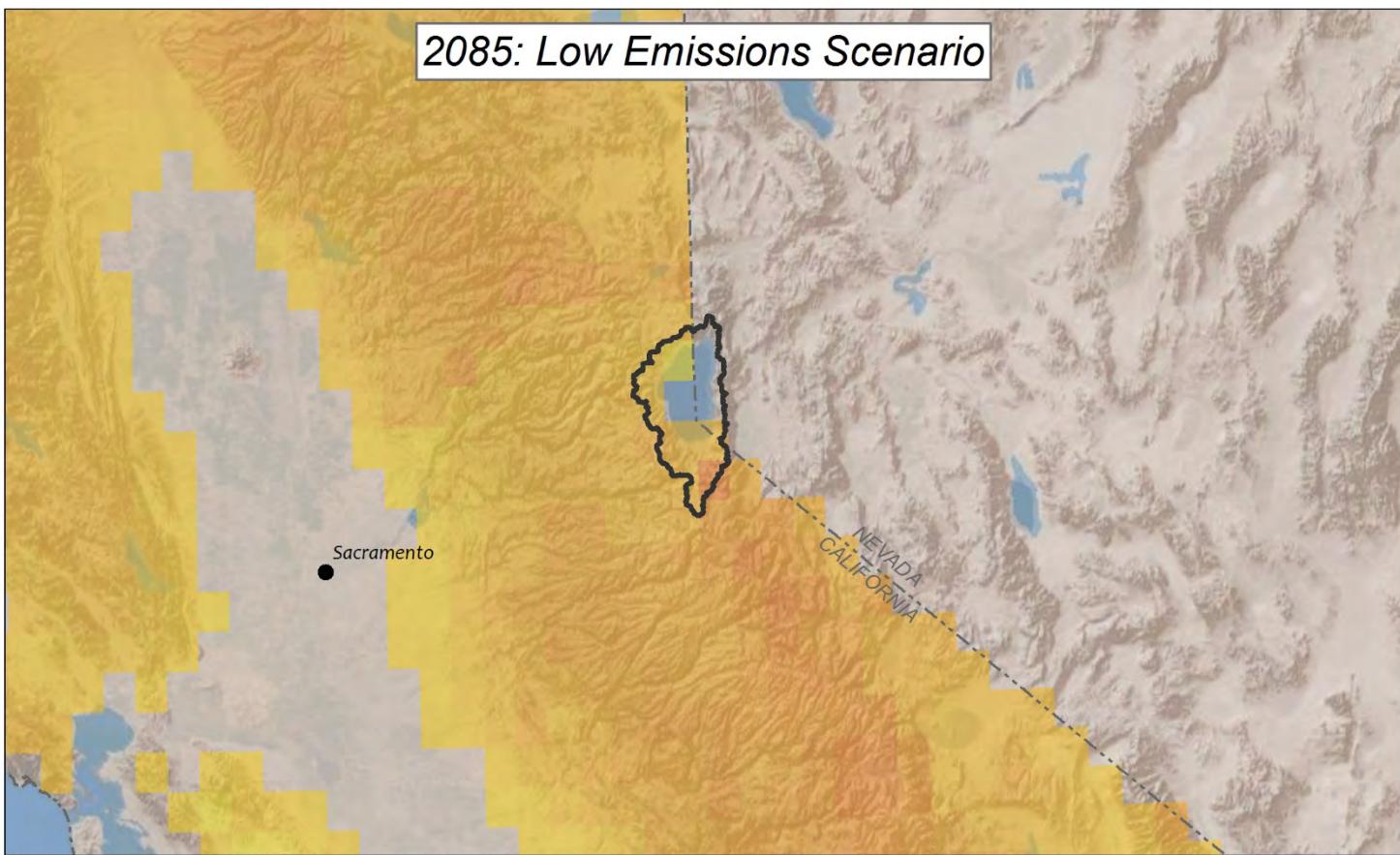


Exhibit 4.6-1

Average Snowpack under Low and High Emissions Scenarios



2085: Low Emissions Scenario



2085: High Emissions Scenario

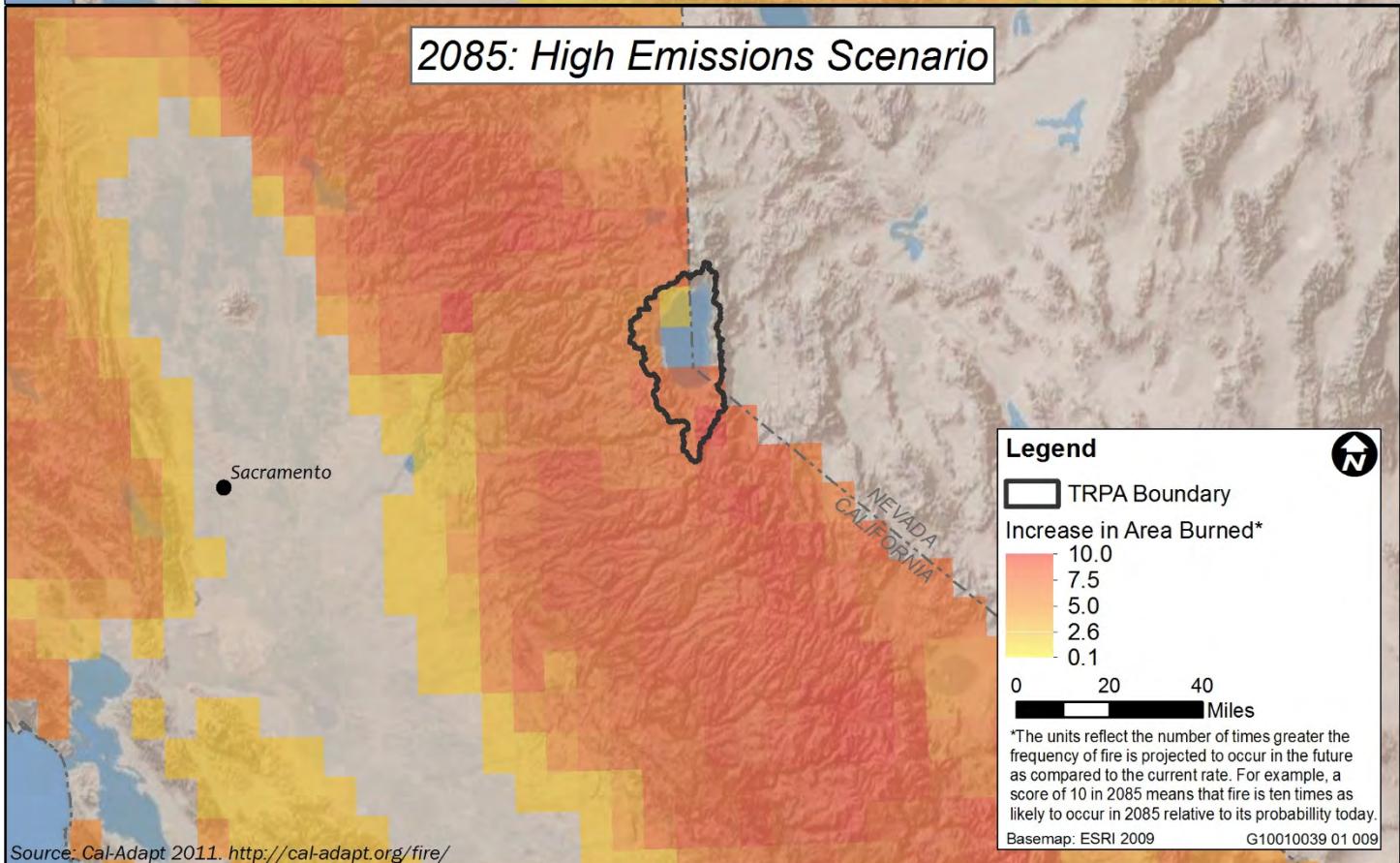


Exhibit 4.6-2

Increased Wildfire Risk under Low and High Emissions Scenarios



- ▲ **Precipitation Patterns.** Annual precipitation totals over the last century in the Lake Tahoe Region have ranged from 23 to 174 cm (TERC 2009). While there are no readily identifiable trends in the total annual precipitation, changes in the character of the precipitation patterns are evident in data collected from 1910 to 2008, which show a shift from snow to rain, increased rainfall intensity, and increased inter-annual variability (Coats 2010).
- ▲ **Snowpack Conditions.** The majority of monitoring stations in the Sierra Nevada have recorded simultaneous reductions in April 1 snow water equivalent, which is attributed to earlier snowmelt rather than reductions in total snowfall (Kapnick and Hall 2010). According to data collected at the Upper Truckee River from 1961 through 2007, the date of peak snowmelt discharged to the river indicates that snowmelt has trended earlier by nearly three weeks over the previous 50 years (TERC 2009).
- ▲ **Water Supply.** Recent calculations for the Lake Tahoe Region using climate model simulation outputs indicate that droughts will become more severe during the next century, especially on the drier eastern portion of the Lake Tahoe Region (Coats et al., 2010).
- ▲ **Lake Tahoe Temperature and Dynamics.** High heat capacity of water bodies dampens short-term temperature variability, and highlights long-term variations in temperature. Data from the Tahoe Environmental Research Center (TERC) monitoring network show that the average daily surface temperatures in Lake Tahoe rose from 10.1 °C in 1968 to 10.9 °C in 2008, and the volume-averaged temperatures have increased by 0.5 °C from 1970 to 2008. The volume-weighted mean water temperature of Lake Tahoe is increasing at a rate of 0.015 °C per year with the highest rate of warming at the surface of the lake (Coats et al., 2006). The warming of Lake Tahoe's surface waters and an increase in the annual minimum surface water temperature will result in increased thermal stability and a reduction in the frequency of the vertical mixing events and affect the Lake's function, which may result in prolonged periods of reduced clarity that follow heavy runoff (Coats et al., 2006). If the lack of vertical mixing (i.e., turnover) persists or if turnover ceases completely, then the oxygen demand of the detritus that sinks to the bottom of the lake will exceed the supply of oxygen in the bottom waters. When the oxygen supply is exceeded, anaerobic conditions in the bottom of the lake will develop. The development of anoxic conditions within the bottom waters of Lake Tahoe would have numerous deleterious water quality and ecological impacts. One potential implication is the dissolution of soluble reactive phosphorus that is currently stored in the oxygenated lake-floor sediments (Coats, et al., 2006).
- ▲ **Wildfire.** The northern Sierra Nevada, including the Lake Tahoe Region, is considered to be highly vulnerable to more frequent fires in the future. The California Climate Adaptation Strategy states, “the most significant climate change risk facing California is associated with the increase in wildfire activity” (CNRA 2009). Warmer spring and summer weather, reduced snowpack, earlier snowmelt, and longer, drier fire seasons can be expected to increase fuel hazards and ignition risks (Westerling 2006). Given that these climate changes are projected to continue, there will be a continued risk of large damaging forest wildfires in the future (Running 2006). Wildfire regime characteristics likely to be affected include the amount of area burned (extent), how often they occur (frequency), the time averaged amount of energy released during a fire (intensity).
- ▲ **Floods.** Lake Tahoe watersheds are likely to mirror the general tendency projected throughout the Sierra Nevada with increases in the magnitude of three-day flood events due to more precipitation at higher altitudes, wetter winter soils, earlier springtime melting of the snowpack, and higher snow lines (Hayhoe et al. 2004, Dettinger et al. 2009). Earlier snowmelt resulting from warmer spring temperatures will cause maximum water storage in Lake Tahoe watersheds (in snow and soil pore spaces) to occur earlier in the spring. When soils are already saturated, subsequent runoff events can result in a greater fraction of surface water runoff due to the reduction in the soil infiltration capacity. Storms are expected to become approximately 3 °C (5.4 °F) warmer causing snowlines to move about 500 meters higher during the 21st century. Higher snowlines may increase the frequency of rain-on-snow events (Dettinger et al. 2009), which may contribute to greater flood frequency and magnitude.

4.6.4 Environmental Consequences

METHODS AND ASSUMPTIONS

For the purposes of this analysis, GHG emissions associated with project construction are analyzed using the estimates provided in a study called the *Air Quality Impact Analysis—State Route 89/Fanny Bridge Community Revitalization Project* (TTD 2014) and is provided in Appendix C, Air Quality and Climate Change. The *Air Quality Impact Analysis* examines quantified construction-related emissions using the Road Construction Emissions Model, Version 7.1.5.1 (SMAQMD 2012, as cited in TTD 2014). The potential for the project to result in an increase in operational GHG emissions is assessed quantitatively based on the VMT analysis provided in the preliminary traffic analysis prepared for the SR 89/Fanny Bridge Project (Wood Rodgers 2014:7) and the project is evaluated for its consistency with the RTP/SCS. Subsequent to the preparation of the preliminary traffic and GHG analyses, a revised traffic report was prepared that updated the traffic volume estimates. The updated volumes are lower than the volumes estimated in the preliminary report; therefore this analysis represents a conservative GHG evaluation (i.e., tending to overstate impacts).

In addition, this EIR/EIS/EA evaluates whether the SR 89/Fanny Bridge Project would be substantially affected by environmental impacts exacerbated by climate change. This analysis is largely informed by Caltrans guidance on *Addressing Climate Change Adaptation in Regional Transportation Plans* (Cambridge Systematics 2013) discussed earlier in this section.

SIGNIFICANCE CRITERIA

Central Federal Lands, TRPA, and PCAPCD have not formally identified a significance threshold standard for analyzing GHG emissions generated by a proposed project, or a methodology for analyzing impacts related to GHG emissions or global climate change.

NEPA Criteria

The White House CEQ, a division of the Executive Office of the President, that coordinates federal environmental efforts in the United States, has provided draft guidance for federal lead agencies to address impacts of GHG emissions in NEPA documents. The draft guidelines state:

If a proposed action would be reasonably anticipated to cause direct emissions of 25,000 metric tons or more of CO₂ equivalent GHG emissions on an annual basis, agencies should consider this an indicator that a quantitative and qualitative assessment may be meaningful to decision makers and the public. For long-term actions that have annual direct emissions of less than 25,000 metric tons of CO₂ equivalent, CEQ encourages federal agencies to consider whether the action's long-term emissions should receive similar analysis. CEQ does not propose this as an indicator of a threshold standard of significant effects, but rather as an indicator of a minimum level of GHG emissions that may warrant some description in the appropriate NEPA analysis for agency actions involving direct emissions of GHGs (CEQ 2010:1-2).

TRPA Criteria

TRPA's Initial Environmental Checklist does not contain any criteria that directly pertain to GHGs, climate change, or the adaptability of a project to climate change.

CEQA Criteria

Based on Appendix G of the State CEQA Guidelines, the GHG emissions generated by a proposed project would result in a cumulatively considerable contribution to climate change if the project would:

- ▲ generate greenhouse gas emissions, either directly or indirectly, that may have a significant adverse effect on the environment; or

- ▲ conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

ISSUES NOT WARRANTING DETAILED EVALUATION

No new stationary sources of emissions or new trip-generating land uses would be constructed as part of the proposed alternatives. Long-term operation of the project alternatives would involve regular maintenance personnel traveling on access roads throughout the project site and occasional use of equipment for maintenance activities such as tree trimming and vegetation removal. However, the project alternatives would not require any additional personnel or maintenance activities in comparison to existing conditions. Therefore, the number of vehicle trips and the level of maintenance activities would not increase as a result of the project alternatives; therefore, long-term operational emissions of GHGs from these sources would not increase above levels existing without the project and were not quantified in the analysis below.

ENVIRONMENTAL EFFECTS OF THE PROJECT ALTERNATIVES

Impact 4.6-1. GHG emissions and consistency with the Regional Transportation Plan.

Implementation of the project alternatives would not result in an increase in VMT or associated mobile-source GHG emissions, and implementation of the action alternatives would be consistent with implementation of the RTP/SCS, which aims to achieve targets assigned by the RTAC for mobile-source GHGs. Also, construction-related GHG emissions would be **less than significant** for all the action alternatives.

Implementation of the No Action Alternative (Alternative 5) would retain existing traffic conditions, including existing levels of congestion and traffic flow but would not result in an increase in GHG emissions relative to existing conditions. Therefore, this would be a **less-than-significant** impact.

ALTERNATIVE 1:- NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

GHG emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction activities that would generate GHG emissions include the use of off-road construction equipment, trucks hauling materials to and from the construction site, and commute trips by workers.

GHG emissions generated by construction would be primarily in the form of CO₂. Emissions of other GHGs, such as methane and nitrous oxide, are also important with respect to global climate change; however, the emission levels of these other GHGs from on- and off-road vehicles used during construction are relatively small compared with the level of CO₂ emissions, even when factoring in the relatively larger global warming potential of methane and nitrous oxide.

Construction emissions were estimated for the project using the Road Construction Emissions Model, Version 7.1.5.1 (SMAQMD 2012), which is widely accepted by air districts in California, including PCAPCD, for estimating emissions from linear construction projects. Detailed modeling parameters are provided in Appendix B of *Air Quality Impact Analysis— State Route 89/Fanny Bridge Community Revitalization Project* (TTD 2014), which is available in Appendix C to this EIR/EIS/EA. Based on the modeling, the total CO₂ emissions for construction of Alternative 1 would be approximately 515 metric tons (TTD 2014:68). This value amortized over an approximate 10-year period (until repaving may be needed) project would be approximately 5.2 MT CO₂e/year. These levels of construction emission estimates do not account for any emission reductions that would result from implementation of TRPA's Best Construction Practices Policy for Construction Emissions (e.g., minimizing idling time of diesel-powered equipment, utilizing power poles or clean-fuel generators rather than diesel, where feasible).

Regarding project operations, implementation of Alternative 1 is not expected to result in increased levels of operational GHG emissions. Alternative 1 would involve adding a second bridge and structural improvements

to Fanny Bridge. Alternative 1 would also provide intermodal connectivity in the region for transit, pedestrians, and bicyclists, and, according to the traffic analysis prepared, implementation of Alternative 1 would not result in additional vehicle trips in the project area and would result in a moderate decrease in VMT on the area roadway network (Wood Rodgers 2014:7).

There are currently no federal, State of California, PCAPCD, or other local measures to determine what level of GHG emissions from construction projects would be considered to have an adverse effect. At the time of writing this EIR/EIS/EA, PCAPCD has not adopted policies or recommended performance measures to address specific GHG emission reductions generated by construction activity.

GHG emissions associated with implementation of Alternative 1 would be less than approximately 2.1 percent of 25,000 MT CO₂e/year, which is the level suggested in draft guidance from CEQ for determining whether a project's GHG emissions should be quantified (CEQ 2010: p.1-2). A quantitative analysis was provided here for informational purposes, though not required by CEQ. Although it is not the intent of CEQ, TRPA, or PCAPCD to adopt 25,000 MT CO₂e/year as a significance criterion, it is relevant that CEQ identifies 25,000 MT CO₂e/year as the level above which quantitative analysis is warranted, because this quantity of emission is recognized as substantial. EPA also uses 25,000 MT CO₂e/year as the level above which facilities are subject to mandatory GHG reporting. Alternative 1's GHG emissions and associated contribution to cumulative climate change impacts would be well below this level and; therefore, would constitute a less-than-considerable contribution to the cumulative adverse effect of climate change.

Moreover, VMT (and resultant GHG emissions) associated with the SR 89/Fanny Bridge Project was fully contemplated in the cumulative effects analysis of the RTP/SCS EIR/EIS that determined an overall reduction in Region-wide VMT (TRPA and TMPO 2012). (Project-related VMT is discussed in further detail in Section 4.15, "Traffic and Transportation.") This is noteworthy given that the RTP/SCS demonstrates how integrated transportation, land use, and housing strategies will help Lake Tahoe meet GHG targets for cars and light trucks on the California side of the Basin, as established by the RTAC and required by SB 375. In turn, because SB 375 is a component of the AB 32 Scoping Plan, Alternative 1 would also be consistent with the state's plan to achieve AB 32-mandated emission reductions.

In summary, because construction-related GHG emissions would be nominal with respect to the level of 25,000 MT CO₂e/year identified by CEQ, Alternative 1 would not result in a long term increase in VMT or GHG emissions, and Alternative 1 is identified as part of the RTP/SCS, which aims to achieve reduction targets for mobile-source GHGs, and the project does not introduce any new trip-generating land uses, implementation of Alternative 1 would not result in a considerable contribution to the cumulative adverse effect of climate change. This would be a **less-than-significant** impact.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Impacts would be the same as described for Alternative 1 because the duration and type of construction activities under Alternative 2 would generally be the same as under Alternative 1 and Alternative 2 is not expected to result in an increase in operational GHG emissions. This would be a **less-than-significant** impact.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Impacts would be the same as described for Alternative 1 because the duration and type of construction activities under Alternative 3 would generally be the same as under Alternative 1 and Alternative 3 is not expected to result in an increase in operational GHG emissions. This would be a **less-than-significant** impact.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Impacts would be the same as described for Alternative 1 because the duration and type of construction activities under Alternative 4 would generally be the same as under Alternative 1 and Alternative 4 is not expected to result in an increase in operational GHG emissions. This would be a **less-than-significant** impact.

ALTERNATIVE 5: NO ACTION

The No Action Alternative would retain existing traffic conditions, including existing levels of congestion and traffic flow, and therefore could potentially prevent full, effective implementation of the RTP/SCS, which was adopted to improve connectivity, reliability, travel times, and operations of public transportation, and increase mobility and safety of bicycles and pedestrians to achieve reduction targets for VMT (and associated mobile-source GHGs). While Alternative 5 would not achieve any beneficial reductions in VMT or associated GHG levels it also would not result in an increase in VMT or GHG emissions relative to existing conditions. Therefore, this would be a **less-than-significant** impact.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISITING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Alternative 6 would rehabilitate or replace and widen Fanny Bridge, make minor improvements to the existing SR 89 between the bridge and Tahoe Tavern Road, and maintain the existing SR 89/SR 28 intersection location. These improvements would also be consistent with the transportation system and financial plan described in the most recent amendment to the RTP. Moreover, impacts would be the same as described for Alternative 1, because the duration and type of construction activities under Alternative 6 would not be more intense than under Alternative 1 and Alternative 6 is not expected to result in an increase in operational GHG emissions. Therefore, impacts would be the same as described for Alternative 1. This would be a **less-than-significant** impact.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Implementation of Alternative 6a would result in similar rehabilitation to or replacement of Fanny Bridge and would not construct an additional new bridge downstream of Fanny Bridge, as described for Alternative 6. Recognizing these similarities in project components for Alternatives 6 and 6a, this alternative's effects related to GHG emissions and consistency with the RTP would be similar to those described for Alternative 6. This would be a **less-than-significant** impact.

Impact 4.6-2. Impacts of climate change on the project.

Climate change is expected to result in a variety of effects in the project area including increased frequency and intensity of wildfires; changes to timing and intensity of precipitation resulting in increased risk from landslides associated with ground saturation, increased stormwater runoff, and potential increased risk of bridge scour; and increased intensity of storm events that result in increased snow loading and high winds that can down traffic signals, light poles and signage and cause trees to fall onto the roadway or multiuse trails. However, there are numerous programs and policies in place, as well as design measures to the new or rehabilitated bridges, that would protect against these climate change risks. Therefore, environmental effects related to exposure to climate change risks would be **less than significant** for all the alternatives.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

As discussed previously in this section, there is substantial evidence that human-induced increases in GHG concentrations in the atmosphere have led to increased global average temperatures (climate change) through the intensification of the greenhouse effect, and associated changes in local, regional, and global average climatic conditions.

Although there is a strong scientific consensus that global climate change is occurring and is influenced by human activity, there is less certainty as to the timing, severity, and potential consequences of the climate phenomena, particularly at specific locations. Scientists have identified several ways in which global climate change could alter the physical environment in California (CNRA 2009, DWR 2006, IPCC 2007; Lake Tahoe Sustainable Communities Program 2014). These include:

- ▲ increased average temperatures;
- ▲ modifications to the timing, amount, and form (rain vs. snow) of precipitation;

- ▲ changes in the timing and amount of runoff;
- ▲ reduced water supply;
- ▲ deterioration of water quality; and
- ▲ elevated sea level.

These changes may translate into a variety of issues and concerns that may affect the project area, including, but not limited to:

- ▲ increased frequency and intensity of wildfire as a result of changing precipitation patterns and temperatures;
- ▲ increased stormwater runoff associated with changes to precipitation patterns and snowmelt patterns leading to flooding and/or bridge scour;
- ▲ increased risk of landslide, rock falls, debris/earth flows, and avalanches associated with changes to precipitation and snowmelt patterns; and
- ▲ increased intensity of storm events that result in increased snow loading and high winds that can down traffic signals, light poles and signage and cause trees to fall onto the roadway or multiuse trails.

TRPA and Placer County have adopted plans and policies to manage and plan for wildland fire. These include TRPA's Community Wildfire Protection Plan, TRPA's Fuel Reduction and Forest Restoration Plan, and the California Department of Forestry and Fire Protection's (CALFIRE) Plans for Placer County (see Section 4.8, "Hazards, Hazardous Materials, and Risk of Upset," for additional information on plans and policies related to wildland fire). Implementation of these plans would reduce the likelihood of wildland fire through management of fuels and implementation of best practices and would ensure that resources to respond to occurrence of wildland fire would be available. In addition, traffic signal poles and signage would be constructed of steel rather than from wood, further reducing the potential for these items to be compromised by a fire. Therefore, it is not anticipated that the project site would be substantially affected by exposure to wildfire as a result of climate change impacts.

Under Alternative 1, Fanny Bridge would be rehabilitated or replaced. Flow of the Truckee River is completely regulated by releases from the Lake Tahoe Dam (Wood Rodgers, 2014:3). According to a preliminary design memorandum prepared by project engineers, if Fanny Bridge is rehabilitated, new rock slope protection would be constructed at the upstream side of Abutment 5 of the bridge and scour protection would be reconstructed as needed where bent column footings require retrofit (Wood Rodgers 2014:3). The same memorandum also explains it is anticipated that the new bridge, as well as Fanny Bridge, if replaced instead of rehabilitated, would not be susceptible to scour because their new foundations would be deep and below scour depth (Wood Rodgers 2014b:4). Therefore, under Alternative 1, Fanny Bridge and the new bridge would be resilient to scour during high-water events.

As discussed in Section 4.5, "Geology, Soils, Land Capability, and Coverage," the project site is not located on sloping ground that is potentially subject to landslides, rock falls, and debris/earth flows. Also, the project would not place facilities in locations with increased avalanche risk relative to existing conditions.

Moreover, by relieving congestion at the wye intersection and providing an additional emergency access route over the Truckee River from the West Shore, Alternative 1 would result in the beneficial effects of improved accessibility and response times by emergency vehicles, as discussed in Section 4.15, "Traffic and Transportation," and aid emergency evacuation from the West Shore of Lake Tahoe.

As discussed above, the proposed design and operation of Alternative 1 would reduce the extent and severity of climate change-related impacts to the project by providing methods for adapting to these changes. These design features would reduce the extent and severity of climate change-related impacts to the project from increased risk of wildfire, landslides, rock falls, debris/earth flows, avalanches, bridge

scour, and snow loads associated with changes to precipitation patterns, as well as downed traffic signals and signs and fallen trees from high winds. For these reasons, this impact would be **less than significant**.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Under Alternative 2, the project's resiliency to climate change-related impacts would be similar to those described for Alternative 1.

Under Alternative 2, the project would have the same level of resiliency to wildfire as under Alternative 1 and, therefore, it is not anticipated that the project site would be substantially affected by exposure to wildfire as a result of climate change impacts.

Under Alternative 2 Fanny Bridge would be repaired and rehabilitated, similar to Alternative 1. Therefore, under Alternative 2, Fanny Bridge and the new bridge would be resilient to scour during high-water events. Also under Alternative 2, the project would not place facilities in locations with increased avalanche risk relative to existing conditions.

In addition, by relieving congestion at the wye intersection and providing an additional emergency access route over the Truckee River from the West Shore, Alternative 2 would also result in the beneficial effects improved accessibility and response times by emergency vehicles, as discussed in Section 4.15, "Traffic and Transportation," and aid emergency evacuation from the West Shore of Lake Tahoe.

Therefore, the proposed design and operation of Alternative 2 would include features that reduce the extent and severity of climate change-related impacts to the project from increased risk of wildfire, landslides, rock falls, debris/earth flows, avalanches, bridge scour, and snow loads associated with changes to precipitation patterns, as well as downed traffic signals and signs and fallen trees from high winds. For these reasons, this impact under Alternative 2 would be **less than significant**.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Under Alternative 3 the project's resiliency to climate change-related impacts would be similar to those described for Alternative 1.

Under Alternative 3, the project would have the same level of resiliency to wildfire as under Alternative 1 and, therefore, it is not anticipated that the project site would be substantially affected by exposure to wildfire as a result of climate change impacts.

Under Alternative 3 Fanny Bridge would be rehabilitated or replaced as described above. The same memorandum also explains that the new bridge, as well as Fanny Bridge, if replaced rather than rehabilitated, would not be susceptible to scour because their new foundations would be deep and below scour depth (Wood Rodgers 2014b:4). Therefore, under Alternative 3, Fanny Bridge and the new bridge would be resilient to scour during high-water events.

Also under Alternative 3, the project would not place facilities in locations with increased avalanche risk relative to existing conditions.

In addition, by relieving congestion at the wye intersection and providing an additional emergency access route over the Truckee River from the West Shore, Alternative 2 would also result in the beneficial effects of improved accessibility and response times by emergency vehicles, as discussed in Section 4.15, "Traffic and Transportation," and aid emergency evacuation from the West Shore of Lake Tahoe.

Therefore, the proposed design and operation of Alternative 3 would include features that reduce the extent and severity of climate change-related impacts to the project from increased risk of wildfire, landslides, rock falls, debris/earth flows, avalanches, bridge scour, and snow loads associated with changes to precipitation patterns, as well as downed traffic signals and signs and fallen trees from high winds. For these reasons, this impact under Alternative 3 would be **less than significant**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Under Alternative 4 the project's resiliency to climate change-related impacts would be similar to those described for Alternative 1.

Under Alternative 4, the project would have the same level of resiliency to wildfire as under Alternative 1 and, therefore, it is not anticipated that the project site would be substantially affected by exposure to wildfire as a result of climate change impacts.

Under Alternative 4 Fanny Bridge would be rehabilitated or replaced, as described above. Therefore, under Alternative 4, Fanny Bridge and the new bridge would be resilient to scour during high-water events. Also under Alternative 4, the project would not place facilities in locations with increased avalanche risk relative to existing conditions.

In addition, by relieving congestion at the wye intersection and providing an additional emergency access route over the Truckee River from the West Shore, Alternative 4 would also result in the beneficial effects improved accessibility and response times by emergency vehicles, as discussed in Section 4.15, "Traffic and Transportation," and aid emergency evacuation from the West Shore of Lake Tahoe.

Therefore, the proposed design and operation of Alternative 4 would include features that reduce the extent and severity of climate change-related impacts to the project from increased risk of wildfire, landslides, rock falls, debris/earth flows, avalanches, bridge scour, and snow loads associated with changes to precipitation patterns, as well as downed traffic signals and signs and fallen trees from high winds. For these reasons, this impact under Alternative 4 would be **less than significant**.

ALTERNATIVE 5: NO ACTION

Under Alternative 5, the project would have the same level of resiliency to wildfire as under Alternative 1 and, therefore, it is not anticipated that the project site would be substantially affected by exposure to wildfire as a result of climate change impacts.

As explained in Chapter 2, under the no project alternative there would be no improvements to Fanny Bridge. Any actions required to address the long-term structural integrity of the bridge would not be completed by the Tahoe Transportation District. Another agency (such as Caltrans or Placer County) could pursue a separate bridge rehabilitation or replacement project, or gradual upgrades may be implemented through routine maintenance by Caltrans. Alternatively, Caltrans could declare a more stringent vehicle weight restriction. At this time, no specific improvements to the bridge are planned by Caltrans or another agency (Exhibit 2-8). Given that Fanny Bridge experienced scour during a wet weather event in 1969 (Wood Rodgers 2014b:2), scour could potentially occur in greater frequency if climate change results in a greater frequency of high-water events; however, this would not be a change compared to existing conditions.

While Alternative 5 would not include an additional new bridge downstream of Fanny Bridge that would bring the benefits of improved emergency vehicle access and emergency evacuation from the West Shore of Lake Tahoe, it would not reduce emergency vehicle access or impede emergency evacuation events compared to existing conditions. For these reasons, this impact would be **less than significant**.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Under Alternative 6 the project's resiliency to climate change-related impacts would be similar to those described for Alternative 1 except there would be only one bridge potentially limiting accessibility by emergency vehicles.

Under Alternative 6, the project would have the same level of resiliency to wildfire as under Alternative 1 and, therefore, it is not anticipated that the project site would be substantially affected by exposure to wildfire as a result of climate change impacts.

Under Alternative 6, the existing Fanny Bridge structure would be rehabilitated or replaced with a wider structure and changes to the profile may be required. According to a design memorandum prepared by project engineers, if Fanny Bridge is replaced, the replacement bridge would not be susceptible to scour because its new foundations would be deep and below scour depth (Wood Rodgers 2014b:4).

Also under Alternative 6, the project would not place facilities in locations with increased avalanche risk relative to existing conditions. Alternative 6 would also include measures to prevent downed traffic signals and signs and fallen trees from high winds.

While Alternative 6 would not include an additional new bridge downstream of Fanny Bridge that would bring the benefits of improved emergency vehicle access and emergency evacuation from the West Shore of Lake Tahoe, it would not reduce emergency vehicle access or impede emergency evacuation events compared to existing conditions. For these reasons, this impact under Alternative 6 would be **less than significant**.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Implementation of Alternative 6a would result in similar rehabilitation to or replacement of Fanny Bridge and would not construct an additional new bridge downstream of Fanny Bridge as described for Alternative 6. Recognizing the similarities in project components for Alternatives 6 and 6a, this alternative's resilience to climate change-related impacts would be similar to those described for Alternative 6. This would be a **less-than-significant** impact.

4.6.5 Avoidance, Minimization, and/or Mitigation Measures

No mitigation is required for any of the alternatives.

4.7 HYDROLOGY AND WATER QUALITY

4.7.1 Introduction

This section describes the potential impacts to hydrology and water quality resulting from implementation of the SR 89/Fanny Bridge Community Revitalization Project. Mitigation and minimization measures are included for any significant or potentially significant impacts to important natural hydrologic processes or conditions, or to water quality. A discussion of effects to coverage and potential land surface erosion is provided in Section 4.5, “Geology, Soils, Land Capability, and Coverage.” A discussion of effects to Stream Environment Zone (SEZ) habitat is found in Section 4.3, “Biological Resources,” and is also discussed below in relation to water quality.

Comments received on the Notice of Preparation related to hydrology and water quality addressed the potential for encountering groundwater during construction, water quality effects related to an increase in coverage, the need to implement operational stormwater best management practices (BMPs), and snow removal from the proposed new bridge. These topics items are discussed in the analysis below and the sections referenced above.

4.7.2 Regulatory Setting

The following provides an overview of laws and regulations related to hydrology and water quality that are applicable to the project action alternatives. The SR 89/Fanny Bridge Community Revitalization Project borders the Lake Tahoe and Middle Truckee River Watersheds and is within the jurisdictional boundary of the Lahontan Regional Water Quality Control Board and the Tahoe Regional Planning Agency.

FEDERAL

Clean Water Act (Public Law 92-500)

Section 404

The Clean Water Act (CWA) consists of the Federal Water Pollution Control Act of 1972 and subsequent amendments. The CWA provides for the restoration and maintenance of the physical, chemical, and biological integrity of the nation's waters. Section 404 of the act 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 U.S. Environmental Protection Agency (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 the USACE. Waters of the U.S. 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.”

Section 401

Under CWA Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States must obtain certification for the discharge. 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 CWA Section 401. Water quality certification requires evaluation of potential impacts

in light of water quality standards and CWA Section 404 criteria governing discharge of dredged and fill materials into waters of the United States. The federal government delegates water pollution control authority under CWA Section 401 to the states (and in California, ultimately to the Regional Water Quality Control Boards).

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 sources discharging pollutants into waters of the United States and establishes monitoring and reporting requirements, as well as special conditions. Two types of nonpoint source discharges are controlled by the NPDES program: discharges caused by general construction activities and the general quality of stormwater in municipal stormwater systems. The goal of the NPDES nonpoint source regulations is to improve the quality of stormwater discharged to receiving waters to the maximum extent practicable. The regional water quality control boards (RWQCBs) in California are responsible for implementing the NPDES permit system (see the discussion of state regulations below).

Section 303

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 be in compliance 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. EPA must either approve a TMDL prepared by the state or disapprove the state's TMDL and issue its own. NPDES permit limits for listed pollutants must be consistent with the waste load allocation prescribed in the TMDL. After implementation of the TMDL, it is anticipated that the problems that led to placement of a given pollutant on the Section 303(d) list would be remediated.

Middle Truckee River TMDL

The middle Truckee River Watershed TMDL focuses on sediment-related water quality objectives for the reach of the Truckee River from the outflow at Lake Tahoe to the California/Nevada state line. This reach drains roughly 428 square miles. The primary goal of the TMDL is to lower sediment inputs to protect instream aquatic life which has decreased in diversity and structure as it trended towards more sediment tolerant species. Suspended sediment concentrations in the Truckee River are above what is recommended for healthy aquatic life. High flow events from thunderstorms, snow melt, and dam releases resulting in short-term turbidity pulses and urbanization and development lead to increased sedimentation over the long-term (Lahontan RWQCB 2008). Primary sediment sources in the watershed have been linked to dirt roads, urban stormwater runoff, legacy erosion sites and in some cases graded ski runs. It is estimated that a 20 percent reduction in sediment loading is needed to achieve the desired in-stream conditions which amounts to 40,300 tons per year based on 1996 to 1997 water years (EPA 2009). The TMDL emphasizes the continuation and improvement of existing erosion control and monitoring programs, NPDES stormwater permits and sediment controls for construction projects, highway operations and long-term operations such as ski resorts and industrial areas.

Federal Antidegradation Policy

The Federal Antidegradation Policy was enacted to provide protection to high-quality water resources of national importance. It directs states to develop and adopt statewide antidegradation policies that include protecting existing instream water uses and maintaining a level of water quality necessary to protect those existing uses and the water quality of high-quality waters. In EPA's Clean Water Act regulations regarding water quality standards (40 CFR Chapter 1, Section 131.12[a][3]), the criteria for requiring an antidegradation standard includes: "where high quality waters constitute an outstanding National resource, such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected." The EPA has designated Lake Tahoe an Outstanding National Resource Water (ONRW). ONRWs are provided the highest level of protection

under EPA's Antidegradation Policy, stipulating that states may allow some limited activities that result in temporary and short-term changes to water quality, but such changes should not adversely affect existing uses or degrade the essential character or special uses for which the water was designated an ONRW. The EPA interprets this provision to prohibit new or increased discharges to ONRWs that would degrade water quality.

Regulated Floodplain

Floodplain Management Executive Order 11988 (May 24, 1977) directs all federal agencies to evaluate potential effects of any actions it may take in the floodplain and to avoid all adverse impacts associated with modifications to floodplains. It also directs federal agencies to avoid encroachment into the 100-year floodplain, whenever there is a practicable alternative, and to restore and preserve the natural and beneficial values served by the floodplains.

The Federal Emergency Management Agency (FEMA) oversees floodplain management and runs the National Flood Insurance Program (NFIP) adopted under the National Flood Insurance Act of 1968. FEMA prepares Flood Insurance Rate Maps (FIRM) that delineate the regulatory floodplain to assist local governments with land use and floodplain management decisions to meet the requirements of the NFIP. In general, the NFIP mandates that development is not to proceed within the 100-year regulatory floodplain, if the development is expected to increase flood elevation by one foot or more. Very limited development is allowed in designated 100-year floodways (i.e., flood flow channels and areas with sufficient directional flow velocity of 100-year floodwaters). For the purposes of the SR 89/Fanny Bridge Project, 1998 FEMA regulatory modeling must show no rise in the floodway and less than one foot rise in any floodplain.

Tahoe Dam Water Control

Tahoe Dam water releases are controlled by several agreements and court decrees and the Federal Water Master. The U.S. Bureau of Reclamation (BOR) will not modify the flows thru the dam to accommodate construction schedules. A partial list of decrees that control river flows out of Tahoe Dam are listed; 1915 Truckee River General Electric Decree, 1935 Truckee River Agreement, 1944 Orr Ditch Decree, and 1959 Tahoe-Prosser Exchange Agreement.

TAHOE REGIONAL PLANNING AGENCY

Lake Tahoe Regional Plan

Regional Plan priorities and policies include accelerating water quality restoration by targeting environmental redevelopment and Environmental Improvement Program opportunities, retaining the current regional growth system that prevents unchecked overdevelopment and encourages preservation of open space, and integrating with the Regional Transportation Plan to address congestion and support pedestrian and bike improvement projects that reduce vehicle dependency.

Goals and Policies

The Tahoe Regional Planning Agency (TRPA) has established a number of 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. Policies address a range of issues including snow removal, wastewater spill prevention, underground storage tanks, dredging, and reduction of impacts from motorized watercraft.

Code of Ordinances

The TRPA Code contains the requirements and standards intended to achieve water quality thresholds, goals, and policies. Sections 60.1 and 60.2 of the TRPA Code are directed specifically at water quality, but a number of other chapters and sections contain provisions related to design and installation of BMPs and standards for grading and excavation (Table 4.7-1).

Table 4.7-1 Water Quality Code Requirements Related to the Action Alternatives

Ordinance	Requirement
Section 60.4	Runoff shall be controlled with implementation of BMPs.
Chapter 35	Regulations pertaining to recognition of natural hazards, including floodplains, prevention of damage to property, and protection of public health relating to such natural hazards. The TRPA Code prohibits development, grading or filling of lands within 100-year floodplains with certain exceptions, including specific public outdoor recreation facilities, public health or safety facilities, access to buildable sites across a floodplain, and erosion control projects or water quality control facilities when it can be proven there are no viable alternatives and all potential impacts can be minimized (TRPA 2012a).
Section 33.4	Requirements for special investigations, reports, and plans, determined to be necessary by TRPA to protect the environment against significant adverse effects from grading projects.
Section 33.5	Requirements for grading and construction schedules when grading or construction is to occur pursuant to a TRPA permit.
Chapter 33.3	Standards for grading and excavation. Grading is permitted only between May 1 and October 15.
Section 60.1	Discharge standards for runoff and discharge to surface and groundwater.
Section 60.2	For projects that result in increased impervious coverage, implementation of off-site water quality control or stream environment zone mitigation projects is required; or payments into the Water Quality Mitigation Fund.

Source: TRPA 2012a

Numerical discharge standard limitations are specified in the TRPA Code for nitrogen, phosphorus, iron, turbidity, suspended sediments, and grease and oil. Pollutant concentrations in surface runoff may not exceed the concentrations listed in Table 4.7-2 at the 90th percentile for discharge to surface waters. Surface runoff infiltrated into soils may not exceed the concentrations listed in Table 4.7-2 for discharge to groundwater. In addition to numerical discharge limits, TRPA Code also restricts the discharge of wastewater and toxic substances, sets requirements for snow removal, sets requirements for salt and abrasive use, and sets criteria for pesticide use and fertilizer control.

Table 4.7-2 TRPA Discharge Limits for Surface Runoff and Discharge to Groundwater

Constituent	Maximum Concentration
Surface Runoff	
Dissolved Inorganic Nitrogen as N	0.5 mg/l
Dissolved Phosphorus as P	0.1 mg/l
Dissolved Iron as Fe	0.5 mg/l
Grease and Oil	2.0 mg/l
Suspended Sediment	250 mg/l
Discharge to Groundwater	
Total Nitrogen as N	5 mg/l
Total Phosphate as P	1 mg/l
Iron as FE	4 mg/l
Turbidity	200 NTU ¹
Grease and Oil	40 mg/l

Source: TRPA 2012b

¹ NTU = Nephelometric Turbidity Unit

Tahoe City Community Plan

After adoption of the 1987 Regional Plan, TRPA developed community plans as a localized implementation documents. The Conservation Element of the Tahoe City Community Plan (TRPA 1994) includes goals for implementation of water quality improvements including restoration of wetland and SEZ areas and installation of areawide stormwater drainage systems. Areas targeted for SEZ restoration include the USFS 64-Acre Tract (potentially 4 acres), the Wye Pond (potentially 3 acres), the Lower River area (potentially 7.4 acres), and the Upper River area (potentially 5 acres). SEZ restoration is intended to take place in conjunction with implementation of public improvement projects. Within the project site, both the wye area and the Lower River area (including the California Department of Transportation [Caltrans] maintenance facility) are targeted for implementation of area-wide stormwater management systems.

Environmental Threshold Carrying Capacities

Water quality standards adopted by TRPA set a target to return the Lake to the transparency observed in the late 1960s. Six major indicator themes are currently used by TRPA to assess the water quality of Lake Tahoe and its tributaries. Because the project site does not drain to Lake Tahoe, only the Environmental Threshold indicator for groundwater is applicable (as shown in Table 4.7-3 below.) The 2011 Draft TRPA Threshold Evaluation Report found available data to be insufficient to evaluate the status and trends of this threshold standard over the past 5 years (TRPA 2012b). The 2006 Threshold Evaluation Report identified the groundwater threshold standard to be in nonattainment but also cited a lack of sufficient data to make conclusive findings on status and trends (TRPA 2007, 3-14 to 3-16).

Table 4.7-3 2011 TRPA Summary of Findings by Threshold Category (Water Quality)

Threshold Category	Indicator Reporting Category (Indicator Theme)	Generalized Characterization of Status, Trend and Confidence
Water Quality	Groundwater (stormwater runoff to soil)	Status: insufficient data to determine status, or no target established Trend: insufficient data to determine trend Confidence: low

Source: TRPA 2012b

STATE

State Water Resources Control Board

In California, the State Water Resources Control Board (SWRCB) has broad authority over water quality control issues for the state. The SWRCB is responsible for developing statewide water quality policy and exercises the powers delegated to the state by the federal government under the CWA. Other state agencies with jurisdiction over water quality regulation in California include the California Department of Health Services (DHS) (for drinking water regulations), the California Department of Pesticide Regulation, the California Department of Fish and Wildlife (formerly Department of Fish and Game), and the Office of Environmental Health and Hazard Assessment. Regional authority for planning, permitting, and enforcement is delegated to the nine regional water boards. The regional boards are required to formulate and adopt water quality control plans for all areas in the region and establish water quality objectives in the plans. The Lahontan RWQCB is responsible for the water bodies in the project vicinity.

Water Quality Control Plan for the Lahontan Basin

The Water Quality Control Plan for the Lahontan Region (Basin Plan) (1995) presents water quality standards and control measures for surface and ground waters of the Lahontan Region, which includes the California portion of Lake Tahoe and its tributaries. The Basin Plan designated beneficial uses for water bodies and established water quality objectives, waste discharge prohibitions, and other implementation measures to protect those beneficial uses. The Basin Plan was first adopted in 1975. On April 9, 2014, the Lahontan Regional Water Quality Control Board (Lahontan Water Board) adopted Resolution No. R6T-2014-0027 amending the Basin Plan to clarify the antidegradation policy, adding mixing zones provisions, revising

certain waste discharge prohibitions, and amending Chapter 5 Water Quality Control Measures for the Lake Tahoe Basin. The Basin Plan contains both narrative and numeric water quality objectives for the region. Ambient water quality standards are set as objectives for a body of water and effluent limits (or discharge standards) are conditions in state or federal wastewater discharge permits, such as the NPDES permits. Land uses and activities that could degrade water quality and BMPs that could be used to address various nonpoint sources of pollution are identified in the Basin Plan.

Beneficial Uses

The Lahontan Basin Plan (Lahontan RWQCB 1995) defines and designates the existing beneficial uses for surface and groundwater in the project area.

Existing beneficial uses of the Truckee River (surface water) include:

- ▲ **Municipal and Domestic Supply**-waters used for community, military, or individual water supply systems including, but not limited to, drinking water supply
- ▲ **Agriculture Supply**-waters used for farming, horticulture, or ranching, including, but not limited to, irrigation, stock watering, and support of vegetation for range grazing.
- ▲ **Industrial Service Supply**-waters used for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, and fire protection.
- ▲ **Groundwater Recharge**-waters used for natural or artificial recharge of ground water for purposes of future extraction, maintenance or water quality, or halting saltwater intrusion into freshwater aquifers.
- ▲ **Freshwater Replenishment**-water used for natural or artificial maintenance of surface water quantity or quality.
- ▲ **Hydropower Generation**-water used for hydroelectric power generation
- ▲ **Water Contact Recreation**- water used for recreational activities involving body contact with water where ingestion of water is reasonably possible. These include, but are not limited to swimming, water-skiing, fishing, and others.
- ▲ **Noncontact Water Recreation**-used of waters used for recreational activities involving proximity to water, but not normally involving body contact with water. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, and others.
- ▲ **Wildlife Habitat**-uses of waters that support wildlife habitats including, but not limited to, the preservation and enhancement of vegetation and prey species, such as waterfowl.
- ▲ **Rare, Threatened, or Endangered Species**- waters that support habitat necessary for the survival and successful maintenance of plant or animal species established under state and/or federal law as rare, threatened or endangered.
- ▲ **Migration of Aquatic Organisms**-uses of waters that support habitats necessary for migration, acclimatization between fresh and salt water, or temporary activities by aquatic organisms, such as anadromous fish.
- ▲ **Cold Freshwater Habitat**-uses of water that support cold water ecosystems including, but not limited to, preservation and enhancement of aquatic habitats, vegetation, fish, and wildlife, including invertebrates.
- ▲ **Commercial and Sportfishing**-waters used for commercial or recreational collection of fish or other organisms including, but not limited to, uses involving organisms intended for human consumption.

- ▲ **Spawning, Reproduction, and Development-** uses of water s that support high quality aquatic habitat necessary for reproduction and early development of fish and wildlife.

The beneficial uses of groundwater in the project vicinity include the following (definitions provided above):

- ▲ Municipal and Domestic Supply
- ▲ Agriculture Supply
- ▲ Freshwater Replenishment

Waste Discharge Prohibition for the Truckee River Hydrologic Unit

The Basin Plan prohibits the discharge of any waste or material which would cause, or threaten to cause violation of any water quality objective, or otherwise adversely affect the beneficial uses of water described above (Lahontan RWQCB 1995). Additionally, the Basin Plan prohibits the discharge of soil or liquid waste materials containing soil or other earthen material to the surface waters of the Truckee River Hydrologic Unit, or the 100 year flood plain of the Truckee River. Exemption from this prohibition may be granted by the Lahontan RWQCB for replacement of existing structures (provided that there is not additional loss of floodplain or volume), bridge abutments, approaches, or other essential transportation facilities identified in an approved county general plan, or project necessary to protect public health or safety or to provide essential public services provided that the project meets the following exemption criteria (Lahontan RWQCB 1995, pages 4.1-5 through 4.1-7):

- ▲ There is no reasonable alternative to locating the project or portions of the project within the 100-year floodplain
- ▲ The project, by its very nature, must be located within the 100-year floodplain
- ▲ The project incorporates measures which will insure that any erosion and surface runoff problems caused by the project are mitigated to levels of insignificance.
- ▲ The project will not, individually or cumulatively with other projects, directly or indirectly, degrade water quality or impair beneficial uses of water.
- ▲ The project will not reduce the flood flow attenuation capacity, the surface flow treatment capacity, or the ground water flow treatment capacity from existing conditions. This shall be ensured by restoration of previously disturbed areas within the 100-year floodplain within the project site, or by enlargement of the floodplain within or as close as practicable to the project site. The restored, new or enlarged floodplain shall be of sufficient area, volume, and wetland value to more than offset the flood flow attenuation capacity, surface flow treatment capacity, and ground water flow treatment capacity lost by construction of the project. This finding will not be required for: (1) essential public health or safety projects, (2) projects to provide essential public services for which the Regional Board finds such mitigation measures to be infeasible because the financial resources of the entity proposing the projects are severely limited, or (3) projects for which the Regional Board finds (based on evidence presented by the proposed discharger) that the project will not reduce flood flow attenuation capacity, the surface flow treatment capacity, or the ground water flow treatment capacity from existing conditions.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1969 (Porter-Cologne Act) is California's statutory authority for the protection of water quality. The act sets forth the obligations of the SWRCB and RWQCBs under the CWA to adopt and periodically update water quality control plans, or basin plans. Basin plans are plans in which beneficial uses, water quality objectives, and implementation programs are established for each of the nine regions in California. The Porter-Cologne Act also requires waste dischargers to notify the RWQCBs of such activities by filing Reports of Waste Discharge and authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements, NPDES permits, Section 401 water quality certifications, or other approvals.

NPDES Permits

The SWRCB and Lahontan RWQCB have required specific NPDES permits for a variety of activities that have potential to discharge pollutants to waters of the state and adversely affect water quality. To receive an NPDES permit a Notice of Intent to discharge must be submitted to the Lahontan RWQCB and design and operational BMPs must be implemented to reduce the level of contaminated runoff. BMPs can include the development and implementation of regulatory measures (local authority of drainage facility design) various practices, including educational measures (workshops informing public of what impacts result when household chemicals are dumped into storm drains), regulatory measures (local authority of drainage facility design), public policy measures (label storm drain inlets as to impacts of dumping on receiving waters), and structural measures (filter strips, grass swales, and retention basins). All NPDES permits also have inspection, monitoring, and reporting requirements.

General Permit for Stormwater Discharges Associated with Construction Activity

The statewide Construction General Permit (Order No. 2009-0009-DWQ) was adopted by the SRWCB on Sept. 2, 2009 and amended twice since then. A portion of the project site lies within the Lake Tahoe Hydrologic Unit (HU), and is subject to the Lake Tahoe HU Construction General Permit, Order No. R6T-2011-0019. The state requires that projects disturbing more than 1 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 Construction 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 storm water pollution prevention plan (SWPPP) must be developed and implemented for each site covered by the permit. The SWPPP must include 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.

The Tahoe Basin General Permit provides for increased monitoring and oversight for construction activities resulting in greater than one acre of disturbance, including daily rather than weekly monitoring, sampling for any discharges from a construction site rather than only during a qualifying storm event, triggering a Rain Event Action Plan when there is a 30 percent chance rather than a 50 percent chance of precipitation, and requiring all projects to be suspended or completed and winterized by October 15th. Under the Tahoe Basin General Permit any stormwater generated from an active construction site is to be sampled to determine if it exceeds the effluent limits shown in Table 4.7-4, Lake Tahoe Stormwater Effluent Limits (LRWQCB 2011b).

Table 4.7-4 Lake Tahoe Stormwater Effluent Limits

Parameter	Units	Maximum Daily Effluent Limitations for Discharge
Total Nitrogen (as N)	mg/l	0.5
Total Phosphorus (as P)	mg/l	0.1
Total Iron	mg/l	0.5
Turbidity	NTU	20*
Grease and Oil	mg/l	2

*Note: For Active Treatment Systems use 10 NTU as daily average and 20 NTU for any single sample

Source: LRWQCB 2011b.

Under the NPDES post-construction stormwater requirements, the counties and cities must design projects according to their respective stormwater NPDES permit and low impact development techniques and onsite infiltration of stormwater must be integrated into all new and redevelopment projects. Under the Tahoe Basin permit, stormwater facilities must be designed and constructed to infiltrate runoff generated under a 20-year, one-hour storm event at a minimum, which is approximately one inch of runoff during a one-hour period. If site conditions do not allow for the required infiltration, the applicant must either: (1) propose and provide information on treatment facilities to meet the Tahoe 208 Plan effluent limits; or (2) demonstrate

that the public or municipal stormwater facilities are sufficient to provide adequate treatment of the project runoff to meet the sediment and nutrient load reduction requirements. Parking lots and other land uses that may contribute hydrocarbon pollutants are also required to implement pre-treatment devices to remove hydrocarbons before infiltration or discharge (LRWQCB 2011a).

Statewide Stormwater Permit for the State of California Department of Transportation

Section 402(p) of the CWA requires storm water permits for discharges from municipal separate storm sewer systems (MS4s). The EPA defines an MS4 as a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutter, ditches, man-made channels, or storm drains) owned or operated by a State (40 CFR 122.26(b)(8)). Caltrans is responsible for the design, construction, and maintenance of the State highway system and related properties, including the Caltrans MS4 facilities that receive stormwater runoff from the State owned right-of-way. Initially, all Caltrans MS4 discharges were issued individual NPDES permits. In 1999, the SWRCB issued a statewide permit that regulated all discharges from Caltrans MS4s. This statewide permit was renewed in 2013. The Caltrans Statewide Stormwater Permit is implemented through a Stormwater Management Plan that describes the procedures and practices used to reduce or eliminate the discharge of pollutants to storm drainage systems and receiving waters.

The California Department of Transportation (Caltrans) operates under a permit (Order No. 2012- 0011-DWQ, NPDES No. CAS000003) that regulates stormwater discharge from Caltrans properties, facilities, and activities and requires that the Caltrans construction program comply with the adopted statewide General Permit for Stormwater Discharges Associated with Construction Activity (described above). The permit requires Caltrans to implement a year-round program in all parts of the state to effectively control stormwater and non-stormwater discharges (SWRCB 2012). The Caltrans permit is applicable to portions of the project that involve modifications to the Caltrans maintenance yard.

State Nondegradation Policy

In 1968, as required under the federal antidegradation policy described previously, the SWRCB adopted a nondegradation policy aimed at maintaining high quality for waters in California. The nondegradation policy states that the disposal of wastes into state waters shall be regulated to achieve the highest water quality consistent with maximum benefit to the people of the state and to promote the peace, health, safety, and welfare of the people of the state. The policy provides as follows:

- a) Where the existing quality of water is better than required under existing water quality control plans, such quality would be maintained until it has been demonstrated that any change would be consistent with maximum benefit to the people of the state and would not unreasonably affect present and anticipated beneficial uses of such water.
- b) Any activity which produces waste or increases the volume or concentration of waste and which discharges to existing high-quality waters would be required to meet waste discharge requirements.

Safe Drinking Water Act

As mandated by the Safe Drinking Water Act (Public Law 93-523), passed in 1974, EPA regulates contaminants of concern to domestic water supply. Such contaminants are defined as those that pose a public health threat or that alter the aesthetic acceptability of the water. These types of contaminants are regulated by EPA primary and secondary maximum contaminant levels (MCLs). MCLs and the process for setting these standards are reviewed triennially. Amendments to the Safe Drinking Water Act enacted in 1986 established an accelerated schedule for setting drinking water MCLs. EPA has delegated to the DHS the responsibility for California's drinking water program. DHS is accountable to EPA for program implementation and for adoption of standards and regulations that are at least as stringent as those developed by EPA. Title 22 of the California Administrative Code (Article 16, Section 64449) defines secondary drinking water standards, which are established primarily for reasons of consumer acceptance (i.e., taste) rather than for health issues.

LOCAL

Placer County Truckee River Basin Stormwater Management Plan

The Truckee River Basin Stormwater Management Plan (Placer County 2007) is a comprehensive program to reduce pollution in stormwater runoff located in the Placer County portion of the Middle Truckee River Watershed. The plan is implemented in compliance with NPDES Phase II General Municipal Permit No. CAS000004 and WQCB Order No. 2003-005-DWQ.

Placer County General Plan

The Placer County General Plan (2013) contains policies pertaining to water resources. The policies applicable to the proposed project are described below.

- ▲ **Policy 4.E.4.** The County shall ensure that new storm drainage systems are designed in conformance with the Placer County Flood Control and Water Conservation District's Stormwater Management Manual and the County Land Development Manual.
- ▲ **Policy 6.A.5.** The County shall continue to require the use of feasible and practical best management practices (BMPs) to protect streams from the adverse effects of construction activities and urban runoff and to encourage the use of BMPs for agricultural activities.
- ▲ **Policy 6.A.10.** The County shall discourage grading activities during the rainy season, unless adequately mitigated, to avoid sedimentation of creeks and damage to riparian habitat.

4.7.3 Affected Environment

REGIONAL HYDROLOGY

The SR 89/Fanny Bridge Community Revitalization Project is located within the North Lahontan Hydrologic Region, as defined by the California Department of Water Resources (DWR). The North Lahontan Hydrologic Region covers approximately 3.91 million acres (6,110 square miles) and includes portions of Modoc, Lassen, Sierra, Nevada, Placer, El Dorado, Alpine, Mono, and Tuolumne counties. Significant geographic features include the Sierra Nevada, the volcanic terrain of the Modoc Plateau, Honey Lake Valley, Martis Valley, and Lake Tahoe (DWR 2003).

Truckee River Watershed

The project site is located at the head of the Middle Truckee River watershed, immediately after the Truckee River exits Lake Tahoe. The Truckee River originates high in the Sierra Nevada, drains initially into Lake Tahoe, flows out of Lake Tahoe, and terminates in Pyramid Lake, Nevada. The Middle Truckee River Watershed extends from the Lake Tahoe outlet of the river to the junction with the Little Truckee River at Boca Reservoir below the town of Truckee. The project site extends to both sides of the Truckee River near the head of the Middle Truckee River watershed and borders the Lake Tahoe Basin watershed.

Originally, the Truckee River had a broad floodplain in the vicinity (USACE 2012), however the topography was altered with the construction of the Lake Tahoe Dam in 1913 and much of the project area has since been developed. The Truckee River is fed by runoff from snowmelt from the Sierra Nevada combined with releases from Lake Tahoe dam and other reservoirs, which act to reduce peak flows and manage low flows for fish, recreation, and water conveyance.

Lake Tahoe Dam

Lake Tahoe Dam controls the top six feet of Lake Tahoe. With the surface area of the lake, this creates a reservoir of 732,000-acre-feet capacity and regulates the lake outflow into the Truckee River. Completed in 1913, Lake Tahoe Dam is a concrete slab and buttress structure with 17 vertical gates. It is 18 feet high and

109 feet long. Flows are controlled by 17 gates, each 5 feet by 4 feet. The U.S. Bureau of Reclamation (BOR) is charged with normal and emergency operations of the dam.

Local Watershed

The project site is located within three subwatersheds, as defined by the Natural Resources Conservation Service: the Burton Creek-Frontal Lake Tahoe, Ward Creek-Frontal Lake Tahoe, and Squaw Creek –Truckee River subwatersheds (Natural Resources Conservation Service 2013).The majority of the project site is within the Squaw Creek-Truckee River subwatershed, which drains to the Truckee River. Small portions of the project site lie within the Burton Creek-Frontal Lake Tahoe and Ward Creek-Frontal Lake Tahoe subwatersheds, which drain to Lake Tahoe. However, based on actual drainage characteristics of the project, stormwater runoff produced by the roads, parking lots, and buildings in the developed portion of the project site is conveyed overland and through stormwater facilities into the Truckee River and associated wetlands (USACE 2012). SR 89 is equipped with drop inlets on both the east and west sides of the highway. Runoff enters a storm drain than runs along the west shoulder of the highway. The storm drain outfalls into the Truckee River near the edge of the abutment of Fanny Bridge, on the downstream side. The highway intercepts runoff from the east side of the road and also along a narrow strip on the west side. The area fronting SR 89 therefore effectively serves as the watershed boundary for the project site on the east. The existing River Access Road serves as a watershed boundary on the south because drainage from that direction flows along the edge of the road, rather than crossing it. This results in the hydrologic isolation of the project site, with respect to surface water. Any surface runoff generated onsite would flow west to northwest toward the Truckee River.

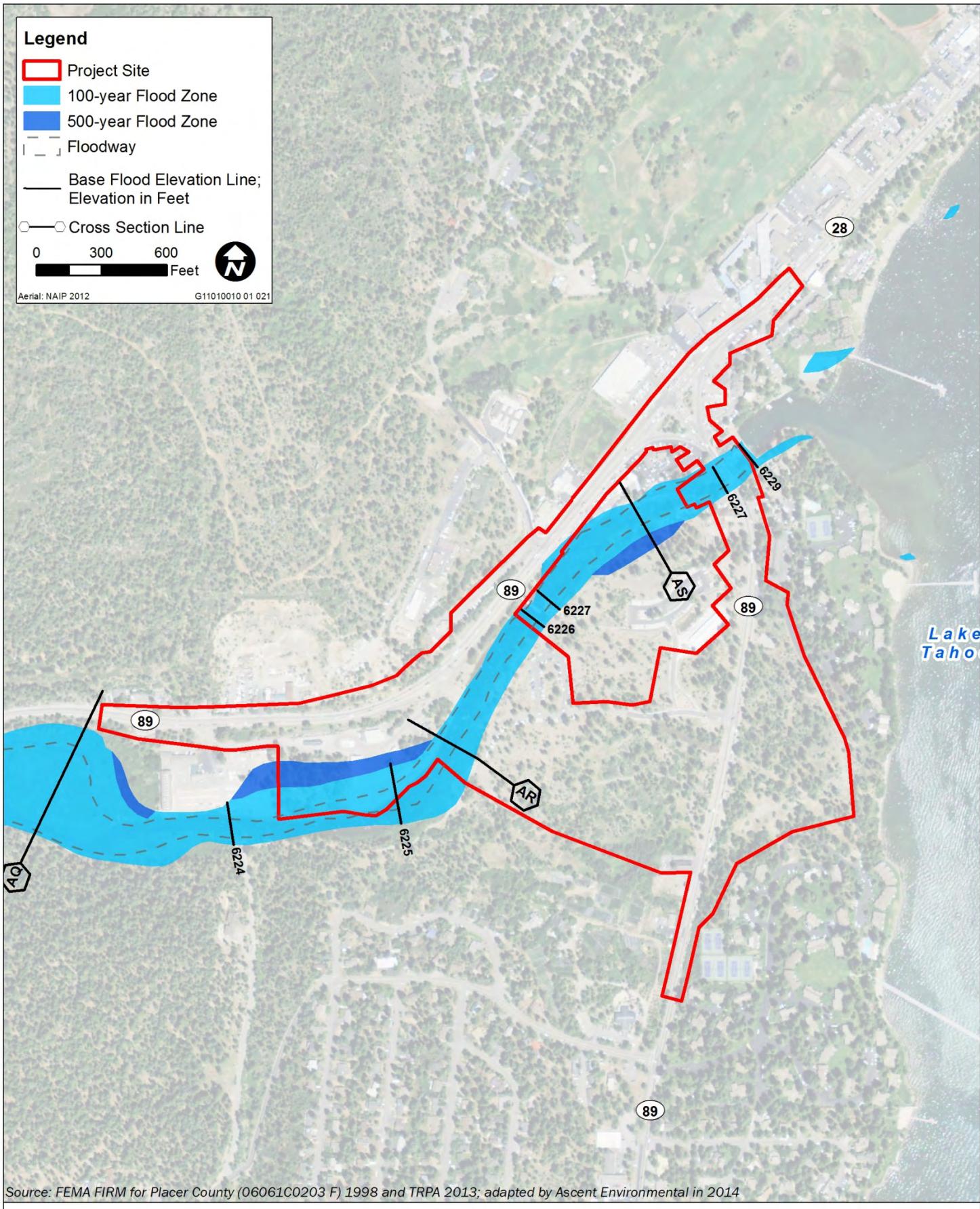
There are no natural stream channels on the site. There is also no evidence that surface runoff commonly occurs because the area lacks any evidence of concentrated surface runoff in the form of rills or drainage channels.

Floodplain

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (06061C0203F)(1998) for the project area indicates that some portions of the project site lie within the 100 year floodplain of the Truckee River. Project components in the 100 year floodplain would be limited to bridges and their associated footings and abutments which by their nature must be located within the floodplain. Exhibit 4.7-1 shows the Truckee River Floodway, 100-year Flood Zone, 500-year Flood Zone, Base Flood Elevation lines, and cross section study lines used associated with FEMA's flood insurance studies (FEMA 2001).

The Truckee River flows to the southwest from Lake Tahoe through the existing Fanny Bridge structure on SR 89 West Lake Boulevard. The Truckee River has a designated Zone AE by FEMA (FIRM 06061C0203 F, 1998). Zone AE is classified as an area where the base flood elevations have been determined. The U.S. Geological Survey maintains Gage #10337500, located just downstream from the existing Fanny Bridge structure. Stream gage data indicate that the flood of record, and subsequently design flood, occurred in 1997 producing a measured flow of 76.2 cubic meters per second (2,690 cubic feet per second [cfs]). The FEMA 100-year peak flow, as published in the Flood Insurance Study is 3,350 cfs (Tahoe Transportation District [TTD] 2012). Exhibit 4.7-1 depicts the 100- and 500-year floodplains, base flood elevations, and FEMA lettered cross-sections. Placer County Department of Public Works administers the Floodplain Management Program in the Project Site.

Lake Tahoe Dam released the highest recorded flow in 1997. As a result, Fanny Bridge experienced erosion through the bridge structure, but the roadway remained open during the high peak flow releases. Significant flooding occurred to existing homes and businesses on the Truckee River, but the locations were well downstream from the project site (TTD 2012).



Source: FEMA FIRM for Placer County (06061C0203 F) 1998 and TRPA 2013; adapted by Ascent Environmental in 2014

Exhibit 4.7-1

Floodway, Floodplains, and Base Flood Elevations



JURISDICTIONAL WATERS OF THE UNITED STATES

A delineation of Jurisdictional Waters of the United States was completed by Nichols Consulting Engineers in September of 2011 and verified by USACE on July 24, 2012. Waters of the United States include essentially all surface waters such as all navigable waters (waters used for transport or commerce) and their tributaries, all interstate waters and their tributaries, all wetlands with a clear connection to these waters, and all impoundments of these waters. The USACE distinguishes between wetland and non-wetland waters (commonly referred to as “other waters”). Wetlands are defined as areas that are inundated or saturated by surface or groundwater for a sufficient duration to support a prevalence of vegetation adapted for life in saturated soil conditions (Title 33 CFR Section 328.3[b]).

The delineation identified 3.52 acres of Jurisdictional Waters of the United States including both wetlands and other waters as described in Table 4.7-5 below.

Table 4.7-5 Jurisdictional Waters of the United States within the Project Area

Class	Description	Total Acreage
Riparian Wetlands	Wetlands along the banks a stream or river. Within the project area, hydrology is closely tied to river flows and vegetation is dominated by willow species.	1.23
Palustrine scrub-shrub	An inland, non-riverine wetland dominated by scrub-shrub vegetation. In the project area, hydrology is supported dominantly by snowmelt.	0.36
Palustrine emergent	An inland, non-riverine wetland dominated by vegetation which is rooted below the water but grows to emerge above the surface (i.e. reeds and rushes).	0.05
Perennial Stream	A stream that has continuous flow in parts of its stream bed all year round during years of normal rainfall.	1.87
Intermittent drainages	A drainage that flows seasonally such as during and after heavy or steady rain or during periods of snowmelt.	0.01
Total		3.52

Source: TTD 2013a

SURFACE WATER QUALITY

The Middle Truckee River bisects the project area. This water body is listed as impaired for sedimentation and siltation on the 303(d) list. The potential sources are from grazing, watershed disturbance including ski resorts, silvicultural activities, urban development, reservoir construction and management, and highly erosive subwatersheds. At higher stream flows, suspended sediment concentrations in the Truckee River are above those recommended for aquatic life protection (Lahontan RWQCB 2008).

The Truckee River watershed has a 170 year history of significant human disturbance. Timber harvests (including multiple clear cuts) began early to support silver mining and the transcontinental railroad; railroad construction and operation were (and still are) the source of many watershed problems. The native trout species (Lahontan cutthroat trout) was fished to extinction as a food source for California expansion by 1930. Gravel mining to support large-scale road construction, including Interstate 80, left behind degraded areas. The largest subdivision in the United States—Tahoe Donner—was built in the 1960s and 1970s before stormwater and erosion regulation. A series of dams in the Truckee River system were established for water supply and flood control.

More recent impacts of concern in the Truckee River watershed include extensive construction, particularly in the Town of Truckee and Martis Valley. Although construction has slowed in the past few years,

development continues. Ski resorts are expanding to year-round resorts with an increase in golf course use and residential development. Additionally, the flow regime in the Truckee River may see significant changes as the Truckee River Operating Agreement is implemented.

The Truckee River and three tributaries located downstream from the project area (Bronco Creek, Gray Creek, and Squaw Creek) are listed as impaired for excessive sediment under the CWA. Sediment sources include road and highway salting and sanding, construction, ski runs, and natural sediment sources including landslides and debris flows.

In addition to the standard Water Quality Objectives for all surface waters, the Lahontan RWQCB has established the following Water Quality Objectives for the Truckee River at the Lake Tahoe Outlet as described in the Lahontan Basin Plan:

- ▲ Total Dissolved Solids (TDS): 65 milligrams per liter (mg/L)
- ▲ Chlorine (Cl): 2.0 mg/L
- ▲ Sulfate (SO₄): 2.0 mg/L
- ▲ Phosphorus (P): 0.01 mg/L
- ▲ Nitrogen as nitrate (NO₃-N): 0.02 mg/L
- ▲ Nitrogen (N): 0.12 mg/L
- ▲ Total Kjeldahl nitrogen (TKN): 0.10 mg/L
- ▲ Iron (Fe): 0.03 mg/L

GROUNDWATER

The project site is underlain by the Tahoe Valley North Subbasin within the Tahoe Valley Groundwater Basin. The groundwater basin consists of three alluvial areas surrounding the California side of the Lake on the south, west, and north. The Tahoe Valley North Subbasin lies in the northern portion of the Tahoe Valley Groundwater Basin. The subbasin occupies a triangular area along the North Shore of Lake Tahoe and occupies a surface area of 2,000 acres. Elevations within the subbasin range from 6,225 feet at lake level to 6,500 feet in the north. Griff Creek flows through the subbasin where it empties into Lake Tahoe near Kings Beach State Recreation Area. The towns of Tahoe, Vista, and Kings Beach lie within the subbasin. Average annual precipitation in the subbasin ranges from 23 inches to 40 inches, increasing from south to north (DWR 2004).

DWR well logs and information from NTPUD suggest groundwater within the subbasin is inconsistent in nature, and its occurrence may not be described accurately as a basin “aquifer,” but more so a fracture-flow system (DWR 2004).

Groundwater elevation changes are directly related to changes in groundwater storage. Changes in groundwater storage have been minimal. Decreases in groundwater storage have resulted locally in areas of pumping (DWR 2004).

Groundwater recharge in the project area is primarily from infiltration of precipitation into faults and fractures in bedrock, into the soil and decomposed granite that overlie much of the bedrock, and into unconsolidated basin-fill deposits (DWR 2004).

Groundwater well production averages 39 gallons per minute for domestic use and 800 gallons per minute for municipal use. The depth of the wells ranges from 33 feet to 415 feet for domestic and 900 feet for municipal (DWR 2004).

Preliminary geotechnical studies have determined the groundwater elevation to be around 6,222 feet (mean sea level datum), which equates to a depth of 7 to 10 feet below the surface throughout most of the project site. However, it was also stated that groundwater was not encountered to a depth of 24½ feet in the area immediately to the east of the Caltrans maintenance facility (TTD 2013b).

SOILS

Mapped soil units throughout the project vicinity consist of the Tahoe complex (7041), gravelly (0 to 5 percent slopes; Kingsbeach stony sandy loam (7161), 2 to 15 percent slopes; and Pits and Dumps (7031). The Tahoe Complex and Kingsbeach stony sandy loam dominate the project area. General characteristics associated with these mapping units are described below:

- ▲ **Tahoe complex (7042), 0 to 5 percent slopes, gravelly:** This soil is listed as Loamy Alluvial land in the 1974 soil survey. Its parent material is alluvium derived from granitic and volcanic rock. It consists of small areas of recent alluvium adjacent to stream channels and in meadows. It is nearly level to gently sloping, and typical vegetation consists of sedges, meadow grasses, and scattered lodgepole pine. There are hydric soils in this unit. These soils are poorly drained and have moderate permeability, and the surface runoff class is "Low"
- ▲ **Kingsbeach stony sandy loam (7161), 2 to 15 percent slopes:** The Kingsbeach series consists of very deep, moderately well-drained soils that formed in alluvium and/or colluvium derived from andesite formed over old lakebed sediments. The surface is sandy loam, which overlies a loam to clay loam horizon to a depth of 18 to 48 inches. Under this horizon lie the lake sediments, which have a clay loam texture. Permeability is described as moderately slow in the subsoil and very slow in the substratum of lakebed sediments, however, the surface runoff class is "Medium."

Pits and Dumps are soils typical of disturbed sites, these areas are scattered within the project site and do not contain hydric soils.

4.7.4 Environmental Consequences and Mitigation Measures

METHODS AND ASSUMPTIONS

Evaluation of potential hydrologic and water quality impacts was based on a review of existing information from previously completed documents that address water resources in the project vicinity. The information obtained from these sources was reviewed and summarized to establish 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 action alternatives would comply with relevant federal, state, and local ordinances and regulations.

SIGNIFICANCE CRITERIA

Significance criteria relevant to hydrology and water quality are summarized below.

NEPA Criteria

An environmental document prepared to comply with NEPA must consider the context and intensity of the environmental effects that would be caused by or result from the action alternatives. Under NEPA, the significance of an effect is used solely to determine whether an EIS must be prepared. The factors that are taken into account under NEPA to determine the significance of an action in terms of the context and the intensity of its effects are encompassed by the CEQA criteria used for this analysis. No specific factors related to hydrology and water quality are contained in NEPA, CEQ Regulations Implementing NEPA, or FHWA NEPA regulations in 23 CFR 771 et seq.

TRPA Criteria

The "Water Quality" criteria from the TRPA Initial Environmental Checklist were used to evaluate the hydrology and water quality impacts of the alternatives. The checklist asks whether the project would result in the following conditions.

- ▲ Changes in currents, or the course or direction of water movements?
- ▲ Changes in absorption rates, drainage patterns, or the rate and amount of surface water runoff so that a 20 year 1 hour storm runoff (approximately 1 inch per hour) cannot be contained on the site?
- ▲ Alterations to the course or flow of 100-year flood waters?
- ▲ Change in the amount of surface water in any water body?
- ▲ Discharge into surface waters, or in any alteration of surface water quality, including but not limited to temperature, dissolved oxygen, or turbidity?
- ▲ Alteration of the direction or rate of flow of groundwater?
- ▲ Change in the quantity of groundwater, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations?
- ▲ Substantial reduction in the amount of water otherwise available for public water supplies?
- ▲ Exposure of people or property to water related hazards such as flooding and/or wave action from 100-year storm occurrence or seiches?
- ▲ The potential discharge of contaminants to the groundwater or any alteration of groundwater quality?
- ▲ The project being located within 600-feet of a drinking water source?

CEQA Criteria

To determine whether environmental impacts to hydrology and water quality are significant environmental effects, Appendix G of the State CEQA Guidelines asks whether a project would do any of the following:

- ▲ violate any water quality standards or waste discharge requirements;
- ▲ substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);
- ▲ substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in substantial erosion, siltation or flooding on- or off-site;
- ▲ create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage, infiltration, and treatment systems or facilities resulting in increased sources of pollutants reaching surface waters or causing detrimental flooding to property or infrastructure;
- ▲ otherwise substantially degrade water quality;
- ▲ place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- ▲ place within a 100-year flood hazard area structures that would impede or redirect flood flows;
- ▲ expose people or structures to a significant risk of loss, injury, or death involving flooding; or
- ▲ Result in substantial risk of inundation by seiche, tsunami, or mudflow.

ISSUES NOT WARRANTING DETAILED EVALUATION

The SR 89/Fanny Bridge Project Area is not located within 600 feet of a drinking water source (EPA and TRPA 2000), and would not place housing within a 100-year flood hazard area. Thus, no impacts associated with these resources would occur and they do not warrant further detailed evaluation and discussion. The risks from the potential for earthquake triggered seiche or tsunami are addressed in Section 4.5, "Geology, Soils, Land Capability, and Coverage."

Construction and operation of the SR 89/Fanny Bridge Project would not impede access to the Tahoe Dam, require coffer dams, or interfere with BOR easements or operations and maintenance of the dam. Tahoe Dam water releases would remain under the control of BOR, in compliance with the various agreements and court decrees. There would be no changes in current or the course or direction of water movements or alternations in the amount of water otherwise available for public water supplies.

ENVIRONMENTAL EFFECTS OF THE PROJECT ALTERNATIVES

Impact 4.7-1. Surface water quality

All project alternatives would be required to comply with federal, state, regional, and TRPA water quality standards and waste discharge requirements. Implementation of Alternatives 1, 2, 3, 4, 6, and 6a would involve ground disturbance and construction activities. Some of these activities would take place in and adjacent to the Middle Truckee River channel. Construction related ground disturbance could cause accelerated soil erosion and sediment loss that could be transported to nearby water bodies. Use of hazardous materials during construction (e.g., fuels, lubricants) could result in the release of these materials into nearby water bodies. Construction dewatering would not provide a mechanism for contaminant discharges, because all dewatering effluent would be pumped into trucks for offsite disposal. Short-term construction impacts would be avoided or minimized through adherence to various federal, state, and local laws, regulations, and programs which require implementation and continual monitoring and maintenance of BMPs to protect water quality during construction. Various measures included as part of the action alternatives would further reduce the risk of water quality degradation. Therefore, this impact would be **less than significant** for Alternatives 1, 2, 3, 4, 6, and 6a. Alternative 5 would have **no impact** on water quality.

Alternatives 1, 2, 3, and 4 would include construction of a new bridge to be located approximately 1,800 feet southwest of the existing Fanny Bridge, the construction of a realigned SR 89 through the 64-Acre Tract, realignment of existing bike paths, modifications to the existing SR 89 to become a local road for approximately 2,000 feet south of SR 28, the rehabilitation or replacement of Fanny Bridge, modifications to the Caltrans maintenance facility, T-TSA sewer line and NSEF sewer export main, and options related to the free-right-turn lanes at the wye. Construction activities associated with the action alternatives would include grading and other earthmoving activities. The Action Alternatives would include the rehabilitation or replacement of Fanny Bridge and modifications to the wye intersection.

The construction activities described above would create ground disturbance along the river bank and in upland areas which could accelerate soil erosion and sediment leading to a temporary increase in sedimentation and turbidity levels in the Truckee River. Construction activities would include removal of existing pavement, vegetation removal, grading, excavation, and temporary stockpiling of soil. Estimates of temporary and permanent soil disturbance for each alternative are shown in Table 4.7-6 below. Temporary disturbance areas (such as staging areas) would be stabilized and revegetated following construction as required by TRPA Code Section 61.4. Disturbed areas of the river bed and bank would be stabilized using boulders and/or rip-rap to prevent scouring and to preserve bank stability and to meet Caltrans hydromodification requirements.

Table 4.7-6 Acres of Ground Disturbance by Alternative

Alternative/Segment	Acres of Ground Disturbance		
	Temporary	Permanent	total
Alternative 1 (Proposed)	2.90	7.89	10.76
Alternative 2	2.8	7.78	10.58
Alternative 3	2.77	7.39	10.16
Alternative 4	2.42	6.76	9.18
Alternative 5 (No Action)	0	0	0
Alternative 6	0.05	0.59	0.64
Alternative 6a	0.05	0.56	0.61

Source: TTD 2014

1Permanent ground disturbance includes developed areas, cut and fill slopes, landscaping, and areas underneath bridges.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

Alternative 1 would disturb 10.76 acres of soil, which could negatively affect water quality as described above. This is the highest amount of soil disturbance that would be created by any project alternative. All projects that disturb over one acre of soil would be subject to a Placer County grading permit and the Caltrans Statewide NPDES Permit and Statewide Construction General NPDES Permit from Lahontan RWQCB. One condition of the NPDES permits would be the preparation of a SWPPP. The SWPPP would be prepared by a qualified SWPPP practitioner and/or a qualified SWPPP developer that identifies water quality controls consistent with LRWQCB and TRPA requirements and would ensure that runoff quality meets TRPA water quality requirements under the TRPA Code and maintains beneficial uses of the Truckee River. The SWPPP would describe the site controls, erosion and sediment controls, means of waste disposal, implementation of approved local plans, control of post-construction sediment and erosion control measures, and management controls unrelated to stormwater. BMPs identified in the SWPPP would be implemented during all site development activities. All construction site BMPs would follow the latest edition of the Caltrans Storm Water Quality Handbooks: Construction Site BMPs Manual (Caltrans 2003) and the Lake Tahoe BMP Handbook (TRPA 2011) to control and minimize the impacts of construction-related activities, materials, and pollutants on the watershed. The following would be required elements of the SWPPP:

- ▲ Temporary BMPs to prevent the transport of earthen materials and other construction waste materials from disturbed land areas, stockpiles, and staging areas during periods of precipitation or runoff, including: filter fence, fiber roll, erosion control blankets, mulch (such as pine needles and wood chips); and temporary drainage swales and settling basins.
- ▲ TRPA pre-grade inspection a minimum of 48-hours prior to commencement of construction-related activities to ensure proper and adequate installation of the temporary erosion control measures.
- ▲ Designated contractor staging areas for materials and equipment storage outside of SEZ areas. Designated staging and storage areas would be protected by construction fencing and/or silt barriers, as appropriate. Following project completion, all areas used for staging would be restored in accordance with TRPA Code Section 61.4.
- ▲ Temporary BMPs to prevent the tracking of earthen materials and other waste materials from the project site to offsite locations, including stabilized points of entry/exit for construction vehicles/equipment and designated vehicle/equipment rinse stations, and sweeping.

- ▲ Temporary BMPs to prevent wind erosion of earthen materials and other waste materials from the project site, including routine application of water to disturbed land areas and covering of stockpiles with plastic or fabric sheeting.
- ▲ Earthmoving activities would be limited to May 1 through October 15, unless a grading ordinance exemption is granted by TRPA. At the end of the grading season or before completion of the project, all surplus or waste earthen materials from the project site would be removed and disposed of at a TRPA-approved disposal site or stabilized on-site in accordance with TRPA regulations.
- ▲ A spill prevention and containment plan would be prepared and implemented. Project contractors would be responsible for storing on-site materials and temporary BMPs capable of capturing and containing pollutants from fueling operations, fuel storage areas, and other areas used for the storage of hydrocarbon-based materials. This would include maintaining materials on-site (such as oil absorbent booms and sheets) for the cleanup of accidental spills, drip pans beneath construction equipment, training of site workers in spill response measures, immediate cleanup of spilled materials in accordance with directives from the LRWQCB and TRPA, and proper disposal of waste materials at an approved off-site location that is licensed to receive such wastes.
- ▲ Temporary BMPs to capture and contain pollutants generated by concrete construction including lined containment to collect runoff from washing of concrete delivery trucks and equipment.
- ▲ Protective fencing to prevent damage to trees and other vegetation to remain after construction, including tree protection fencing and individual tree protection such as wood slats strapped along the circumference of trees.
- ▲ Temporary BMPs for the containment of removal of drilling spoils generated from construction of bridge foundations and abutments.
- ▲ Daily inspection and maintenance of temporary BMPs. The prime contractor would be required to maintain a daily log of Temporary Construction BMP inspections and keep the log on site during project construction for review by LRWQCB and TRPA.
- ▲ Tree removal activities, including the dropping of trees, would be confined to the construction limit boundaries.
- ▲ Construction boundary fencing to limit disturbance and prevent access to areas not under active construction.

Construction associated with Alternative 1 would require the use and handling of hazardous materials such as fuels, lubricants, coolants, hydraulic fluids, and cleaning solvents. The use and handling of these materials presents the potential to degrade water quality through accidental spills. Implementation of the Hazardous Materials spill response plan (a required component of the NPDES permit Stormwater Pollution Prevention Plan) would reduce the potential of directly and indirectly effecting water quality through construction-related hazardous material spills.

Alternative 1 could include landscaping of roundabout centers and roadway medians and revegetation of disturbed areas. Fertilizers or organic amendments used in landscaping and restoration projects can move into surface and groundwaters and negatively impact water quality. These impacts can be avoided or minimized through proper handling and application of fertilizers and amendments and the selection of plant species that are appropriate for the site. All projects that include landscaping or revegetation must develop a fertilizer management program as described in TRPA Code Section 60.1.8.A. Additionally, projects requiring revegetation must submit a revegetation plan that specifies the use of approved plant species and a schedule of the amount and method of application of any necessary fertilizers in accordance with TRPA Code Section 61.4.5. TRPA Code of Ordinances section 36.7 and the TRPA Handbook of Best Management Practices (TRPA 2011) require that landscaped areas use native or adapted plant species that require little

water and fertilizer and are appropriate for the site conditions. Because Alternative 1 would be required to comply with these provisions as a condition of permit approval, the risk to water quality from the migration of fertilizers or organic amendments would be minimized.

Construction Activities within the Truckee River Channel

Alternative 1 would require construction and/or rehabilitation of bridge foundations and footings below the ordinary high water mark and within the river channel. In-channel construction activities would occur during summer months and the river bottom would be restored to its original condition and elevation when work within the river is completed.

In-channel construction activities could result in a plume of sediments generated from the channel bottom and the channel side becoming suspended in the water. Suspended sediments could potentially generate turbidity levels during construction that exceed the water quality objectives (turbidity may not be raised above 3 NTU of the monthly mean) established by Lahontan RWQCB (1995). For all work within the river channel, water-tight coffer dams would be temporarily installed to isolate the construction area from the flow of the river. Cofferdams would minimize the temporary increase in turbidity within the river, prevent scour and maintain soil- and water-free footings to allow for pile driving.

After the footings are constructed, the coffer dams would be removed and the remaining portion of the bridge would be constructed. Additional BMPs such as barriers, silt fencing, slope terracing, and dust control would be implemented to avoid or minimize the movement of soils into the water; however, some temporary increase in turbidity would occur. This direct increase in turbidity levels would not be considered significant because turbidity would be monitored and construction work would be slowed or stopped if turbidity nears regulation thresholds. Turbidity levels would return to pre-project conditions after construction is completed.

Dewatering and Diversion

Construction of the new bridge and replacement of Fanny Bridge would require the installation of deep piles to support bridge abutment footings, which extend approximately 30 feet below the bottom of the river channel. These piles would be driven into the soil to their full depth using a crane equipped with a pile driver. The wet soil and water would then be pumped out of the steel shell of the pile and into a collection system (Wood Rodgers 2014a). Water pumped from excavation activities or in areas of high groundwater would contain suspended sediments and other solids, but would not be discharged into the Truckee River, stream environment zones (as defined by TRPA), wetlands (as defined by USACE), or municipal storm drains. The estimated volume of dewatering discharge that would be produced during installation of the 22 piles required for construction of the new bridge abutment footings would be 15,510 gallons (Wood Rodgers 2014a). Dewatered effluent would be pumped from the collection system into trucks for disposal offsite. Disposal would occur at properly permitted facilities.

During construction related to the existing Fanny Bridge, surface flow water would be diverted through 200-foot long pipes attached to the Tahoe Dam gates to a point just downstream of the construction site. Therefore, minimal dewatering would be needed for rehabilitation or replacement of Fanny Bridge.

If the construction plan included discharge back to the Truckee River, the LRWQCB Basin Plan prohibition on discharge to the Truckee River and 100-year floodplain would apply. It would require that dewatering discharge only be returned to the Truckee River after the project has received an exemption from the Lahontan Regional Board. Bridge abutments, approaches, and essential transportation facilities may be granted an exemption provided that the project incorporates measures that would insure that any erosion and surface runoff problems caused by the project are mitigated to levels of insignificance, and the project would not individually or cumulatively degrade water quality (Lahontan RWQCB 1995). The NPDES California general construction permit allows dewatering operations and river diversions provided that the dewatering discharge cannot be eliminated, complies with the BMPs described in the SWPPP, is filtered or treated, does not exceed numeric action levels for pH and turbidity, and will not cause or contribute to a violation of water quality standards (SWRCB 2009).

In addition to the water quality protections in the Lahontan Basin Plan (see Table 4.7-4) and the statewide NPDES construction permit, the TRPA has established numeric water quality standards for discharge to surface and ground waters. TRPA standards for discharge to surface water are equivalent to the stormwater effluent standards set forth in the Tahoe Basin General Permit, although TRPA monitors suspended sediment rather than turbidity of discharge waters. The proposed project would be required to meet the standards of both agencies. Section 61.1 of the TRPA Code of Ordinances specifies that water discharged to surface waters or infiltrated into soils should not contain excessive amounts of nutrients, sediment, or oil and grease. The TRPA numeric discharge limits are shown in Table 4.7-7 below. Where there is a direct hydrologic connection between ground and surface waters, discharge to groundwater must meet surface water discharge standards. The existence of a direct hydrologic connection is assumed to exist when, due to proximity to surface water, slope, or soil characteristics, the discharged water does not remain in the soil long enough to remove pollutants.

Table 4.7-7 TRPA Pollutant Concentration Limits for Discharge to Surface and Ground Water

Discharge to Surface Waters		Discharge to Ground Waters	
Constituent	Maximum Concentration	Constituent	Maximum Concentration
Dissolved Inorganic Nitrogen as N	0.5 mg/l	Total Nitrogen as N	5 mg/l
Dissolved Phosphorus as P	0.1 mg/l	Total Phosphate as P	1 mg/l
Dissolved Iron as Fe	0.5 mg/l	Iron as Fe	4 mg/l
Grease and Oil	2.0 mg/l	Turbidity	200 NTU
Suspended Sediment	250 mg/l	Grease and Oil	40 mg/l

Source: TRPA Code of Ordinances, Section 60.1

Implementation of any action alternative would require dewatering activities of groundwater associated with the river and surface flow at the new bridge location. Recognizing the stringent water quality standards, limitations on dewatering discharge, and the relatively feasible to handle amount of dewatering effluent expected from the bridge construction, effluent would be pumped from the collection system into trucks for offsite disposal and dewatering discharge back to the Truckee River, floodplains, or wetlands is not proposed.

Because TRPA, State and Regional WQCB, and Placer County regulations are in place to minimize erosion and transport of sediment and other pollutants during construction, and appropriate project-specific measures would be defined to secure necessary permits and approvals, construction-related impacts would be minimized and would not result in substantial adverse effect on water quality. Therefore, the potential for Alternative 1, to affect water quality would be a **less-than-significant** impact.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Implementation of Alternative 2 would disturb approximately 10.58 acres of soil (0.18 acres less than Alternative 1). Alternative 2 would be subject to the same permitting requirements, including completion of a SWPPP, installation of permanent and temporary BMPs, and TRPA fertilizer use restrictions. In-channel construction work, requiring the use of coffer dams and dewatering would be similar to Alternative 1. In-channel construction work, requiring the use of coffer dams and dewatering would be the same as that described for Alternative 1. Because Alternative 2 would comply with the existing stringent water quality regulations discussed under Alternative 1, the potential effect to water quality would be **less than significant**.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Alternative 3 would disturb approximately 10.16 acres of soil (0.60 acres less than Alternative 1). Alternative 2 would be subject to the same permitting requirements, including completion of a SWPPP, installation of permanent and temporary BMPs, and TRPA fertilizer use restrictions. In-channel construction work, requiring the use of coffer dams and dewatering would be the same as that described for Alternative 1. For the same

reasons described above, the potential impact to water quality resulting from implementation of Alternative 3 would be **less than significant**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Alternative 4 would disturb approximately 9.18 acres of soil (1.58 acres less than Alternative 1). This reduction in the amount of disturbance is the result of a difference in roadway configurations between Alternative 1 and Alternative 4. Alternative 4 would be subject to the same permitting requirements, including completion of a SWPPP, installation of permanent and temporary BMPs, and TRPA fertilizer use restrictions. In-channel construction work, requiring the use of coffer dams and dewatering would be the same as that described for Alternative 1. For the same reasons described above, the potential impact to water quality resulting from implementation of Alternative 4 would be **less than significant**.

ALTERNATIVE 5: NO ACTION

Alternative 5 is the no action alternative and would not result in land disturbance or the potential for increased erosion or sedimentation within the Truckee River. For this reason, Alternative 5 would have **no impact** on water quality.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Alternative 6 would result in approximately 0.64 acres of land disturbance. Because this alternative would disturb less than one acre of land, it would be regulated by the General Construction Permit for small projects (R6T-2003-0004). Compliance with this permit requires that the applicant submit a notice of intent and a BMP plan to the LRWQCB before starting construction activities. The BMP plan must describe the methods that the project will use to minimize the discharge of waste from the project site during and after construction (Lahontan RWQCB 2003). The BMPs must prevent the project from violating the LRWQCB and TRPA water quality standards described above. As described under Alternative 1, the landscaping areas associated with Alternative 6 would be subject to TRPA fertilizer use and plant selection ordinances.

The rehabilitation or replacement of Fanny Bridge would require work within the river channel including a temporary river diversion through 200-foot long pipes. Additionally, replacement of the bridge would require installation of deep bridge piles installed to a depth of 30 feet below the bottom of the river channel, as described under Alternative 1. The LRQWCB prohibition on wastewater discharge to the Truckee River floodplain would apply to these activities, as previously stated. Because Alternative 6 would comply with the existing stringent water quality regulations, the potential effect to water quality would be **less than significant**.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Alternative 6a would result in approximately 0.61 acres of land disturbance. Similar to Alternative 6, this alternative would be regulated by the General Construction Permit for small projects (R6T-2003-0004) and develop BMPs to prevent the project from violating the LRWQCB and TRPA water quality standards described above. As described under Alternative 1, the landscaping areas associated with Alternative 6a would be subject to TRPA fertilizer use and plant selection ordinances. Also similar to Alternative 6, this alternative would require work within the river channel, and implementation of the project would not involve discharge of dewatering effluent back to the Truckee River, floodplains, or wetlands. Because Alternative 6a would comply with the existing stringent water quality regulations, the potential effect to water quality would be **less than significant**.

Impact 4.7-2. Groundwater interception.

TRPA Code of Ordinances Section 33.3.6 prohibits groundwater interception or interference. Alternatives 1 through 4 would require excavation beyond 5 feet in depth for construction of bridge footings, installation of stormwater treatment facilities and retaining wall foundations, and modifications to the T-TSA sewer line and NSEF sewer export main. While groundwater may be intercepted in these locations, the project components would be isolated and would not interfere with the rate or direction of groundwater flow. Additionally, a TRPA soil hydrology report would be prepared and submitted to TRPA as required by TRPA Code Section 33.3.6. Therefore, Alternatives 1, 2, 3, and 4 would have a **less than significant** impact related to groundwater interception. Alternatives 6 and 6a would also intercept groundwater for the restoration or replacement of Fanny Bridge; however the number of locations where groundwater would be intercepted would be fewer than for Alternatives 1 through 4. For the same reasons, Alternatives 6 and 6a would have a **less than significant** impact related to groundwater interception. There would be **no impact** under Alternative 5.

Groundwater Interception

Groundwater interception or interference is prohibited under TRPA's Code of Ordinances Section 33.3.6. Exceptions are permitted on a case by case basis for situations where there are no viable alternatives and measures will be taken to avoid adverse impacts. Whenever excavations will be greater than 5 feet, a soils hydrologic report must be prepared to demonstrate that no interference would occur or that measures are incorporated to maintain groundwater flows, to avoid impacts to SEZ vegetation, and to prevent any groundwater from leaving the project area as subsurface flow.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

Construction of the Alternative 1 would result in construction of a new bridge across the Truckee River, realignment of the SR 89 roadway, rehabilitation or replacement of the existing Fanny Bridge, realignment of existing bike paths, and modifications to the Caltrans maintenance facility, T-TSA sewer line and NSEF sewer export main, and options related to the free-right-turn lanes at the wye. Excavation for construction of bridge components and retaining walls would exceed 5 feet in several locations. Construction or restoration of bridge footings would occur below the ordinary high water mark of the Truckee River and would require excavation or ground disturbance to a minimum depth of 30 feet for pile driven piers (TTD 2014). Construction of the proposed roadway realignment may require excavation or ground disturbance deeper than 5 feet for installation of the stormwater treatment facilities and for relocation of the T-TSA sewer line and modifications to the NSEF sewer export main.

Because this alternative would require the construction or restoration of bridge footings and central bents, interception of ground water cannot be avoided. Additionally, the preliminary geotechnical report (MDA 2005) completed for the project in 2005 indicates that groundwater could be found at a depth of 11.5 feet (6,222 ft above Mean Sea Level) near the existing Fanny Bridge. In the area of the proposed SR 89 roadway realignment, groundwater may be encountered at or near the ground surface. Dewatering would be required during construction activities if groundwater is encountered. Additionally, no groundwater was encountered in soil borings to a depth of 24.5 feet on the riverbank south and east of the Caltrans maintenance facility (MDA 2005).

While the project activities described above are likely to intercept groundwater, none of the action alternatives components would interfere or re-direct the flow of groundwater or alter the elevation of groundwater. Dewatering would be required in areas of high ground water; however this would be temporary and isolated and would not affect the availability of groundwater for public use. Additionally, this alternative would be required to follow TRPA's grading ordinances for prior investigation and reporting of any potential interruption or redirection of groundwater flow for review and approval. Therefore, the potential for Alternative 1 to interfere with groundwater flow would be a **less-than-significant** impact.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Potential impacts associated with groundwater interception would be the same as described above under Alternative 1. While the project activities are likely to intercept groundwater, none of the action alternative

components would interfere or re-direct the flow of groundwater or alter the elevation of groundwater. Dewatering would be required in areas of high ground water; however this would be temporary and isolated and would not affect the availability of groundwater for public use. Additionally, this alternative would be required to follow TRPA's grading ordinances for prior investigation and reporting of any potential interruption or redirection of groundwater flow for review and approval. Therefore, the potential for Alternative 2 to interfere with groundwater flow would be a **less-than-significant** impact.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Potential impacts associated with groundwater interception would be the same as described above under Alternative 1. While the project activities are likely to intercept groundwater, none of the action alternative components would interfere or re-direct the flow of groundwater or alter the elevation of groundwater. Dewatering would be required in areas of high ground water; however this would be temporary and isolated and would not affect the availability of groundwater for public use. Additionally, this alternative would be required to follow TRPA's grading ordinances for prior investigation and reporting of any potential interruption or redirection of groundwater flow for review and approval. Therefore, the potential for Alternative 3 to interfere with groundwater flow would be a **less-than-significant** impact.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Potential impacts associated with groundwater interception would be the same as described above under Alternative 1. While the project activities are likely to intercept groundwater, none of the action alternative components would interfere or re-direct the flow of groundwater or alter the elevation of groundwater. Dewatering would be required in areas of high ground water; however this would be temporary and isolated and would not affect the availability of groundwater for public use. Additionally, this alternative would be required to follow TRPA's grading ordinances for prior investigation and reporting of any potential interruption or redirection of groundwater flow for review and approval. Therefore, the potential for Alternative 4 to interfere with groundwater flow would be a **less-than-significant** impact.

ALTERNATIVE 5: NO ACTION

Alternative 5 is the no action alternative and would not result in excavation. For this reason, Alternative 5 would have **no impact** on groundwater interception.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

For Alternative 6, excavation activities that would intercept groundwater would be limited to the work required for the restoration or replacement of Fanny Bridge. Because Alternative 6 would not require the construction of a new bridge or the realignment of SR 89, there would be fewer areas of groundwater interception when compared to Alternatives 1 through 4. As described above, restoration of existing bridge footings would occur below the ordinary high water mark of the Truckee River and excavation would be required for the installation of column casings (Wood Rodgers 2014b). Replacement of the existing bridge would require excavation for removal of existing bridge components and excavation or ground disturbance to a minimum depth of 30 feet for pile driving piers (TTD 2014). For the same reasons discussed above, the potential of Alternative 6 to interfere with groundwater flow would be **less than significant**.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Similar to Alternative 6, excavation activities that would intercept groundwater would be limited to the work required for the restoration or replacement of Fanny Bridge. For the same reasons discussed under Alternative 6, the potential of Alternative 6a to interfere with groundwater flow would be **less than significant**.

Impact 4.7-3. Stormwater runoff and drainage capacity.

Alternatives 1, 2, 3, and 4 would result in increases in impervious surfaces associated with the new bridge, roadway, and pedestrian and bicycle improvements. Alternatives 6 and 6a would also create increased impervious surfaces but to a lesser degree. Project components could also require the relocation of existing stormwater infrastructure. The project would be required to comply with the stringent requirements for stormwater and erosion control contained in the Lahontan Water Quality Control Plan, the Truckee River TMDL Program, and existing NPDES permits. Therefore, if adverse increases in runoff were possible in a particular area, compliance with these plans and programs would ensure that adverse effects were avoided. Thus, implementation of Alternatives 1, 2, 3, and 4 would be **less than significant**. Alternative 6 and 6a would have a **beneficial** impact due to the slight increase or reduction in impervious surfaces and improvements to the existing storm drain system. There would be **no impact** under Alternative 5.

The amount of stormwater runoff generated from an area is affected by development through conversion of vegetated or pervious surfaces to impervious surfaces and by the development of drainage systems that connect these impervious surfaces to streams or other water bodies. In this way, development can increase the rate of runoff and eliminate storage and infiltration that would naturally occur along drainage paths. As water runs off the land surface, it collects and carries materials and sediment, which can be potentially harmful to downstream receiving waters. Additionally, runoff from impervious surfaces can become concentrated, causing erosion and increased sediment transport.

Alternatives 1, 2, 3, and 4 would include construction of a new bridge to be located approximately 1,800 feet southwest of the existing Fanny Bridge, the construction of a realigned SR 89 through the 64-Acre Tract, realignment of existing bike paths, modifications to the existing SR 89 to become a local road for approximately 2,000 feet south of SR 28, the rehabilitation or replacement of Fanny Bridge, and modifications to the Caltrans maintenance facility, T-TSA sewer line and NSEF sewer export main, and options related to the free-right-turn lanes at the wye. Construction activities associated with the action alternatives would include grading and other earthmoving activities. Alternatives 6 and 6a would include the rehabilitation or replacement of Fanny Bridge and modifications to the wye intersection. Table 4.7-7 provides the estimated increase in impervious area by alternative.

As shown in Table 4.7-8, all action alternatives, with the exception of Alternative 6a, would result in an increase in impervious surfaces within the project site and a corresponding increase in runoff volume. In some cases, the project alternatives would relocate or change the configuration of the existing storm drain systems. Implementation of these alternatives would be accompanied by modernization of the existing storm drain infrastructure, which in many cases is undersized and/or in need of repair (TTD 2014). Where the existing storm drain systems affected by each action alternative are undersized or under-designed, they would be improved. Inlets and pipes would be relocated to accommodate the different roadway configurations and sized per regulatory and code requirements.

Table 4.7-8 Increase in Impervious Surfaces by Alternative

Alternative/Segment	New Impervious Surface		Total
	Roadway	Bike Path	
Alternative 1 (Proposed)	4.19	0.21	4.40
Alternative 2	4.20	0.21	4.41
Alternative 3	2.87	0.21	3.08
Alternative 4	3.60	0.19	3.79
Alternative 5 (No Action)	n/a	n/a	n/a
Alternative 6	0.25	0.05	0.30
Alternative 6a	-0.35	-0.02	-0.37

Source: Wood Rodgers 2014 b

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

This alternative would include construction of a new bridge to be located approximately 1,800 feet southwest of the existing Fanny Bridge, the construction of a realigned SR 89 through the 64-Acre Tract, realignment of existing bike paths, modifications to the existing SR 89 to become a local road for approximately 2,000 feet south of SR 28, the rehabilitation or replacement of Fanny Bridge, and modifications to the Caltrans maintenance facility, T-TSA sewer line and NSEF sewer export main, and options related to the free-right-turn lanes at the wye. Construction activities associated with Alternative 1 would include grading and other earthmoving activities.

Alternative 1 would include the construction of a new alignment for SR 89 and bike paths on the 64-Acre Tract, resulting in up to 4.40 acres of new impervious surfaces. The additional runoff generated by the project would be conveyed to nine existing storm drain systems and three new storm drain systems. The existing systems would require some modification and improvement in order to accommodate the increased volume. Significant modifications would include the redirection of off-site drainage to the 500 foot retaining wall required for construction of a roundabout on West River Road, and the relocation of existing sand traps to accommodate areas of road widening. All other proposed improvements along SR 89 West River Road and West Lake Boulevard would include minor modifications to the existing drainage systems. At the Caltrans Maintenance Facility, an existing rock-lined ditch would be maintained.

The runoff generated by the roadway portions of Alternative 1 could contain sediment, crushed road abrasives, nutrients, organic compounds, trash and debris, oxygen-demanding substances, oil and grease, fluids from accidents and spills, landscape care products, and metals. The Caltrans Stormwater NPDES permit requires that BMPs are implemented to reduce the potential discharge of these pollutants to the maximum extent practicable. Both the effluent and the receiving water must be monitored to ensure that the BMPs are effective and that the discharge is not causing or contributing to an exceedance of a Water Quality Standard. The results of monitoring efforts must be used to make adjustments or revisions to the BMPs as appropriate (SWRCB 2013).

Approximately 0.21 acres of impervious surface would be created by the proposed bike path realignment. Because access to the bike path would be limited to non-motorized use and would not receive traction abrasives, the runoff from these surfaces would be relatively clean.

As required by Section 60.4.6 of the TRPA Code of Ordinances, both the roadway and bike path components of all action alternatives would be designed to meet the infiltration requirements of a 20-year, 1-hour design storm event. The LRWQCB has estimated that facilities designed to treat or infiltrate this size of storm event effectively capture approximately 85 percent of the average annual runoff volume (SWRCB 2013). All runoff from action alternatives (including runoff generated on bridges, which would be collected using a curb and gutter system) would be conveyed through permanent BMPs and Low Impact Development (LID) features to properly manage and treat the increased runoff velocity and volume. Potential LID measures that would be considered for this project include:

- ▲ Minimize impervious surface area and use pervious material for hardened surfaces outside of the roadway prism.
- ▲ Grade slopes to blend with the natural terrain and decrease the need for dikes, promoting sheet flow to vegetated areas that can provide water quality benefits and promote infiltration.
- ▲ Design permanent drainage facilities that mimic the existing drainage pattern of the area and disconnected drainage facilities.
- ▲ Construct permanent vegetated drainage ditches to decrease the velocity of discharge, plus decreasing the volume of discharge by promoting infiltration and allowing for pollutant removal.

Although there would be some increase in impervious surfaces, the implementation of Alternative 1 would require compliance with stringent federal, state, local, and TRPA post-construction stormwater controls.

Storage, infiltration, and treatment measures are required to minimize runoff flows and volumes and prevent erosion and flooding downstream of any project. Additionally, any stormwater discharge would be required to comply with the LRWQCB and TRPA water quality standards and the Truckee River TMDL. Because the alternative would not result in an adverse increase in stormwater runoff and would include the improvement and modernization of the existing stormwater infrastructure, the impact to stormwater runoff and drainage capacity for Alternative 1 would be **less than significant**.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Potential impacts associated with stormwater runoff and drainage capacity would be the same as described above under Alternative 1. Although there would be some increase in impervious surfaces, the implementation of Alternative 2 would require compliance with stringent federal, state, local, and TRPA post-construction stormwater controls. Because the alternative would not result in an adverse increase in stormwater runoff and would include the improvement and modernization of the existing stormwater infrastructure, the impact to stormwater runoff and drainage capacity for Alternative 2 would be **less than significant**.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Potential impacts associated with stormwater runoff and drainage capacity would be the same as described above under Alternative 1. Although there would be some increase in impervious surfaces, the implementation of Alternative 3 would require compliance with stringent federal, state, local, and TRPA post-construction stormwater controls. Because the alternative would not result in an adverse increase in stormwater runoff and would include the improvement and modernization of the existing stormwater infrastructure, the impact to stormwater runoff and drainage capacity for Alternative 3 would be **less than significant**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Potential impacts associated with stormwater runoff and drainage capacity would be the same as described above under Alternative 1. Although there would be some increase in impervious surfaces, the implementation of Alternative 4 would require compliance with stringent federal, state, local, and TRPA post-construction stormwater controls. Because the alternative would not result in an adverse increase in stormwater runoff and would include the improvement and modernization of the existing stormwater infrastructure, the impact to stormwater runoff and drainage capacity for Alternative 4 would be **less than significant**.

ALTERNATIVE 5: NO ACTION

Alternative 5 is the no action alternative and would not increase impervious surfaces. For this reason, Alternative 5 would have **no impact** on stormwater runoff and drainage capacity.

ALTERNATIVES 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Alternative 6 would include the replacement or rehabilitation of the existing Fanny Bridge and would create only 0.3 acres (13,068 sq ft) of new impervious surface. Runoff from Alternative 6 would be conveyed to existing storm drain systems, which would be repaired and modernized as part of the project.

As with the other action alternatives, Alternative 6 would be required to meet the stringent regulatory requirements for management of stormwater runoff. Permanent BMPs and LID building techniques would be installed to ensure that the projects stormwater infrastructure can infiltrate the 20-year, one hour storm event. As required by the Caltrans Stormwater NPDES permit, pollutant capture BMPs would be installed and effluent and receiving water would be regularly monitored to ensure that the BMPs are effective and that the applicable Water Quality Standards are met. Because this alternative would not result in an adverse increase in stormwater runoff and would include the improvement and modernization of the existing stormwater infrastructure, the overall impact to stormwater runoff and drainage capacity for Alternative 6 would be **beneficial**.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Alternative 6a would include the replacement or rehabilitation of the existing Fanny Bridge and replacing the existing wye intersection with a two lane roundabout with a landscaped interior. Because of this and other minor reductions, Alternative 6a would result in a decrease in impervious surfaces of 0.37 acres (16,117 sq ft) compared to existing conditions. Runoff from Alternative 6a would be conveyed to existing storm drain systems, which would be repaired and modernized as part of the project.

As with Alternative 6, Alternative 6a would be required to meet the stringent regulatory requirements for management of stormwater runoff. Because this alternative would not result in an adverse increase in stormwater runoff and would include the improvement and modernization of the existing stormwater infrastructure, the overall impact to stormwater runoff and drainage capacity for Alternative 6a would be **beneficial**.

Impact 4.7-4. Flood hazard effects.

Alternatives 1, 2, 3, 4, 6, and 6a would require construction of some bridge components within the 100-year floodplain and floodway. Additionally, Alternatives 1, 2, 3, and 4 would also locate a portion of a bike path within the 100-year floodplain. The project would comply with all LRWQCB and TRPA floodplain regulations. It would be constructed to prevent damage from flooding, and to result in no rise in the floodway elevation and no more than a one-foot increase in any base flood elevation of any floodplain. No effects on base flood elevations are anticipated. Additionally, protocols are in place to close bicycle and pedestrian facilities in flood hazard areas during high water events in order to minimize the risk of flood related injury or death. For these reasons, the effect of implementation of Alternatives 1, 2, 3, 4, 6, and 6a relative to flood hazards would be **less than significant**. There would be **no impact** under Alternative 5.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

The 100 year flood elevations within the project area are confined within the river banks and, as a result, much of the project area is outside of the flood zone (TTD 2014). Alternative 1 would require construction, replacement, or repair of bridge footings and abutments within the 100 year flood zone. These areas must, by their very nature, be located on the river bank or within the river channel. This alternative would include construction of the new bridge as well as rehabilitation or replacement of the existing Fanny Bridge.

All project alternatives would comply with Caltrans, LRWQCB, and TRPA floodplain requirements:

- ▲ Caltrans guidelines include the performance of a hydraulic study and submittal of a Hydraulics Study Report for any project intercepting a waterway or encroaching upon a floodplain to assess the potential impacts to natural processes and beneficial uses as part of the environmental review. All bridges must be designed to pass the two percent probability flood (i.e. the 50-year flood) or the flood-of-record, whichever is greater to not cause damaging backwater or excessive flow velocities. They are also required to add a minimum freeboard of two feet (Caltrans 2005).
- ▲ The Lahontan Water Quality Control Plan includes prohibitions to protect 100-year floodplains, LRWQCB may grant exemptions to the 100-year floodplain discharge prohibition when it can be shown that either there is no reasonable alternative that avoids or reduces the extent of encroachment in the floodplain for projects that require access to buildable sites and the impacts are minimized. The Lahontan Water Quality Control Plan also requires that all public utilities, transportation facilities and other necessary public uses in the 100-year floodplain must be constructed and maintained so as to prevent damage from flooding and to not cause flooding.
- ▲ Finally, any bridge, culvert crossing, or roadway to be constructed in 100-year floodplains would also need to comply with the TRPA Natural Hazards Goal 1, Policy 2 that requires all transportation facilities located in the 100-year floodplain to be constructed and maintained to prevent flooding and/or any damage from flooding.

Compliance with these existing regulations would ensure that the project would not impede or redirect flood flows, or cause flooding downstream. In addition, modeling shows a no-rise condition in the floodway associated with project implementation and less than one foot rise in the floodplain. No effects on the base flood elevations are anticipated.

Alternative 1 would relocate the bike path so that a portion of the bike path would cross under the proposed new bridge over the Truckee River on the east bank. Tahoe City Public Utility District (TCPUD) manages the bike paths within the project area and is responsible for closing all or portions of the bike path as necessary to protect public safety during high water events (Butterfield, pers. comm., 2014). Because any potential flooding events would be the result of a controlled release of water from the Tahoe dam, and because access to the bike path would be closed by Tahoe City Public Utility District prior to any such release, the portions of the bike path within the 100 year flood zone would not expose users to a significant risk of injury or death from flood hazards.

Because the alternative would be constructed in compliance with Caltrans, Placer County, LRWQCB, and TRPA requirements, would not impede or redirect flood flow, would not cause flooding downstream, and would not increase the risk of injury or death from flooding, the effect of implementation of Alternative 1 relative to flood hazards would be **less than significant**.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Potential impacts associated with flood hazards would be the same as described above under Alternative 1. Through compliance with Caltrans, LRWQCB, and TRPA requirements, implementation of Alternative 2 would not impede or redirect flood flow, would not cause flooding downstream, and would not increase the risk of injury or death from flooding. Therefore this would be a **less-than-significant** impact.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Potential impacts associated with flood hazards would be the same as described above under Alternative 1. Through compliance with Caltrans, LRWQCB, and TRPA requirements, implementation of Alternative 3 would not impede or redirect flood flow, would not cause flooding downstream, and would not increase the risk of injury or death from flooding. Therefore this would be a **less-than-significant** impact.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Potential impacts associated with flood hazards would be the same as described above under Alternative 1. Through compliance with Caltrans, LRWQCB, and TRPA requirements, implementation of Alternative 4 would not impede or redirect flood flow, would not cause flooding downstream, and would not increase the risk of injury or death from flooding. Therefore this would be a **less-than-significant** impact.

ALTERNATIVE 5: NO ACTION

Alternative 5 is the no action alternative and would not involve construction or locate a portion of a bike path within the 100 year flood zone. Therefore, Alternative 5 would have **no impact** related to flood area hazards.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Alternative 6 would include the replacement or rehabilitation of the existing Fanny Bridge, but would not involve construction of a new bridge or relocation of the bike trail. Similar to Alternative 1, this alternative would require construction, replacement, or repair of bridge footings and abutments within the 100 year flood zone. This alternative would also be required to comply with Caltrans, LRWQCB, and TRPA floodplain requirements. As described above under Alternative 1, compliance with these existing regulations would ensure that the project would not impede or redirect flood flows, or cause flooding downstream.

Because the alternative would be constructed in compliance with Caltrans, LRWQCB, and TRPA requirements, would not impede or redirect flood flow, would not cause flooding downstream, and would not increase the risk of injury or death from flooding, the effect of implementation of Alternative 6 relative to flood hazards would be **less than significant**.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Alternative 6a would involve the same location and types of construction as Alternative 6. Because the alternative would be constructed in compliance with Caltrans, LRWQCB, and TRPA requirements, would not impede or redirect flood flow, would not cause flooding downstream, and would not increase the risk of injury or death from flooding, the effect of implementation of Alternative 6a relative to flood hazards would be less than significant.

4.7.5 Avoidance, Minimization, and/or Mitigation Measures

No mitigation is required for any of the alternatives.

4.8 HAZARDS, HAZARDOUS MATERIALS, AND RISK OF UPSET

4.8.1 Introduction

This section evaluates the risk of upset associated with the routine use, storage, and transport of hazardous materials and the potential health consequences. (For purposes of this section, the term “hazardous materials” refers to both hazardous substances and hazardous wastes.) The potential for wildland fire and conflicts with airports and schools that could result from implementation of the build alternatives are also evaluated. The following discussion describes the regulatory background and existing environmental conditions in the project site, and identifies potential impacts of the proposed alternatives. The information provided in this section is derived, in part, from the Phase I Environmental Site Assessment prepared for the project (TTD 2014). Geological hazards are discussed in Section 4.5, “Geology, Soils, Land Capability, and Coverage.” Risks associated with flooding are discussed in Section 4.7, “Hydrology and Water Quality.” Emergency response is addressed in Section 4.12, “Public Services and Utilities.” Cumulative hazards and public safety impacts are addressed in Chapter 5, “Cumulative Impacts.”

Comments were received on the Notice of Preparation that relate to potential wildfire hazards and public safety. Specifically, it was suggested that Chapter 7A of the California Building Code and California Public Resource Code (PRC) Sections 4290 and 4291 be considered in the analysis.

4.8.2 Regulatory Setting

Numerous federal, state, and local laws, regulations, and programs have been enacted to prevent or mitigate damage to public health and safety and the environment from existing contamination and the release or threatened release of hazardous substances into the workplace or environment. Other regulations have been developed to address hazards associated with construction in California’s wildland-urban interface. Key regulations applicable to the SR 89/Fanny Bridge Project are discussed below.

FEDERAL

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.

Code of Federal Regulations

The EPA laws governing the use, storage, and disposal of hazardous substances in the project site are codified in the Code of Federal Regulations (CFR). The CFR is a compilation of rules published by the executive departments and agencies of the federal government in response to enabling statutes enacted by Congress and published in the United States Code. Applicable federal regulations pertaining to hazardous materials are contained mainly in CFR Titles 29, 40, and 49.

The National Emission Standard for Hazardous Air Pollutants (40 CFR Part 61), regulates the removal of asbestos-containing materials during renovations and demolitions of all structures (excluding residential buildings with fewer than four dwelling units). The standard requires site owners to thoroughly inspect the affected facility for the presence of asbestos prior to commencement of demolition or renovation. In addition, the regulations require the owner of the building and/or the contractor to notify applicable state and local agencies and/or EPA regional offices before any demolition or renovation where a certain threshold amount of asbestos is removed.

Toxic Substances Control Act

The Toxic Substances Control Act regulates the manufacturing, inventory, and disposition of industrial chemicals, including hazardous materials. The Model Accreditation Plan, adopted under Title II of the act, requires that all persons who inspect for asbestos-containing materials or design or conduct response actions with respect to friable asbestos obtain accreditation by completing a prescribed training course and passing an exam. Section 403 of the Toxic Substances Act establishes standards for lead-based paint hazards in paint, dust, and soil.

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) established a framework for national programs to achieve environmentally sound management of both hazardous and non-hazardous wastes. RCRA was designed to protect human health and the environment, reduce or eliminate the generation of hazardous waste, and conserve energy and natural resources. RCRA also promotes resource recovery techniques. The Hazardous Waste Management subchapter of the RCRA deals with a variety of issues regarding the management of hazardous materials including the export of hazardous waste, inspections of hazardous waste disposal facilities, and the identification and listing of hazardous waste.

The EPA has authorized the California Department of Toxic Substances Control (DTSC) to enforce hazardous waste laws and regulations in California. Under RCRA, DTSC has the authority to implement permitting, inspection, compliance, and corrective action programs to ensure that people who manage hazardous waste follow state and federal requirements.

Comprehensive Environmental Response, Compensation, and Liability Act

Hazardous substances releases are regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, and the Superfund Amendments and Reauthorization Act (SARA). CERCLA provides broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. It also provides for liability of persons responsible for releases of hazardous waste and establishes federal funding (the “Superfund”) for remediation when no responsible party can be identified. EPA also maintains the Comprehensive Environmental Response, Compensation, and Liability Information System database, which contains information on hazardous sites, potential hazardous sites, and remedial activities across the nation.

Emergency Planning Community Right-to-Know Act

The Emergency Planning Community Right-to-Know Act (EPCRA) was included under the SARA law and is commonly referred to as SARA Title III. The purpose of EPCRA is to encourage and support 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 gathered data informs federal, state, and local agencies and the public about chemicals at individual facilities, their uses, and releases into the environment. EPCRA requires states and local emergency planning groups to develop community emergency response plans for protection from a list of extremely hazardous substances (40 CFR 355 Appendix A). In California, EPCRA is implemented through the California Accidental Release Prevention (CalARP) Program.

Chemical Accident Prevention Provisions

The provisions listed under Part 68 of the CFR set forth: the list of regulated substances and thresholds; the petition process for adding to, or deleting from, the list of regulated substances; the requirements for owners or operators of stationary sources concerning the prevention of accidental releases; and the state accidental release prevention programs approved under Section 112(r). The CalARP program is the state adaptation of this federal regulation.

Hazardous Materials Transportation Regulations

The U.S. Department of Transportation 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 US Code (USC) 5101 et seq. (formerly the Hazardous Materials Transportation Act, 49 USC 1801 et seq.), is the basic statute regulating transport of hazardous materials in the United States. Hazardous materials regulations are also enforced by the Federal Highway Administration.

Federal Occupational Safety and Health Administration

The Federal Occupational Safety and Health Administration 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.). The Federal Occupational Safety and Health Administration 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.

Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy for the Lake Tahoe Region

The Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy for the Lake Tahoe Region (Fuel Reduction Strategy) provides land management, fire, and regulatory agencies with strategies to reduce the probability of a catastrophic fire in the Region.

The Lake Tahoe Basin Management Unit of the U.S. Forest Service (USFS) is the agency with primary responsibility for implementation of the Fuel Reduction Strategy; however, individual land owners and various agencies are responsible for aspects of its implementation. The Fuel Reduction Strategy is a comprehensive plan that combines projects from the following variety of sources:

- ▲ Fuel Reduction and Forest Restoration Plan for the Lake Tahoe Basin Wildland Urban Interface (Tahoe Regional Planning Agency [TRPA] 2007);
- ▲ USFS Stewardship and Fireshed Assessment;
- ▲ California Department of Forestry and Fire Protection (CAL FIRE) Unit Strategic Fire Plans for the Amador-El Dorado Unit and the Nevada-Yuba-Placer Unit;
- ▲ California State Parks;
- ▲ California Tahoe Conservancy; and
- ▲ Nevada Tahoe Resource Team representing Nevada Division of State Lands, Nevada Division of Forestry, and Nevada State Parks.

TAHOE REGIONAL PLANNING AGENCY

Lake Tahoe Regional Plan

TRPA implements its authority to regulate growth and development in the Lake Tahoe Region through the Regional Plan. The Regional Plan includes Resolution 82-11, the Environmental Threshold Carrying Capacities (threshold standards), Goals and Policies, Code of Ordinances, and other guidance documents. The Regional Plan includes a Land Use element identifying goals and policies for addressing the Lake Tahoe Region's natural hazards (TRPA 2012). Relevant Goals and Policies are listed below. Please see Section 4.9, "Land Use and Planning," for an analysis of the SR 89/Fanny Bridge Project's consistency with Regional Plan policies.

Goals and Policies

The Natural Hazards Subelement of the Goals and Policies Land Use Element establishes four policies to support the TRPA's goal of minimizing risk from natural hazards (Goal NH-1). These policies include: regulation of development in avalanche and mass instability hazard areas; general prohibition of development, grading, and filling of lands within the 100-year flood plain (except for recreation facilities and public service facilities) and a requirement that facilities within the floodplain be constructed and maintained to minimize impacts; management of forest fuels and use of fire resistant materials; and encouraging public safety agencies to prepare disaster plans.

Code of Ordinances

The TRPA Code of Ordinances includes regulations for timber harvest activities (primarily in Chapter 61.1 [Tree Removal] and Chapter 61.2 [Prescribed Burning]), which is relevant to wildfire risks. TRPA must approve the removal of all live trees greater than 6 inches in diameter at breast height. Additionally, all forest management activities must be consistent with TRPA's Code of Ordinances. Chapter 61, Section 61.3.6 of the Code provides the following guidance:

- ▲ Vegetation Management to Prevent the Spread of Wildfire: Within areas of significant fire hazards, as determined by local, state, or federal fire agencies, flammable or other combustible vegetation shall be removed, thinned, or manipulated in accordance with local and state law. Revegetation with approved species or other means of erosion control may be required where vegetative ground cover has been eliminated or where erosion problems may occur.

Environmental Threshold Carrying Capacity

TRPA has not established any environmental threshold carrying capacities related to hazards and hazardous materials.

Tahoe City Community Plan and Plan Area Statements

The Tahoe City Community Plan and Plan Area Statement 174 (64-Acre Tract) contain development goals and regulations specific to the project site, but do not contain policies related to hazards, hazardous materials, or risk of upset.

STATE

DTSC, a division of the California Environmental Protection Agency, has primary regulatory responsibility over hazardous materials in California, working in conjunction with the EPA to enforce and implement hazardous materials laws and regulations.

California Code of Regulations

Title 8 of the California Code of Regulations (CCR) contains the California Occupational Safety and Health Administration (Cal-OSHA) health and safety regulations. Hazardous substance information and training is detailed in Article 5 of Division 3.5. Cal-OSHA is responsible for developing and enforcing workplace safety standards and assuring worker safety in the handling and use of hazardous materials. Among other requirements, Cal-OSHA obligates many businesses to prepare Injury and Illness Prevention Plans and Chemical Hygiene Plans. The Hazard Communication Standard requires that workers be informed of the hazards associated with the materials they handle. For example, manufacturers are to appropriately label containers, material safety data sheets are to be available in the workplace, and employers are to properly train workers. Cal-OSHA conducts on-site evaluations and issues notices of violation to enforce necessary improvements to health and safety practices.

Title 17 of the CCR provides information on the appropriate accreditation, certification, and work practices for lead-based paint and lead hazards.

As discussed above, CalARP (CCR Title 19, Division 2, Chapter 4.5) covers certain businesses that store or handle more than a specified volume of regulated substances at their facilities. The CalARP program regulations include the provisions of the federal Accidental Release Prevention program (Title 40, CFR Part 68), with certain additions specific to the state pursuant to Article 2, Chapter 6.95, of the Health and Safety Code. The list of regulated substances is found in Article 8, Section 2770.5 of the CalARP program regulations. Businesses that use a regulated substance above the noted threshold quantity must implement an accidental release prevention program, and some may be required to complete a Risk Management Program.

The State of California has adopted US Department of Transportation's regulations for the movement of hazardous materials originating within the state and passing through the state; state regulations are contained in Title 26. The California Highway Patrol and the California Department of Transportation (Caltrans) have primary responsibility for enforcing state regulations and responding to hazardous materials transportation emergencies in California. Together, these agencies determine container types used and license hazardous waste haulers for transporting hazardous waste on public roads.

Division 4.5, Environmental Health Standards for the Management of Hazardous Waste, of Title 22 Social Security contains the DTSC's hazardous waste regulations. Regional Water Quality Control Board (RWQCB) regulations are contained in Title 27 of the CCR.

The California Health and Safety Code, Underground Storage Tank Regulations

Chapter 6.7 of the Health and Safety Code outlines the requirements for underground storage tanks (USTs). The code identifies requirements for corrective actions, cleanup funds, liability, and the responsibilities of owners and operators of USTs.

California Government Code Section 65962.5

California Government Code Section 65962.5 requires the DTSC to compile and maintain lists of potentially contaminated sites located throughout the State of California. This "Cortese List" includes hazardous waste and substance sites from DTSC's database, leaking UST sites from the State Water Resources Control Board's (SWRCB's) database, solid waste disposal sites with waste constituents above hazardous waste levels outside of the waste management unit, Cease and Desist Orders and Cleanup and Abatement Orders concerning hazardous wastes, and hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code.

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

The Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program) consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities for several environmental programs. The Unified Program is a consolidation of state environmental programs into one program under the authority of a local agency - a Certified Unified Program Agency. The six program elements of the Unified Program are: hazardous waste generators and hazardous waste on-site treatment, USTs, aboveground storage tanks (ASTs), hazardous material release response plans and inventories, risk management and prevention program, and Uniform Fire Code hazardous materials management plans and inventories. Placer County's Environmental Health Division is the designated Certified Unified Program Agency authorized pursuant to Section 25502 of Chapter 6.95 of the California Health and Safety Code for all areas of the county except for the City of Roseville.

Porter-Cologne Water Quality Act

The Porter-Cologne Water Quality Act regulates the oversight of water monitoring, and contamination cleanup and abatement, through the SWRCB and the RWQCB.

Safe Drinking Water and Toxic Enforcement Act

The Safe Drinking Water and Toxic Enforcement Act regulates the discharge of contaminants to groundwater.

Hazardous Waste Control Law

The hazardous waste management program enforced by DTSC was created by the Hazardous Waste Control Act (California Health and Safety Code Section 25100 et seq.), which is implemented by regulations described in CCR Title 26. This program is similar to, but more stringent than, the federal program under RCRA. The regulations list materials that may be hazardous and establish criteria for their identification, packaging, and disposal.

California Department of Forestry and Fire Protection

CAL FIRE responds to wildland fires, structure fires, and hazardous material spills. CAL FIRE's firefighters, fire engines, and aircraft respond to over 5,600 wildland fires and more than 350,000 calls for other emergencies each year (CAL FIRE 2012).

Construction, installation and/or development of structures and/or facilities on State Responsibility Area (SRA) lands shall comply with the most recent California State Responsibility Fire Safe Regulations (PRC Section 4290) and all other applicable state and county codes, ordinances, and regulations in effect at the time of application for improvement permits. (SRA lands are classified by the Board of Forestry pursuant PRC Section 4125 where the financial responsibility of preventing and suppressing forest fires is primarily the responsibility of the state.) Exceptions from the provisions of the county code which implement the SRA Fire Safe Regulations may be made by the Building Official and/or TRPA after consultation with CAL FIRE, which administers SRA fire protection in this area of Placer County, as well as with North Tahoe Fire Protection District, the local fire protection agency.

Pursuant to PRC 4290, the state establishes regulations related to: road standards for fire equipment access; standards for signs identifying street, roads, and buildings; and fuel breaks and greenbelts. These regulations do not supersede local regulations that equal or exceed minimum regulations adopted by the state.

LOCAL

Lake Tahoe Geographic Response Plan

The Lake Tahoe Geographic Response Plan (LTGRP) (Lake Tahoe Response Plan Area Committee 2007) is the principal guide for agencies within the Lake Tahoe watershed, its incorporated cities, and other local government entities in mitigating hazardous materials emergencies. The LTGRP establishes the policies, responsibilities, and procedures required to protect life, environment, and property from the effects of hazardous materials incidents. The LTGRP establishes the emergency response organization for hazardous materials incidents occurring within the Lake Tahoe watershed. The plan is generally intended to be used for oil spills or chemical releases that impact or could potentially impact drainages entering Lake Tahoe and the Truckee River.

Placer County

Placer County General Plan

The Health and Safety Element of the General Plan includes the following policies relevant to hazardous material and human safety related impacts within Placer County (Placer County 2013).

- ▲ **Policy 8.C.1.** The County shall ensure that development in high-fire-hazard areas is designed and constructed in a manner that minimizes the risk from fire hazards and meets all applicable state and County fire standards.
- ▲ **Policy 8.C.2.** The County shall require that discretionary permits for new development in fire hazard areas be conditioned to include requirements for fire-resistant vegetation, cleared fire breaks, or a long-term comprehensive fuel management program. Fire hazard reduction measures shall be incorporated into the design of development projects in fire hazard areas.

- ▲ **Policy 8.C.3.** The County shall require that new development meets state, County, and local fire district standards for fire protection.
- ▲ **Policy 8.C.4.** The County shall refer development proposals in the unincorporated County to the appropriate local fire agencies for review for compliance with fire safety standards. If dual responsibility exists, then both agencies shall review and comment relative to their area of responsibility. If standards are different or conflicting, the more stringent standards shall be applied.
- ▲ **Policy 8.G.1.** The County shall ensure that the use and disposal of hazardous materials in the county complies with local, state, and federal safety standards.
- ▲ **Policy 8.G.3.** The County shall review all proposed development projects that manufacture, use, or transport hazardous materials for compliance with the County's Hazardous Waste Management Plan.
- ▲ **Policy 8.G.6.** The County shall require secondary containment and periodic examination for all storage of toxic materials.
- ▲ **Policy 8.G.7.** The County shall ensure that industrial facilities are constructed and operated in accordance with current safety and environmental protection standards.
- ▲ **Policy 8.G.9.** The County shall require that applications for discretionary development projects that will generate hazardous wastes or utilize hazardous materials include detailed information on hazardous waste reduction, recycling, and storage.
- ▲ **Policy 8.G.10.** The County shall require that any business that handles a hazardous material prepare a plan for emergency response to a release or threatened release of a hazardous material.

Placer County Codes and Regulations

The Health and Sanitation (Chapter 8) and Public Peace, Safety, and Welfare (Chapter 9) sections of the Placer County Code include provisions related to underground storage of hazardous substances, solid waste collection and disposal, and fire prevention.

Placer County Code Chapter 9, Article 9.32 identifies specific fire hazard regulations that apply to properties within the county. These regulations define the standards for building setbacks, maintenance of defensible space, storage of explosives and hydrocarbon liquids, and overall fire protection.

The Placer County Fire Code adopts provisions that are included in the California Building Code and Uniform Fire Code, and requirements from PRC 4290, which include road standards for fire equipment access. In addition, the North Tahoe Fire Protection District has developed a fire protection code, which includes provisions for the storage of flammable liquids in aboveground tanks, and liquefied petroleum and natural gas installations.

Certified Unified Program Agency

The Placer County Environmental Health Division is responsible for inspecting all hazardous materials facilities, hazardous waste facilities, UST facilities, groundwater monitoring wells, waste tire facilities, and solid waste facilities. Programs under the Environmental Health Division include review of Hazardous Waste Business Plans, UST and AST permitting and inspections, the accidental release prevention program, and the hazardous waste generation program.

4.8.3 Affected Environment

Existing Conditions

The project site is located in a mixed-use area within Tahoe City, on the west shore of Lake Tahoe (Exhibit 4.8-1). Generally, the commercial downtown of Tahoe City is located northeast of the project site, residential developments are located to the south, and the area to the west is largely undeveloped. Within the project site, which includes one of the main entry points to Lake Tahoe, there are several commercial and recreation-oriented establishments. North of SR 89, there are two gas stations and several small strip malls, as well as the Tahoe City Public Utilities District (TCPUD) offices. Beyond these properties are the Tahoe City Golf Course to the north and northeast, and the North Tahoe Fire Protection District's Station 51 to the north. The Caltrans maintenance yard, Tahoe City Lumber, and Tahoe Raft and Gas are located south of SR 89 and north of the Truckee River. The 64-Acre Tract is located south of the Truckee River and west of SR 89. This recreation site includes a transit center, walking paths, and access to the Truckee River. Liberty Energy's Tahoe City Substation is also located west of, and adjacent to, SR 89. Power lines connecting to this substation parallel the south side of the Truckee River and cross SR 89 east of the Caltrans maintenance yard. Further south, beyond the USFS land, there are mixed commercial and residential properties. Most of the existing structures in the project site were developed in the 1950s and 1960s (TTD 2014). For more information about surrounding lands uses, please refer to Section 4.9, "Land Use and Planning."

Topography, Soils, Surface Water, and Groundwater

The project site is approximately 6,200 feet above mean sea level, and generally slopes to the southeast. The Truckee River originates from the gates of the Lake Tahoe Dam and flows west through the project site. Groundwater generally flows towards the Truckee River. Depth to groundwater is approximately 1 to 5 feet below the ground surface (bgs) (TTD 2014).

The project site consists of two distinct soil map units, as delineated by the Natural Resource Conservation Service: Kingsbeach stony sand loam and Tahoe complex. Kingsbeach stony sand loam is a moderately permeable and moderately well-drained soil underlain by deposits derived from lake, river, and mountain erosion. Soils of the Tahoe complex are formed in mixed alluvium and moderately permeable but poorly drained (Cardno Entrix 2012).

For more information about site conditions, please refer to Section 4.5, "Geology, Soils, Land Capability, and Coverage" and Section 4.7, "Hydrology and Water Quality."

Proximity to Airports

The nearest airport to the project site is the Truckee-Tahoe Airport, located approximately 10 miles north of the project at 10356 Truckee Airport Road, Truckee. A heliport associated with the Tahoe Forest Hospital (10121 Pine Avenue, Truckee) is located approximately 11 miles northwest of the project site. No private airstrips are located within the vicinity of the project site.

Proximity to Schools

The project site is served by the Tahoe Truckee Unified School District (TTUSD), which oversees 11 schools, including five elementary schools, two middle schools, three high schools, and one alternative school. The nearest existing school, Tahoe Lake Elementary School, is located approximately 0.25-mile from the project site. No proposed TTUSD schools are located within 0.25-mile of the project site (TTUSD 2013).

No other sensitive receptors (i.e., day care centers, hospitals) are adjacent to the project site (TTD 2014).

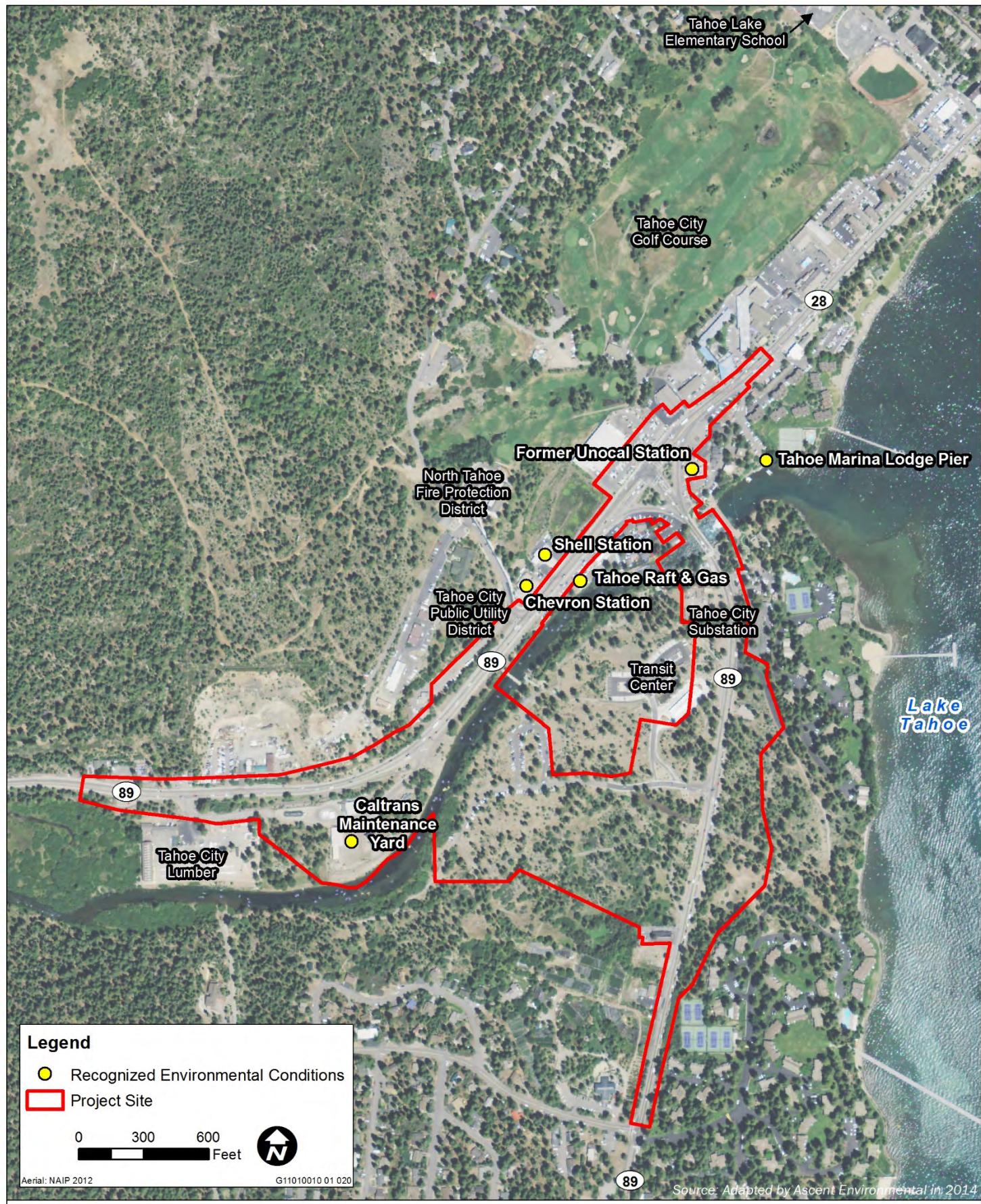


Exhibit 4.8-1

Hazardous Materials Sites



Hazards in the Lake Tahoe Region

Hazardous conditions can derive from anthropogenic or natural sources. Human-made hazards are generally associated with the handling of chemicals routinely used in everyday products. Many chemicals used for household cleaning, construction, dry cleaning, film processing, landscaping, and automotive maintenance and repair are considered hazardous. Contamination of soil or groundwater may be caused by the improper storage or disposal of these hazardous materials.

Natural hazards can also create conditions hazardous to public health and safety. In the Lake Tahoe Region, natural hazards are most frequently related to the dangers of avalanches, wildfires, flooding, earthquakes, and seiches (TRPA 2012). (Avalanche, flood, earthquake, and seiche-related hazards are discussed in Section 4.5, “Geology, Soils, Land Capability, and Coverage.”) The federal government is the entity with primary responsibility over wildfire protection and suppression in the Lake Tahoe area. The project site is classified as both Federal Responsibility Area and State Responsibility Area/Federal Direct Protection Area by the California-Nevada Tahoe Basin Fire Commission. (Direct Projection Areas are established to more efficiently provide protection over a contiguous area, and occur where the agency that provides fire suppression and prevention is different than the agency with legal and financial responsibility to provide those services.)

Hazardous Materials

Lead-Based Paint and Coatings

Lead can be found in old water pipes, solder, paint, and in soils around structures painted with lead-based paints. 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. Based on the age of the structures (pre-1978), lead-based paint may be present in the buildings in the project site and on Fanny Bridge.

Lead is also a component of paint used on roadways. Historically, non-yellow paints (e.g. white, blue, black) had high concentrations of lead, but not high enough for removed paint to be a hazardous waste. Yellow traffic paint used in District 3 prior to 1997, however, contained high concentrations of lead. The lead concentrations in the older yellow paint and yellow thermoplastic material applied before 2006 are high enough to make these materials hazardous wastes when they are removed. Cal-OSHA requires a lead compliance plan when lead is known or assumed to be present. Current Caltrans paint specifications require yellow paints and all other colors of paint to have lead concentrations less than 20 milligrams per kilogram but do not require them to be completely lead free.

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 prior to 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 (Caltrans 2014).

Asbestos-Containing Materials

Asbestos, a naturally-occurring fibrous material, was used as a fireproofing and insulating agent in building construction before such uses were largely banned by the EPA in the 1970s. Because it was widely used prior to 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. Based on the age of the structures in the project site, asbestos-containing materials may be present in the building materials and on Fanny Bridge (TTD 2014).

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 (TTD 2014). These materials must be handled by a qualified contractor.

Polychlorinated Biphenyls

Polychlorinated biphenyls (PCBs) belong to a broad family of man-made organic chemicals known as chlorinated hydrocarbons. PCBs were domestically manufactured from 1929 until their manufacture was banned in 1979. They have a range of toxicity and vary in consistency from thin, light-colored liquids to yellow or black waxy solids. PCBs are highly persistent in the environment, and exposure can cause serious liver, dermal, and reproductive system damage.

Due to their non-flammability, chemical stability, high boiling point, and electrical insulating properties, PCBs were used in hundreds of industrial and commercial applications. Products that may contain PCBs include: transformers, capacitors, and other electrical equipment; oil used in motors and hydraulic systems; and thermal insulation material. The pole-mounted electrical transformers located in the project site may contain PCBs; however, many utilities have instituted programs to renovate or replace equipment with a mineral oil that does not contain PCBs. Transformers at the Liberty Energy Tahoe City Substation use mineral oil rather than PCBs. Should fluid spills or releases from an electrical transformer occur, associated remediation efforts are typically the responsibility of the transformer owner (Liberty Energy) per Federal regulation (40 CFR 761.125).

Recognized Environmental Conditions

Recognized environmental conditions (RECs) occur in the presence or likely presence of any hazardous materials or petroleum products that indicate an existing release, a past release, or a material threat of a release. The term includes properties where hazardous substances or petroleum products are stored, handled, and disposed of under conditions in compliance with applicable laws. Sites within the project site where there is a known or potential for release of hazardous substances are discussed below and mapped in Exhibit 4.8-1.

Gas Stations

The Chevron gas station (310 River Road) is in proximity to, and upgradient from, the area of potential effects (APE). It contains four USTs, including three 10,000-gallon USTs (gasoline tanks) and one 1,000-gallon UST (waste oil tank) that were renovated in 1987. During dispenser upgrades in 1998, 155 tons of impacted soil was removed from the site. Multiple remediation strategies have been employed at the site, including a groundwater extraction system from 1992 to 1998, a groundwater oxygenation system from 2000 to 2005, and surfactant injection in 2007. In 2009, Caltrans replaced two drain inlets near the driveways to the site; the southern driveway inlet soil appeared to be impacted, based on field observations, but no total petroleum hydrocarbons as gasoline; benzene, toluene, ethylbenzene, and xylene; or methyl-tertiary butyl ether (MTBE) were detected in the two soil samples collected from 2 feet and 5 feet bgs at this location. The site has been determined eligible for closure by the Lahontan RWQCB. A pre-closure notification was issued to interested parties on September 9, 2013 (SWRCB 2013a).

The Shell gas station (300 River Road) is located in the project site, and upgradient of the APE. It contains three 20,000-gallon USTs (gasoline tanks) that were replaced in 1996. During replacement, 7,500 gallons of contaminated groundwater and 950 cubic yards of contaminated soil were removed from the site. Groundwater extraction was performed from 1998 to 2006. The USTs were replaced again in 2004, and nearly 1,400 tons of additional contaminated soil was removed during the replacement. Groundwater monitoring and extraction wells associated with the gas station span the project site. Post-remedial verification monitoring of groundwater has been conducted quarterly, and the site is eligible for closure. A pre-closure notification was issued to interested parties on September 9, 2013 (SWRCB 2013b).

Tahoe Raft and Gas (185 River Road) is located in the project site, downgradient of the APE. Contaminated soil was encountered during UST removal conducted in May of 2012. The contaminated soil was excavated to groundwater (approximately 8 feet bgs). One groundwater sample was collected, which contained low levels of petroleum hydrocarbons: benzene, toluene, ethylbenzene, and xylene; MTBE; 1,1,1-trichloroethane; tetrachlorothene; and naphthalene. The site was backfilled and resurfaced (GHH 2012). The extent of the remaining groundwater contamination is currently being evaluated by the Lahontan RWQCB (SWRCB 2013c).

The former Unocal gas station (140 North Lake Boulevard) is listed as a closed leaking UST site, where gasoline was released to soil and groundwater. Contamination was detected when the station's five USTs were upgraded in the early 1990s. The site had an operating groundwater pump and treatment system in place from December 1999 to June 2005, and the USTs were removed in 2004. In December of 2005, the Lahontan RWQCB issued a notice that no further remedial action was required at the site and closed the cleanup case (Lahontan RWQCB 2005).

Tahoe Marina Lodge Pier

The Lahontan RWQCB is currently considering case closure for the Tahoe Marina Lodge Pier (270 North Lake Boulevard), where there was formerly a leaking UST. Lahontan RWQCB staff have evaluated the data collected from this site and determined the historical release of petroleum products does not currently pose a threat to human health or the beneficial use of groundwater. The Lahontan RWQCB did not receive comments in response to the pre-closure notification issued in April 2013. The site will be closed once the Lahontan RWQCB receives a technical report documenting the proper destruction of monitoring and remediation wells, and disposal of wastes associated with investigation or remediation (Lahontan RWQCB 2013).

Caltrans Maintenance Yard

The Caltrans maintenance yard (559 River Road) includes two equipment buildings where repairs and fabrication are performed, an office, a warehouse, and salt and sand storage buildings. An equipment wash rack and a fuel ASTs also are present at the maintenance yard.

Four USTs were removed from the maintenance yard in 1997. Soil over excavation and a site assessment were conducted in response to petroleum hydrocarbon and MTBE impacts to soil and groundwater that were identified in samples collected at the time of the USTs removal. The post-over-excavation assessment did not identify further impacts, and the case was closed with no further action required in January 2000.

The facility currently has two 10,000-gallon ASTs, which Caltrans uses for vehicle fueling. One AST contains diesel fuel and the second AST stores 5,000 gallons of diesel and 5,000 gallons of gasoline in two separate inner compartments. An emergency generator is situated on a concrete pad, located in the northeast corner of the site. The generator is fueled by an approximately 35-gallon, diesel fuel AST contained within the base of the unit. The site is a small quantity generator under RCRA. No violations have been recorded. Further, the Phase I Environmental Site Assessment did not report any evidence of staining or leaks at the property (TTD 2014).

Other sites with fuel storage tanks within the project site but outside the APE include the TCPUD property and the Tahoe City Lumber Company property (TTD 2014). No releases have been identified in conjunction with these sites.

Wildland Fire Hazards

The Lake Tahoe Region is considered a "fire environment," because of the climate, steep topography, and high level of available fuel. The threat of catastrophic fire is a major public concern. Prior to fire suppression policies and extensive logging in the Lake Tahoe Region and surrounding area, natural fire regimes would have included frequent, low-intensity burns occurring at intervals of approximately five to 18 years, which would typically have thinned forest stands and removed hazardous ladder fuels (i.e., shrubs and small trees of intermediate height that allow a ground fire to climb into the forest canopy or crown). However, fire suppression policies have allowed the development of vegetation complexes that are more susceptible to

high-intensity burning (e.g., crown fires). Hazardous fuel conditions coupled with a wildland urban interface/intermix situation have resulted in an increased likelihood of ignition and high-intensity wildfire.

CAL FIRE has mapped Fire Hazard Severity Zones (FHSZs) for the entire state, including the Lake Tahoe Region. FHSZ delineations are based on an evaluation of fuels, fire history, terrain, housing density, and occurrence of severe fire weather and are intended to identify areas where urban conflagrations could result in catastrophic losses. FHSZs are categorized as: Moderate, High, and Very High. According to CAL FIRE's Fire Resource Assessment Program FHSZ Geographic Information System data, shown in Exhibit 4.8-2, project facilities would be located within a Very High FHSZ, which is defined as a wildland area that supports high to extreme fire behavior or developed/urban areas typically with at least 70 percent vegetation density.

4.8.1 Environmental Consequences and Mitigation Measures

METHODS AND ASSUMPTIONS

Methods for the impact analysis provided below included a review of applicable laws, permits, and legal requirements pertaining to hazards and hazardous materials, as discussed above, and as applicable to the project alternatives and the project site. Within this framework, existing on-site hazardous materials, wildfire potential, and the potential for other safety or hazardous conditions were reviewed based on site reconnaissance and information available from publicly available hazard and hazardous materials information, site/location and cleanup status information, and other available information. The impact analysis considered potential for changes in the nature, extent, or presence of hazardous conditions to occur on-site as a result of project construction and operation, including increased potential for exposure to hazardous materials and hazardous conditions. Potential for hazards and hazardous conditions were reviewed in light of existing hazardous materials management plans and policies, emergency response plans, wildfire management plans, and applicable regulatory requirements.

SIGNIFICANCE CRITERIA

Significance criteria relevant to hazards, hazardous materials, and risk of upset are summarized below.

NEPA Criteria

An environmental document prepared to comply with the National Environmental Policy Act (NEPA) must consider the context and intensity of the environmental effects that would be caused by or result from the proposed action. Under NEPA, the significance of an effect is used solely to determine whether an Environmental Impact Statement must be prepared. The factors that are taken into account under NEPA to determine the significance of an action in terms of the context and the intensity of its effects are encompassed by the CEQA criteria used for this analysis. No specific factors related to hazards, hazardous materials or risk of upset are contained in NEPA, CEQ Regulations Implementing NEPA, or FHWA NEPA regulations in 23 CFR 771 et seq.

TRPA Criteria

TRPA significance criteria related to human health and risk of upset would be violated if the project would:

- ▲ result in creation of any health hazard (excluding mental health);
- ▲ result in exposure of people to potential health hazards;
- ▲ involve a risk of explosion or the release of hazardous substances including, but not limited to, oil, pesticides, chemicals, or radiation in the event of an accident or upset condition; or
- ▲ involve possible interference with an emergency evacuation plan.

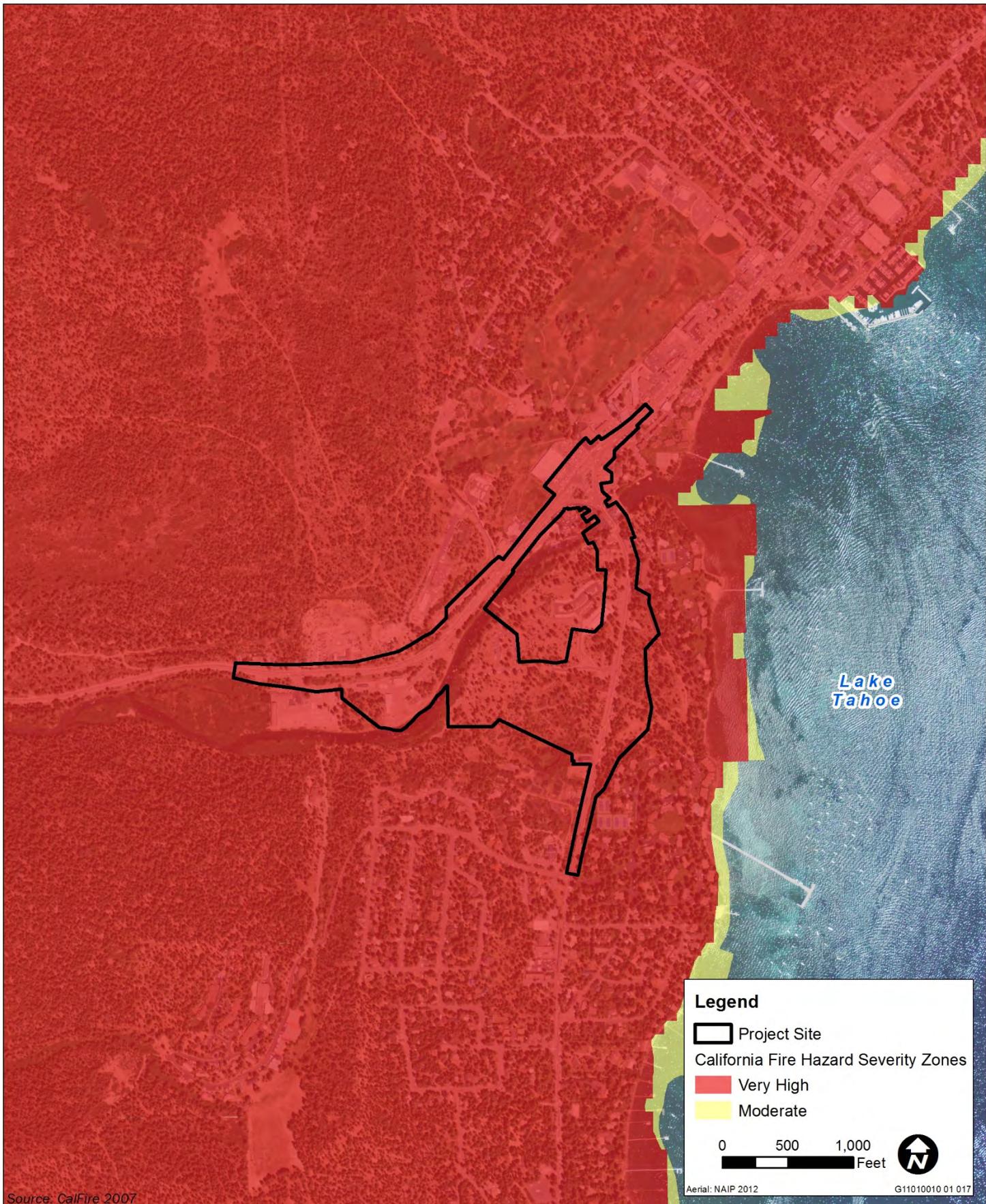


Exhibit 4.8-2

Fire Hazards in the Project Area



CEQA Criteria

To determine whether impacts to human health are significant environmental effects, Appendix G of the State CEQA Guidelines asks whether a project would do any of the following:

- ▲ create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- ▲ create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- ▲ emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or wastes within 0.25-mile of an existing or proposed school;
- ▲ be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment;
- ▲ for a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project site;
- ▲ for a project within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project site;
- ▲ impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan; or
- ▲ expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

ISSUES NOT WARRANTING DETAILED EVALUATION

The project site is not located within 2 miles of a public airport or public use airport and is not located near a private airstrip. The SR 89/Fanny Bridge Project does not include treatment wetlands or detention basins that could influence vector-borne disease risks. Thus, there would not be hazards associated with proximity to airports or increased potential for vector-borne disease as a result of the project.

Emergency response is addressed in Section 4.12, “Public Services and Utilities,” and is not evaluated in this section.

ENVIRONMENTAL EFFECTS OF THE PROJECT ALTERNATIVES

Impact 4.8-1. Expose the public or environment to hazardous materials.

Construction activities related to each of the action alternatives could involve the storage, use, and transport of hazardous materials typical of road construction projects. Use of hazardous materials would occur in compliance with all local, state, and federal regulations. Therefore, impacts related to exposure of the public or environment to hazardous materials would be **less than significant** for Alternatives 1, 2, 3, 4, 6, and 6a. There would be **no impact** related to Alternative 5.

Construction of any of the six build 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 containing strong basic or acidic

chemicals), which could result in accidents or upset of hazardous materials that could create hazards to persons and the environment. However, these types of routine uses are carefully regulated and all materials would be used, stored, and disposed of in accordance with applicable federal, state, and local laws.

In California, transportation of hazardous materials on roadways is regulated by the California Highway Patrol and Caltrans, and the use of these materials is regulated by DTSC. Standard accident and hazardous materials recovery training and procedures are enforced by the state and followed by private state-licensed, certified, and bonded transportation companies and contractors. Further, pursuant to 40 CFR 112, a spill prevention, containment, and countermeasures plan or, for smaller quantities, a spill prevention and response plan, that identifies best management practices (BMPs) for spill and release prevention and provides procedures and responsibilities for rapidly, effectively, and safely cleaning up and disposing of any spills or releases would be established for the SR 89/Fanny Bridge Project. As required under state and federal law, plans for notification and evacuation of site workers and local residents in the event of a hazardous materials release would be in place throughout construction.

The SR 89/Fanny Bridge Project would conform to permit and spill prevention plans prepared under SWRCB Construction General Permit (2009-0009 DWQ) to avoid spills and releases of hazardous materials and wastes. Inspections would be conducted to verify consistent implementation of general construction permit conditions and BMPs to avoid and minimize the potential for spills and releases, and the immediate cleanup and response thereto. BMPs include, for example, the designation of special storage areas and labeling, containment berms, coverage from rain, and concrete washout areas.

Construction activity under the action alternatives would comply with the regulations set forth by these organizations and all materials would be used, stored, and disposed of in accordance with applicable federal, state, and local laws. These existing regulations specify mandatory and relatively prescriptive actions about how to fulfill the regulatory requirements as part of the project definition, leaving little discretion in their implementation.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

Construction of Alternative 1 would result in the temporary use, storage, and disposal of hazardous materials. As discussed above, plans would be developed for the project that outline procedures and responsibilities for rapidly, effectively, and safely cleaning up and disposing of any spills or releases, in compliance with federal and state regulations.

There would not be any permanent impacts associated with use or disposal of hazardous materials during operation of the SR 89/Fanny Bridge Project. Transportation of hazardous materials on SR 89 would continue, however, as under existing conditions. Alternative 1 would introduce a new alignment of SR 89 over the Truckee River and through the 64-Acre Tract, which would create the potential for a hazardous materials release in a new area. Although this new roadway alignment would be closer to residences than the existing alignment of SR 89 (the alignment would be approximately 750 feet north of residences on Kimberly Drive), it would be generally further from the Tahoe City population center and is intended to relieve traffic congestion, which could reduce the propensity for traffic accidents that can result in release of hazardous materials that are being transported. Transport of hazardous materials would be regulated, as discussed above, and operation of Alternative 1 would not appreciably affect the risk associated with upset of hazardous materials during transportation.

Compliance with the various federal, state, and local regulations would minimize the risk of a spill or accidental release of hazardous materials during construction and operation of Alternative 1. The impact to the public and the environment from exposure to hazardous materials would be **less than significant**.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

As discussed above for Alternative 1, because construction would comply with appropriate local, state, and federal regulations, the public and the environment would not be exposed to hazardous materials from the routine transport, use, and disposal of hazardous materials. Although operation of Alternative 2 could

introduce the potential for exposure to a hazardous materials release associated with transportation of these materials in a new area, this would not generate a substantial hazard because: the potentially sensitive receptors would be shielded from the roadway by a 750-foot buffer of natural vegetation on the 64-Acre Tract; and the project is intended to relieve congestion, which could have a positive influence on the potential for traffic accidents and a subsequent hazardous materials release. Transport of hazardous materials would be regulated, as discussed above, and the potential for release of hazardous materials would be a **less-than-significant** impact.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

As discussed above for Alternative 1, because construction would comply with appropriate local, state, and federal regulations, the public and the environment would not be exposed to hazardous materials from the routine transport, use, and disposal of hazardous materials. Although operation of Alternative 3 could introduce the potential for exposure to a hazardous materials release associated with transportation of these material in a new area, this would not generate a substantial hazard because; the potentially sensitive receptors would be shielded from the roadway by natural vegetation on the 64-Acre Tract; and the SR 89/Fanny Bridge Project is intended to relieve congestion, which could have a positive influence on the potential for traffic accidents and a subsequent hazardous materials release. Transport of hazardous materials would be regulated, as discussed above, and the potential for release of hazardous materials impact would be a **less-than-significant** impact.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

As discussed above for Alternative 1, because construction would comply with appropriate local, state, and federal regulations, the public and the environment would not be exposed to hazardous materials from the routine transport, use, and disposal of hazardous materials. Although operation of Alternative 4 could introduce the potential for exposure to a hazardous materials release associated with transportation of these material in a new area, this would not generate a substantial hazard because; the potentially sensitive receptors would be shielded from the roadway by natural vegetation on the 64-Acre Tract; and the SR 89/Fanny Bridge Project is intended to relieve congestion, which could have a positive influence on the potential for traffic accidents and a subsequent hazardous materials release. Transport of hazardous materials would be regulated, as discussed above, and the potential for release of hazardous materials would be a **less-than-significant** impact.

ALTERNATIVE 5: NO ACTION

With implementation of Alternative 5, there would be no construction activities that would involve the use of potentially hazardous materials. Permanent transportation of hazardous materials would generally reflect existing conditions. Thus, there would be **no impact**.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

As discussed above for Alternative 1, because construction would comply with appropriate local, state, and federal regulations, the public and the environment would not be exposed to hazardous materials from the routine transport, use, and disposal of hazardous materials. During operation, Alternative 6 would maintain the existing alignment of SR 89 and would not create a new route for potential transport of hazardous materials; instead, this potential hazard would continue to occur in an area with more concentrated land use in closer proximity to Lake Tahoe. Transport of hazardous materials would be regulated, as discussed above, and the potential for release of hazardous materials would be a **less-than-significant** impact.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

As discussed above for Alternative 1, because construction would comply with appropriate local, state, and federal regulations, the public and the environment would not be exposed to hazardous materials from the routine transport, use, and disposal of hazardous materials. During operation, Alternative 6a would maintain the existing alignment of SR 89 and would not create a new route for potential transport of hazardous

materials; instead, this potential hazard would continue to occur in an area with more concentrated land use in closer proximity to Lake Tahoe. Transport of hazardous materials would be regulated, as discussed above, and the potential for release of hazardous materials would be a **less-than-significant** impact.

Impact 4.8-2. Hazardous materials sites.

Roadway improvements could affect properties that are included on a list of hazardous materials sites. Therefore, the possibility of encountering hazardous materials exists and impacts related to exposure of the public or the environment to hazardous materials would be **potentially significant** for Alternatives 1, 2, 3, 4, 6, and 6a. There would be **no impact** related to Alternative 5.

Temporary impacts could occur if construction were to affect sites of known contamination (RECs) or inadvertently disturb other hazardous materials or wastes in a manner that could release hazardous materials into the environment, or expose construction workers or nearby sensitive receptors to hazardous conditions. Six RECs have been identified within the project site. These sites have all undergone remediation and are not expected to present a substantial hazard to construction. No soil contamination is known or suspected in the APE and, although the potential for groundwater contamination is currently under evaluation at one site (Tahoe Raft and Gas), the potential for contaminated groundwater in the APE is low. Other hazardous materials potentially encountered during construction include asbestos, lead-based paint and other coatings, aerially-deposited lead, heavy metals, and polychlorinated biphenyls. Survey for, and removal of, these substances is regulated. The APE could also be impacted by undocumented contamination that has not been characterized or remediated and could, therefore, create a hazard to people or the environment. There would not be permanent impacts associated with the SR 89/Fanny Bridge Project, which would not include habitable structures or introduce new sensitive receptors to the project site.

Recognized Environmental Conditions

Gas Stations

The Chevron and Shell gas station are of potential concern because they are in the project site, and upgradient from the APE. However, since both gas stations have undergone remediation and are eligible for closure, it is unlikely that construction activities would encounter hazardous wastes associated with these sites. There is an extensive network of groundwater monitoring wells associated with the remediation and ongoing monitoring of these sites, and coordination with the regulatory agencies may be necessary to establish whether there are any wells within the work area and if they would be destroyed, preserved in place, or relocated.

Tahoe Raft and Gas has also undergone some remediation, but remains open for further evaluation. Contaminated soils have been removed, so there is little potential for groundwork near the site to disturb hazardous materials. Although the potential for groundwater contamination is under evaluation by the Lahontan RWQCB, it is unlikely to be a concern for the project because groundwater in the area is generally 8 feet bgs and flows towards the Truckee River (and away from the SR 89 work area).

At the former Unocal gas station, gasoline was released to the soil and groundwater. Although this site is located within the APE and may have impacted groundwater in the area of the wye, remediation of the site was completed in 2005, and this site is unlikely to present a current hazard. Additionally, none of the build alternatives would result in direct disturbance of the asphalt parking area that caps this site.

Tahoe Marina Lodge Pier

The Tahoe Marina Lodge Pier site is located approximately 250 feet west of the APE. The Lahontan RWQCB has determined that the site does not pose a current threat to human health or the environment and the site is eligible for closure. This site of historical contamination would not create a hazard during construction of the SR 89/Fanny Bridge Project.

Caltrans Maintenance Yard

The Caltrans maintenance yard currently has two 10,000-gallon ASTs, which Caltrans uses for vehicle fueling. One AST contains diesel fuel and the second AST stores 5,000 gallons of diesel and 5,000 gallons of gasoline in two separate inner compartments. Historical contamination of this site has been remediated and there is no evidence of current contamination of the site.

Under Alternatives 1 through 4, the primary ingress and egress to the Caltrans maintenance yard would be relocated from the northeastern end of the maintenance yard to a modified entrance at the western end (see Exhibit 3-6 in Chapter 3, “Proposed Action and Alternatives”). Fuel tanks, pumping facilities, and a pole barn would be demolished and relocated within the maintenance yard. All work within the maintenance yard would be completed by trained Caltrans personnel, in compliance with applicable state and federal regulations.

Disturb Materials Containing Asbestos, Lead, or other Hazardous Materials

Existing features within the APE are believed to contain hazardous materials, including asbestos, lead, and heavy metals – primarily because many of the existing structures date to before the use of these materials was heavily restricted. Demolition of structures could result in inadvertent release or improper disposal of debris containing potentially hazardous materials; however, federal, state, and local regulations have been developed to address potential impacts related to the handling and disposal of hazardous materials during demolition. Potential impacts can be minimized through adherence to regulatory standards that prescribe specific methods of material characterization and handling. Specific actions incorporated into the action alternatives include the following.

- ▲ **Asbestos.** All structures requiring demolition would be tested for the presence of asbestos-containing materials. Any asbestos would be removed and disposed of by an accredited contractor in compliance with federal, state, and local regulations (including the Toxic Substances Control Act and the National Emission Standard for Hazardous Air Pollutants). Compliance with these regulations would result in the safe disposal of asbestos-containing materials.
- ▲ **Lead-based paint or other coatings.** A survey for indicators of lead-based coatings would be conducted prior to demolition to further characterize the presence of lead on the project site. For the purposes of compliance with Cal-OSHA regulations, all coated surfaces would be assumed to potentially contain lead. There is also a potential for soil contamination due to deposition of deteriorated (i.e., flaked, peeled, chipped) lead-based paint adjacent to structures where lead-based exterior paints were used. 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 where even small amounts of lead have been detected.
- ▲ **Aerially-deposited lead.** Exposed soils adjacent to existing roadways may contain elevated levels of lead. Surveying and sampling would be required to determine presence.
- ▲ **Heavy metals and polychlorinated biphenyls.** Spent fluorescent light bulbs and ballasts, thermostats, and other electrical equipment may contain heavy metals, such as mercury, or polychlorinated biphenyls. If concentrations of these metals exceed regulatory standards, they must be handled as hazardous waste in accordance with hazardous waste regulations.

Hazardous waste would be transported and disposed of in compliance with applicable federal, state, and local regulations, including the federal Hazardous Materials Transportation Act.

Inadvertent Disturbance of Hazardous Materials or Wastes

The disturbance of undocumented hazardous wastes could also result in hazards to the environment and human health. Adverse impacts could result if construction activities inadvertently disperse contaminated material into the environment. For example, dewatering activities during construction could cause contaminated groundwater to migrate farther in the groundwater table or cause contaminated groundwater

to be released into the Truckee River, or soils containing PCBs could be disturbed during site grading. Potential hazards to human health include ignition of flammable liquids or vapors, inhalation of toxic vapors in confined spaces such as trenches, and skin contact with contaminated soil or water. In addition, inadvertent disturbance of asbestos in structures and underground utilities could result in airborne asbestos fibers.

Temporary Hazardous Material and Waste Activities in the Proximity of Schools

During construction, demolition, and excavation activities, the action alternatives would potentially produce hazardous air emissions or result in the handling of hazardous wastes. As discussed above, the SR 89/Fanny Bridge Project would comply with federal and state regulations that are generally anticipated to reduce the potential for the release of large quantities of hazardous materials and wastes into the environment to an acceptable level. Transportation of hazardous materials would be generally confined to SR 89. Although formal haul routes have not been established, it is unlikely that hazardous materials would be transported along SR 28 in proximity to Lake Tahoe Elementary School, or along Grove Street adjacent to the school. These standard procedures and anticipated avoidance of the school would not obviate the potential for the accidental release of an extremely hazardous substance (as defined in PRC Section 21151.4) in a quantity equal to or greater than the state threshold quantity specified pursuant to subdivision (j) of Section 25532 of the Health and Safety Code within 0.25 mile of a school, however. Therefore, the Tahoe Transportation District would be required to consult with TTUSD pursuant to Public Resources Code 21151.4.

ALTERNATIVE 1 – NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

With implementation of Alternative 1, there would be no roadwork near the Chevron or Shell gas stations, or Tahoe Raft and Gas. As discussed above, there would be no direct impact to the former Unocal site. Construction of Alternative 1 would occur within 0.25 mile of Lake Tahoe Elementary School. Because there is potential for construction, demolition, and excavation activities to produce hazardous air emissions or result in the handling of hazardous wastes, the Tahoe Transportation District would consult with TTUSD to address the potential for the SR 89/Fanny Bridge Project to affect sensitive receptors at the school.

With the exception of the existing Fanny Bridge and the proposed modifications to the Caltrans maintenance yard, there would not be any demolition of existing structures. Underground utilities, existing roadways, Fanny Bridge, and the structures at the Caltrans maintenance yard could contain asbestos and lead-based paints and coatings that require special consideration during demolition and may have impacted surrounding soils. Surface soils along SR 89 could also contain aerially-deposited lead. The APE could also be impacted by undocumented contamination that has not been characterized or remediated. For these reasons, this is a **potentially significant** impact.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

With implementation of Alternative 2, there would be no construction work near the Chevron or Shell gas stations, or Tahoe Raft and Gas. As discussed above, there would be no direct impact to the former Unocal site. Also as discussed above, the Tahoe Transportation District would consult with TTUSD to address the potential for construction, demolition, and excavation activities to produce hazardous air emissions or result in the handling of hazardous wastes within 0.25 mile of Lake Tahoe Elementary School.

With the exception of the existing Fanny Bridge and the proposed modifications to the Caltrans maintenance yard, there would not be any demolition of existing structures. Underground utilities, existing roadways, Fanny Bridge, and the structures at the Caltrans maintenance yard could contain asbestos and lead-based paints and coatings that require special consideration during demolition and may have impacted surrounding soils. Surface soils along SR 89 could also contain aerially-deposited lead. The APE could also be impacted by undocumented contamination that has not been characterized or remediated. For these reasons, this is a **potentially significant** impact.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

With implementation of Alternative 3, there would be no roadwork near the Chevron or Shell gas stations, or Tahoe Raft and Gas. As discussed above, there would be no direct impact to the former Unocal site. Also as discussed above, the Tahoe Transportation District would consult with TTUSD to address the potential for construction, demolition, and excavation activities to produce hazardous air emissions or result in the handling of hazardous wastes within 0.25 miles of Lake Tahoe Elementary School.

With the exception of the existing Fanny Bridge and the proposed modifications to the Caltrans maintenance yard, there would not be any demolition of existing structures. Underground utilities, existing roadways, Fanny Bridge, and the structures at the Caltrans maintenance yard could contain asbestos and lead-based paints and coatings that require special consideration during demolition and may have impacted surrounding soils. Surface soils along SR 89 could also contain aerially-deposited lead. The APE could also be impacted by undocumented contamination that has not been characterized or remediated. For these reasons, this is a **potentially significant** impact.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

With implementation of Alternative 4, there would be roadwork near the Chevron and Shell gas stations, Tahoe Raft and Gas, and the former Unocal site. There would be no direct impact to the sites, and, as discussed above, there is no evidence that these sites present a current hazard within the APE. Also as discussed above, the Tahoe Transportation District would consult with TTUSD to address the potential for construction, demolition, and excavation activities to produce hazardous air emissions or result in the handling of hazardous wastes within 0.25 mile of Lake Tahoe Elementary School.

With the exception of the existing Fanny Bridge and the proposed modifications to the Caltrans maintenance yard, there would not be any demolition of existing structures. Underground utilities, existing roadways, Fanny Bridge, and the structures at the Caltrans maintenance yard could contain asbestos and lead-based paints and coatings that require special consideration during demolition and may have impacted surrounding soils. Surface soils along SR 89 could also contain aerially-deposited lead. The APE could also be impacted by undocumented contamination that has not been characterized or remediated. For these reasons, this is a **potentially significant** impact.

ALTERNATIVE 5: NO ACTION

With implementation of Alternative 5, there would be no construction activities that could disturb hazardous sites. No structures would be removed or rehabilitated. There would be **no impact**.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

With Implementation of Alternative 6, there would be roadwork near the Chevron and Shell gas stations, Tahoe Raft and Gas, and the former Unocal site. However, there would be no direct impact to the sites, and, as discussed above, there is no evidence that these sites present a current hazard within the APE. Also as discussed above, the Tahoe Transportation District would consult with TTUSD to address the potential for construction, demolition, and excavation activities to produce hazardous air emissions or result in the handling of hazardous wastes within 0.25 mile of Lake Tahoe Elementary School.

This alternative would result in either the rehabilitation or replacement of Fanny Bridge, and may require demolition of other existing structures that could contain asbestos or lead. These structures could contain asbestos and lead-based paints and coatings that would require special consideration during demolition and may have impacted surrounding soils. Surface soils along SR 89 could also contain aerially-deposited lead. Construction activities could also result in the disturbance of undocumented contamination within the APE that has not been characterized or remediated. This is a **potentially significant** impact due to the potential for disturbance of asbestos, lead, and undocumented soil or groundwater contamination. The magnitude of this impact would be less than under Alternatives 1 through 4 because Alternative 6 would not include

modifications to the Caltrans maintenance yard and potential hazards associated with unknown contamination of the maintenance site would not occur.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Alternative 6a would require roadwork near the Chevron and Shell gas stations, Tahoe Raft and Gas, and the former Unocal site. However, there would be no direct impact to the sites, and, as discussed above, there is no evidence that these sites present a current hazard within the APE. Also as discussed above, the Tahoe Transportation District would consult with TTUSD to address the potential for construction, demolition, and excavation activities to produce hazardous air emissions or result in the handling of hazardous wastes within 0.25 mile of Lake Tahoe Elementary School.

This alternative would result in either the rehabilitation or replacement of Fanny Bridge, and may require demolition of existing structures that could contain asbestos or lead. These structures could contain asbestos and lead-based paints and coatings that would require special consideration during demolition and may have impacted surrounding soils. Surface soils along SR 89 could also contain aerially-deposited lead. In addition, construction activities could result in the disturbance of undocumented contamination that has not been characterized or remediated; although, since Alternative 6 does not include modifications to the Caltrans maintenance yard, any potential hazards associated with unknown contamination of the maintenance site and upset of hazardous materials during construction would be avoided. This is a **potentially significant** impact due to the potential for disturbance of asbestos, lead, and undocumented soil or groundwater contamination. The magnitude of this impact would be less than under Alternatives 1 through 4 because Alternative 6a would not include modifications to the Caltrans maintenance yard and potential hazards associated with unknown contamination of the maintenance site would not occur.

Impact 4.8-3. Wildland fire hazard.

Implementation of all of the build alternatives would result in construction activities associated with the transportation improvements. However, these activities would have no effect on fuel loading or defensible space and would not include habitable structures. Although there would be an elevated risk of accidental ignition of a wildland fire due to increased construction activity in a forested area that has a very high fire hazard, the potential for standard construction practices to result in wildland fire would be low.

Implementation of Alternatives 1, 2, 3, 4, 6, and 6a would result in a **less-than-significant** impact from wildland fire hazards. There would be **no impact** related to Alternative 5.

The SR 89/Fanny Bridge Project is located in an area with a very high hazard potential for a wildland fire. Construction activities associated with road and bike path construction and improvements would include activities such as excavation, grading, vegetation removal, structure erection, laying of concrete and asphalt, finishing, and cleanup. Construction activities would not increase fuel loading in the region or reduce defensible space. The action alternatives would not include the construction of any habitable structures that would be subject to the fire hazard. In fact, the SR 89/Fanny Bridge Project has been designed to ease congestion in the wye area, potentially easing evacuation of the area in the event of a major hazard and increasing access for emergency crews.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

Implementation of Alternative 1 would result in the use of construction vehicles and equipment within portions of a vegetated and forested area with a high fire hazard. Heat or sparks from construction vehicles or equipment activity (e.g., chainsaws and chippers used for vegetation clearance) could ignite dry vegetation and cause a fire. Removal of woody vegetation from the ROW, staging areas, and other elements of the construction zone would occur during the first phases of construction to reduce the potential for ignition of wildland fire during the remaining construction phases.

The SR 89/Fanny Bridge Project would not include the construction of any habitable structures that would be subject to the fire hazard, increase fuel loading, or reduce defensible space for existing structures.

Although there would be elevated levels of mechanical equipment activity in a forested area that has a very high fire hazard, the potential for standard construction practices to result in wildland fire would be low. This would be a **less-than-significant** impact.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

As discussed for Alternative 1, the SR 89/Fanny Bridge Project would not include the construction of any habitable structures that would be subject to the fire hazard, increase fuel loading, or reduce defensible space for existing structures. Although there would be elevated levels of mechanical equipment activity in a forested area that has a very high fire hazard, the potential for standard construction practices to result in wildland fire would be low. This would be a **less-than-significant** impact.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

As discussed for Alternative 1, the SR 89/Fanny Bridge Project would not include the construction of any habitable structures that would be subject to the fire hazard, increase fuel loading, or reduce defensible space for existing structures. Although there would be elevated levels of mechanical equipment activity in a forested area that has a very high fire hazard, the potential for standard construction practices to result in wildland fire would be low. This would be a **less-than-significant** impact.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

As discussed for Alternative 1, the SR 89/Fanny Bridge Project would not include the construction of any habitable structures that would be subject to the fire hazard, increase fuel loading, or reduce defensible space for existing structures. Although there would be elevated levels of mechanical equipment activity in a forested area that has a very high fire hazard, the potential for standard construction practices to result in wildland fire would be low. This would be a **less-than-significant** impact.

ALTERNATIVE 5: NO ACTION

With implementation of Alternative 5, there would be no construction activities that could affect fuel loading and defensible space. There would be **no impact**.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

As discussed for Alternative 1, the SR 89/Fanny Bridge Project would not include the construction of any habitable structures that would be subject to the fire hazard, increase fuel loading, or reduce defensible space for existing structures. There would be some elevated levels of mechanical equipment activity in vegetated areas; however the potential for standard construction practices to result in wildland fire would be low, and this would be a **less-than-significant** impact. The magnitude of this impact would be less than under Alternatives 1 through 4 because this alternative does not propose construction of a new roadway through the 64-Acre Tract.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

As discussed for Alternative 1, the SR 89/Fanny Bridge Project would not include the construction of any habitable structures that would be subject to the fire hazard, increase fuel loading, or reduce defensible space for existing structures. There would be some elevated levels of mechanical equipment activity in vegetated areas; however the potential for standard construction practices to result in wildland fire would be low and this would be a **less-than-significant** impact. The magnitude of this impact would be less than under Alternatives 1 through 4 because Alternative 6a does not propose construction of a new roadway through the 64-Acre Tract.

4.8.2 Avoidance, Minimization, and/or Mitigation Measures

Mitigation Measure 4.8-2a: Conduct surveys for asbestos-containing materials, aerially deposited lead, and lead-based paints and coatings.

This mitigation would apply for Alternatives 1, 2, 3, 4, 6, and 6a.

- a. Demolition of buildings and roadways containing asbestos and lead-based materials will require specialized procedures and equipment, and appropriately certified personnel, as detailed in the applicable regulations. Buildings and roadways intended for demolition that were constructed before 1980 will be surveyed for asbestos, while those constructed before 1971 will be surveyed for lead.

Prior to construction, all existing road right-of-ways in the project site shall be surveyed for lead contamination due to ADL and use of paint and coatings containing lead. All sampling would be conducted consistent with applicable Caltrans requirements.

- b. A demolition plan shall be prepared for any location with positive results for asbestos or lead. The plan will specify how to appropriately contain, remove, and dispose of the asbestos and lead-containing material while meeting all requirements and BMPs to protect human health and the environment. A lead compliance plan shall be prepared by a Certified Industrial Hygienist (consistent with the requirements of Caltrans' SSP 14-11.07).

Prior to demolition, the project applicant shall submit the written plan to the Placer County Environmental Health Department describing the methods to be used to: (1) identify locations that could contain hazardous residues; (2) remove plumbing fixtures known to contain, or potentially containing, hazardous materials; (3) determine the waste classification of the debris; (4) package contaminated items and wastes; and (5) identify disposal site(s) permitted to accept such wastes. Demolition shall not occur until the plan has been accepted by the Placer County Environmental Health Department and all potentially hazardous components have been removed to the satisfaction of Placer County Environmental Health Department staff. The project applicant shall also provide written documentation to the County that lead-based paint and asbestos testing and abatement, as appropriate, have been completed in accordance with applicable state and local laws and regulations. Lead abatement will include the removal of lead contaminated soil (considered soil with lead concentrations greater than 400 parts per million in areas where children are likely to be present).

Mitigation Measure 4.8-2b: Prepare a construction hazard management plan.

This mitigation would apply for Alternatives 1, 2, 3, 4, 6, and 6a.

A construction hazardous materials management plan shall be developed to address potentially impacted soil, impacted groundwater, lead-based paint, and asbestos-containing materials that may be encountered during project construction activities. The construction hazardous materials management plan shall include provisions for agency notification, managing impacted materials, sampling and analytical requirements, and disposal procedures. The plan would include identification of construction site BMPs to minimize the potential for water quality impacts.

The construction hazardous materials management plan shall cover the following:

- ▲ petroleum hydrocarbon-impacted soils and/or groundwater that may be encountered during project construction activities in areas where construction depths exceed 2 feet bgs in the vicinity of the RECs described above;
- ▲ soils identified by the ADL surveys as being impacted by ADL within survey area right of ways;

- ▲ materials identified by the lead-based paint and asbestos-containing materials surveys as impacted by lead based paint and asbestos containing materials within bridge, pipe, and building materials;
- ▲ impacted soil or groundwater related to TRI pipe relocation; and
- ▲ guidance for relocating, removal, or repair of hazardous materials storage facilities (USTs or ASTs) that are impacted by project construction. The plan shall include information on assessment and potential handing of contaminated soils found during relocation.

The plan will include procedures to stop work if evidence of potential hazardous materials or contamination of soils or groundwater is encountered during construction, including the applicable requirements of the Comprehensive Environmental Response, Compensation, and Liability Act and CCR Title 22 regarding the disposal of wastes.

Significance after Mitigation

Implementation of these mitigation measures would require that asbestos-containing building materials, lead-based paint, and other hazardous substances in building components are identified, removed, packaged, and disposed of in accordance with applicable state laws and regulations and would establish a procedure to address potentially impacted soil, impacted groundwater, lead-based paint, and asbestos-containing materials that may be unexpectedly encountered during project construction activities. This would minimize the risk of an accidental release of hazardous substances that could adversely affect human health or the environment, reducing this impact (Impact 4.8-2) to a **less-than-significant** level.

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4.9 LAND USE AND PLANNING

4.9.1 Introduction

Land use planning is used to direct the amount, type, and location of land use and land coverage; balance land uses with transportation investments to achieve travel efficiency and reductions in vehicle miles of travel; and coordinate regional land use guidance with local land use plans. This section describes applicable land use policies and plans in the study area and existing conditions related to land uses. Potential short-term and long-term land use impacts that could result from project implementation are described and mitigation measures are recommended as necessary to reduce potentially significant adverse effects.

4.9.2 Regulatory Setting

A variety of plans and policy statements administered by federal, state, regional, and local agencies apply to the action alternatives. Relevant planning guidance used to evaluate the potential for land use impacts resulting from project implementation are described below. The land use policies and designations relevant to the project are summarized in the Affected Environment section below.

FEDERAL

US Forest Service, Lake Tahoe Basin Management Unit

The US Forest Service (USFS), Lake Tahoe Basin Management Unit (LTBMU) manages 75 percent of lands within the Lake Tahoe Basin. Management of LTBMU lands in the project vicinity is currently guided by the LTBMU Land and Resource Management Plan (Forest Plan) (USFS 1988). LTBMU has been seeking to update the Forest Plan for several years. It issued a revised Forest Management Plan, final EIS, and Draft Record of Decision (ROD) on November 22, 2013. The “Notice of Objections Filed” was published on January 31, 2014 and the Objection Reviewing Period is underway. The length of time needed to resolve objections filed over the plan is uncertain. For this reason the 1988 Forest Plan is considered to be the most recent planning document.

The Forest Plan provides for forestwide management direction through 1) management goals, 2) management objectives, and 3) forestwide standards and guidelines. Forestwide goals describe the desired future state or condition of the LTBMU expected as a result of implementing the plan. Successful achievement of the goals is dependent upon accomplishing the activity and production levels described as objectives, employing the standards and guidelines, and receiving appropriate funding. Additionally, achievement of the goals is subject to adjustment of objectives and standards and guidelines that may occur to the plan due to monitoring and evaluation. (USFS 1988: p. IV-1.)

TAHOE REGIONAL PLANNING AGENCY

Environmental Threshold Carrying Capacities

The Tahoe Regional Planning Agency (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 targets to be achieved in the Tahoe Region. Every five years, TRPA evaluates the attainment status of all TRPA threshold standards. The latest TRPA Threshold Evaluation was completed in April 2012 (TRPA 2012a).

No threshold standard applies specifically to land use, and the adopted environmental threshold standards do not define the maximum populations, densities, permitted uses, and other land use criteria for the Region. However, the threshold standards do set performance criteria that may be influenced by land use planning considerations, including coverage, restoration-based incentives, and allocation considerations.

Lake Tahoe Regional Plan

The Tahoe Regional Planning Compact calls for the Regional Plan to establish a balance, or equilibrium, between the natural environment and the human-made environment. The heart of the Regional Plan, the Goals and Policies, are statements of policy to guide decision-making as it affects the Region's resources and environmental threshold standards, and are intended to provide opportunities for orderly growth and development consistent with those threshold standards. The Goals and Policies are addressed in six major elements: land use, transportation, conservation, recreation, public services and facilities, and the implementation elements.

The Regional Plan Update was adopted in December 2012. The land use element sets forth the fundamental land use philosophies of the Regional Plan, including: the direction of development to the most suitable locations within the Region; maintenance of the environmental, economic, social, and physical well-being of the Region; and coordination of the Regional Plan with local, state, and federal requirements. Land use designations within the project site and surrounding area are described below, under Section 4.9.3, "Affected Environment."

Plan Area Statements

The Plan Area Statements (PASs) provide a detailed guide for planning within discrete areas of the 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. Some PASs are designated as Community Plan areas, receiving areas for transfer of development commodities, or areas targeted for scenic restoration and affordable housing provisions. Additionally, PASs provide 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 site includes PAS 174 (see Appendix D for relevant policies).

Community Plans

The 1987 Regional Plan designated 22 areas as eligible to be Community Plans. As of December 31, 2008, 16 Community Plan areas have adopted plans. These plans supersede the PASs and are designed to be more responsive to the needs and opportunities of the respective communities. The original intent of the Community Plans was to concentrate commercial uses to reduce the negative effects of "strip" development and to provide incentives to renovate, revitalize, and remove blighted commercial development.

Community Plan areas are made up of one or more PASs and contain commercial, tourist, and public service land uses. Community Plans describe a land use vision, development and coverage incentives, and environmental targets. The project site is subject to the Tahoe City Community Plan (see Appendix D for relevant policies) and is included in "Transportation Element" of this document.

Area Plans

The concept of Area Plans was introduced with the adoption of the Regional Plan Update in 2012, wherein public agencies may prepare plans for their jurisdictions that are consistent with the Regional Plan and assume the responsibility for permitting. The Area Plans utilize new development allowances for increased land use intensity in specific community centers. Local jurisdictions are encouraged to engage local residents and businesses and, in coordination with TRPA staff, prepare coordinated plans for implementation of land use goals and policies. The Area Plans, which would also include development ordinances and zoning designations, would be required to be consistent with the Regional Plan; they would be subject to an initial conformance evaluation and on-going implementation oversight by TRPA. PASs, Community Plans, and use-specific Master Plans remain in effect in the newly-adopted Regional Plan

(2012b) until superseded by an Area Plan that is developed in accordance with and found in conformance with the Regional Plan.

Placer County is currently undergoing a Community Plan Update process, consisting of a policy document to consolidate existing community/general plans within the Placer County portion of the Tahoe Basin and separate zoning/development standards and design guidelines for four sub-areas within the Community Plan Area boundary. For TRPA's purposes, the overarching Tahoe Basin Community Plan Policy Document, combined with the separate zoning/development standards and design guidelines for individual sub-areas, will serve as four Area Plans for different communities the Placer County portion of the Tahoe Basin. It is not anticipated that any of these Area Plans would be adopted and in effect prior to a decision on project adoption.

Lake Tahoe Regional Transportation Plan/Sustainable Communities Strategy

The Lake Tahoe 2035 Regional Transportation Plan (RTP), also known as *Mobility 2035*, includes a list of transportation projects and strategies to improve mobility in the Region and provide the opportunity for environmental gains related to a reduction in personal vehicle travel and attendant greenhouse gas (GHG) emissions, improved air quality, improved water quality, and enhanced recreation opportunities related to bicycle, pedestrian, and transit improvements. The RTP also includes a Sustainable Communities Strategy (SCS), pursuant to California Senate Bill (SB) 375, Statues of 2008, for the California portion of the Lake Tahoe Region to enable attainment of Regional GHG reduction targets.

The State Route (SR) 89/Fanny Bridge Community Revitalization Project is included as part of the RTP under the Tier 1 Project list (RTP #2), described as, "construction of a new bridge over the Truckee River, rehabilitation or replacement of Fanny Bridge, and various other improvements (TMPO and TRPA 2012)."

RTP Goals and Policies associated with the project include:

GOAL 1: Walkable, Mixed-Use Centers. Promote walkable, mixed-use centers, transportation enhancements, and environmental improvements that increase the viability of transit systems.

- ▲ **Policy 1:** Support mixed-use that encourages walking, bicycling, and easy access to existing and planned transit stops in Centers.

GOAL 2: Pedestrian & Bicycle Friendly Communities. Encourage bicycle and pedestrian usage as viable and significant modes of transportation at Lake Tahoe.

- ▲ **Policy 2.2:** Construct, upgrade, and maintain pedestrian and bicycle facilities consistent with the Lake Tahoe Region Bicycle and Pedestrian Plan.
- ▲ **Policy 2.4:** Design and site intersections and driveways, where feasible, to minimize impacts on public transportation, adjacent roadways and intersections, and bicycle and pedestrian facilities.
- ▲ **Policy 2.5:** Preserve the condition of sidewalks and bicycle facilities and where feasible, maintain their year-round use.

TRPA Bicycle and Pedestrian Plan

The Lake Tahoe Bicycle and Pedestrian Plan (BPP) consists of 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 BPP includes maps and prioritized project lists for the bicycle and pedestrian network and lays out policies for local governing bodies and transportation agencies. The proposed network includes a total of 162 miles of new bicycle and pedestrian shared-use paths, bicycle lanes, bicycle routes, and sidewalks; and 80 miles of non-

standard facilities. Projects included in the project list must meet at least one of the following criteria: 1) needed because of high existing or predicted use and does not duplicate another route; 2) planning or design already started; 3) could be built concurrently with another project; 4) provides a safe route to a school; or 5) fills a gap in the existing network. All projects must be anticipated to:

1. Have mitigable environmental impacts
2. Meet federal, state, and/or TRPA-specific design standards
3. Be capable of acquiring right-of-way

The built-out bicycle and pedestrian network is estimated to reduce vehicle miles traveled (VMT) by 8,500 miles on a peak summer day. The BPP depicts existing and planned, shared-use paths, bike lanes, bike routes, and sidewalks within the study area (TMPO 2010).

LAKE TAHOE ENVIRONMENTAL IMPROVEMENT PROGRAM

Launched in 1997, the Lake Tahoe Environmental Improvement Program (EIP) is a partnership of federal, state, and local agencies, private interests, and the Washoe Tribe, created to protect and improve the extraordinary natural and recreational resources of the Lake Tahoe Basin. EIP Partners implement hundreds of projects a year in the following program areas: (1) Watersheds, Water Quality, and Habitat, (2) Forest Management, (3) Air Quality & Transportation, (4) Recreation & Scenic Resources, and (5) Applied Science. EIP projects include everything from new bike trails to creek restoration projects to programs that protect the Lake from aquatic invasive species infestations. The SR 89/Fanny Bridge project is included in the EIP (# 03.010.02.23). As stated in the EIP 5-year List of Projects (2012 – 2016): “The project addresses severe traffic congestion during the peak summer and winter periods. The project also addresses existing structural deficiencies required for seismic retrofit within the next ten years. Fanny Bridge will be upgraded to improve pedestrian and bicycle safety and access. Traffic congestion will be addressed with a wider Fanny Bridge and/or a new State Route 89 realignment through the 64-acre USFS parcel located west of the existing State Route 89” (TRPA 2012c).

STATE

No state regulations pertaining to land use and planning apply to the SR 89/Fanny Bridge Community Revitalization Project alternatives.

LOCAL

Tahoe City Community Plan

The Tahoe City Community Plan is designed and proposed to serve as the guiding doctrine for commercial allocations and the rehabilitation of the community. The Plan establishes goals and objectives, special policies, programs, and strategies for funding and implementation. Elements of the plan address land use, transportation, conservation, recreation, and public service.

Land Use Element

Objective 3: Encourage rehabilitation by the remodeling, upgrading, and aesthetic improvement of buildings and structure in need of such improvements.

- ▲ **Policy 3d:** If and when a redevelopment agency is created, the focus should be on the wye area and other areas in need of upgrading. Upon a request by the redevelopment agency, this Plan Area shall be considered by TRPA for a Special designation as Eligible for Redevelopment Plans.

Objective 9: Provide a gateway entrance to Lake Tahoe at the wye intersection by providing visitor information services, scenic improvements, and transportation facilities and services.

Transportation Element

Objective 2: Provide for sufficient capital improvements to meet the level of service target, meet target VMT reductions, and provide adequate parking facilities as development occurs in the community plan area.

- ▲ **Policy 2c:** Preserve the option to develop the State Route 89 Bypass linking State Route 89 in the vicinity of Granlibakken Road to State Route 89 west of the wye at the existing Caltrans yard, to separate the flow of traffic and to relieve the bottleneck created at the existing wye.

Public Services Element

The Public Services Element includes a description of the Caltrans maintenance yard. The California Department of Transportation (Caltrans) operates a maintenance yard in an area between State Route 89 and the Truckee River, near the western entrance to Tahoe City and within the Tahoe City Community Plan. This site is used for the storage and maintenance of vehicles needed for highway construction and maintenance, as well as those needed for snow removal. The site includes a number of warehouse-type buildings. The site is also used for outside storage of large quantities of materials commonly used in Caltrans activities, such as road sand and salt.

The Tahoe City Community Plan also provides a vision for rehabilitation and redevelopment within the plan area. Potential areas for improvement that are identified include redevelopment of the Wye Area and improving the entrance to Tahoe City. Concepts and opportunities for redevelopment of the Wye Area consist of building on existing recreation attractions; creating a visitor center; enhancing the California State Park's Property, including the Gate Keepers Cabin, the Bridge Tender, the Dam, and river corridor; providing additional parking; and enhancing public access. To improve the entrance to Tahoe City, features identified by the plan vision include relocation of the wye intersection, an SR 89 bypass, and utilization of the 64-Acre Tract to include trails and rafting parking.

Plan Area Statement 174: 64-Acre Tract

PAS 174, 64-Acre Tract, describes the project site, planning considerations, and permissible uses. Under planning considerations, the PAS notes that: "This is the logical site for development of a visitor information and education center, a west shore bypass, a community theater or amphitheater, bike trail and trailhead for the Tahoe Rim Trail." The original planning statement for this PAS is that "this area should be redeveloped into a public recreation area consistent with the overall design plan for Tahoe City." The following list comprises permissible uses within PAS 174 (TRPA 2002).

- ▲ **Residential:** Employee housing.
- ▲ **Public Service:** Cultural facilities, pipelines and power transmission, public assembly and entertainment facilities, local public health and safety facilities, transmission and receiving facilities, transportation routes, government offices, public utility center, and transit stations and terminals.
- ▲ **Recreation:** Marinas, beach recreation, boat launching facilities, cross country skiing courses, day use areas, group facilities, riding and hiking trails, outdoor recreation concessions, rural sports, participant sports facilities, snow mobile courses, and visitor information centers.
- ▲ **Resource Management:** Reforestation, sanitation salvage cut, special cut, thinning, tree farms, early successional stage vegetation management, nonstructural fish habitat management, nonstructural wildlife habitat management, structural fish habitat management, structural wildlife habitat management, fire detection and suppression, fuels treatment, insect and disease suppression, sensitive plant management, uncommon plant community management, erosion control, runoff control, and SEZ restoration.

4.9.3 Affected Environment

LAND USES

Land Uses within the Study Area

The study area is located on the northwest shore of Lake Tahoe in Placer County, California, in the unincorporated community of Tahoe City at an elevation of approximately 6,200 feet above mean sea level. The project site is within the study area and contains a mix of land uses: transportation corridor, commercial uses, Caltrans maintenance yard, transit center, Lake Tahoe Dam, and forested and riparian recreation land. Vegetation in the study area consists primarily of Jeffrey pine forest and montane riparian scrub. Non-vegetated areas include the channel of the Truckee River, existing highway and roadway, and developed dam, commercial, or maintenance yard areas.

The study area is situated around the SR 89 and SR 28 intersection, and contains much of the USFS 64-Acre Tract and the Caltrans maintenance yard. The predominant surrounding land uses are tourist-oriented commercial enterprises and other small businesses that support the local community. Other land uses in the vicinity of the project site include recreational facilities, single-family residences (primarily to the south and west), public utilities, commercials uses, and industrial uses. The Truckee River Bike Trail is adjacent to the maintenance yard, parallel to SR 89. The Tahoe Rim Trail descends from the ridgeline and enters the study area from the southwest, crossing over the existing bicycle/pedestrian bridge, and continuing back up slope to the ridgeline north of the study area. The study area is nearly level but includes scattered depressions as well as the incised channel of the Truckee River.

In the Tahoe City area, SR 89 is primarily a two-lane roadway built to rural design standards that does not meet current traffic needs. At the southwest end of Tahoe City's commercial area, SR 89 intersects SR 28 at a signalized intersection locally referred to as the North Tahoe wye. West of this intersection, the SR 89 alignment follows the Truckee River northward, providing access to the Squaw Valley and Alpine Meadows ski areas and to Interstate 80 (I-80) in Truckee. The I-80/SR 89 route is a highly traveled ingress and egress route to and from the Tahoe Basin and an important gateway to North Lake Tahoe. To the south, SR 89 provides access to Lake Tahoe's west shore, Emerald Bay, and South Lake Tahoe; to the east, SR 28 provides access to Lake Tahoe's north shore and the Nevada side of the lake.

Just south of the wye, SR 89 crosses the Truckee River on Fanny Bridge, the only bridge providing vehicular access between the West Shore and Tahoe City. On average, 22,300 vehicles cross this bridge each day during the peak summer season. In addition, many pedestrians and bicycles travel across and along the roadway and across Fanny Bridge, largely because the sidewalk adjacent to the northbound traffic lane is the best point from which to view the large fish that congregate in the river between the bridge and the dam. Downstream of Fanny Bridge is a pedestrian/bicycle bridge that is part of the Truckee River Bike Trail. Further south is the Caltrans maintenance yard.

Surrounding Land Uses

Properties to the north and northwest of the study area consist of commercial and light industrial land uses. Beyond these properties are the Tahoe City Golf Course to the north and northeast and the Tahoe City Public Utility District (TCPUD) property to the northwest. To the east is Lake Tahoe, and downtown Tahoe City is located to the northeast where land uses are mostly commercial facilities supplemented by visitor accommodations, lake front recreation, and some residences. Commercial uses are located to the southwest, and a mix of commercial and residential units are to the south, of the study area. Land uses to the west of the study area consist of heavy commercial and storage along SR 89 and a residential neighborhood to the west of the 64-Acre Tract.

LAND USE PLANS

Several adopted plans apply to land uses on the project site and study area. The project site is located within the planning area of the TRPA Regional Plan Update. Portions of the project site are also located within the planning areas of USFS plans, including the 64-Acre Tract Plan and the *Land and Resource Management Plan, Lake Tahoe Basin Management Unit (Forest Plan)*.

TRPA Regional Plan Land Use Designations

The Regional Plan's land uses designations within the study area consist of conservation, recreation, mixed-use, and residential uses (Exhibit 4.9-1). The allowable land uses associated with these designations are provided as follows:

Conservation: Conservation areas are non-urban areas with value as primitive or natural areas, with strong environmental limitations on use, and with a potential for dispersed recreation or low intensity resource management. Conservation areas include (1) public lands already set aside for this purpose, (2) high-hazard lands, stream environment zones, and other fragile areas, without substantial existing improvements, (3) isolated areas which do not contain the necessary infrastructure for development, (4) areas capable of sustaining only passive recreation or non-intensive agriculture, and (5) areas suitable for low-to-moderate resource management.

Mixed Use: Mixed-use areas are urban areas that have been designated to provide a mix of commercial, public services, light industrial, office, and residential uses to the Region or have the potential to provide future commercial, public services, light industrial, office, and residential uses. The purpose of this classification is to concentrate higher intensity land uses for public convenience and enhanced sustainability.

Recreation: Recreation areas are non-urban areas with good potential for developed outdoor recreation, park use, or concentrated recreation. Lands which this plan identified as recreation areas include (1) areas of existing private and public recreation use, (2) designated local, state, and federal recreation areas, (3) areas without overriding environmental constraints on resource management or recreational purposes, and (4) areas with unique recreational resources which may service public needs, such as beaches and ski areas.

Residential: Residential areas are urban areas having potential to provide housing for the residents of the Region. In addition, the purpose of this classification is to identify density patterns related to both the physical and manmade characteristics of the land and to allow accessory and non-residential uses that complement the residential neighborhood. These lands include: (1) areas now developed for residential purposes; (2) areas of moderate-to-good land capability; (3) areas within urban boundaries and serviced by utilities; and (4) areas of centralized location in close proximity to commercial services and public facilities.

LTBMU Forest Plan

Under the LTBMU Forest Plan, the project site is located within the Lower Truckee River Management Area. The Forest Plan prescribes a portion of the project site as "Intensive Dispersed Recreation" and "Developed Recreation." These prescriptions are described below.

Developed Recreation

Construct, maintain and operate recreation facilities. Assure an attractive and usable forest setting within and surrounding existing sites Manage vegetation to insure [sic] a healthy forest, to prevent and/or reduce pest-related damage, and to reduce numbers of mechanically defective trees. Manage potential recreation development sites so that they remain suitable until they are utilized for recreation improvements. Other activities may be allowed on the undeveloped sites or within existing developed sites where they do not conflict with the primary emphasis on developed recreation. The visual quality objective is Partial Retention when viewed as middleground and Modification or better when viewed as foreground. The preferred ROS [recreational opportunity spectrum] setting is Rural or Roaded Natural.

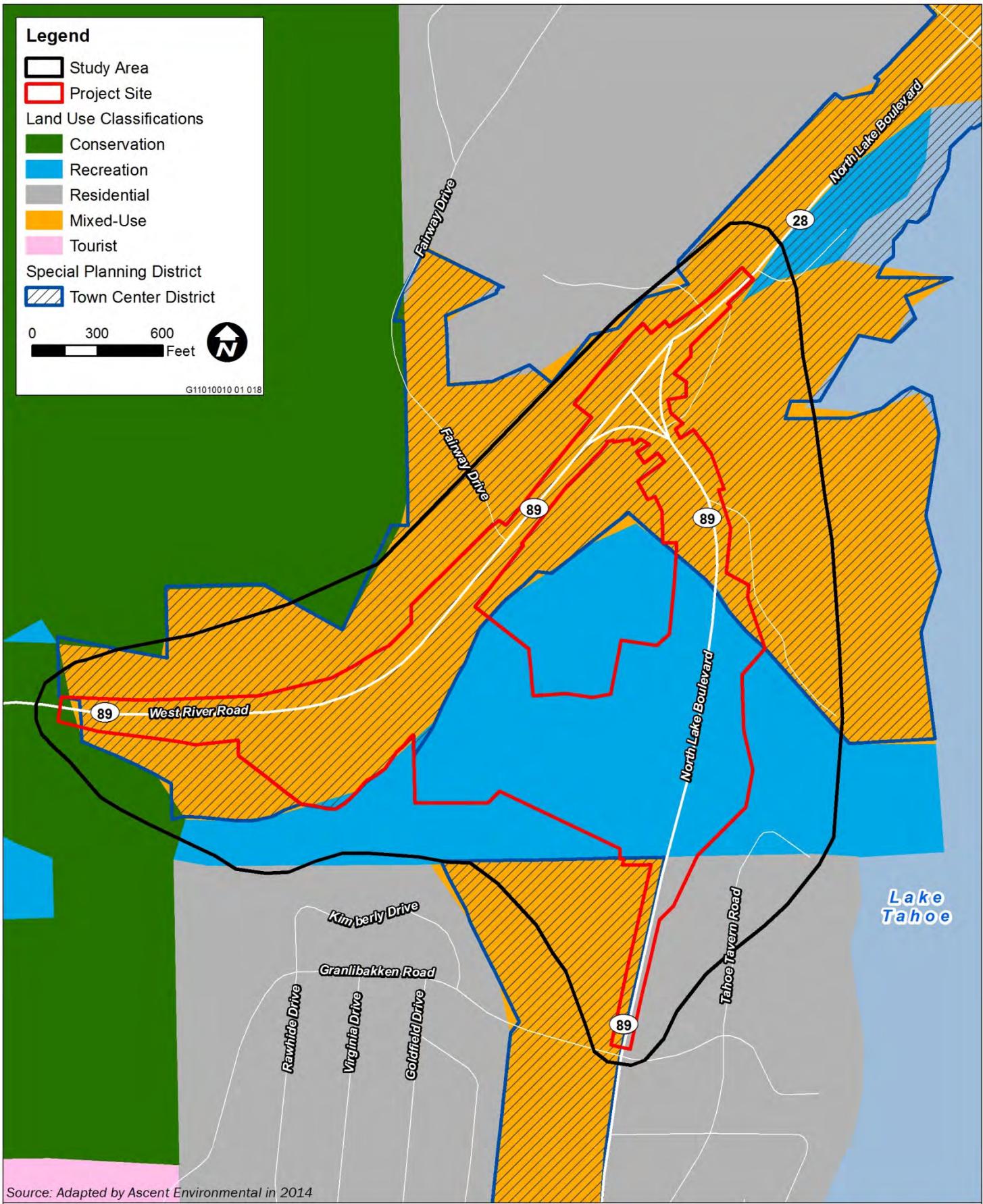


Exhibit 4.9-1 Tahoe Regional Plan Land Use Designations in the Project Site and Study Area



Intensive Dispersed Recreation

Accommodate large numbers of people engaged in dispersed recreation use on areas that are naturally attractive, such as a fragile lakeshore or stream sides. Site improvements are limited to those needed to maintain or achieve environmental standards, while leaving the users to have a relatively unconstrained recreation experience. For example, restrooms or portable toilets may be installed to maintain sanitation rather than to provide for the convenience and comfort of the users. Low levels of other resource management may occur where needed to maintain attractive conditions or where compatible with the primary emphasis. The visual quality objective is Partial Retention when viewed as middleground and Modification or better when viewed as foreground. The preferred ROS setting is Semi-Primitive Non-Motorized or Roaded Natural.

In addition, the 64-Acre Tract is specifically described in the Lower Truckee Management Area. Future uses for this site and includes visitor information services, parking for day use along the river and beach, and access to the river for public rafting. Other potential uses include traffic bypasses on SR 89 and SR 28, a transit terminal, some community parking, bike paths, and a trailhead for the Tahoe Rim Trail. The LRMP notes that a formal planning process involving State Parks, TCPUD, Caltrans, TRPA, Placer County, and local interest groups would determine the final decision on site-specific arrangements for the 64-Acre Tract. (USFS 1988: p. IV-112.)

Additionally, in the Forest Plan, the “Land & Resource Management Planning” paragraph of the “Management Area Standards and Guidelines” section for the Lower Truckee River Unit says to “[u]se the EIS prepared for the 64-Acre Tract by Reclamation and the USFS *A Plan for the Sixty-four Acre Tract* (Nov. 1986) as a guide for site development on the tract” (USFS 1988: p. IV-113).

A Plan for the 64-Acres, Tahoe City, California

The USFS prepared the 64-Acre Tract Plan in October 1986, before adoption of the Community Plan by TRPA and Placer County in February 1994. USFS relied on the Tahoe City Urban Development Plan (UDP), prepared in 1974, when developing the plan for the 64-Acre Tract.

As noted in the 64-Acre Tract Plan (USFS 1986:12), the UDP recognized the need for a bypass of the existing wye to enhance development of the commercial center and wye at the human scale: The Urban Design Study says this about transportation and circulation: “...the prime ingredient...is a functional system that permits the flow of vehicles, pedestrians, goods and services. The opportunity for communication and relationships are increased on a human scale. Land uses related to the circulation system in an orderly and compatible way encourage the development of spaces of human scale and quality. The Lake is the focus...people [will] relate to the lake while on foot rather than on wheels....”

The 64-Acre Tract Plan goes on to say the following about traffic (USFS 1986:12):

“Traffic would be eased in two ways: alternatives to the automobile (such as bike paths and public transit) and a smoother flow of cars—to be done through a bypass of Tahoe City. If the forthcoming Community Plan continues this theme, the Boatworks area, the Commons beach, the dam area, and the 64 Acre beach will be united with the town—and the present streets turned into low-speed local roads.”

4.9.4 Environmental Consequences and Mitigation Measures

METHODS AND ASSUMPTIONS

The land use analysis involved a review of relevant land use plans, policies, and regulations, which compares the existing conditions to the project alternatives. In addition, the project was evaluated in terms of its effect on the established communities. Appendix D includes a policy-by-policy discussion of each alternative’s consistency with relevant policies contained in the TRPA Goals and Policies document; PAS 174: 64-Acre Tract; and the Tahoe City Community Plan. The tables in Appendix D include a consistency

determination and supporting narrative for each policy. The consistency determinations rely on analyses contained in other resource sections in this EIR/EIS/EA (i.e., Section 4.3 through 4.15), and therefore in many places the Appendix D discussion includes a cross-reference to the applicable discussion elsewhere in this document. A summary of the consistency determinations is presented below, as well as a discussion of the potential for the project alternatives to divide an established community.

SIGNIFICANCE CRITERIA

NEPA Criteria

An environmental document prepared to comply with NEPA must consider the context and intensity of the environmental effects that would be caused by or result from the proposed action. Under NEPA, the significance of an effect is used solely to determine whether an EIS must be prepared. An evaluation of land use consistency is not required under NEPA because consistency or inconsistency with land use goals and policies does not result in changes to the physical or natural environment. No specific factors related to land use are contained in NEPA, CEQ Regulations Implementing NEPA, or FHWA NEPA regulations in 23 CFR 771 et seq.

TRPA Criteria

The “Land Use” criteria from the TRPA Initial Environmental Checklist (IEC) were used to define the land use topics for evaluation. The purpose of the TRPA IEC is primarily to determine if an EIS is required and to help define the topics to be evaluated in greater detail. While many of the IEC checklist questions are conducive for use as significance criteria (that is, they include a defined standard, qualitative or quantitative), many are not, such as those for land use. The checklist asks whether the project would result in the following conditions.

- ▲ Include uses which are not listed as permissible uses in the applicable Plan Area Statements and adopted Community Plans?
- ▲ Expand or intensify an existing non-conforming use?
- ▲ Propose uses inconsistent with applicable goals and policies of the TRPA Regional Plan, and applicable Plan Area Statements and Community Plans?

The following discussion analyzes whether the project alternatives would comply with existing plans that are applicable to the project site. The analysis also assesses whether and to what degree the alternatives would result in incompatible land uses or land use conflicts.

CEQA Criteria

In accordance with Appendix G of the State CEQA Guidelines, an alternative was determined to result in a significant impact related to land use if it would:

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

ISSUES NOT WARRANTING DETAILED EVALUATION

Conflict with an Adopted Conservation Plan

As discussed in Section 4.3, “Biological Resources,” none of the action alternatives would be constructed within an area covered under an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state conservation plan. Therefore, project implementation would not conflict with the provisions of an adopted conservation plan and this issue is not evaluated further.

ENVIRONMENTAL EFFECTS OF THE PROJECT ALTERNATIVES

Impact 4.9-1. Consistency with land use plans.

Alternatives 1 through 4 would be consistent with existing land use plans that include realignment of State Route 89 through the 64-Acre Tract. Alternatives 6 and 6a would result in widening of the existing Fanny Bridge and other minor modifications; however, it would not be consistent with existing land use plans. Implementation of Alternatives 1, 2, 3, and 4 would be **consistent**. While implementation of Alternatives 5, 6, and 6a would not result in construction of allowable planned land uses (e.g., SR 89 realignment), they would not preclude later implementation of a similar project; thus, these alternatives would **not be in conflict** with existing land use plans.

Land uses in the project vicinity are regulated by several land use plans and by provisions of the TRPA Regional Plan, Code of Ordinances, and *Lake Tahoe Regional Transportation Plan—Mobility 2035*. For planning purposes, the project site is located within TRPA’s PAS 174 and the Tahoe City Community Plan area. Consistency with applicable Tahoe Regional Plan and Tahoe City Community Plan policies is provided in Appendix D.

The SR 89/Fanny Bridge Project is included as a corridor revitalization project under the RTP/SCS. The RTP/SCS describes the SR 89/Fanny Bridge Project as, “construction of a new bridge over the Truckee River, rehabilitation or replacement of Fanny Bridge, and various other improvements (TMPO and TRPA 2012).”

The TRPA Regional Plan includes transportation-related goals and policies that are relevant to the project (TRPA 2012b). The project would be consistent with the following transportation-related goals in the Regional Plan:

- ▲ Support the economic vitality of the Lake Tahoe Region by preserving and enabling an efficient system to move people and goods.
- ▲ Develop effective intermodal transportation facilities where three or more major modes of the Regional transportation system intersect and/or terminate (e.g., intersection of auto, bicycle/pedestrian trails, transit, and/or waterborne modes).
- ▲ Upgrade Regional roadways as necessary to improve safety and provide for a more efficient, integrated transportation system.

The project purpose includes enhancing safety and improve traffic flow in the vicinity of the North Tahoe wye in Tahoe City (see Section 4.13, “Recreation,” and Section 4.15, “Traffic and Transportation”). The Tahoe City Community Plan identifies the realignment of SR 89 through the 64-Acre Tract as a potential solution to traffic congestion at the wye (TRPA 1994). Chapter VII, “Implementation Element,” of the Community Plan includes the following text regarding the realignment (TRPA 1994:VII-4):

The Highway 89 Bypass is a part of the Plan. Future studies will be necessary to evaluate environmental effects, examine alternatives, and confirm the benefits of the project. Studies leading to construction should be started within the first 5-year period. The S.R. 89 Bypass is

new alternate route linking State Route 89 in the vicinity of Granlibakken Road to State Route 89 west of the Wye in 1997–99. This route would cross the 64-Acre Tract and connect with State Route 89 (north) at the approximate location of the Caltrans corporation yard and with State Route 89 (south) near the southern boundary of the 64-Acre Tract.

Plan Area Statement 174 focuses on recreational uses of the 64-Acre Tract and does not directly address transportation or the realignment; however, transportation routes are listed as a permissible use in the plan area.

The Forest Plan addresses the 64-Acre Tract under the Lower Truckee River Management Area. In the management area direction for that unit, the Forest Plan states that other potential uses of the 64-Acre Tract include traffic bypasses on Highway 89 and Highway 28 to relieve congestion at the wye, a transit terminal, some community parking, bike paths, and a trailhead for the Tahoe Rim Trail (USFS 1988:IV-112).

As noted in the 64-Acre Tract Plan (USFS 1986:12), the UDP recognized the need for a bypass of the existing wye to enhance development of the commercial center and wye at the human scale. The 64-Acre Tract Plan also states that traffic could be eased with alternatives to the automobile (such as bike paths and public transit) and a smoother flow of cars—to be done through a bypass of Tahoe City (USFS 1986:12).

Proposed modifications to the Caltrans maintenance yard, modifications to turn lanes at the existing wye, and realignment of the TTSA sewer line would not change existing land uses. These project components are not discussed further in this impact discussion.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

As described above, the land use plans that guide development in the project site all include options to modify the existing wye (i.e., the Forest Plan, the 64-Acre Tract Plan, Tahoe City Community Plan, and PAS 174). Alternative 1 includes a modification option that would be consistent with those plans. Policies associated with the Regional Plan, Tahoe City Community Plan, and PAS 174 would be consistent with Alternative 1 (see Appendix D). In addition, the RTP/SCS included the SR 89/Fanny Bridge Project as a Corridor Improvement Project, and the Tahoe Bicycle and Pedestrian Plan includes bike paths through the project site. Thus, Alternative 1 would be **consistent** with applicable plans and policies associated with the project site.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

As described above, the land use plans that guide development in the project site all include option to modify the existing wye (i.e., the Forest Plan, the 64-Acre Tract Plan, Tahoe City Community Plan, and PAS 174). Alternative 2 includes modification options that would be consistent with those plans. Policies associated with the Regional Plan, Tahoe City Community Plan, and PAS 174 would be consistent with Alternative 2 (see Appendix D). In addition, the RTP/SCS included the SR 89/Fanny Bridge Project as a Corridor Improvement Project, and the Tahoe Bicycle and Pedestrian Plan includes bike paths through the project site. Thus, Alternative 2 would be **consistent** with applicable plans and policies associated with the project site.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

As described above, the land use plans that guide development in the project site all include options to modify the existing wye (i.e., the Forest Plan, the 64-Acre Tract Plan, Tahoe City Community Plan, and PAS 174). Alternative 3 includes a modification options that would be consistent with those plans. Policies associated with the Regional Plan, Tahoe City Community Plan, and PAS 174 would be consistent with Alternative 3 (see Appendix D). In addition, the RTP/SCS included the SR 89/Fanny Bridge Project as a Corridor Improvement Project, and the Tahoe Bicycle and Pedestrian Plan includes bike paths through the project site. Thus, Alternative 3 would be **consistent** with applicable plans and policies associated with the project site.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

As described above, the land use plans that guide development in the project site all include options to modify the existing wye (i.e., the Forest Plan, the 64-Acre Tract Plan, Tahoe City Community Plan, and PAS 174). Alternative 4 includes modification options that would be consistent with those plans. Policies associated with the Regional Plan, Tahoe City Community Plan, and PAS 174 would be consistent with Alternative 4 (see Appendix D). In addition, the RTP/SCS included the SR 89/Fanny Bridge Project as a Corridor Improvement Project, and the Tahoe Bicycle and Pedestrian Plan includes bike paths through the project site. Thus, Alternative 4 would be **consistent** with applicable plans and policies associated with the project site.

ALTERNATIVE 5: NO ACTION

Under Alternative 5, no new facilities would be constructed. As shown in Appendix D, policies would generally not be applicable to maintenance of the existing conditions. Implementation of this alternative would not meet planning goals associated with the RTP/SCS, the Forest Plan, the 64-Acre Tract Plan, Tahoe City Community Plan, and PAS 174. While the possibility for a future proposal of a similar project remains, its implementation is speculative. Regardless, adoption of Alternative 5 would not preclude future opportunities to implement similar allowable land uses, and would **not be in conflict** with existing land use plans.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Alternative 6 would be consistent with the policies under the Tahoe Regional Plan (Appendix D), and maintain bicycle routes associated with the Tahoe Bicycle and Pedestrian Plan. Alternative 6 would not be consistent with land use plans that include the realignment of SR 89, such as the Tahoe City Community Plan (Policy 2c and Policy 3), the USFS Plan for the 64 Acres, and the RTP/SCS, all of which call for a new bridge over the Truckee River. Therefore, Alternative 6 would not meet several applicable local planning and policy goals included in the Tahoe City Community Plan, USFS Plan for the 64 Acres, and the RTP/SCS. Regardless, adoption of Alternative 5 would not preclude future opportunities to implement similar allowable land uses, and would therefore **not be in conflict** with existing land use plans.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Alternative 6a would be consistent with the policies under the Tahoe Regional Plan (Appendix D), and maintain bicycle routes associated with the Tahoe Bicycle and Pedestrian Plan. Alternative 6a would not be consistent with land use plans that include the realignment of SR 89, such as the Tahoe City Community Plan (Policy 2c and Policy 3), the USFS Plan for the 64 Acres, and the RTP/SCS, all of which call for a new bridge over the Truckee River. Therefore, Alternative 6a would not meet several applicable local planning and policy goals included in the Tahoe City Community Plan, USFS Plan for the 64 Acres, and the RTP/SCS. Regardless, adoption of Alternative 5 would not preclude future opportunities to implement similar allowable land uses, and would therefore **not be in conflict** with existing land use plans.

Impact 4.9-2. Physically divide an established community.

Alternatives 1 through 4, 6, and 6a would maintain connectivity throughout the project site, and result in the same modes of transportation currently used under the existing conditions. Thus, the impacts under the build alternatives would be **less than significant**. Because no new structures would be installed under Alternative 5, there would be **no impact**.

Physical division of an established community would result from construction of a barrier that changes the connectivity between areas of a community. The division would result in an impact if it would change the connectivity, such that implementation of a project would separate individuals from an existing community. Examples of this type of impact include closure of a bridge or roadway or construction of an implement (e.g., storm channel), resulting in the loss of a transportation route such as a roadway, pedestrian path, or bicycle path. Implementation of any of the alternatives would not affect existing access routes.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

Under Alternative 1, SR 89 would be realigned with a new bridge over the Truckee River, and Fanny Bridge would be replaced or rehabilitated and would remain available for local traffic use. These project components would improve vehicular connectivity at the wye (see Section 4.15, “Traffic and Transportation”). While Alternative 1 would require realignment of the existing bike paths, the general ability to travel through the 64-Acre Tract would not be substantially altered. Connectivity throughout the project site would remain intact, and the existing modes of transportation currently used would be maintained. Thus, this impact would be **less than significant**.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Under Alternative 2, placement of bollards on the north- and south-side of Fanny Bridge would prohibit vehicular traffic, thereby placing a barrier to an existing point of connectivity. However, realignment or the SR 89/SR 28 intersection would be located near to the existing wye (approximately ¼-mile to the southwest), and would result in improved vehicular connectivity at the wye (see Section 4.15, “Traffic and Transportation”). Thus, while the bridge would no longer be available to automobiles, the ability to cross the Truckee River using the same mode of transportation would remain. In addition, while Alternative 2 would require realignment of the existing bike paths, the general ability to travel through the 64-Acre Tract would not be substantially altered. Thus, connectivity would not be substantially impeded, and this impact would be **less than significant**.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Under Alternative 3, thoroughfare through the existing wye would be eliminated, thereby placing a barrier to an existing point of connectivity. However, realignment or the SR 89/SR 28 intersection would be located near to the existing wye (approximately ¼-mile to the southwest), and would result in improved vehicular connectivity at the wye (see Section 4.15, “Traffic and Transportation”). Thus, while the bridge would no longer be available to automobiles, the ability to cross the Truckee River using the same mode of transportation would remain intact. In addition, while Alternative 3 would require realignment of the existing bike paths, the general ability to travel through the 64-Acre Tract would not be substantially altered. Thus, connectivity would not be substantially impeded, and this impact would be **less than significant**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Under Alternative 3, thoroughfare through the existing wye would be eliminated, thereby placing a barrier to an existing point of connectivity. However, realignment or the SR 89/SR 28 intersection would be located near to the existing wye (approximately ¼-mile to the southwest), and would result in improved vehicular connectivity at the wye (see Section 4.15, “Traffic and Transportation”). Thus, while the bridge would no longer be available to automobiles, the ability to cross the Truckee River using the same mode of transportation would remain. In addition, while Alternative 3 would require realignment of the existing bike paths, the general ability to travel through the 64-Acre Tract would not be substantially altered. Thus, connectivity would not be substantially impeded, and this impact would be **less than significant**.

ALTERNATIVE 5: NO ACTION

Under Alternative 5, there would be no construction and therefore **no impact** to connections throughout the project site.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Under Alternative 6, the existing Fanny Bridge would be widened, maintaining the existing modes of connectivity within the project site. In addition, sidewalks would be improved and a pedestrian/bicycle underpass would be provided on the south side of the bridge. Thus, no impediments to connectivity of the project site would be installed and this impact would be **less than significant**. For issues related to property acquisition, see Section 4.11, “Population, Employment and Housing.”

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

For the same reasons as described above under Alternative 6, impacts associated with division of an existing community would be **less than significant** under Alternative 6a.

4.9.5 Avoidance, Minimization, and/or Mitigation Measures

No mitigation is required for any of the alternatives.

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4.10 NOISE

4.10.1 Introduction

This chapter includes a description of acoustic fundamentals, a summary of applicable regulations, the existing noise environment in the project vicinity, and analyses of potential short- and long-term noise impacts of the project alternatives.

Comments received on the Notice of Preparation related to noise addressed the potential noise effects on wildlife. Potential effects of the project alternatives on wildlife are addressed in Section 4.3, “Biological Resources.”

4.10.2 Regulatory Setting

Key federal, state, and local regulatory and conservation planning issues applicable to the project for noise-related impacts are discussed below. Prior to discussing these issues, background information on acoustical fundamentals is needed to place the regulatory and planning issues into perspective.

SOUND, NOISE, AND ACOUSTICS

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is defined as loud, unexpected, or annoying sound.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determines the sound level and characteristics of the noise perceived by the receiver. The field of acoustics deals primarily with the propagation and control of sound.

FREQUENCY

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz, or thousands of hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

SOUND PRESSURE LEVELS AND DECIBELS

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-Pascals (mPa). One mPa is approximately one hundred billionth (0.0000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 mPa. Because of this huge range of values, sound is rarely expressed in terms of mPa. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of decibels (dB). The threshold of hearing for young people is about 0 dB, which corresponds to 20 mPa.

ADDITION OF DECIBELS

Because decibels are logarithmic units, SPL 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, the resulting sound level at a given distance would be 3 dB higher than one source under the same conditions. For example, if one automobile produces an SPL of 70 dB when it passes an observer, two cars passing 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 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 that range better than sounds of the same amplitude in higher or lower frequencies. 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 [dBA]) 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. Other weighting networks have been devised to address high noise levels or other special problems (e.g., B-, C-, and D-scales), but these scales are rarely used in conjunction with highway-traffic noise. Noise levels for traffic noise reports are typically reported in terms of A-weighted decibels or dBA. Table 4.10-1 describes typical A-weighted noise levels for various noise sources.

Table 4.10-1 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		Food blender at 3 feet
	–80 –	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	–70 –	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	–60 –	
		Large business office
Quiet urban daytime	–50 –	Dishwasher next room
Quiet urban nighttime	–40 –	Theater, large conference room (background)

Table 4.10-1 Typical A-Weighted Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Quiet suburban nighttime		
	–30–	Library
Quiet rural nighttime		Bedroom at night, concert
	–20–	
		Broadcast/recording studio
	–10–	
Lowest threshold of human hearing	–0–	Lowest threshold of human hearing

Notes: dBA=A-weighted Noise Levels

Source: California Department of Transportation (Caltrans) 2009

HUMAN RESPONSE TO CHANGES IN NOISE LEVELS

As discussed above, the doubling of sound energy results in a 3-dB increase in sound. 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 is able to 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 typical noisy environments, changes in noise of 1–2 dB are generally not perceptible. However, it is widely accepted that people are able to 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. 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, 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 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 (Federal Transit Administration [FTA] 2006, Caltrans 2004). PPV and RMS vibration velocity are normally described in inches per second (in/sec).

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 2006). This is based on a reference value of 1 micro inch per second ($\mu\text{in/sec}$).

The typical background vibration-velocity level in residential areas is approximately 50 VdB. Groundborne 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 2006).

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 in fragile buildings. Construction activities can generate ground vibrations, which can pose a risk to nearby structures. Constant or transient vibrations can weaken structures, crack facades, and disturb occupants (FTA 2006).

Construction vibrations can be transient, random, or continuous. Transient construction vibrations are generated by blasting, impact pile driving, and wrecking balls. Continuous vibrations result from vibratory pile drivers, large pumps, and compressors. Random vibration can result from jackhammers, pavement breakers, and heavy construction equipment. Table 4.10-2 describes the general human response to different levels of ground vibration-velocity levels.

Table 4.10-2 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 2006

COMMON NOISE DESCRIPTORS

Noise in our daily environment fluctuates over time. Some fluctuations are minor, but some are substantial. Some noise levels occur in regular patterns, but others are random. Some noise levels fluctuate rapidly, but others fluctuate slowly. Some noise levels vary widely, but others are relatively constant. Various noise descriptors have been developed to describe time-varying noise levels. The following are the noise descriptors most commonly used in traffic noise analysis.

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 that actually occurs during the same period. The 1-hour A-weighted equivalent sound level ($L_{eq(h)}$) is the energy average of A-weighted sound levels occurring during a 1-hour period and is the basis for noise abatement criteria (NAC) used by Caltrans and Federal Highway Administration (FHWA).

Percentile-Exceeded Sound Level (L_{xx}): L_{xx} represents the sound level exceeded for a given percentage of a specified period (e.g., L_{10} is the sound level exceeded 10 percent of the time, and L_{90} is the sound level exceeded 90 percent of the time).

Maximum Sound Level (L_{max}): L_{max} is the highest instantaneous sound level measured during a specified period.

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-dB “penalty” applied to A-weighted sound levels occurring during nighttime hours between 10 p.m. and 7 a.m.

Community Noise Equivalent Level (CNEL) or Day-Evening-Night Level (L_{den}): Similar to L_{dn} , CNEL or L_{den} is the energy average of the A-weighted sound levels occurring over a 24-hour period, with a 10-dB penalty applied to A-weighted sound levels occurring during the nighttime hours between 10 p.m. and 7 a.m. and a 5-dB penalty applied to the A-weighted sound levels occurring during evening hours between 7 p.m. and 10 p.m.

SOUND PROPAGATION

When sound propagates over a distance, it changes in level and frequency content. The manner in which noise reduces with distance depends on the following factors.

Geometric Spreading

Sound from a localized source (i.e., a point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source.

Ground Absorption

The propagation path of noise from a highway to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective-wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 feet. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver, such as soft dirt, grass, or scattered bushes and trees), an excess ground-attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance.

Atmospheric Effects

Receivers located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) from the highway because of atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects.

Shielding by Natural or Human-Made Features

A large object or barrier in the path between a noise source and a receiver can substantially attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Natural terrain features (e.g., hills and dense woods) and human-made features (e.g., buildings and walls) can substantially reduce noise levels. Walls are often constructed between a source and a receiver specifically to reduce noise. A barrier that breaks the line of sight between a source and a receiver will typically result in at least 5 dB of noise reduction. Taller barriers provide increased noise reduction. Vegetation between the highway and receiver is rarely effective in reducing noise because it does not create a solid barrier.

FEDERAL REGULATIONS

Highway Traffic Noise Regulation (23 CFR 772)

This regulation provides procedures for preparing operational and construction noise studies and evaluating noise abatement considered for federal and federal-aid highway projects. Under 23 CFR 772.7, projects are

categorized as Type 1, Type 2, or Type 3 projects. FHWA defines a Type 1 project as a proposed federal or federal-aid highway project for the construction of a highway on a new location, or the physical alteration of an existing highway where there is either substantial horizontal or substantial vertical alteration, or increases the number of through-traffic lanes. A Type 2 project is a noise barrier retrofit project that involves no changes to highway capacity or alignment. A Type 3 project is a project that does not meet the classifications of a Type 1 or Type 2 project. Type 3 projects do not require a noise analysis.

Type 1 projects include the addition of through traffic lanes that function as high-occupancy vehicle lanes, high-occupancy toll lanes, bus lanes, or truck climbing lanes. Type 1 projects include the addition of an auxiliary lane (except when an auxiliary lane is a turn lane); addition or relocation of interchange lanes or ramps; restriping existing pavement for the purpose of adding a through-traffic lane or auxiliary lane; and the addition of a new or substantial alteration of a weigh station, rest stop, ride-share lot, or toll plaza. Projects unrelated to increased noise levels, such as striping, lighting, signing, and landscaping projects, are not considered Type 1 projects. The action alternatives include construction of highway in a new location and substantial horizontal alteration. Therefore, the SR 89/Fanny Bridge Project is categorized as a Type 1 Project according to 23 CFR 772.

Under 23 CFR 772.11, noise abatement must be considered for Type 1 projects if the project is predicted to result in a traffic noise impact. In such cases, 23 CFR 772 requires that the project sponsor “consider” noise abatement before adoption of the final NEPA document. This process involves identification of noise abatement measures that are reasonable, feasible, and likely to be incorporated into the project, and of noise impacts for which no apparent solution is available.

Traffic noise impacts, as defined in 23 CFR 772.5, occur when the predicted noise level in the design year approaches or exceeds the NAC specified in 23 CFR 772, or a predicted noise level substantially exceeds the existing noise level (i.e., a “substantial” noise increase).

The NAC shown in Table 4.10-3 correspond to various land use activity categories. Activity categories and related traffic noise impacts are determined based on the actual land use in a given area.

Table 4.10-3 Activity Categories and Noise Abatement Criteria

Activity Category	Activity $L_{eq(h)}$, dBA	Evaluation Location	Description of Activities
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B ²	67	Exterior	Residential.
C ²	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A-D or F.
F			Agriculture, airports, bus Facilities, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail facilities, retail facilities, ship facilities, utilities (water resources, water treatment, electrical), and warehousing.
G			Undeveloped lands that are not permitted.

Notes: $L_{eq(h)}$, dBA = 1-hour equivalent continuous sound level, in A-weighted decibels

¹ The $L_{eq(h)}$ activity criteria values are for impact determination only and are not design standards for noise abatement measures.

² Includes undeveloped lands permitted for this activity category.

Source: FHWA 23 CFR 772.

In identifying noise impacts, primary consideration is given to exterior areas of frequent human use. In situations where there are no exterior activities, or where the exterior activities are far from the roadway or physically shielded in a manner that prevents an impact on exterior activities, the interior criterion (Activity Category D) is used as the basis for determining a noise impact.

TAHOE REGIONAL PLANNING AGENCY

The elements of the Tahoe Regional Planning Agency (TRPA) Regional Plan related to noise include the following: Noise Subelement of the Goals and Policies (TRPA 2012a Code of Ordinances (Code), Chapter 68, Noise Limitations (TRPA 2012b); Plan Area Statements (PASs) and Community Plans; and Environmental Threshold Carrying Capacities (TRPA 2012c).

Lake Tahoe Regional Plan

Goals and Policies

The Noise Subelement of the Goals and Policies document contains the following potentially applicable goals and policies:

Goal 1: Single Event Noise Standards Shall Be Attained and Maintained. Threshold standards were adopted that apply to aircraft, motorized watercraft, motor vehicles, off-road vehicles, and snowmobiles to reduce impacts associated with single noise events.

- ▲ **Policy 1.** An ordinance and enforcement program shall be developed to permit only aircraft that meet the single event noise threshold standards to use the airport.
- ▲ **Policy 3.** Motor vehicles and motorcycles shall comply with the appropriate noise threshold standards.
- ▲ **Policy 4.** Off-road vehicle use is prohibited in the Lake Tahoe Basin except on specified roads, trails, or designated areas where the impacts can be mitigated.
- ▲ **Policy 5.** The use of snowmobiles will be restricted to designated areas.
- ▲ **Policy 6.** The plan will permit uses only if they are consistent with the noise standards. Sound proofing practices may be required on all structures containing uses that would otherwise adversely impact the prescribed noise levels.

Goal 2: Community Noise Equivalent Levels Shall Be Attained and Maintained. CNEL Threshold Standards were adopted to address the annoyance associated with cumulative noise events on people and wildlife. The main sources of noise in the Region are attributed to the major transportation corridors and the airport. Therefore, the policies are directed towards reducing the transmission of noise from those sources. Implementation of the following policies will help result in attainment of the CNEL Threshold Standards.

- ▲ **Policy 1.** Transmission of noise from transportation corridors shall be reduced. The noise associated with the transportation corridors can be decreased by reducing the number of trips and by installing mitigation measures. Trip reduction will be accomplished by the transit improvements identified in the Transportation Element. Ordinances will establish specific site design criteria for projects to help reduce the transmission of noise from the transportation corridors. The design criteria will also be incorporated into the water quality and transportation improvement programs. The mitigation measures may include set-backs, earth berms, and barriers.
- ▲ **Policy 2.** Reduce noise-related impacts associated with the airport to acceptable levels.
- ▲ **Policy 3.** TRPA will further define CNELs for wilderness and roadless areas, and for critical wildlife habitat areas. The noise subelement also established the following CNEL values for transportation corridors:

- ▶ U.S. Highway 50 (US 50)—65 dBA
 - ▶ State Routes (SRs) 89, 207, 28, 267, and 431—55 dBA
 - ▶ South Lake Tahoe Airport—60 dBA
- ▲ **Policy 4.** The highway CNEL standards override the land use-based CNELs and are limited to an area within 300 feet from the edge of the road. The airport CNEL standard applies to those areas affected by the approved flight plans.

Code of Ordinances

Chapter 68, Noise Limitations, of the TRPA Code of Ordinances is intended to implement the Noise Subelement of the Goals and Policies (shown below) and to attain and maintain the TRPA Environmental Threshold Carrying Capacities (shown below, TRPA 2012a, 2012b, 2012c).

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). The CNELs set forth in the PASs are based on the land use classification, the presence of transportation corridors, and the applicable threshold standard.

Environmental Threshold Carrying Capacities

TRPA has established environmental thresholds for nine resources, including noise. There are two noise threshold indicators: single noise events and cumulative noise events. The Lake Tahoe Basin's status in 2011 was non-attainment for single noise events and for cumulative noise. However TRPA's 2011 *Threshold Evaluation Report* (TRPA 2011) indicates that noise standards and approaches within the TRPA jurisdiction need to be re-evaluated. The majority of standards were determined to be out of attainment as a result of a 'no exceedance' interpretation of the standards and TRPA has little enforcement authority to address many noise issues—in particular, single event noise.

SINGLE NOISE EVENTS

A noise event can be defined as an unexpected increase in acoustic. 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 for aircraft, watercraft, motor vehicles, motorcycles, off-road vehicles, and snowmobiles.

CUMULATIVE NOISE EVENTS

Cumulative noise, or Community Noise Equivalent Level (CNEL), is a noise measurement based on a weighted average of all measured noise over a 24-hour period. The CNEL indicator applies a +4.77 dB penalty to noise levels during the nighttime period (10 p/m/ to 7 a/m/) to account for people's increased sensitivity to nighttime noise. 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 4.10-4 summarizes thresholds for single events (L_{max}) and threshold for community noise events.

The noise limitations established in Chapter 68 of the TRPA Code of Ordinances, including the noise standards of individual PASs, 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 4.10-4 TRPA Regional Plan Cumulative Noise Levels

Single Noise Events	Noise Measurement
Boats (not to exceed any of 3 tests)	82 dBA measured at 50 feet with engine at 3,000 rpm
	SAE test J1970 or SAEJ1970, Shoreline Test, 75 dBA (standard adopted 7/03)
	SAE Test J2005, Stationary Test, 88 dBA if watercraft manufactured on or after 1/1/93 and 90 dBA if watercraft manufactured before 1/1/93 (standard adopted 7/03)
Motor Vehicles (less than 6,000 pounds GVW)	76 dBA running at <35 mph (82 dBA running at >35 mph) measured at 50 feet
Motor Vehicles (greater than 6,000 pounds GVW)	82 dBA running at <35 mph (86 dBA running at >35 mph) measured at 50 feet
Motorcycles	77 dBA running at <35 mph (86 dBA running at >35 mph) measured at 50 feet
Off-road Vehicles	72 dBA running at <35 mph (86 dBA running at >35 mph) measured at 50 feet
Snowmobiles	82 dBA running at <35 mph measured at 50 feet
Community Noise Equivalent Levels: Background levels shall not exceed the following:	
Land Use Category	CNEL, dBA
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.	
Transportation¹	
U.S. 50	65 ⁽²⁾ dBA CNEL
State Routes 89, 207, 28, 267 and 431	55 ⁽²⁾ dBA CNEL
South Lake Tahoe Airport	60 ⁽³⁾ dBA CNEL
Notes: CNEL = community noise equivalent level measurements are weighted average of sound level gathered throughout a 24-hour period; dB = decibels; dBA = A-weighted decibels; mph = miles per hour; rpm = revolutions per minute	
¹ CNEL values for transportation corridor.	
² This transportation corridor threshold overrides the land use CNEL thresholds and is limited to an area within 300 feet from the edge of the road.	
³ This threshold applies to those areas impacted by the approved flight paths.	
Source: TRPA Code of Ordinances 2012a, 2012b, 2012c	

Tahoe City Community Plan

TRPA thresholds establish different limits for different uses. The noise limitations of Chapter 68 of the TRPA Code apply; however, the Community Plan Area Statement establishes equal or superior standards pursuant to the noise thresholds.

TRPA Thresholds are 65 CNEL for commercial areas, 55 CNEL for residential and urban recreation, and 55 CNEL for highway corridors. Based on CNEL values for transportation corridors, 55 dBA CNEL would be applied within 300 feet of the edge of pavement along SR 28 and SR 89, as also shown in Table 4.10-4. The transportation corridor standards override the land use CNEL standards, according to footnote no. 2 in the table. The underlying land use standard would apply beyond 300 feet from the highways. TRPA thresholds

establish different limits for different uses. The noise limitations of Chapter 68 of the TRPA Code apply; however, the Community Plan establishes equal or superior standards pursuant to the noise thresholds. Placer County will use the TRPA and Community Plan rules for noise. The maximum cumulative noise equivalent levels for the Tahoe City Community Plan area are as follows (TRPA and Placer County 1994):

- ▲ Where applicable, a maximum 55 CNEL override for the SR 28 and SR 89 corridors is permissible.
- ▲ The maximum CNEL for Special Areas #3 and #4 and #5 is 55 CNEL.
- ▲ The maximum CNEL for all areas of the Community Plan except as noted above is 65 CNEL.
- ▲ The maximum CNEL for Shorezone Tolerance Districts 4, 6 and 7 is 55 CNEL and the maximum for the lakezone is 50 CNEL.

The Tahoe City Community Plan has Special Areas within the Community Plan Area Boundary. All the receiver locations closest to the project site are located within Special Areas 1 through 5, for which the CNEL standard is 55 for recreational, residential, and a portion of the commercial land. Some of the studied receiver locations are located in commercial areas with a higher standard of 65 CNEL, if they are beyond 300 feet of the edge of pavement and, therefore, outside the highway corridor CNEL override zone. Therefore, based on the CNEL standards of the Tahoe City Community Plan, the predominant (and lowest) threshold for the potentially affected receiver locations within the study area would be 55 CNEL.

LOCAL REGULATIONS

Placer County Noise Element

The General Plan for Placer County (2013) contains policies governing noise related to development within Placer County, as identified below. The maximum allowable noise exposure limits for transportation noise sources in Placer County are summarized in Table 4.10-5.

Table 4.10-5 Placer County Maximum Allowable Noise Exposure for Transportation Noise Sources

Land Use	Outdoor Activity Areas ¹	Interior Spaces	
	L _{dN} /CNEL	L _{dN} /CNEL	L _{eq} , dBA ²
Residential	60 ³	45	
Transient Lodging	60 ³	45	
Hospitals, Nursing Homes	60 ³	45	
Theaters, Auditoriums, Music Halls			35
Churches, Meeting Halls	60 ³		40
Office Buildings			45
Schools, Libraries, Museums			45
Playgrounds, Neighborhood Parks	70		

Notes: CNEL = community noise equivalent level

¹ Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use.

² As determined for a typical worst-case hour during periods of use.

³ Where it is not possible to reduce noise in outdoor activity areas to 60 L_{dN}/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dBA L_{dN}/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.

Source: Placer County General Plan 2013

Placer County Noise Ordinance

The Placer County Noise Ordinance (Article 9.36 of the Placer County Code) defines sound level performance standards for sensitive receptors (refer to Table 4.10-6). The ordinance states that it is unlawful for any person at any location to create any sound, or to allow the creation of any sound, on properly owned, leased, occupied, or otherwise controlled by such a person that causes the exterior sound level, when measured at the property line of any affected sensitive receptor, to exceed the ambient sound level by 5 dBA or exceed the sound level standards as set forth in Table 4.10-6, whichever is greater.

Each of the sound level standards specified in Table 4.10-6 shall be reduced by 5 dBA for simple tone noises, consisting of speech and music. However, in no case shall the sound level standard be lower than the ambient sound level plus 5 dBA.

Table 4.10-6 Placer County Noise Ordinance Noise Level Standards for Sensitive Receptors

Sound Level Descriptor (dBA)	Daytime (7:00 a.m. to 10:00 p.m.)	Nighttime (10:00 p.m. to 7:00 a.m.)
Hourly L_{eq}	55	45
L_{max}	70	65

Notes: dBA: A-weighted decibels

Source: Placer County Code 9.36.060, "Sound limits for sensitive receptors"

According to Section 9.36.030, "Exemptions," some noise-generating activities are exempt from the above noise ordinance standards, including construction that is performed between 6:00 a.m. and 8:00 p.m., Monday through Friday, and between 8:00 a.m. and 8:00 p.m. Saturday and Sunday, provided that all construction equipment is fitted with factory-installed muffler devices and maintained in good working order.

VIBRATION CRITERIA

CEQA states that the potential for any excessive ground noise and vibration levels must be analyzed; however, it does not define the term "excessive" vibration. Numerous public and private organizations and governing bodies have provided guidelines to assist in the analysis of ground noise and vibration; however, the Federal, state, and local governments have yet to establish specific ground noise and vibration requirements. The following publications of the FTA and Caltrans are two of the seminal works for the analysis of ground noise and vibration relating to transportation and construction-induced vibration.

With respect to structural damage, Caltrans recommends that a level of 0.2 in/sec PPV not be exceeded for the protection of normal residential buildings, and that 0.1 in/sec PPV not be exceeded for the protection of old or historically significant structures (Caltrans 2004).

To address the human response to groundborne vibration, FTA has guidelines for maximum-acceptable vibration criteria for different types of land uses. These guidelines recommend 65 VdB referenced to 1 μ in/sec and based on the RMS velocity amplitude for land uses where low ambient vibration is essential for interior operations (e.g., hospitals, high-tech manufacturing, laboratory facilities); 80 VdB for residential uses and buildings where people normally sleep; and 83 VdB for institutional land uses with primarily daytime operations (e.g., schools, churches, clinics, offices) (FTA 2006).

With respect to human response within residential uses (i.e., annoyance), FTA recommends maximum acceptable vibration levels of 80 VdB, respectively (FTA 2006).

4.10.3 Affected Environment

EXISTING LAND USES

SR 89 is a state highway that traverses north-south through the study area. Caltrans District 3's SR-89 *Transportation Concept Report* categorizes SR 89 as a "two-lane conventional highway" from the El Dorado/Placer county line to Tahoe City. The SR 89 study corridor segment is functionally classified as a "Minor Arterial." The corridor is not a National Highway System route, or a lifeline route. However, the corridor is officially designated as a "scenic route" and as an Interregional Road System Route (FHWA 2012; Caltrans 2012; California Highways 2004). Regionally, SR 89 begins in Mono County, north of the town of Topaz, and continues predominantly northward until reaching Interstate 5, near Mt. Shasta in Siskiyou County. To the north, SR 89 is the most direct all-weather road connecting the north Tahoe area to the Interstate 80 corridor and the Sacramento and San Francisco Bay areas; therefore, the route carries large traffic volumes through the Tahoe Basin. SR 89 also serves as a critical roadway for traffic circulation within the Tahoe Basin.

Within the study area, SR 89 generally is a two-lane arterial with left-turn pockets at major intersections. SR 89 has a traffic signal-controlled intersection with SR 28 and side-street stop-controlled intersections with Fairway Drive, Tahoe Tavern Road, 64-Acre Tract recreational access, and Granlibakken Road. Per Caltrans 2012 traffic count data, the SR 89 segment west of the wye intersection experiences an annual average daily traffic (AADT) of 11,700 vehicles and a peak-month average daily traffic (ADT) of 14,800 vehicles. SR 89, just south of Fanny Bridge, carries an AADT of 13,200 and a summer peak-month ADT of 22,300. The summer peak-month ADT on Fanny Bridge is approximately 70 percent higher than AADT demands.

SR 28 serves as a critical roadway for traffic circulation to and within the Tahoe Basin. Within the study area, SR 28 generally operates as a two-lane arterial with a continuous left-turn median lane. SR 28 intersects SR 89 at the signalized wye intersection, and intersects with Grove Street at a side-street stop-controlled intersection. The signalized wye intersection has dual through lanes on eastbound and westbound approaches and dual left-turn lanes on the westbound and northbound approaches. Per Caltrans 2012 traffic count data, the SR 28 segment east of the wye intersection experiences an AADT of 12,400 vehicles and a peak-month ADT of 17,000 vehicles.

The project site is bordered to the north and northwest by commercial properties, commercial strip malls, and a Save Mart grocery store (100 River Road). Beyond these properties are the Tahoe City Golf Course to the north and northeast and the Tahoe City Public Utility District property to the northwest. To the northeast is the downtown area of Tahoe City, which is primarily commercial with intermixed residential properties, and also by Lake Tahoe. The project site is bordered to the south by storage spaces and an open park/wooded area. Mixed commercial and residential properties are located to the east of SR 89, and SR 89 is bounded to the west and east by an open park/wooded area identified as the 64-Acre Tract. Further south, beyond the 64-Acre Tract, are mixed commercial and residential properties. Downstream of Fanny Bridge is a pedestrian/bicycle bridge over the Truckee River that is part of the Tahoe Rim Trail. Developed and undeveloped land uses in the study area were identified through land use maps, aerial photography, and site inspection. Within each land use category, sensitive receivers were identified. The closest residence (R-09 on Exhibit 4.10-1) to the project site is located along State Route 89 Road approximately 60 feet from proposed construction along SR 89. The closest existing structure to proposed construction activities would be a commercial building (R-25 on Exhibit 4.10-1), located approximately 45 feet to the south of the existing Fanny Bridge. Existing land uses in the study area include residential, commercial, and open space areas including single-family residences, condominiums, tennis courts, swimming pools, a golf course, hotels, motels, restaurants, and U.S. Forest Service, California Tahoe Conservancy, and State Parks lands.



Exhibit 4.10-1

Noise Measurement and Receiver Locations

SOURCES AND AMBIENT NOISE LEVELS

The existing noise environment in the study area is based on five short-term and two long-term 24-hour traffic noise level measurements. Site visits and noise measurements were conducted on Thursday and Friday, July 5 and July 6, 2012 and Saturday January 10 to Sunday January 11 (see Appendix E for details). For each measurement location, the sound level meter was placed 5 feet above ground elevation. See Exhibit 4.10-1 for measurement and receptor locations.

LONG-TERM MONITORING

Two long-term (LT-01 and LT-02) noise level measurements were conducted using a Larson Davis Model 820 Type 1 sound level meter (SN 1298) at two different locations to establish baseline noise conditions for winter and summer months. Long-term noise level measurements were performed along the east and west sides of the wye, at Tahoe Marina Lodge at 270 North Lake Boulevard (SR 28), 85 feet from the SR 28 centerline and at 55 West Lake Boulevard (South SR 89), 90 feet from the South SR 89 centerline, respectively. See Exhibit 4.10-2 for specific location. A summary of the continuous long-term measurements are shown in Table 4.10-7 and Table 4.10-8 for summer time and winter time, respectively.

Table 4.10-7 Site LT-01 – 24-Hour Continuous Noise Monitoring (Summer) (July 5–6, 2014)

Hour	L _{eq}	L _{max}		L _{eq}	L _{max}
16:33	58.9	59.6	Averages		
17:33	62.9	63.7	Daytime (7 a.m. - 7 p.m.)	53.6	61.7
18:33	58.7	59.3	Evening (7 p.m. - 9 p.m.)	58.9	59.6
19:33	59.2	59.9	Nighttime (9 p.m. - 7 a.m.)	53.2	21.7
20:33	58.9	59.5	Uppermost-Level		
21:33	58.8	59.4	Daytime (7 a.m. - 7 p.m.)	62.9	63.7
22:33	57.0	57.8	Evening (7 p.m. - 9 p.m.)	59.2	59.9
23:33	53.9	54.6	Nighttime (9 p.m. - 7 a.m.)	58.8	59.4
0:00	52.4	53.3		Percentage of Energy	
1:33	48.6	49.4		Daytime	39%
2:33	49.2	50.3		Evening	34%
3:33	43.5	44.3		Nighttime	27%
4:33	43.0	43.8		Calculated CNEL, dBA	
				60.8	

Notes: CNEL=Community Noise Equivalent Level; dBA: A-weighted decibels; L_{eq}=Equivalent Continuous Sound Level; L_{max}=Maximum Sound Level; LT=long-term

Source: TTD 2014, see Appendix E

Table 4.10-8 Site LT-02 – 24-Hour Continuous Noise Monitoring (Winter) (January 10-11, 2014)

Hour	L_{eq}	L_{max}		L_{eq}	L_{max}	L_{50}	L_{90}
16:00	64.3	78.5	Averages				
17:00	63.1	78.1	Daytime (7 a.m. - 7 p.m.)	65.2	79.9	62.7	57.2
18:00	60.9	77.8	Evening (7 p.m. - 9 p.m.)	59.8	77.0	55.1	47.0
19:00	58.8	72.4	Nighttime (9 p.m. - 7 a.m.)	56.6	72.3	47.1	41.8
20:00	61.1	86.5	Uppermost-Level				
21:00	59.0	72.0	Daytime (7 a.m. - 7 p.m.)	67.3	92.2	65.6	61.0
22:00	59.8	72.7	Evening (7 p.m. - 9 p.m.)	61.1	86.5	55.5	48.1
23:00	59.1	71.0	Nighttime (9 p.m. - 7 a.m.)	59.8	82.2	57.0	52.8
0:00	55.3	70.8		Percentage of Energy			
1:00	54.2	70.3		Daytime		85%	
2:00	56.4	82.2		Evening		6%	
3:00	46.8	67.3		Nighttime		9%	
4:00	48.4	67.9		Calculated CNEL, dBA			
5:00	54.8	73.0		65.7			
6:00	59.5	75.6					
7:00	62.6	73.9					
8:00	67.3	92.2					
9:00	62.3	75.6					
10:00	64.0	79.2					
11:00	66.4	78.7					
12:00	66.4	79.9					
13:00	67.1	81.1					
14:00	66.4	86.3					
15:00	66.1	77.8					

Notes: CNEL=Community Noise Equivalent Level; dBA: A-weighted decibels; L_{eq} =Equivalent Continuous Sound Level; L_{max} =Maximum Sound Level; LT=long-term

Source: TTD 2014, see Appendix E:

SHORT-TERM MONITORING

The primary sources of noise in the study area are traffic on SR 89, SR 28, and local roadways. Five short-term, 15-minute noise measurements were conducted to document existing noise levels at five representative receiver locations. Noise level measurements were conducted using Larson Davis Model 820 Type 1 sound level meter (SN 1176). Table 4.10-9 shows the results of the short-term noise level measurements. Short-term noise measurements were taken between 1:00 p.m. and 6:30 p.m. at selected receivers and other points of interest in the study area (Exhibit 4-10-1). Weather conditions were clear and warm, 72 degrees Fahrenheit ($^{\circ}$ F) to 87 $^{\circ}$ F, with a slight breeze of less than 10 mph each day.

Table 4.10-9 Summary of Short-Term Measurements							
Site ID	Location or Address	Land Use	Distance	Day	Start Time	Duration	Measured ($L_{eq(h)}$, dBA)
ST-01	(Golf Course) 251 North Lake Blvd. Tahoe City, CA 96145	Golf course	240 feet from SR28	7/6/2012	2:19 p.m.	15 minutes	53.6
ST-02	132 Mackinaw Rd, Tahoe City, CA 96145	Hotel/motel	180 feet from SR 28	7/5/2012	4:21 p.m.	15 minutes	53.4
ST-03	180 W Lake Blvd. Tahoe City, CA 96145	Pool	250 feet from SR 89 South	7/6/2012	1:09 p.m.	15 minutes	52.5
ST-04	411 Kimberly Dr. Tahoe City, CA 96145	Single-family residential	90 feet from Kimberly Drive	7/5/2012	6:13 p.m.	15 minutes	52.5
ST-05	264 W Lake Blvd. Tahoe City, CA 96145	Tennis court	100 feet from SR 89 South	7/5/2012	2:08 p.m.	15 minutes	53.8

Notes: $L_{eq(h)}$, dBA = 1-hour equivalent continuous sound level, measured in A-weighted decibels; ST=short-term

Source: Data compiled by TTD in 2012

Because SR 89 is a continuous noise source, background noise (i.e., noise without the traffic noise from SR 89 or other local roadways) is not easily measured. However, based on a review of the detailed noise measurement data (provided in Appendix E), the background noise level may be estimated at less than 51 dBA L_{eq} , based on the L_{90} measurement (which represents the noise level exceeded 90 percent of the time during the measurement) at measurement sites ST-04 and ST-05. ST-04 would also represent the noise in the woods where currently there are not any roads, and where the proposed SR 89 realignment would pass through.

The dominant noise sources in the study area—traffic on major local roadways, such as SR 89 and SR 28—represented the main noise sources with a noticeable effect on the ambient noise levels. Smaller local roadways include Fairway Drive and Tahoe Tavern Road.

EXISTING TRAFFIC NOISE LEVELS

Existing summer peak traffic volumes obtained from the traffic study (Wood Rodgers 2013) were coded into Traffic Noise Model Version 2.5 (TNM 2.5) with existing roadway conditions. The model input and output data for the existing conditions is provided in Appendix E. Noise levels were predicted at all receivers, including at short-term measurement locations, using TNM 2.5 and various input parameters, as discussed below under Methods and Assumptions. The results of the existing traffic noise modeling are shown in Table 4.10-10.

Existing noise sources in the study area include traffic on SR 89 and SR 28. In addition, commercial and recreational activities also contribute to the existing noise environment. Existing CNEL traffic noise levels at the identified receivers ranged between 41 dBA CNEL and 70 dB CNEL. For further details, refer to Table 4.10-13a and 4.10-13b under Impact 4.10-3.

4.10.4 Environmental Consequences and Mitigation Measures

METHODS AND ASSUMPTIONS

To assess potential short-term (construction-related) noise and vibration effects, sensitive receptors and their relative exposure were identified. Project-generated construction source noise and vibration levels were determined based on methodologies, reference noise levels, and usage factors from the FTA Guide on

Transit Noise and Vibration Impact Assessment Methodology (FTA 2006). Reference levels are noise and vibration emissions for specific equipment or activity types that are well documented and the usage thereof common practice in the field of acoustics.

To assess potential long-term (operation-related) noise effects due to project-generated redistribution of traffic, modeling was conducted for affected roadway segments using the FHWA Traffic Noise Model Version 2.5 (TNM2.5, FHWA 2006) and project-specific traffic data (Wood Rodgers 2013). The analysis is based on the reference noise emission levels for automobiles, medium trucks, and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and ground attenuation factors. Truck usage and vehicle speeds on study area roadways were estimated from field observations and data developed in support of the preliminary traffic analysis (see Section 4.15, “Traffic and Transportation”). This analysis represents a conservative noise evaluation (i.e., tending to overstate impacts). Modeling does not account for the potential noise attenuating character of any natural or human-made shielding (e.g., the presence of vegetation, berms, walls, or buildings). Modeling in Appendix E presents results for both 2018 and 2038. For complete details on model inputs, outputs, and assumptions see the Noise Study Report conducted for the project alternatives, which is included as Appendix E of this EIR/EIS/EA (TTD 2014). For Alternatives 1 through 4, additional modeling was conducted to evaluate whether the 55 CNEL noise contour would extend more than 300 beyond the highway edge for comparison to the applicable TRPA transportation corridor noise standard.

To evaluate relative significance, noise and vibration effects were determined based on comparisons to applicable regulations and guidance provided by federal, state, and local agencies

SIGNIFICANCE CRITERIA

Significance criteria relevant to noise are summarized below.

NEPA Criteria

An environmental document prepared to comply with NEPA must consider the context and intensity of the environmental effects that would be caused by or result from the proposed action. In accordance with FHWA and Caltrans criteria for traffic noise impacts, a project would cause a significant effects if:

- ▲ the traffic noise levels at sensitive receiver locations is predicted to “approach or exceed” the NAC for the corresponding activity category. For the purposes of this project the following NACs are considered:
 - ▶ NAC B may not exceed 67 dBA,
 - ▶ NAC C may not exceed 67 dBA, and
 - ▶ NAC E may not exceed 72 dBA;
- ▲ the predicted worst-hour traffic noise level ($L_{eq[h]}$) is 12 dB or more over the corresponding modeled existing worst-hour noise level at the sensitive receiver locations analyzed.

TRPA Criteria

The noise criteria from the TRPA Initial Environmental Checklist were used to evaluate the noise impacts of the alternatives. The checklist asks if the project would result in the following conditions:

- ▲ Increases in existing CNEL beyond those permitted in the applicable Plan Area Statement, Community Plan or Master Plan?
- ▲ Exposure of people to severe noise levels?
- ▲ Single event noise levels greater than those set forth in the TRPA Noise Environmental Threshold?

- ▲ The placement of residential or tourist accommodation uses in areas where the existing CNEL exceeds 60 dBA or is otherwise incompatible?
- ▲ The placement of uses that would generate an incompatible noise level in close proximity to existing residential or tourist accommodation uses?
- ▲ Exposure of existing structures to levels of ground vibration that could result in structural damage?

Applicable numeric standards and other guidelines provided in the TRPA Code of Ordinances, Goals and Policies, and environmental threshold carrying capacities, as described above in the Regulatory Setting, were used to address these questions.

CEQA Criteria

In accordance with State CEQA Guidelines Appendix G, and with additional information incorporating applicable state and local noise regulations and standards, noise impacts are considered significant if implementation of the project alternatives under consideration would result in any of the following:

Short-term construction-related noise levels that:

- ▲ exceed applicable CNEL noise standards established by TRPA during the more noise-sensitive early morning, evening, and nighttime periods of the day that are not exempt by TRPA (i.e., 8:00 a.m. to 6:30 p.m., daily [Section 68.9 of the TRPA Code]); and/or
- ▲ expose noise-sensitive receptors to noise levels that exceed applicable noise standards (e.g. 45 dBA L_{eq} at nearby sensitive receptors) established by Placer County during the more noise-sensitive periods of the day that are not exempt by the Placer County Noise Ordinance (i.e., between 7:00 a.m. and 10:00 p.m.);
- ▲ vibration levels that exceed FTA's recommended standard of 0.2 in/sec PPV with respect to the prevention of structural damage for normal buildings or FTA's maximum acceptable level of 80 VdB with respect to human response for residential uses [i.e., annoyance] at nearby existing vibration-sensitive land uses);
- ▲ new stationary or area sources that would generate long-term operational noise levels that exceed noise levels of 55 dB L_{eq} during daytime hours (7 a.m. to 10 p.m.) and 45 dBA L_{eq} during nighttime hours (10 p.m. to 7 a.m.);
- ▲ long-term traffic noise levels that:
- ▲ cause a new exceedance of an applicable Environmental Threshold Carrying Capacity noise standard established by TRPA for different land use categories, including the CNEL standards in relevant Community Plans and Plan Area Statements or one of TRPA's transportation corridor noise standards that override all land use-based noise standards;
- ▲ result in a long-term perceptible increase in the ambient noise level (i.e., 3-dBA or greater) in an area where the applicable TRPA Environmental Threshold Carrying Capacity noise standard is not exceeded; or
- ▲ result in a long-term noise level increase, of any magnitude, in an area where the applicable TRPA Environmental Threshold Carrying Capacity noise standard is already exceeded.

ISSUES NOT WARRANTING DETAILED EVALUATION

The project addresses improvements to the SR 89/SR 28 wye intersection, through upgrades to the existing alignment and realignment of the existing roadway. The project would not include placement of any residential or tourist uses. It is a public infrastructure project, and is not considered to constitute a placement of use. TRPA significant impact criteria involving placement of uses relate to development of residential units, tourist accommodation units, and commercial floor area (see TRPA Code Section 50.10). Thus, issues related to the specific effects on placement of uses, including residential or tourist units, are not discussed further.

The project site is not located within two miles of an active private airstrip. The Truckee Airport is the closest airport to the project site, located approximately 10 miles to the north of the project site. The project alternatives would not result in noise impacts related to the exposure of people residing or working in the study area to excessive aircraft-related noise levels. Therefore, this issue is not discussed further.

In addition, the action alternatives (1, 2, 3, 4, 6, and 6a) would not result in any new or additional stationary noise sources. Thus, no new stationary noise sources would result from the project alternatives and this issue is not discussed further.

ENVIRONMENTAL EFFECTS OF THE PROJECT ALTERNATIVES

Impact 4.10-1. Short-term construction noise impacts.

Existing noise-sensitive receptors are located within 50 feet of construction areas. Most heavy-duty construction equipment use and activity would occur during the daytime. However, some minor roadwork would occur at night. Nighttime activities would not result in substantial increases in noise above existing ambient noise levels and would not exceed applicable standards at the nearest sensitive receptors. Daytime construction could occur outside of the exempt daytime hours by Placer County or TRPA; therefore, could potentially exceed applicable standards and result in excessive noise at nearby sensitive receptors. This would be a **significant** impact for Alternatives 1, 2, 3, 4, 6, and 6a. No construction would occur under Alternative 5 and therefore **no impact** would occur.

Construction activities would include site preparation (e.g., earth moving, grading), some cement removal, pile driving, installation of new bridge structures, and paving. Construction generally occurs in several discrete stages, each phase requiring a varying set of equipment types, quantity, and intensity. These variations in the operational characteristics of the equipment change the effect they have on the noise environment of the project site and on the surrounding community during construction. Construction noise levels in the vicinity of the project site would fluctuate depending on the particular type, number, and duration of usage for the varying equipment and construction activities taking place. However, construction activities and equipment use would be generally the same under each alternative. The effects of construction noise largely depend on the type of construction activities occurring on any given day, noise levels generated by those activities, distances to noise sensitive receptors, and the existing ambient noise environment in the receptor's vicinity.

Based on project-specific data, maximum construction noise would result from site preparation activities (e.g., grading, earth moving), and paving activities (e.g., concrete mixing, pavement pouring, compacting). Table 4.10-10 summarizes noise levels produced by construction equipment that is commonly used on roadway construction projects.

Table 4.10-10 Construction Equipment Noise

Equipment	Maximum Noise Level (dBA at 50 feet)
Scrapers	89
Bulldozers	85
Heavy Trucks	88
Backhoe	80
Paver	89
Concrete Mixer	85

Note: dBA = A-weighted decibels

Source: Federal Transit Administration 1995

ALTERNATIVE 1 – NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

Based on the information provided in Table 4.10-10 and accounting for typical usage factors of individual pieces of equipment and activity types, daytime construction-related activities under Alternative 1 could result in noise levels ranging from 80 to 89 dBA L_{max} at a distance of 50 feet.

Night work could be required to maintain roadway operation for activities that would cross travel lanes and to place portions of the new bridge into place. When construction-related noise levels are being evaluated, activities that occur during the more noise-sensitive evening and nighttime hours are of increased concern. Because exterior ambient noise levels typically decrease during the late evening and nighttime hours as traffic volumes and commercial activities decrease, construction activities performed during these more noise-sensitive periods of the day can result in increased annoyance and potential sleep disruption for occupants of nearby residential uses.

Nighttime construction noise would result in noise levels of approximately 45 dBA L_{eq} at the source (i.e., 2 dBA above the lowest measured ambient hourly noise level) (Wood Rogers 2013). Noise level increases of this magnitude would not be considered a substantial increase in ambient noise levels. In addition, noise generated by construction equipment would be reduced over distance at a rate of about 6 dB per doubling of distance. Thus, at 50 feet from the night time construction activities, noise levels would be reduced to 39 dBA L_{eq} , which is below the Placer County nighttime standard of 45 dBA L_{eq} for sensitive receptors. No sensitive receptors that could be affected by nighttime noise (i.e., residences or hotels where people sleep) are located within 50 feet of the project site (or proposed night time activities) and thus would not be exposed to excessive noise during the sensitive times of the day.

As described above, most construction activities and use of heavy-duty construction equipment would occur during the daytime. As described in the Regulatory Setting, Placer County and TRPA exempt construction noise from noise standards provided that construction occurs during the daytime hours (i.e., 6:00 a.m. and 8:00 p.m., Monday through Friday, and between 8:00 a.m. and 8:00 p.m. Saturday and Sunday in Placer County and between 8:00 a.m. and 6:30 p.m. daily within TRPA jurisdiction). However, it is possible that construction activities could occur outside of the hours exempted by TRPA or Placer County. Therefore, if construction were to occur outside the exempted hours, noise levels of 90 dBA would exceed Placer County threshold of 55 dBA L_{eq} at sensitive receptors within 50 feet of construction (see Exhibit 4.10-1 for receptor locations). This would be a **significant** impact.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Short-term construction noise impacts under Alternative 2 would be the same as discussed above under Alternative 1 because construction would occur in the same areas and would use the same construction equipment and methods as described above. Similar to Alternative 1, if construction were to occur outside the exempted hours, noise levels of 90 dBA would exceed Placer County threshold of 55 dBA L_{eq} at sensitive receptors within 50 feet of construction, and this would be a **significant** impact.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Short-term construction noise impacts under Alternative 3 would be the same as discussed above under Alternative 1 because construction would occur in the same areas and would use the same construction equipment and methods as described above. For the reasons explained above, this would be a **significant** impact.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Short-term construction noise impacts under Alternative 4 would be the same as discussed above under Alternative 1 because construction would occur in the same areas and would use the same construction equipment and methods as described above. For the reasons explained above, this would be a **significant** impact.

ALTERNATIVE 5: NO ACTION

The No Action Alternative would not include any construction activities and therefore would not result in any short-term increases in noise at nearby noise-sensitive receptors. **No impact** would occur.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Implementation of Alternative 6 would result in short-term construction effects similar to those described above under Alternative 1. The level of construction activity and associated noise effects under Alternative 6 would be less than under Alternatives 1 through 4 because the new bridge and the realignment of SR 89 would not be constructed. The construction areas would be smaller and less grading and other earth disturbance activity would occur overall. However, it is possible that construction activities could occur outside of the hours exempted by TRPA or Placer County. Therefore, if construction were to occur outside the exempted hours, noise levels of 90 dBA would exceed Placer County threshold of 55 dBA L_{eq} at sensitive receptors within 50 feet of construction (see Exhibit 4.10-1 for receptor locations). This would be a **significant** impact.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Noise impacts would be the same as described for Alternative 6 because construction would occur in the same areas and would use the same construction equipment and techniques as Alternative 6. Therefore, implementation of Alternative 6a would result in a **significant** impact related to short-term construction noise.

Impact 4.10-2. Ground vibration impacts.

Existing noise-sensitive receptors and structures are located within 50 feet of potential pile driving locations. Thus, receptors could be exposed to excessive levels of ground vibration and vibration noise such that structural damage and human disturbance could occur. This would be a **significant** impact for Alternatives 1, 2, 3, 4, 6, and 6a. No construction would occur under Alternative 5 and therefore there would be **no impact**.

Construction activities generate varying degrees of temporary ground vibration, depending on the specific construction equipment used and activities involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. Construction-related ground vibration is normally associated with impact equipment such as pile drivers, jackhammers, and the operation of some heavy-duty construction equipment, such as dozers and trucks. The effects of ground vibration may be imperceptible at the lowest levels, result in low rumbling sounds and detectable vibrations at moderate levels, and high levels of vibration can cause sleep disturbance in places where people normally sleep or annoyance in buildings that are primarily used for daytime functions and sleeping.

The project would not include the development of any new permanent stationary sources of ground vibration and; therefore, this analysis focusses on construction-induced vibration. Depending on the specific

construction equipment used and activities involved, construction activities may result in varying degrees of temporary ground vibration and noise.

Pile driving would be required for bridge footing installation under all action alternatives, which could affect nearby sensitive receptors. In addition, other heavy-duty equipment (i.e., dozers, graders, pavers, and trucks) would be used for construction activities. Maximum ground vibration levels would be associated with pile driving. Ground vibration and noise levels associated with various types of construction equipment and activities are summarized in Table 4.10-11.

Table 4.10-11 Representative Ground Vibration and Noise Levels for Construction Equipment

Equipment	PPV at 25 feet (in/sec)	Approximate L_v (VdB) at 25 feet
Sonic Pile Driver	1.518	112
Large Dozer	0.089	87
Loaded Trucks	0.076	86
Small Dozer	0.003	58

PPV = peak particle velocity; LV = the root mean square velocity expressed in vibration decibels (VdB), assuming a crest factor of 4

Source: FTA 2006:p.12-6,12-8

ALTERNATIVE 1 – NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

Under Alternative 1, a new bridge would be constructed and the existing Fanny Bridge would either be replaced or rehabilitated. New bridge construction and replacement of the existing Fanny Bridge would require pile driving. Because it has not been determined if replacement or rehabilitation would be conducted, this analysis addresses a scenario where the existing Fanny Bridge would be replaced and would require pile driving.

Based on FTA's recommended procedure for applying a propagation adjustment to reference ground vibration levels shown above, predicted worst-case ground vibration levels from pile driving would exceed the threshold for human disturbance of 80 Vdb at distances within 150 feet. With regards to structural damage, the Caltrans-recommended threshold of 0.2 inch/second PPV would be exceeded at distances within 50 feet from pile driving activities.

Sensitive receptor R-26 (see Exhibit 4.10-1), a commercial building, is located approximately 45 feet from potential pile driving sites for replacement of the existing Fanny Bridge. Existing structures are located within 50 feet of potential pile driving, and could be exposed to excessive vibration levels such that structural damage could occur. Thus, this would be a **significant** impact.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

This impact would be the same as under Alternative 1 because construction would occur in the same areas and would use the same construction equipment and methods as described above. This would be a **significant** impact.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

This impact would be the same as under Alternative 1 because construction would occur in the same areas and would use the same construction equipment and methods as described above. This would be a **significant** impact.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

This impact would be the same as under Alternative 1 because construction would occur in the same areas and would use the same construction equipment and methods as described above. This would be a **significant** impact.

ALTERNATIVE 5: NO ACTION

The No Action Alternative would not include ground vibration-inducing construction activities and therefore would not result in any vibration noise or ground vibration at nearby noise-sensitive receptors or structures. **No impact** would occur.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Alternative 6 would not construct a new bridge or result in the realignment of SR 89, modifications to the Caltrans maintenance yard, or realignment of existing bike paths. The alternative would include either rehabilitation or replacement of the existing Fanny Bridge. As stated above, this analysis assumes that pile driving would be required to replace the Fanny Bridge. Sensitive receptor R-26 (see Exhibit 4.10-1), a commercial building, is located approximately 45 feet from potential pile driving sites for replacement of the existing Fanny Bridge. Existing structures are located within 50 feet of potential pile driving that could be exposed to excessive vibration levels such that structural damage could occur. This would be a **significant** impact.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Ground disturbance vibration effects would be the same as described for Alternative 6 because construction would occur in the same areas and would use the same construction equipment and techniques as Alternative 6. Therefore, implementation of Alternative 6a would result in a **significant** impact.

Impact 4.10-3. Long-term noise impacts.

Traffic noise levels would change in specific locations for all alternatives. For all the alternatives, the noise increase would be **less than significant for NEPA compliance**, because they would be less than applicable the FHWA-established NAC standards and they would not result in a traffic noise level increases during the worst-case hour greater than 12 db $L_{eq}(h)$.

For Alternatives 1 through 4, the noise effect in the study area would be **significant for CEQA and TRPA environmental compliance**, because portions of the 64-Acre Tract would be exposed to traffic noise increases greater than 3 db CNEL where the TRPA standard of 55 dBA CNEL is already exceeded. For Alternative 5, some traffic noise level increases would occur, but they would be a continuation of existing conditions so there would be **no impact for purposes of CEQA, NEPA, and TRPA environmental compliance**. For Alternatives 6 and 6A, areas along the existing segment of SR 89 would experience traffic noise increases where TRPA's land-based noise standard of 55 CNEL is exceeded under existing conditions. This would be **significant for CEQA and TRPA environmental compliance**.

Noise sources in the study area include traffic on existing roadways (e.g., SR 89, SR 28), commercial properties, commercial strip malls, and recreational activities. This analysis considers 67 receiver locations associated with existing single-family residences, pools, a golf course, hotels, motels, trails, commercial areas, governmental units, and vacant land. As described in Section 4.10.3, "Affected Environment," two long-term and five short-term measurements were used to record existing noise levels and calibrate modeled changes in noise associated with the project alternatives.

Based upon initial noise measurements and predictions of changes in traffic volumes from regional growth projections, noise levels at sensitive receptor locations were modeled to determine existing noise conditions, future (2018) conditions, and the effects of each action alternative. Existing and future ADT volumes on SR

28 and SR 89 were provided by the preliminary project traffic report prepared for the SR 89/Fanny Bridge Project (Wood Rodgers 2013). Using the projected traffic volumes from this traffic report is considered conservative (i.e., tending to overstate impacts), because a revised traffic report is being prepared and is expected to provide updated traffic volume estimates that will be approximately 20 percent lower than the volumes estimated in the existing report.

The noise level change is examined at each receiver location shown in Exhibit 4.10-1 and evaluated based on the land use type and the applicable FHWA/Caltrans NAC (i.e., NAC B, C, and E, described in Table 4.10-3). According to FHWA/Caltrans criteria, increases in traffic noise levels would be significant if a project would result in a 12 dB increase in the worst-hour hourly noise level or exceed NAC levels. Table 4.10-12 summarizes the projected minimum and maximum noise levels during the worst-hour for all land use types or activity areas subject to an applicable NAC, as well as the change in traffic noise levels under each alternative. As shown in Table 4.10-12, none of the Alternatives would result in an exceedance of an applicable NAC or result in a traffic noise level increases greater than 12 db. Thus, this impact **would be less than significant under NEPA** for all project alternatives.

Table 4.10-12 Summary of Maximum, Minimum, and Changes in the Worst-Hour Noise Level in 2018 under the Project Alternatives

Alternative	Noise Metric	Year 2018 Noise Level (worst-hour dBA L _{eq})		
		At Land Use Type or Activity Area where NAC Applies		
		B (67)	C (67)	E (72)
Alternative 5 (No Action)	Predicted Worst-Hour Noise Level (dBA L _{eq})	Min	40.3	50.3
		Max	59.6	63.8
	Change from Existing	Min	1.1	1.2
		Max	1.0	1.7
Alternative 1	Predicted Worst-Hour Noise Level (dBA L _{eq})	Min	40.2	53.4
		Max	59.6	64.1
	Change from Existing	Min	1.0	4.3
		Max	1.0	-0.5
	Change from No-Build Alternative	Min	-0.1	3.1
		Max	0.0	-2.2
Alternative 2	Predicted Worst-Hour Noise Level (dBA L _{eq})	Min	40.5	52.4
		Max	59.7	64.1
	Change from Existing	Min	1.3	3.3
		Max	1.1	-3.9
	Change from No-Build Alternative	Min	0.2	2.1
		Max	0.1	-3.2
Alternative 3	Predicted Worst-Hour Noise Level (dBA L _{eq})	Min	40.4	54.3
		Max	59.6	64.1
	Change from Existing	Min	1.2	5.2
		Max	1.0	-3.9
	Change from No-Build Alternative	Min	0.1	4.0
		Max	0.0	-1.1
Alternative 4	Predicted Worst-Hour Noise Level (dBA L _{eq})	Min	41.7	54.5
		Max	60.4	64.2
	Change from Existing	Min	2.5	5.4
		Max	1.8	-1.6
	Change from No-Build Alternative	Min	1.4	4.2
		Max	0.8	-3.3

Table 4.10-12 Summary of Maximum, Minimum, and Changes in the Worst-Hour Noise Level in 2018 under the Project Alternatives

Year 2018 Noise Level (worst-hour dBA L _{eq})					
Alternative	Noise Metric	At Land Use Type or Activity Area where NAC Applies			
Alternative 6	Predicted Worst-Hour Noise Level (dBA L _{eq})	Min	40.1	49.9	39.4
		Max	59.6	64.2	63.2
	Change from Existing	Min	0.9	0.8	1.2
		Max	1.0	2.1	-2.2
	Change from No-Build Alternative	Min	-0.2	-0.4	-0.5
		Max	0.0	0.4	-3.7
Alternative 6A	Predicted Worst-Hour Noise Level (dBA L _{eq})	Min	39.1	49.5	39.8
		Max	59.6	64.2	62.0
	Change from Existing	Min	-0.1	0.4	1.6
		Max	1.0	2.1	-3.4
	Change from No-Build Alternative	Min	-1.2	-0.8	-0.1
		Max	0.0	0.4	-4.9

Notes: dBA = A-weighted decibels; L_{eq} = equivalent continuous sound level; NAC = noise abatement criteria

Source: TTD 2012 (Appendix E)

As discussed above, under “Significance Criteria,” pursuant to TRPA and CEQA standards, traffic noise would be a significant impact if it would result in a new exceedance of the applicable CNEL standard established by TRPA; result in a perceptible increase in the CNEL (i.e., 3-dBA or greater) in an area where the applicable TRPA standard is not exceeded or; result in a CNEL increase of any magnitude in an area where the applicable TRPA noise standard is already exceeded.

Tables 4.10-13a and 4.10-13b summarize the predicted CNEL in 2018 at each receiver location (see Exhibit 4.10-1) along with the associated land use type, and the level of increase above the existing and No Action Alternative conditions. Note that none of the alternatives would result in increased traffic volumes traveling through the study area, because traffic volumes are determined by regional travel demand, local and regional land uses, and residential and visitor populations.

TRPA adopted CNEL standards for different zones within the Region to account for varying degrees of noise-sensitivity and desired levels of serenity. Zones included TRPA Plan Areas, land use categories, and transportation corridors. TRPA threshold evaluations consider large areas of land uses. For the SR 89/Fanny Bridge Project, for instance, noise is evaluated within the community noise context of High Density Residential Areas, Urban Outdoor Recreation Areas, and Transportation Corridors States Routes 28, 89, 207, 267 and 431—all for which TRPA has designated a CNEL 55 dBA standard—as described in the 2011 *Threshold Evaluation Report* (TRPA 2011).

Table 4.10-13a Predicted 2018 Noise Levels (CNEL) - Existing, Alternative 1, Alternative 2, Alternative 3, Alternative 5 (No Build)

Receiver I.D.	Location or Address	Land Use	NU	Standard (CNEL)	Existing	Alternative 5 - No-Build (2018)		Alternative 1 (2018)			Alternative 2 (2018)			Alternative 3 (2018)		
					Predicted Noise Level (CNEL)	Predicted Noise Level (CNEL)	Increase over Existing (dB)	Predicted Noise Level (CNEL)	Increase over Existing (dB)	Increase over No Build (dB)	Predicted Noise Level (CNEL)	Increase over Existing (dB)	Increase over No Build (dB)	Predicted Noise Level (CNEL)	Increase over Existing (dB)	Increase over No Build (dB)
LT-01	Tahoe Marina Lodge, Macinaw Rd	Driveway	0	NA	63.4	64.9	1.5	64.1	0.7	-0.8	64.6	1.2	-0.3	64.6	1.2	-0.3
R-01	255 N Lake Blvd	Hotel/Yard	0	55	48.6	49.9	1.3	48.9	0.3	-1.0	49.1	0.5	-0.8	49.1	0.5	-0.8
R-02	N Lake Blvd	Commercial	0	55	52.9	54.2	1.3	53.2	0.3	-1.0	53.4	0.5	-0.8	53.5	0.6	-0.7
R-03	Undeveloped\West of SaveMart	Commercial	0	55	63.9	64.6	0.7	63.9	0.0	-0.7	62.0	-1.9	-2.6	64.1	0.2	-0.5
R-04	Fairway Dr	Commercial	0	55	58.6	59.3	0.7	58.5	-0.1	-0.8	57.4	-1.2	-1.9	58.9	0.3	-0.4
R-05	Fairway Dr	Commercial	0	55	57.6	58.4	0.8	58.4	0.8	0.0	57.2	-0.4	-1.2	58.7	1.1	0.3
R-06	W River Rd	Governmental	0	55	55.9	56.6	0.7	57.4	1.5	0.8	57.0	1.1	0.4	58.0	2.1	1.4
R-07	W River Rd	Commercial	0	55	56.8	57.4	0.6	57.6	0.8	0.2	57.3	0.5	-0.1	57.6	0.8	0.2
R-08	W River Rd	Commercial	0	55	50.4	51.0	0.6	51.3	0.9	0.3	51.3	0.9	0.3	51.3	0.9	0.3
R-09	W River Rd	Residential	1	55	62.1	62.7	0.6	62.8	0.7	0.1	62.8	0.7	0.1	62.8	0.7	0.1
R-10	Tahoe Marina Lodge, Macinaw Rd	Hotel	4	55	50.2	51.7	1.5	51.0	0.8	-0.7	51.6	1.4	-0.1	51.6	1.4	-0.1
R-11	Tahoe Marina Lodge, Macinaw Rd	Hotel	4	55	44.9	46.2	1.3	45.1	0.2	-1.1	45.3	0.4	-0.9	45.3	0.4	-0.9
R-12	Tahoe Marina Lodge, Macinaw Rd	Hotel	4	55	46.1	47.0	0.9	43.8	-2.3	-3.2	42.0	-4.1	-5.0	42.2	-3.9	-4.8
R-13	Tahoe Marina Lodge, Macinaw Rd	Hotel	4	55	41.6	43.1	1.5	42.3	0.7	-0.8	42.8	1.2	-0.3	42.8	1.2	-0.3
R-14	Tahoe Marina Lodge, Macinaw Rd	Hotel	4	55	47.4	48.4	1.0	46.8	-0.6	-1.6	46.1	-1.3	-2.3	46.3	-1.1	-2.1
R-15	Tahoe Marina Lodge, Macinaw Rd	Hotel	4	55	46.5	48.0	1.5	47.2	0.7	-0.8	47.7	1.2	-0.3	47.7	1.2	-0.3
R-16	Tahoe Marina Lodge, Macinaw Rd	Hotel	4	55	54.6	55.4	0.8	51.1	-3.5	-4.3	43.6	-11.0	-11.8	43.8	-10.8	-11.6
R-17	Tahoe Marina Lodge, Macinaw Rd	Hotel	4	55	53.0	53.7	0.7	49.9	-3.1	-3.8	43.8	-9.2	-9.9	44.1	-8.9	-9.6
R-18	Tahoe Marina Lodge, Macinaw Rd	Hotel	4	55	54.5	55.3	0.8	50.8	-3.7	-4.5	45.9	-8.6	-9.4	46.2	-8.3	-9.1
R-19	Tahoe Marina Lodge, Macinaw Rd	Hotel/Pool	0	55	54.7	55.5	0.8	51.9	-2.8	-3.6	46.6	-8.1	-8.9	46.8	-7.9	-8.7
R-20	Tahoe Marina Lodge, Macinaw Rd	Hotel	4	55	49.4	50.4	1.0	48.0	-1.4	-2.4	46.6	-2.8	-3.8	46.7	-2.7	-3.7
R-21	Macinaw Rd	Commercial	0	55	57.9	58.8	0.9	55.9	-2.0	-2.9	52.4	-5.5	-6.4	52.4	-5.5	-6.4
R-22	Macinaw Rd	Commercial	0	55	60.3	61.0	0.7	57.0	-3.3	-4.0	49.0	-11.3	-12.0	49.2	-11.1	-11.8
R-23	Macinaw Rd	Commercial	0	55	64.0	65.0	1.0	63.6	-0.4	-1.4	62.1	-1.9	-2.9	62.3	-1.7	-2.7
R-24	W Lake Blvd	Commercial	0	55	66.5	67.3	0.8	65.7	-0.8	-1.6	60.6	-5.9	-6.7	61.2	-5.3	-6.1

Table 4.10-13a Predicted 2018 Noise Levels (CNEL) - Existing, Alternative 1, Alternative 2, Alternative 3, Alternative 5 (No Build)

Receiver I.D.	Location or Address	Land Use	NU	Standard (CNEL)	Existing	Alternative 5 - No-Build (2018)		Alternative 1 (2018)			Alternative 2 (2018)			Alternative 3 (2018)		
					Predicted Noise Level (CNEL)	Predicted Noise Level (CNEL)	Increase over Existing (dB)	Predicted Noise Level (CNEL)	Increase over Existing (dB)	Increase over No Build (dB)	Predicted Noise Level (CNEL)	Increase over Existing (dB)	Increase over No Build (dB)	Predicted Noise Level (CNEL)	Increase over Existing (dB)	Increase over No Build (dB)
R-25	W River Rd	Commercial	0	55	63.0	63.7	0.7	63.0	0.0	-0.7	60.4	-2.6	-3.3	63.4	0.4	-0.3
R-26	W Lake Blvd	Commercial	0	55	69.2	69.9	0.7	65.9	-3.3	-4.0	48.4	-20.8	-21.5	49.2	-20.0	-20.7
R-27	W River Rd	Commercial	0	55	62.0	62.7	0.7	59.1	-2.9	-3.6	51.2	-10.8	-11.5	52.4	-9.6	-10.3
R-28	W River Rd	Commercial	0	55	61.3	62.0	0.7	58.4	-2.9	-3.6	52.6	-8.7	-9.4	53.9	-7.4	-8.1
R-29	W River Rd	Commercial	0	55	59.9	60.6	0.7	58.0	-1.9	-2.6	55.4	-4.5	-5.2	56.7	-3.2	-3.9
R-30	W River Rd	Commercial	0	55	59.9	60.6	0.7	58.5	-1.4	-2.1	57.3	-2.6	-3.3	58.4	-1.5	-2.2
R-31	W Lake Blvd	Commercial	0	55	62.3	63.0	0.7	59.9	-2.4	-3.1	53.3	-9.0	-9.7	55.1	-7.2	-7.9
R-32	64-Acre Tract	Trail	0	55	57.4	58.1	0.7	56.6	-0.8	-1.5	55.0	-2.4	-3.1	56.1	-1.3	-2.0
R-33	Tahoe Rim Trail	Trail	0	55	60.4	61.1	0.7	61.4	1.0	0.3	61.2	0.8	0.1	62.2	1.8	1.1
R-34	64-Acre Tract	Trail	0	55	52.7	53.4	0.7	60.5	7.8	7.1	61.9	9.2	8.5	61.8	9.1	8.4
R-35	176 W Lake Blvd	Commercial	0	55	70.1	70.8	0.7	66.4	-3.7	-4.4	52.9	-17.2	-17.9	53.4	-16.7	-17.4
R-36	Tahoe Tavern Rd	Commercial	0	55	58.1	58.9	0.8	54.7	-3.4	-4.2	48.9	-9.2	-10.0	49.1	-9.0	-9.8
R-37	217 Tavern Shores	Hotel	4	55	50.4	51.2	0.8	47.9	-2.5	-3.3	43.9	-6.5	-7.3	44.1	-6.3	-7.1
R-38	217 Tavern Shores	Hotel	4	55	46.3	47.1	0.8	44.1	-2.2	-3.0	41.4	-4.9	-5.7	41.4	-4.9	-5.7
R-39	217 Tavern Shores	Hotel	4	55	50.4	51.2	0.8	47.9	-2.5	-3.3	44.7	-5.7	-6.5	44.8	-5.6	-6.4
R-40	217 Tavern Shores	Hotel	4	55	63.9	64.6	0.7	59.8	-4.1	-4.8	52.0	-11.9	-12.6	52.6	-11.3	-12.0
R-41	217 Tavern Shores	Hotel	4	55	51.1	51.8	0.7	48.8	-2.3	-3.0	45.4	-5.7	-6.4	45.4	-5.7	-6.4
R-42	217 Tavern Shores	Hotel	4	55	54.0	54.8	0.8	51.7	-2.3	-3.1	45.6	-8.4	-9.2	45.8	-8.2	-9.0
R-43	217 Tavern Shores	Hotel	4	55	58.1	58.8	0.7	54.1	-4.0	-4.7	46.0	-12.1	-12.8	46.9	-11.2	-11.9
R-44	217 Tavern Shores	Hotel	4	55	50.7	51.4	0.7	49.6	-1.1	-1.8	47.4	-3.3	-4.0	47.4	-3.3	-4.0
R-45	W River Rd	Governmental	0	55	54.5	55.1	0.6	55.9	1.4	0.8	56.2	1.7	1.1	56.2	1.7	1.1
R-46	W River Rd	Governmental	0	55	57.6	58.2	0.6	58.2	0.6	0.0	58.3	0.7	0.1	58.2	0.6	0.0
R-47	W River Rd	Governmental	0	55	53.6	54.2	0.6	54.3	0.7	0.1	54.3	0.7	0.1	54.3	0.7	0.1
R-48	W River Rd	Residential	1	55	53.1	53.7	0.6	53.9	0.8	0.2	54.1	1.0	0.4	54.1	1.0	0.4
R-49	W River Rd	Residential	1	55	48.6	49.3	0.7	49.2	0.6	-0.1	49.6	1.0	0.3	49.6	1.0	0.3

Table 4.10-13a Predicted 2018 Noise Levels (CNEL) – Existing, Alternative 1, Alternative 2, Alternative 3, Alternative 5 (No Build)

Receiver I.D.	Location or Address	Land Use	NU	Standard (CNEL)	Existing	Alternative 5 - No-Build (2018)		Alternative 1 (2018)			Alternative 2 (2018)			Alternative 3 (2018)		
					Predicted Noise Level (CNEL)	Predicted Noise Level (CNEL)	Increase over Existing (dB)	Predicted Noise Level (CNEL)	Increase over Existing (dB)	Increase over No Build (dB)	Predicted Noise Level (CNEL)	Increase over Existing (dB)	Increase over No Build (dB)	Predicted Noise Level (CNEL)	Increase over Existing (dB)	Increase over No Build (dB)
R-50	217 Tavern Shores	Hotel	4	55	44.4	45.2	0.8	41.4	-3.0	-3.8	37.8	-6.6	-7.4	37.8	-6.6	-7.4
R-51	217 Tavern Shores	Hotel	4	55	64.0	64.7	0.7	64.6	0.6	-0.1	64.5	0.5	-0.2	64.6	0.6	-0.1
R-52	217 Tavern Shores	Hotel	4	55	45.8	46.5	0.7	46.8	1.0	0.3	46.8	1.0	0.3	46.9	1.1	0.4
R-53	217 Tavern Shores	Hotel	4	55	63.6	64.3	0.7	64.3	0.7	0.0	64.1	0.5	-0.2	64.3	0.7	0.0
R-54	217 Tavern Shores	Hotel	4	55	61.1	61.9	0.8	62.1	1.0	0.2	62.1	1.0	0.2	62.2	1.1	0.3
R-55	217 Tavern Shores	Hotel	4	55	45.7	46.5	0.8	44.4	-1.3	-2.1	40.9	-4.8	-5.6	41.1	-4.6	-5.4
R-56	Tahoe Tree Company	Commercial	0	55	58.7	59.4	0.7	59.5	0.8	0.1	59.3	0.6	-0.1	59.5	0.8	0.1
R-57	Kimberly Dr	Residential	1	55	54.8	55.4	0.6	55.8	1.0	0.4	55.8	1.0	0.4	56.1	1.3	0.7
R-58	Kimberly Dr	Residential	1	55	53.7	54.3	0.6	55.0	1.3	0.7	55.0	1.3	0.7	55.3	1.6	1.0
R-59	Kimberly Dr	Residential	1	55	52.4	53.1	0.7	53.9	1.5	0.8	53.9	1.5	0.8	54.3	1.9	1.2
R-60	Kimberly Dr	Residential	1	55	52.9	53.6	0.7	55.0	2.1	1.4	55.3	2.4	1.7	55.5	2.6	1.9
R-61	Kimberly Dr	Residential	1	55	42.6	43.3	0.7	43.3	0.7	0.0	43.2	0.6	-0.1	43.3	0.7	0.0
ST-01	N Lake Blvd	Golf Course	0	55	62.1	63.1	1.0	61.5	-0.6	-1.6	60.3	-1.8	-2.8	60.6	-1.5	-2.5
ST-02	Tahoe Marina Lodge, Macinaw Rd	Hotel	4	55	54.8	56.1	1.3	54.6	-0.2	-1.5	54.7	-0.1	-1.4	54.6	-0.2	-1.5
ST-03	217 Tavern Shores	Hotel/Pool	0	55	63.0	63.7	0.7	59.4	-3.6	-4.3	49.8	-13.2	-13.9	50.2	-12.8	-13.5
ST-04	217 Tavern Shores	Residential	1	55	53.0	53.7	0.7	54.9	1.9	1.2	55.1	2.1	1.4	55.4	2.4	1.7
ST-05	411 Kimberly Dr	Hotel/Tennis Court	0	55	66.6	67.3	0.7	67.6	1.0	0.3	67.5	0.9	0.2	67.6	1.0	0.3

Table 4.10-13b Predicted 2018 Noise Levels (CNEL) – Existing, No-Build, Alternative 4, Alternative 6, Alternative 6a

Receiver I.D.	Location or Address	Land Use	NU	Standard (CNEL)	Existing	No-Build 2018 Alternative		Alternative 4 (2018)			Alternative 6 (2018)			Alternative 6a (2018)		
					Predicted Noise Level (CNEL)	Predicted Noise Level (CNEL)	Increase over Existing (dB)	Predicted Noise Level (CNEL)	Increase over Existing (dB)	Increase over No Build (dB)	Predicted Noise Level (CNEL)	Increase over Existing (dB)	Increase over No Build (dB)	Predicted Noise Level (CNEL)	Increase over Existing (dB)	Increase over No Build (dB)
LT-01	Tahoe Marina Lodge, Macinaw Rd	Driveway	0	NA	63.4	64.9	1.5	64.6	1.2	-0.3	65.6	2.2	0.7	64.1	0.7	-0.8
R-01	255 N Lake Blvd	Hotel/Yard	0	55	48.6	49.9	1.3	49.0	0.4	-0.9	49.9	1.3	0.0	49.6	1.0	-0.3
R-02	N Lake Blvd	Commercial	0	55	52.9	54.2	1.3	53.3	0.4	-0.9	53.1	0.2	-1.1	52.4	-0.5	-1.8
R-03	Undeveloped\West of SaveMart	Commercial	0	55	63.9	64.6	0.7	62.0	1.0	-2.6	64.2	1.0	-0.4	62.0	1.0	-2.6
R-04	Fairway Dr	Commercial	0	55	58.6	59.3	0.7	58.8	0.2	-0.5	58.8	0.2	-0.5	58.8	0.2	-0.5
R-05	Fairway Dr	Commercial	0	55	57.6	58.4	0.8	59.3	1.7	0.9	57.9	0.3	-0.5	57.4	-0.2	-1.0
R-06	W River Rd	Governmental	0	55	55.9	56.6	0.7	62.6	6.7	6.0	56.5	0.6	-0.1	56.4	0.5	-0.2
R-07	W River Rd	Commercial	0	55	56.8	57.4	0.6	59.8	3.0	2.4	57.2	0.4	-0.2	57.1	0.3	-0.3
R-08	W River Rd	Commercial	0	55	50.4	51.0	0.6	53.1	2.7	2.1	51.0	0.6	0.0	50.9	0.5	-0.1
R-09	W River Rd	Residential	1	55	62.1	62.7	0.6	63.0	0.9	0.3	62.7	0.6	0.0	62.7	0.6	0.0
R-10	Tahoe Marina Lodge, Macinaw Rd	Hotel	4	55	50.2	51.7	1.5	51.6	1.4	-0.1	52.1	1.9	0.4	51.6	1.4	-0.1
R-11	Tahoe Marina Lodge, Macinaw Rd	Hotel	4	55	44.9	46.2	1.3	45.3	0.4	-0.9	45.8	0.9	-0.4	45.3	0.4	-0.9
R-12	Tahoe Marina Lodge, Macinaw Rd	Hotel	4	55	46.1	47.0	0.9	42.8	-3.3	-4.2	44.4	-1.7	-2.6	43.7	-2.4	-3.3
R-13	Tahoe Marina Lodge, Macinaw Rd	Hotel	4	55	41.6	43.1	1.5	42.8	1.2	-0.3	42.7	1.1	-0.4	42.8	1.2	-0.3
R-14	Tahoe Marina Lodge, Macinaw Rd	Hotel	4	55	47.4	48.4	1.0	46.6	-0.8	-1.8	47.4	0.0	-1.0	46.6	-0.8	-1.8
R-15	Tahoe Marina Lodge, Macinaw Rd	Hotel	4	55	46.5	48.0	1.5	47.7	1.2	-0.3	47.9	1.4	-0.1	47.7	1.2	-0.3
R-16	Tahoe Marina Lodge, Macinaw Rd	Hotel	4	55	54.6	55.4	0.8	43.1	-11.5	-12.3	51.0	-3.6	-4.4	49.3	-5.3	-6.1
R-17	Tahoe Marina Lodge, Macinaw Rd	Hotel	4	55	53.0	53.7	0.7	44.8	-8.2	-8.9	49.7	-3.3	-4.0	48.2	-4.8	-5.5
R-18	Tahoe Marina Lodge, Macinaw Rd	Hotel	4	55	54.5	55.3	0.8	45.6	-8.9	-9.7	52.3	-2.2	-3.0	51.7	-2.8	-3.6
R-19	Tahoe Marina Lodge, Macinaw Rd	Hotel/Pool	0	55	54.7	55.5	0.8	47.2	-7.5	-8.3	51.7	-3.0	-3.8	50.3	-4.4	-5.2
R-20	Tahoe Marina Lodge, Macinaw Rd	Hotel	4	55	49.4	50.4	1.0	46.8	-2.6	-3.6	48.3	-1.1	-2.1	47.7	-1.7	-2.7
R-21	Macinaw Rd	Commercial	0	55	57.9	58.8	0.9	52.2	-5.7	-6.6	55.8	-2.1	-3.0	54.7	-3.2	-4.1
R-22	Macinaw Rd	Commercial	0	55	60.3	61.0	0.7	48.4	-11.9	-12.6	56.8	-3.5	-4.2	55.7	-4.6	-5.3
R-23	Macinaw Rd	Commercial	0	55	64.0	65.0	1.0	61.8	-2.2	-3.2	64.0	0.0	-1.0	60.2	-3.8	-4.8

Table 4.10-13b Predicted 2018 Noise Levels (CNEL) – Existing, No-Build, Alternative 4, Alternative 6, Alternative 6a

Receiver I.D.	Location or Address	Land Use	NU	Standard (CNEL)	Existing	No-Build 2018 Alternative		Alternative 4 (2018)			Alternative 6 (2018)			Alternative 6a (2018)		
					Predicted Noise Level (CNEL)	Predicted Noise Level (CNEL)	Increase over Existing (dB)	Predicted Noise Level (CNEL)	Increase over Existing (dB)	Increase over No Build (dB)	Predicted Noise Level (CNEL)	Increase over Existing (dB)	Increase over No Build (dB)	Predicted Noise Level (CNEL)	Increase over Existing (dB)	Increase over No Build (dB)
R-24	W Lake Blvd	Commercial	0	55	66.5	67.3	0.8	59.4	-7.1	-7.9	66.3	-0.2	-1.0	62.7	-3.8	-4.6
R-25	W River Rd	Commercial	0	55	63.0	63.7	0.7	62.1	-0.9	-1.6	63.2	0.2	-0.5	61.5	-1.5	-2.2
R-26	W Lake Blvd	Commercial	0	55	69.2	69.9	0.7	51.0	-18.2	-18.9	66.6	-2.6	-3.3	65.0	-4.2	-4.9
R-27	W River Rd	Commercial	0	55	62.0	62.7	0.7	52.9	-9.1	-9.8	59.4	-2.6	-3.3	57.4	-4.6	-5.3
R-28	W River Rd	Commercial	0	55	61.3	62.0	0.7	54.5	-6.8	-7.5	59.2	-2.1	-2.8	56.1	-5.2	-5.9
R-29	W River Rd	Commercial	0	55	59.9	60.6	0.7	57.3	-2.6	-3.3	58.7	-1.2	-1.9	56.9	-3.0	-3.7
R-30	W River Rd	Commercial	0	55	59.9	60.6	0.7	58.5	-1.4	-2.1	59.4	-0.5	-1.2	58.6	-1.3	-2.0
R-31	W Lake Blvd	Commercial	0	55	62.3	63.0	0.7	54.8	-7.5	-8.2	60.2	-2.1	-2.8	58.4	-3.9	-4.6
R-32	Tahoe Rim Trails	Trail	0	55	57.4	58.1	0.7	56.9	-0.5	-1.2	56.9	-0.5	-1.2	56.2	-1.2	-1.9
R-33	Tahoe Rim Trails	Trail	0	55	60.4	61.1	0.7	65.1	4.7	4.0	61.0	0.6	-0.1	60.3	-0.1	-0.8
R-34	Tahoe Rim Trails	Trail	0	55	52.7	53.4	0.7	61.4	8.7	8.0	53.0	0.3	-0.4	52.6	-0.1	-0.8
R-35	176 W Lake Blvd	Commercial	0	55	70.1	70.8	0.7	52.2	-17.9	-18.6	64.9	-5.2	-5.9	64.5	-5.6	-6.3
R-36	Tahoe Tavern Rd	Commercial	0	55	58.1	58.9	0.8	48.9	-9.2	-10.0	57.7	-0.4	-1.2	57.7	-0.4	-1.2
R-37	217 Tavern Shores	Hotel	4	55	50.4	51.2	0.8	44.2	-6.2	-7.0	50.5	0.1	-0.7	50.4	0.0	-0.8
R-38	217 Tavern Shores	Hotel	4	55	46.3	47.1	0.8	40.7	-5.6	-6.4	46.4	0.1	-0.7	46.3	0.0	-0.8
R-39	217 Tavern Shores	Hotel	4	55	50.4	51.2	0.8	44.8	-5.6	-6.4	49.9	-0.5	-1.3	49.7	-0.7	-1.5
R-40	217 Tavern Shores	Hotel	4	55	63.9	64.6	0.7	52.5	-11.4	-12.1	62.7	-1.2	-1.9	62.4	-1.5	-2.2
R-41	217 Tavern Shores	Hotel	4	55	51.1	51.8	0.7	45.2	-5.9	-6.6	51.4	0.3	-0.4	51.2	0.1	-0.6
R-42	217 Tavern Shores	Hotel	4	55	54.0	54.8	0.8	46.6	-7.4	-8.2	50.9	-3.1	-3.9	49.2	-4.8	-5.6
R-43	217 Tavern Shores	Hotel	4	55	58.1	58.8	0.7	48.2	-9.9	-10.6	57.5	-0.6	-1.3	57.2	-0.9	-1.6
R-44	217 Tavern Shores	Hotel	4	55	50.7	51.4	0.7	48.0	-2.7	-3.4	51.2	0.5	-0.2	51.2	0.5	-0.2
R-45	W River Rd	Governmental	0	55	54.5	55.1	0.6	59.1	4.6	4.0	55.0	0.5	-0.1	54.9	0.4	-0.2
R-46	W River Rd	Governmental	0	55	57.6	58.2	0.6	59.1	1.5	0.9	58.1	0.5	-0.1	58.1	0.5	-0.1
R-47	W River Rd	Governmental	0	55	53.6	54.2	0.6	54.6	1.0	0.4	54.2	0.6	0.0	54.2	0.6	0.0

Table 4.10-13b Predicted 2018 Noise Levels (CNEL) – Existing, No-Build, Alternative 4, Alternative 6, Alternative 6a

Receiver I.D.	Location or Address	Land Use	NU	Standard (CNEL)	Existing	No-Build 2018 Alternative		Alternative 4 (2018)			Alternative 6 (2018)			Alternative 6a (2018)		
					Predicted Noise Level (CNEL)	Predicted Noise Level (CNEL)	Increase over Existing (dB)	Predicted Noise Level (CNEL)	Increase over Existing (dB)	Increase over No Build (dB)	Predicted Noise Level (CNEL)	Increase over Existing (dB)	Increase over No Build (dB)	Predicted Noise Level (CNEL)	Increase over Existing (dB)	Increase over No Build (dB)
R-48	W River Rd	Residential	1	55	53.1	53.7	0.6	55.9	2.8	2.2	53.7	0.6	0.0	53.6	0.5	-0.1
R-49	W River Rd	Residential	1	55	48.6	49.3	0.7	52.0	3.4	2.7	49.1	0.5	-0.2	49.0	0.4	-0.3
R-50	217 Tavern Shores	Hotel	4	55	44.4	45.2	0.8	37.8	-6.6	-7.4	42.8	-1.6	-2.4	43.2	-1.2	-2.0
R-51	217 Tavern Shores	Hotel	4	55	64.0	64.7	0.7	64.7	0.7	0.0	65.5	1.5	0.8	65.5	1.5	0.8
R-52	217 Tavern Shores	Hotel	4	55	45.8	46.5	0.7	47.1	1.3	0.6	46.5	0.7	0.0	46.4	0.6	-0.1
R-53	217 Tavern Shores	Hotel	4	55	63.6	64.3	0.7	64.6	1.0	0.3	65.1	1.5	0.8	65.1	1.5	0.8
R-54	217 Tavern Shores	Hotel	4	55	61.1	61.9	0.8	62.8	1.7	0.9	62.4	1.3	0.5	62.4	1.3	0.5
R-55	217 Tavern Shores	Hotel	4	55	45.7	46.5	0.8	38.8	-6.9	-7.7	45.8	0.1	-0.7	45.5	-0.2	-1.0
R-56	Tahoe Tree Company	Commercial	0	55	58.7	59.4	0.7	59.6	0.9	0.2	59.3	0.6	-0.1	59.3	0.6	-0.1
R-57	Kimberly Dr	Residential	1	55	54.8	55.4	0.6	58.3	3.5	2.9	55.2	0.4	-0.2	54.7	-0.1	-0.7
R-58	Kimberly Dr	Residential	1	55	53.7	54.3	0.6	57.7	4.0	3.4	54.1	0.4	-0.2	53.6	-0.1	-0.7
R-59	Kimberly Dr	Residential	1	55	52.4	53.1	0.7	57.1	4.7	4.0	53.0	0.6	-0.1	52.8	0.4	-0.3
R-60	Kimberly Dr	Residential	1	55	52.9	53.6	0.7	57.8	4.9	4.2	53.2	0.3	-0.4	53.2	0.3	-0.4
R-61	Kimberly Dr	Residential	1	55	42.6	43.3	0.7	44.9	2.3	1.6	43.1	0.5	-0.2	42.1	-0.5	-1.2
ST-01	N Lake Blvd	Golf Course	0	55	62.1	63.1	1.0	59.7	-2.4	-3.4	61.6	-0.5	-1.5	58.6	-3.5	-4.5
ST-02	Tahoe Marina Lodge, Macinaw Rd	Hotel	4	55	54.8	56.1	1.3	54.6	-0.2	-1.5	55.7	0.9	-0.4	55.1	0.3	-1.0
ST-03	217 Tavern Shores	Hotel/Pool	0	55	63.0	63.7	0.7	49.6	-13.4	-14.1	58.8	-4.2	-4.9	58.1	-4.9	-5.6
ST-04	217 Tavern Shores	Residential	1	55	53.0	53.7	0.7	58.4	5.4	4.7	53.4	0.4	-0.3	53.1	0.1	-0.6
ST-05	411 Kimberly Dr	Hotel/Tennis Court	0	55	66.6	67.3	0.7	67.6	1.0	0.3	67.7	1.1	0.4	67.7	1.1	0.4

ALTERNATIVE 1 – NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

Under Alternative 1, SR 89 would be realigned from the Caltrans maintenance yard, over the Truckee River and east through the United States Forest Service (USFS) 64-Acre tract, to reconnect to existing SR 89 near the existing changeable message sign. Implementation of this alternative would also include rehabilitation or replacement of Fanny Bridge, and a range of modifications to the wye, which could result in new parking space, landscaping, a roundabout or minor modifications to the existing free-right-turn lanes.

As shown in Table 4.10-13a, the R-34 receiver location, which represents the forest recreation area of the 64-Acre Tract, would be the location that would experience the largest noise increase under Alternative 1. The edge of the realigned segment of SR 89 would be approximately 260 feet from R-34. At this receiver location, the existing noise level of 52.7 CNEL would increase by approximately 7.8 dBA to 60.5 CNEL. The noise level increase at R-34 would be distinctly noticeable (i.e., greater than 5 dBA). Because R-34 is located closer than 300 feet from the new segment of SR 89, TRPA's 55 CNEL standard for the SR 89 transportation corridor would be applicable to its location and, as stated in Goal 2, Policy 4 of the Lake Tahoe Regional Plan, would override the land use-based CNEL standard established by TRPA. Traffic noise contour modeling indicates that the 55 CNEL traffic noise contour from the realigned segment of SR 89 would extend approximately 322 from the highway edge (Ascent Environmental 2014). This level of projected noise generation would be less than the existing noise generation for the segment of SR 89 south of the Truckee River that the realigned highway would replace (i.e., the 55 CNEL traffic noise contour for the existing SR 89 condition south of the river is approximately 379 feet). Because the 55 CNEL contour would extend greater than 300 feet from the highway edge along the realigned highway in Alternative 1, traffic noise levels along this segment through the 64-Acre Tract would exceed the transportation corridor noise standard TRPA established for SR 89. This impact would be **significant for purposes of CEQA and TRPA environmental compliance**.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Implementation of Alternative 2 includes realignment of SR 89 over the Truckee River in the same location as Alternative 1, rehabilitation or replacement of Fanny Bridge, and a range of modifications to the wye, which could result in new parking space, landscaping, a roundabout or minor modifications to the existing free-right-turn lanes. Under Alternative 2 the realigned segment of SR 89 would carry more traffic than under Alternative 1, because through-traffic would not be able to use the old alignment of SR 89.

As shown in Table 4.10-13a, R-34 would also be the receiver location that would experience the largest noise increase under Alternative 2. At the R-34 receiver location, the existing noise level of 52.7 CNEL would increase by approximately 9.2 dBA to 61.9 CNEL. The noise level increase at R-34 would be distinctly noticeable (i.e., greater than 5 dBA). Traffic noise contour modeling indicates that the 55 CNEL traffic noise contour from the realigned segment of SR 89 would extend approximately 420 feet from the highway edge (Ascent Environmental 2014). Also, this level of projected noise generation would greater than the existing noise generation for the segment of SR 89 south of the Truckee River that the realigned highway would replace (i.e., the 55 CNEL traffic noise contour for the existing SR 89 condition south of the river is approximately 379 feet). Because the 55 CNEL contour would extend greater than 300 feet from the highway edge along the realigned highway in Alternative 2, traffic noise levels along this segment through the 64-Acre Tract would exceed the transportation corridor noise standard TRPA established for SR 89. This impact would be **significant for purposes of CEQA and TRPA environmental compliance**.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Under Alternative 3, the SR 89 realignment and signage would be the same as described above under Alternative 1 and 2. Implementation of this alternative would also include rehabilitation or replacement of Fanny Bridge, and a range of modifications to the wye, which could result in new parking space, landscaping, a roundabout or minor modifications to the existing free-right-turn lanes.

As shown in Table 4.10-13a, R-34 would also be the receiver location that would experience the largest noise increase under Alternative 3. At the R-34 receiver location, the existing noise level of 52.7 CNEL would increase by approximately 9.1 dBA to 61.8 CNEL. The noise level increase at R-34 would be distinctly noticeable (i.e., greater than 5 dBA). Traffic noise contour modeling indicates that the 55 CNEL traffic noise

contour from the realigned segment of SR 89 would extend approximately 411 feet from the highway edge (Ascent Environmental 2014). Also, this level of projected noise generation would greater than the existing noise generation for the segment of SR 89 south of the Truckee River that the realigned highway would replace (i.e., the 55 CNEL traffic noise contour for the existing SR 89 condition south of the river is approximately 379 feet). Because the 55 CNEL contour would extend greater than 300 feet from the highway edge along the realigned highway in Alternative 3, traffic noise levels along this segment through the 64-Acre Tract would exceed the transportation corridor noise standard TRPA established for SR 89. This impact would be **significant for purposes of CEQA and TRPA environmental compliance**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Under Alternative 4, the SR 89 realignment would follow a similar alignment as described above under Alternative 1. However, the proposed western roundabout at the new SR89/28 junction would be replaced with a traditional signalized intersection, and a sweeping curve diverting vehicles onto realigned SR 89 would replace the eastern roundabout (see Exhibit 2-5). A new bridge, which would serve as the primary river crossing, would be constructed over the Truckee River near the east end of the Caltrans maintenance yard. Fanny Bridge would be rehabilitated or replaced.

As shown in Table 4.10-13b, R-34 would also be the receiver location that would experience the largest noise increase under Alternative 4. At the R-34 receiver location, the existing noise level of 52.7 CNEL would increase by approximately 8.7 dBA to 61.4 CNEL. The noise level increase at R-34 would be distinctly noticeable (i.e., greater than 5 dBA). Traffic noise contour modeling indicates that the 55 CNEL traffic noise contour from the realigned segment of SR 89 would extend approximately 426 feet from the highway edge (Ascent Environmental 2014). Also, this level of projected noise generation would greater than the existing noise generation for the segment of SR 89 south of the Truckee River that the realigned highway would replace (i.e., the 55 CNEL traffic noise contour for the existing SR 89 condition south of the river is approximately 379 feet). Because the 55 CNEL contour would extend greater than 300 feet from the highway edge along the realigned highway in Alternative 4, traffic noise levels along this segment through the 64-Acre Tract would exceed the transportation corridor noise standard TRPA established for SR 89. This impact would be **significant for purposes of CEQA and TRPA environmental compliance**.

ALTERNATIVE 5: NO ACTION

As shown in Table 4.10-13a, the increases in traffic noise levels at the modeled receiver locations under Alternative 5 would range from 0.6 to 1.5 dB and some of these increases would occur where the existing noise level already exceeds the applicable CNEL standard. While the projected noise levels would exceed the CNEL standard, this is a continuation of existing conditions, so there would be **no impact for purposes of CEQA, NEPA, and TRPA environmental compliance**.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

As shown in Table 4.10-13b, traffic noise levels under Alternative 6 would increase by as much as 1.5 dB at some of the modeled receiver locations located along the existing segment of SR 89 in the study area. The noise increases would occur along the southernmost segment of SR 89 that is inside the study area. Noise contour modeling indicates that the existing 55 CNEL contour extends approximately 391 from the edge of this segment of SR 89 (Ascent Environmental 2014), which is an exceedance of 300-foot-wide TRPA's transportation corridor noise standard. Traffic volume increases that would occur under Alternative 6 would extend this contour distance to 426 feet (Ascent Environmental 2014). This would be a **significant impact for purposes of CEQA and TRPA environmental compliance**.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

As shown in Table 4.10-13b, traffic noise levels under Alternative 6A would increase by as much as 1.5 dB at some of the modeled receiver locations located along the existing segment of SR 89 in the study area. The noise increases would occur along the southernmost segment of SR 89 that is inside the study area. Noise contour modeling indicates that the existing 55 CNEL contour extends approximately 391 from the edge of

this segment of SR 89 (Ascent Environmental 2014), which is an exceedance of TRPA's transportation corridor noise standard of 300 feet. Traffic volume increases that would occur under Alternative 6 would extend this contour distance to 426 feet (Ascent Environmental 2014). This would be a **significant impact for purposes of CEQA and TRPA environmental compliance**.

4.10.5 Avoidance, Minimization, and/or Mitigation Measures

Mitigation Measure 4.10-1a: Limit construction hours.

This mitigation will apply to Alternatives 1, 2, 3, 4, 6, and 6a.

To reduce noise exposure during the sensitive times of the day, construction activities will comply with the following limitations.

For daily construction activities (e.g., heavy duty equipment, pile driving, paving, cement removal), with the exception of minor night time activities as described under Impact 4.10-1, construction will begin no earlier than 8:00 a.m. and continue no later than 6:30 p.m. daily.

Mitigation Measure 4.10-1b: Noise controls for construction equipment.

This mitigation will apply for Alternatives 1, 2, 3, 4, 6, and 6a.

To reduce noise levels from the use of heavy-duty construction equipment the construction contractor will comply with the following measures.

- ▲ All construction equipment shall be equipped with properly operating mufflers and engine shrouds, in accordance with manufacturers' specifications
- ▲ Inactive construction equipment shall not be left idling for prolonged periods of time (i.e., more than 5 minutes).
- ▲ Stationary equipment (e.g., power generators) and staging area for other equipment shall be located at the maximum distance feasible from nearby noise-sensitive receptors (i.e., receptors defined in Exhibit 4.10-1 and Tables 4.10-13a and -13b).
- ▲ Trucks hauling materials and goods to and from the construction site shall only do so during construction seasons (i.e., May 1 through October 15).
- ▲ As directed by FHWA, the contractor will implement appropriate additional noise mitigation measures, including changing the location of stationary construction equipment, turning off idling equipment, rescheduling construction activity, notifying adjacent residents in advance of construction work, and installing acoustic barriers around stationary construction noise source

Significance after Mitigation

Implementation of Mitigation Measure 4.10-1a would ensure that the primary noise-generating construction activities would occur during the daytime hours when people are less likely to be at home and, therefore, would not be disturbed by loud noise. This time restriction would comply with TRPA noise exemptions for construction activities taking place during the day. Further, implementation of Mitigation Measure 4.10-1b would ensure that all heavy-duty construction equipment is properly equipped with mufflers that provide additional noise reduction. With implementation of the proposed mitigation measures all construction-related noise-generating activity would be limited to the less sensitive times of the day and heavy-duty equipment would be properly maintained and equipped to reduce noise to the most extent possible and Impact 4.10-1 would be reduced to a **less-than-significant** level.

Mitigation Measure 4.10-2a: Implement 4.10-1a

Mitigation Measure 4.10-2b: Reduce exposure to construction-generated ground vibration.

This mitigation will apply to Alternatives 1, 2, 3, 4, 6, and 6a.

- ▲ To reduce exposure to construction-generated ground vibration, measures will be developed to address vibration generated during construction and demolition activity. TRPA's Best Construction Practices Policy may include required setback distances for various types of construction equipment that generate ground vibration, as well as criteria for conducting site-specific studies where these setback distances cannot be maintained. Measures required by the policy to minimize exposure to ground vibration may include, but are not limited to, the following:
- ▲ Holes shall be predrilled to the maximum feasible depth to reduce the number of blows required to seat the pile.
- ▲ All construction equipment on construction sites shall be operated as far away from vibration-sensitive sites as reasonably possible.
- ▲ Earthmoving and ground-impacting operations shall be phased so as not to occur simultaneously in areas close to offsite sensitive receptors, to the extent feasible. The total vibration level produced could be significantly less when each vibration source is operated at separate times.
- ▲ No construction or demolition activity shall be performed that would expose an existing structure to levels of ground vibration that exceeds 0.20 in/sec PPV. The vibration control program shall include minimum setback requirements for different types of ground vibration-producing activities (e.g., pile driving, blasting) for the purpose of preventing damage to nearby structures. Established setback requirements 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.
- ▲ No construction or demolition activity shall be performed that would expose human activity in an existing building to levels of ground vibration that exceed FTA's 80 VdB standard. The vibration control program shall also include minimum setback requirements for different types of ground vibration producing activities (e.g., pile driving, blasting) for the purpose of preventing negative human response. Established setback requirements can be breached only if a project-specific, site-specific, technically adequate ground vibration study indicates that the buildings would not be exposed to ground vibration levels in excess of 80 VdB, and ground vibration measurements performed during the construction activity confirm that the buildings are not being exposed to levels in excess of 80 VdB; or at least two weeks' advanced notice is provided to owners and renters of residential buildings that would be exposed to ground vibration levels within the applicable setback distance; and hotel accommodations are offered to inhabitants of residences within the applicable setback distance at the expense of the project applicant.

Significance after Mitigation

Implementation of Mitigation Measure 4.10-2a would ensure that the vibration-generating, construction activities would occur during the daytime hours when people are less likely to be at home. Further, Mitigation Measure 4.10-2b requires implementation of best practices to prevent construction-generated ground vibration, thereby reducing the risk of damage to buildings and structures to the extent feasible. Thus, with implementation of these mitigation measures, Impact 4.10-2 would be reduced to a **less-than-significant** level.

Mitigation Measure 4.10-3a: Include Traffic Noise Reduction Features in the Realigned Section of SR 89.

This mitigation will apply to Alternatives 1, 2, 3, and 4 for purposes of reducing the significant impact according to CEQA and TRPA requirements.

To reduce noise impacts associated with realignment of SR 89, to the extent feasible, TTD, TRPA, and CFLHD will coordinate with Placer County, Caltrans, and USFS to identify and include feasible and effective design features that would reduce noise generation on the realigned section of the highway to ensure that the traffic noise level does not exceed 55 CNEL at a distance of 300 feet from the highway edge. Feasible and effective design features will be incorporated into the final design of the realigned highway. Features considered during design development may include, but are not limited to:

- ▲ reduced vehicle speeds to 30 mph or lower through posted limits, advisory signs, and/or design features, such as traffic calming elements (e.g., median barrier, center islands, and raised crosswalks),
- ▲ vegetative screening that includes trees to aid in noise attenuation over distance,
- ▲ noise-attenuating pavement, if determined to be feasible and effective in this location,
- ▲ limiting access by heavy duty trucks to daylight hours,
- ▲ construction of vegetated earth berms for noise attenuation.

The performance goal of these noise-reducing features will be to achieve a traffic noise level that does not exceed 55 CNEL at a distance of 300 feet from the highway edge.

Mitigation Measure 4.10-3b: Include Traffic Noise Reduction Features along the Existing Segment of SR 89.

This mitigation will apply to Alternatives 6 and 6A for purposes of reducing the significant impact according to CEQA and TRPA requirements.

To reduce impacts associated with traffic noise increases along the existing segment of SR 89 in the study area, TTD, TRPA, and CFLHD will coordinate with Placer County, Caltrans, and USFS to implement speed controls (which may include, but not be limited to, posted speed limits and/or advisory signage). The performance goal of these noise-reducing actions will be to achieve traffic noise levels that do not increase noise in locations along this segment where they currently exceed TRPA's land-based standard of 55 CNEL.

(As noted previously in the discussion of Impact 4.10-3, the noise increases experienced as a result of any of the alternatives are less than the Federal standard of at least 12 dBA, so the impact would **less than significant for purposes of NEPA compliance** and mitigation is not needed.)

Significance after Mitigation

Modeling of traffic noise contours along the realigned segment of SR 89 indicates that reducing the travel speed to 30 mph for Alternative 1 or to 25 mph for Alternatives 2, 3, and 4, would result in a 55 CNEL noise contour that is less than 300 feet from the highway edge (Ascent Environmental 2014). This shows that the performance standard required by Mitigation Measure 4.10-3a is feasible and implementation of Mitigation Measure 4.10-3a would reduce the impact along the realigned segment of SR 89 under Alternatives 1 through 4 to a **less-than-significant level for purposes of CEQA and TRPA environmental compliance**.

Similarly, modeling of traffic noise contours along the existing segment of SR 89 in the project area indicates that reducing the travel speed to 25 mph for Alternatives 6 and 6A would result in a 55 CNEL noise contour that is less than 300 feet from the highway edge (Ascent Environmental 2014). This shows that the performance standard required by Mitigation Measure 4.10-3b is feasible and implementation of Mitigation Measure 4.10-3b would reduce the impact along the existing segment of SR 89 under Alternatives 6 and 6A to a **less-than-significant level for purposes of CEQA and TRPA environmental compliance**.

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4.11 POPULATION, EMPLOYMENT, AND HOUSING

4.11.1 Introduction

This section describes the existing conditions of population, employment, and housing that pertain to the SR 89/Fanny Bridge Project. Potential impacts of the project alternatives are analyzed, and mitigation measures are provided for those impacts determined to be significant. Issues related to population-related inducement of population growth, environmental justice, and the socioeconomic environment are discussed in Chapter 6, “Other TRPA-, CEQA-, and NEPA-Mandated Sections.”

No comment letters were received on the Notice of Preparation that pertain to population, employment, and housing.

The primary sources of information utilized in preparation of this section are the *Community Impact Assessment* (Tahoe Transportation District [TTD] 2014) and the *Lake Tahoe Regional Transportation Plan and Sustainable Communities Strategy Draft EIR/EIS* (TTD 2012).

4.11.2 Regulatory Setting

FEDERAL

The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as Amended in 1987

The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as Amended in 1987 is alternately known as the Uniform Act. The Uniform Act is applicable to all projects involving federal funds and provides for uniform and equitable treatment of persons displaced from their homes, businesses, non-profit associations, or farms by federal and federally-assisted programs, and establishes uniform and equitable land acquisition policies. The Uniform Act assures that such persons are treated fairly, consistently, and equitably so that they will not suffer disproportionate injuries. As set forth in 49 CFR 24, whenever there are relocation impacts involved in a federal-aid project, the environmental document (environmental assessment or EIS) shall contain model language regarding the Act and shall cite its full title. The Uniform Act is relevant where implementation of transportation projects supported by federal funds may involve displacement of homes and businesses.

TAHOE REGIONAL PLANNING AGENCY

Lake Tahoe Regional Plan

The Tahoe Regional Planning Agency (TRPA) regulates growth and development in the Lake Tahoe Region through the Regional Plan, which includes the Goals and Policies (TRPA 2012), Code of Ordinances, and other components.

Goals and Policies

The following Goals and Policies are included in the Land Use Subelement of Chapter 2:

Goal LU-1. Restore, maintain, and improve the quality of the Lake Tahoe Region for the visitors and residents of the Region.

- ▲ **Policy LU-1.2.** Redeveloping existing town centers is a high priority.

- ▲ **Policy LU-1.3.** The plan shall seek to maintain a balance between economic/social health and the environment.

Tahoe City Community Plan

Planned land uses adopted by TRPA and Placer County for the project site are designated in the Tahoe City Community Plan. The Tahoe City Community Plan contains no applicable objectives or policies for population, employment, and housing that pertain to the SR 89/Fanny Bridge Project.

Environmental Threshold Carrying Capacities

TRPA has not established any environmental threshold carrying capacities that pertain to population, employment, or housing issues.

STATE

The California Relocation Assistance Law

The California Relocation Assistance Law, California Government Code Section 7260 et seq., ("Relocation Assistance Law") regulates and governs programs and projects funded without federal financial assistance. The relocation statute is intended for the benefit of displaced persons to ensure that they receive fair and equitable treatment and do not suffer disproportionately as a result of programs designed for the benefit of the public as a whole.

In the acquisition of real property by a public entity, the Relocation Assistance Law ensures consistent and fair treatment for tenants and property owners. It encourages acquisition by agreement with owners and tenants, rather than condemnation, in order to avoid litigation, relieve congestion in courts, and promote confidence in public land acquisition.

To help public agencies implement the statute, the State Department of Housing and Community Development prepared state Relocation Assistance and Real Property Acquisition Guidelines ("The Guidelines"), which are published in the California Code of Regulations, Title 25, California Code of Regulations Ch.6. Art. 1, Section 6000 et seq. The Guidelines are intended to establish only minimum requirements for relocation assistance and payments. They shall not be construed to limit any other authority or obligation that a public entity may have to provide additional assistance and payments.

LOCAL

Placer County

In 2013, Placer County updated its Housing Element. Policies from the Housing Element that are applicable to the SR 28/Fanny Bridge Project are included below.

Goal C. To promote housing opportunities that meet the specific needs of residents and workers in the Tahoe Basin.

- ▲ **Policy C-1.** The County shall encourage the Tahoe Regional Planning Agency (TRPA) to: (a) strengthen the effectiveness of existing incentive programs for the production of affordable housing in the Lake Tahoe Region and (b) change TRPA regulations to permit second residential units on parcels less than one acre in size.
- ▲ **Policy C-2.** The County shall require new development in the Sierra Nevada and Lake Tahoe areas to mitigate potential impacts to employee housing by housing 50 percent of the full-time equivalent employees (FTEE) generated by the development. If the project is an expansion of an existing use, the requirement shall only apply to that portion of the project that is expanded (e.g., the physical footprint of

the project or an intensification of the use). Employee housing shall be provided for in one of the following ways:

1. Construction of on-site employee housing;
2. Construction of off-site employee housing;
3. Dedication of land for needed units; and/or
4. Payment of an in-lieu fee.

4.11.3 Affected Environment

DEVELOPMENT PATTERNS AND POPULATION

In the early part of the 20th century, development around Lake Tahoe consisted of a few scattered vacation homes. The building boom of post-World War II, the establishment of the gaming industry through construction and expansion of casinos on the Nevada side of the Lake, and the completion of interstate highway links to support the 1960 Winter Olympics in Squaw Valley resulted in a dramatic increase in development in the Region.

The U.S. Census Bureau aggregates data at several levels. The smallest unit of census data available to the public is the census block. Census blocks are combined to create census tracts. Based on U.S. Census tract-level data, the total resident population in the Tahoe Region grew between 1990 and 2000 from approximately 52,600 to 62,800, but declined between 2000 and 2010 to 54,500. In 2010, the population split was approximately 19,150 persons on the North Shore and 35,350 persons on the South Shore.

Because the Tahoe Region is a vacation destination and contains many residences that serve as second homes, the overall population also fluctuates seasonally.

In some cases, the U.S. Census Bureau aggregates data at the community level to provide information about a city or similar geographic area. These areas are known as census data places (CDPs). The Sunnyside-Tahoe City CDP, which includes the developed area in Tahoe City along SR 89 and SR 28 and the area to the south to Ward Creek Boulevard, represents the population group that would be most directly affected by the SR 89/Fanny Bridge Project. The Sunnyside-Tahoe City CDP population declined from 1,761 to 1,557 between 2000 and 2010 (TTD 2014).

HOUSING

Based on U.S. Census tract-level data, the total number of housing units in the Tahoe Region has increased from approximately 43,700 in 1990, to 46,100 in 2000, and 47,400 in 2010. The percentage of owner-occupied units increased from 24 percent in 1990 to 32 percent in 2000, but declined to 27 percent in 2010. The percentage of renter-occupied units over this time period declined slightly; in 1990 approximately one-quarter of the housing stock was rented, but by 2010 this number had dropped to about 22 percent. The percentage of units vacant or used for seasonal rentals and vacation homes decreased from 51 percent in 1990 to 45 percent in 2000, but rose back to 51 percent in 2010.

In 2010, approximately 44 percent of all housing units in the Region were used seasonally (as vacation homes); approximately 27 percent were owner occupied; approximately 22 percent were renter occupied; and approximately seven percent were vacant. These percentages vary between the North Shore and South Shore, with a greater proportion of housing units used seasonally and fewer rented on the North Shore.

Table 4.11-1 provides demographic information from the 2010 decennial census about housing in the vicinity of the project site. For comparison, Table 4.11-1 also provides data for Placer County and the state of California.

Both the project site and the project vicinity have considerably lower occupancy rates and percentages of owner-occupied units than either the state or Placer County. This is likely attributable to the high percentage

of second homes and vacation rentals in the Tahoe area. In addition, the majority of homeowners in the state, Placer County, and near the project site have lived in their homes for seven years or less, while the majority of homeowners in the project vicinity have lived in their houses for more than 20 years. The average number of persons per household is also lower in the project site and project vicinity than in either the state or Placer County as a whole (Table 4.11-1).

Table 4.11-1 State, County, and Local Housing Characteristics

Housing Characteristic	California	Placer County	Project Area Sunnyside-Tahoe City CDP	Project Vicinity (CTs 201.04, 201.05, 221, 222, and 223)
Total Housing Units	13,552,624	149,188	2,152	8,323
Occupied Housing Units	12,392,852 (91%)	129,153 (87%)	788 (37%)	2,227 (27%)
Owner-Occupied Housing Units	7,112,050 (52%)	94,206 (63%)	454 (21%)	1,591 (19%)
Housing Tenure				
Moved in 2005 or later	4,436,890 (36%)	46,108 (36%)	310 (39%)	552 (25%)
Moved in 2000–2004	3,077,886 (25%)	37,888 (29%)	116 (15%)	471 (21%)
Moved in 1990–1999	2,562,082 (21%)	26,682 (21%)	164 (21%)	576 (26%)
Moved in 1980–1989	1,136,926 (9%)	10,797 (8%)	77 (10%)	317 (14%)
Moved in 1970–1979	693,693 (5%)	4,946 (4%)	78 (10%)	236 (11%)
Moved in 1969 or earlier	485,375 (4%)	2,732 (2%)	43 (5%)	75 (3%)
Average Household Size for Owner-Occupied Units	2.97	2.66	2.04	2.08

Notes: CDP = census data place; CT = census tract

Source: TTD 2014

ECONOMY AND EMPLOYMENT

In 1998, there were approximately 26,000 employees in the Tahoe Region. Employment has fluctuated since then from a high of approximately 28,000 in 2001 to a low of 22,300 in 2009. The data indicate an approximate 20 percent decline in jobs in the Tahoe Region between 2001 and 2009. The total number of employees in the Region remained fairly static between 2000 and 2007, and the unemployment rate remained steady at between four and five percent in the North Shore, and between six and eight percent in the South Shore. In 2007, unemployment increased slightly, and continued to rise to 15 percent in the South Shore and 12 percent in the North Shore in 2009. The increase in unemployment includes a large number of jobs lost within the casino/gaming industry.

The majority of people who work in the Tahoe Region commute to their jobs from nearby communities including the Carson Valley, Reno, and the Truckee areas. In 2010, the percentage of jobs filled by workers from outside the Region was approximately 87 percent in the North Shore and approximately 62 percent in the South Shore. The population commuting more than 50 miles to work was about 49 percent throughout the Tahoe Region. Approximately one-third of jobs are filled by the local population.

The local economy in the Sunnyside-Tahoe City CDP reflects the focus on tourism in the Region. According to the 2010 U.S. Census, three industries accounted for approximately 62 percent of all jobs in the CDP: construction (20.9 percent), retail trade (18.9 percent), and arts, entertainment, recreation, and accommodation and food services (22.4 percent). Businesses in the vicinity of the project site include lodging, gas stations, restaurants, grocery stores, recreation (rafting companies), retail, real estate, and services (dry cleaners, hair salons, banks, etc.)

4.11.4 Environmental Consequences

METHODS AND ASSUMPTIONS

The evaluation of potential temporary and permanent impacts on population and housing is based on a review of U.S. Census data related to population, housing, and employment demographics near the project site and surrounding Region. The information obtained from U.S. Census was reviewed and summarized to understand existing conditions and to identify potential environmental effects, based on the thresholds of significance. The impact evaluation considers the effect of each alternative on population, employment, and housing in the Region, as it relates to the significance criteria below, including the potential to displace residents and businesses.

SIGNIFICANCE CRITERIA

NEPA Criteria

An environmental document prepared to comply with NEPA must consider the context and intensity of the environmental effects that would be caused by or result from the proposed action. Under NEPA, the significance of an effect is used solely to determine whether an EIS must be prepared. The factors that are taken into account under NEPA to determine the significance of an action in terms of the context and the intensity of its effects are encompassed by the CEQA criteria used for this analysis. As noted above, issues related to environmental justice and the socioeconomic environment are discussed in Chapter 6.

TRPA Criteria

The “Population” and “Housing” criteria from the TRPA Initial Environmental Checklist were used to evaluate the population and housing impacts of the action alternatives. The checklist asks if the project would result in the following conditions.

- ▲ Alter the location, distribution, density, or growth rate of the human population planned for the Region?
- ▲ Include or result in the temporary or permanent displacement of residents?
- ▲ Affect existing housing, or create a demand for additional housing?
- ▲ Result in the loss of housing for lower-income and very-low-income households?

CEQA Criteria

To determine whether environmental impacts to population, employment, and housing are significant environmental effects, Appendix G of the State CEQA Guidelines asks whether a project would do any of the following:

- ▲ induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure);
- ▲ displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere; or
- ▲ displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

ISSUES NOT WARRANTING DETAILED EVALUATION

The SR 89/Fanny Bridge Project would not result in an increase in population. Employment generation during project construction would be temporary and would not cause an increase in permanent residents near the project site (see Growth-Inducing Impacts of the Proposed Project in Chapter 6, “Other TRPA-, CEQA-, and NEPA-Mandated Sections”). For these reasons, the project would not result in population growth that would result in the demand for additional housing.

While there are census tracts within the project vicinity that have populations with incomes below the county average poverty level, there are no low-income populations in the project site. Therefore, the SR 89/Fanny Bridge Project would not result in the loss of housing for lower-income and very-low income households (for a discussion of socioeconomics and Environmental Justice, see Chapter 6, “Other TRPA-, CEQA-, and NEPA-Mandated Sections”). No impacts would occur related to increased demand for housing or loss of housing for lower-income households and these issues are not evaluated further in this EIR/EIS/EA.

ENVIRONMENTAL EFFECTS OF THE PROJECT ALTERNATIVES

Impact 4.11-1. Location and distribution of population, employment, and housing in the Region.

None of the alternatives would change the location and distribution of population, employment, and housing in a manner contrary to land use planning efforts. Thus, the project alternatives would not induce substantial growth and impacts related to changes in the location and distribution of population, employment, and housing within the Region would not result in adverse environmental effects. Therefore, this impact is **less than significant** for Alternatives 2, 3, 4, 6, and 6a. Alternative 1 would result in a **beneficial** impact because it would enhance business and community access by maintaining local street access across Fanny Bridge, along with a second Truckee River crossing. There would be **no impact** under Alternative 5.

The location and distribution of development is heavily regulated in the Tahoe Region. Developers must be granted authorization for construction of new residential units, commercial floor area, and tourist accommodation units through a limited number of allocations that are capped by the Tahoe Regional Plan. The Regional Plan also provides a bonus unit incentive program that grants bonus allocations to applicants transferring development from rural areas into urban centers (see TRPA Code Chapter 51). New transfer incentives were adopted recently as part of the Regional Plan Update (TRPA 2012), which were developed to promote infill, mixed land uses, redevelopment, and the transfer of existing development, development rights, and coverage into community centers. Areas surrounding the SR 89/SR 28 intersection are designated as a Town Center District, a district that is subject to the greatest transfer incentive ratios. (For instance, an applicant would be eligible to be granted six bonus residential units for moving and restoring a residential unit located in a stream environment zone, greater than 1.5 miles from Town Center, Regional Center, High Density Tourist District, or primary transit route (i.e., target area) into a target area.)

As discussed previously, the SR 89/Fanny Bridge Project is one of several roadway improvement projects included in the Lake Tahoe Regional Transportation Plan (RTP). In general, an RTP is developed through the use of growth forecasts as a means to accommodate a region’s mobility over a period of time. Metropolitan Planning Organizations (MPOs) do not have land use planning authority; however, construction of public facilities, such as transportation infrastructure projects, can influence the number and location of residences and places of employment in a community. Planning efforts in the Tahoe Region focus on encouraging patterns of more compact and densely developed community centers. The RTP was intended to further facilitate this land use pattern by establishing a safe, secure, efficient, and integrated transportation system that reduces reliance on the private automobile and provides mixed-mode facilities that serve community centers and travel between community centers. As a result, transportation projects were planned primarily around *existing* population centers. Transportation infrastructure projects in the RTP were designed to facilitate movement of people and goods, provide improved accessibility, and promote sustainable economic growth. Regional land use planning efforts in the Tahoe Region focus on controlled regional growth and

improved environmental conditions. To this end, transportation projects were developed to further the land use pattern of moving development out of rural areas and into community centers by establishing a safe, secure, efficient, and integrated transportation system that reduces reliance on the private automobile and provides mixed-mode facilities that serve the transportation needs of the citizens and visitors of the Tahoe Region, particularly mobility within and between community centers.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

This alternative would include construction of a new bridge to be located approximately 1,800 feet southwest of the existing Fanny Bridge, the construction of a realigned SR 89 through the 64-Acre Tract, realignment of existing bike paths, modifications to the existing SR 89 to become a local road for approximately 2,000 feet south of SR 28, the rehabilitation or replacement of Fanny Bridge, modifications to the Caltrans maintenance yard, realignment of the Tahoe-Truckee Sanitation Agency (T-TSA) sewer line, and modifications related to the free-right-turn lanes at the wye. These elements would improve emergency access and circulation in and around the project site and would be consistent with the Tahoe City Community Plan, which includes policies related to reducing traffic congestion in the project site. The improvements would also be consistent with the commercial/public service land use classification of the project site because reduced congestion would meet commerce needs and would provide a better experience for residents and visitors (TTD 2014). Accessibility to employment, shopping, or other destinations would be improved during peak traffic hours because the delays at the wye would be reduced (please see section 4.15, “Traffic and Transportation” for additional discussion).

The SR 89/Fanny Bridge Project would include roadway improvements to accommodate existing demand and projected growth. Although growth is expected to occur in the vicinity of the project site with or without the SR 89/Fanny Bridge Project, the improvements are proposed in an area designated for mixed use. Current traffic congestion affects travel patterns and results in negative economic impacts to businesses because tourists in long queues are not spending discretionary money on goods and services while waiting in traffic (TTD 2013). Rerouting traffic from the existing wye to a new intersection to the west near the Caltrans maintenance yard would provide several benefits, such as greater safety, reduction in traffic delays, and improved community connectivity. In addition, because Alternative 1 would maintain thoroughfare through the existing wye while also providing local traffic access along the portion of SR 89 to be relinquished to Placer County, it would improve the visibility of storefronts and access to existing businesses. These improvements, in combination with the project’s contribution to facilitating a more compact densely developed community land use pattern, described above, could improve community functionality and community character. Therefore, this alternative would have a **beneficial** impact.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

While this alternative would be generally consistent with the project description included in the RTP, it would not provide continuous through vehicle access from Fanny Bridge south to the realigned portion of SR 89 along the West Shore. Alternative 2 includes the elements described above under Alternative 1 and, therefore, would not change the location and distribution of population, employment, and housing to the extent that it would influence the amount, timing, or location of growth in the area (please see Alternative 1 under Impact 4.11-1 for a complete discussion). This impact would be **less than significant**.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Alternative 3 includes the components described above under Alternative 1 and would improve circulation with the new alignment of SR 89 over the Truckee River (please see Alternative 1 under Impact 4.11-1 for a complete discussion). However, the existing SR 89 would be turned into a cul-de-sac on the south side of the bridge and would provide only local access, and therefore would only slightly meet the goals of the commercial/public service land use classification of the project site. While this alternative would be generally consistent with the project description included in the RTP, it would not provide continuous through vehicle access from Fanny Bridge south to the realigned portion of SR 89 along the West Shore. Nonetheless, Alternative 3 would not change the location and distribution of population, employment, and housing to the extent that it would influence the amount, timing, or location of growth in the area. This impact would be **less than significant**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Alternative 4 includes the components described above under Alternative 1 (please see Alternative 1 under Impact 4.11-1 for a complete discussion). However, the new roundabout at the SR 89/SR 28 junction would be replaced with a traditional signalized intersection and a sweeping curve diverting vehicles onto realigned SR 89 would replace the eastern roundabout. Similar to Alternative 3, this alternative would only slightly meet the goals of the commercial/public service land use classification of the project site. While this alternative would be generally consistent with the project description included in the RTP, it would not provide continuous through vehicle access from Fanny Bridge south to the realigned portion of SR 89 along the West Shore. Nonetheless, Alternative 4 would not change the location and distribution of population, employment, and housing to the extent that it would influence the amount, timing, or location of growth in the area. This impact would be **less than significant**.

ALTERNATIVE 5: NO ACTION

Because there would be no improvements under the No Action Alternative, there would be no change to the location and distribution of population, employment, and housing in the Region. Therefore, there would be **no impact** to the amount, timing, or location of growth in the area.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

This alternative would include the rehabilitation or replacement of Fanny Bridge and modifications to the free-right-turn lanes at the wye. The rehabilitation or replacement would also result in a slightly wider cross-section of Fanny Bridge. Because of restrictions imposed by the Bureau of Reclamation to protect the adjacent Lake Tahoe Dam, the bridge could be widened only to the west of its existing location. No other improvements would be made to improve emergency access, bicycle and pedestrian circulation, and vehicle mobility and therefore, Alternative 6 would be less consistent with the project site's land use classification than Alternatives 1, 2, 3, or 4. Nonetheless, Alternative 6 would not change the location and distribution of population, employment, and housing to the extent that it would influence the amount, timing, or location of growth in the area and the impact would be **less than significant**.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

This alternative would include the rehabilitation or replacement of Fanny Bridge and would have a roundabout at the location of the current wye rather than a traffic signal. Similar to Alternative 6, the rehabilitation or replacement would also result in a slightly wider cross-section of the bridge. Similar to Alternative 6, this alternative would be less consistent with the project site's land use classification than Alternatives 1, 2, 3, or 4. Nonetheless, Alternative 6a would not change the location and distribution of population, employment, and housing to the extent that it would influence the amount, timing, or location of growth in the area and the impact would be **less than significant**.

Impact 4.11-2. Displacement of businesses.

The SR 89/Fanny Bridge Project would require the acquisition of land and buildings which could displace businesses. Alternatives 1 through 4 would require the acquisition of right-of-way; however no businesses would need to be relocated as a result of these acquisitions and these alternatives would therefore be **less than significant**. Alternatives 6 and 6a would require full acquisition of parcels and the relocation of businesses; therefore these alternatives would be **potentially significant**. There would be **no impact** under Alternative 5.

The project site contains no residences; therefore, none of the action alternatives would displace residents.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

This alternative would include construction of a new bridge to be located approximately 1,800 feet southwest of the existing Fanny Bridge, the construction of a realigned SR 89 through the 64-acre tract,

realignment of existing bike paths, modifications to the existing SR 89 to become a local road for approximately 2,000 feet south of SR 28, the rehabilitation or replacement of Fanny Bridge, modifications to the Caltrans maintenance yard, T-TSA sewer line and NSEF sewer export main, and the free-right-turn lanes at the wye. For these improvements to be feasible, the footprint of the existing roadway system in the project site would be modified, which would require the acquisition of additional right-of-way (ROW). To implement this alternative, 4.117 acres would be acquired for ROW; however, no businesses would be relocated as a result of these acquisitions, and access would be maintained to all parcels affected by these alternatives. Because no businesses would be relocated, this impact would be **less than significant**.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Alternative 2 includes the components described above under Alternative 1 and the same amount of land would be acquired for ROW (please see Alternative 1 under Impact 4.11-2 for a complete discussion). Because no businesses would be relocated, this impact would be **less than significant**.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Alternative 3 includes the components described above under Alternative 1, however the existing SR 89 would be turned into a cul-de-sac on the south side of the bridge (please see Alternative 1 under Impact 4.11-2 for a complete discussion). This cul-de-sac would include a new roundabout interchange and a total of 4.611 acres would be acquired for ROW under this alternative. Alternative 3 would affect access to several parcels, requiring travelers seeking access to and from the property from the south to take a circuitous route along the realigned SR 89. However, no businesses would be relocated as a result of these acquisitions, and this impact would be **less than significant**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Alternative 4 includes the components described above under Alternative 1 (please see Alternative 1 under Impact 4.11-2 for a complete discussion). However, the new roundabout at the SR89/28 junction would be replaced with a traditional signalized intersection, and a sweeping curve diverting vehicles onto realigned SR 89 would replace the eastern roundabout. This alternative would result in the ROW acquisition of 4.376 acres. Alternative 4 would affect access to several parcels, requiring travelers seeking access to and from the property from the south to take a circuitous route along the realigned SR 89. However, no businesses would be relocated as a result of these acquisitions and this impact would be **less than significant**.

ALTERNATIVE 5: NO ACTION

Because there would be no improvements under the No Action Alternative, there would be no ROW acquisition and therefore no businesses would be relocated as a result. There would be **no impact**.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

This alternative would include the rehabilitation or replacement of Fanny Bridge and modifications to the free-right-turn lanes at the wye. The rehabilitation or replacement would also result in a slightly wider cross-section of the bridge. Because of restrictions imposed by the Bureau of Reclamation to protect the adjacent Lake Tahoe Dam, the bridge could only be widened to the west of its existing location. As a result, land on several parcels on the west side of the wye would be acquired to widen the bridge. In addition, to reconfigure the SR 89/SR 28 intersection, new ROW would be acquired from several parcels on the east and north sides of the wye.

Full acquisition of three of the five privately-owned parcels affected by Alternative 6 could be required: Swigard's True Value Hardware (assessor's parcel number [APN] 094-190-013), Bridgetender Restaurant (APN 094-540-025), and River Grill (APN 094-540-023). In addition, an existing structure on the Liberty Power parcel would have to be relocated within that parcel. This project acquisition would require relocation of the businesses at these locations, because acquiring the ROW would affect existing buildings and there is insufficient area on the parcels to allow for relocation of the buildings within the affected parcels. To implement Alternative 6, 0.4452 acre of ROW would be acquired; however, three of these acquisitions could

require the full property. Should full acquisition be needed for those parcels, the total ROW acquired would be an estimated 1.879 acres. In addition, an existing structure on one parcel would be relocated within that parcel. Access would be maintained to all parcels affected by this alternative. Because Alternative 6 would involve the full acquisition of three parcels and one business would need to be relocated, this impact would be **potentially significant**.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

This alternative would include the rehabilitation or replacement of Fanny Bridge and would construct a new roundabout at the location of the current wye rather than a traffic signal. Similar to Alternative 6, the rehabilitation or replacement of the existing bridge would also result in a slightly wider cross-section of the bridge.

To implement Alternative 6A, acquisition of two properties may be required: Gary Davis Group Design and Engineering (APN 094-190-006) and Bridgetender Restaurant (APN 094-540-025). In addition, as under Alternative 6, an existing structure on the Liberty Power parcel would have to be relocated within that parcel. Access would be maintained to all parcels affected by this alternative. Full acquisition of parcels could be required for the two properties because the existing buildings on these parcels would be affected, and insufficient area within the parcel may exist to relocate the buildings. To implement Alternative 6a, 0.3645 acre of ROW would be acquired; however, two of these acquisitions could require full acquisition of the property. Should full acquisition be needed for those parcels, the total ROW to be acquired would be 1.0037 acres. Because Alternative 6a could involve the full acquisition of two parcels, this impact would be **potentially significant**.

4.11.5 Avoidance, Minimization, and/or Mitigation Measures

The following discussion is presented for impacts of the SR 89/Fanny Bridge Project that would require relocation of existing businesses and/or buildings (Impact 4.11-2). The only alternatives with the potential to relocate any buildings or businesses are Alternatives 6 and 6a. No residences would be relocated under any of the alternatives.

Federal and state laws require that relocation assistance be provided to any person, business, or nonprofit organization displaced because of the acquisition of real property by a public entity for public uses. These applicable laws are the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646), as amended April 2, 1987, and the Uniform Relocation Act, Section 7260 et seq. of the California Government Code. Compliance with the federal law is required when federal funds are to be used in the acquisition or construction of a project.

Relocation resources must be made available to all commercial displacees without discrimination. Appraisals to determine actual market value would need to be conducted for each property to be relocated, after a final alignment has been selected and the environmental document is certified.

The following mitigation was included in the RTP/SCS EIR/EIS, which included the SR 89/Fanny Bridge Community Revitalization Project as one of the TTD Capital Improvement Program projects in the RTP. This mitigation would apply for Alternatives 6 and 6a.

Mitigation Measure 4.11-2: Prepare a Relocation Assistance Plan, or equivalent plan.

The project proponent will consider project alternatives that avoid displacement of homes or businesses. For projects that would result in the displacement of residences or business, the project proponent will comply with federal and state requirements for the preparation a relocation assistance plan (RAP), or equivalent document. For projects on the highway system or that receive federal transportation funds, preparation of a RAP will follow the requirements of the Federal Highway Administration Relocation Assistance Program in accordance with the

Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended) and Title 49 Code of Federal Regulations (CFR) Part 24. RAP-equivalent documents will comply with applicable regulations that may include the California Relocation Assistance Law (California Government Code Section 7260 et seq.), the California Relocation and Real Property Acquisition Guidelines (California Code of Regulations, Title 25 and Chapter 6, Section 6000 et seq.), and Caltrans' Right of Way Manual, Chapter 10. Relocation plan typically consider:

- ▲ criteria for replacement housing;
- ▲ reimbursement criteria for moving costs and/or different housing costs (including rents); and
- ▲ reimbursement criteria for businesses, including costs associated with searching for a new space, and business lost.

Significance after Mitigation

Mitigation Measure 4.11-2 would ensure that potential business displacements from project implementation would result in the preparation of a Relocation Assistance Plan, or equivalent document, to assist and potentially compensate businesses subject to displacement. This would ensure that potential displacement impacts would be reduced to a **less-than-significant** level with mitigation incorporated.

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4.12 PUBLIC SERVICES AND UTILITIES

4.12.1 Introduction

This section describes the existing public services and utilities in the project site and surrounding area, presents analysis of potential impacts resulting from the project alternatives, and identifies mitigation and minimization measures. In particular, it addresses impacts on water supply, wastewater treatment and disposal, electricity, natural gas, solid waste, law enforcement, fire and emergency services, and school facilities. Federal, state, and local regulations related to public services and utilities are summarized. Cumulative public services and utilities impacts are addressed in Chapter 5, "Cumulative Impacts."

Several comments regarding public services and utilities were received in response to the Notice of Preparation (see Appendix B). The Tahoe-Truckee Sanitation Agency (T-TSA) provided correspondence regarding T-TSA facilities located in the study area. T-TSA's comments addressed the existing Truckee River Interceptor (TRI) and two manholes located under the proposed roundabouts at the new Truckee River Bridge location for Alternatives 1, 2, and 3. The California Department of Forestry and Fire Protection (CAL FIRE) indicated that it does not support the full or partial closure of Fanny Bridge. CAL FIRE stated that having two vehicle crossings (the new bridge and Fanny Bridge) over the Truckee River at State Route (SR) 89 would allow for two viable emergency evacuation and emergency response routes and result in reduced emergency response times to and from Lake Tahoe's West Shore communities. Another comment noted the proposed relocation of the Tahoe City Fire Station in proximity to Fanny Bridge, that two points of access would be beneficial in an emergency situation, and that bollards may be prohibitive in an emergency situation. Another comment noted that law enforcement many need to control traffic in an emergency situation, which is more challenging when there are multiple exits.

4.12.2 Regulatory Background

The following provides an overview of laws and regulations related to public services and utilities that are applicable to the SR 89/Fanny Bridge Project.

FEDERAL

Truckee River Operating Agreement

The Truckee River Operating Agreement (TROA), which was approved on September 6, 2008, was developed to formalize, regulate, and monitor water rights and water use within the Tahoe Region, the Truckee River Watershed and the final outflow areas of Pyramid Lake and the Carson River. This agreement was designed to improve the operational flexibility of Truckee River reservoirs and was made by and among the United States of America, State of California, State of Nevada, Truckee Meadows Water Authority, Pyramid Lake Paiute Tribe of Indians, Washoe County Water Conservation District, City of Reno, City of Sparks, City of Fernley, Washoe County, Sierra Valley Water Company, Truckee Donner Public Utility District, North Tahoe Public Utility District, Carson-Truckee Water Conservancy District, and the Placer County Water Agency. Under the TROA, Tahoe Region water rights for surface water and groundwater are capped at 34,000 acre-feet (af) annually, split by 11,000 acre-feet per year (afy) designated for use in Nevada and 23,000 afy for use in California (U.S. Bureau of Reclamation and California Department of Water Resources 2008).

The National Fire Plan and 10-Year Comprehensive Strategy

The National Fire Plan was developed by the U.S. Department of the Interior and U.S. Department of Agriculture in 2000 (USDA and USDI 2000) in response to the need for reducing the risk of wildland fire to

communities and the environment, and subsequently, the economic impact from severe wildland fires. Preparation of the National Fire Plan was followed by the creation of the *10-Year Comprehensive Strategy* and the *10-Year Comprehensive Strategy – Implementation Plan*. Together, these three documents outline the resources necessary to ensure sufficient firefighting capacity for the future, identifies communities at risk from wildland fires, and promotes collaboration between agencies and local communities.

Multi-Jurisdictional Fuels Reduction and Wildfire Prevention Strategy

The Multi-Jurisdictional Fuels Reduction and Wildfire Prevention Strategy for the Lake Tahoe Region (Fuel Reduction Strategy) provides land management, fire, and regulatory agencies with strategies to reduce the probability of a catastrophic fire in the Region. The Fuel Reduction Strategy is consistent with the National Fire Plan and the 10-Year Comprehensive Strategy.

The U.S. Forest Service Lake Tahoe Basin Management Unit is the agency with primary responsibility over implementation of the Fuel Reduction Strategy; however, individual land owners and various agencies are responsible for aspects of its implementation. The Fuel Reduction Strategy is a comprehensive plan that combines projects from a variety of sources, as follows:

- ▲ *Fuel Reduction and Forest Restoration Plan for the Lake Tahoe Basin Wildland Urban Interface* – Tahoe Regional Planning Agency (Holl 2007);
- ▲ U.S. Department of Agriculture, Forest Service Stewardship Firedshed Assessment (SFA) 2007;
- ▲ CAL FIRE Annual Plans for El Dorado and Placer counties;
- ▲ California State Parks;
- ▲ California Tahoe Conservancy; and
- ▲ Nevada Tahoe Resource Team representing Nevada Division of State Lands, Nevada Division of Forestry, and Nevada State Parks.

TAHOE REGIONAL PLANNING AGENCY

Lake Tahoe Regional Plan

Goals and Policies

The Public Services and Facilities Element of the TRPA Regional Plan includes goals and policies related to the provision of adequate public services and utilities to meet the needs of existing and new development, and protection of surface and groundwater from solid and liquid municipal waste. The following goals and policies are relevant to the project alternatives:

GOAL PS-1. Public services and facilities should be allowed to upgrade and expand to support existing and new development consistent with the Regional Plan. The intent of the Regional Plan is neither to stimulate nor to hinder development through the provision of public services and facilities. Rather, the plan attempts to provide for supportive public services and facilities consistent with the development anticipated under the plan.

- ▲ **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.

GOAL PS-3. Prevent liquid and solid wastes from degrading Lake Tahoe and the surface and groundwaters of the Region. Although this goal pertains to many of the policies included in the Water Quality Subelement, it also applies to the provision of public services and facilities.

- ▲ **Policy PS-3.1.** The discharge of municipal or industrial wastewaters to the surface and groundwaters of the Tahoe Region is prohibited, except for existing development discharging wastewaters under a state- or TRPA-approved disposal plan.
- ▲ **Policy PS-3.2.** All solid wastes shall be exported from the region. Consolidation and transfer methods shall be developed to achieve a reduction in the volume of wastes being transported to landfills.

The Regional Plan goals support the upgrade and expansion of public services and facilities to meet the needs of existing and new development consistent with the Regional Plan and federal, state, and local standards (Goal PS-1, Policy PS-1.1).

Code of Ordinances

Chapter 33, Grading and Construction, of the TRPA Code applies to grading, excavation, filling, clearing of vegetation, or disturbance of the soil, and protection of vegetation during construction. In accordance with Section 33.3.4 of this chapter, the methods of disposal of solid or liquid materials, including soil, silt, clay, sand, or other organic or earthen materials, shall be reviewed and approved by TRPA. These methods of disposal shall include, but are not limited to: temporary stockpiling of all or some of the top soil on the site for use on areas to be revegetated; disposal of the material at a location approved by TRPA; or export of the materials outside the Region. Provisions of Chapter 33 regarding disposal of construction materials would apply to those portions of the project located within the area under the land use authority of TRPA.

Environmental Threshold Carrying Capacities

TRPA has not established any environmental threshold carrying capacities related to public services and utilities.

Tahoe City Community Plan

The Tahoe City Community Plan does not include objectives or policies regarding public services or utilities that apply to the SR 89/Fanny Bridge Project.

STATE

Porter-Cologne Water Quality Control Act of 1970

The Porter-Cologne Water Quality Control Act of 1970 prohibits the use of reclaimed wastewater within the Lake Tahoe Basin. Wastewater is transported out of the Basin to the T-TSA plant in Martis Valley, and no reclaimed water is imported back into the Basin.

Public Resources Code Sections 4125 and 4102

CAL FIRE implements statewide laws aimed at reducing wildfire hazards in wildland-urban interface areas. The laws are based on fire hazard assessment and zoning. The laws apply to State Responsibility Areas, which are defined as areas of the state in which the state has primary financial responsibility for preventing and suppressing fires, as determined by the State Board of Forestry pursuant to Section 4125 and 4102 of the California Public Resources Code. Fire protection outside State Responsibility Areas is the responsibility of federal or local jurisdictions.

Public Resources Code 4216

California Government Code Section 4216 regulates excavations potentially affecting underground utilities including notification requirements by excavators, operator response requirements, and excavation practices. In accordance with Section 4216.1 every operator of a subsurface installation –such as water lines, gas lines, and sewer lines– must become a member of, participate in, and share in, the costs of a regional notification center. Underground Service Alert Northern California provides services to the study area. Any person planning to conduct an excavation must contact the regional notification center prior to commencing excavation (Section 4216.2). The operator of the utility must respond by locating and field

marking the utility that may be affected by excavation (Section 4216.3). Section 4216.4 requires that the excavator determine the location of subsurface installations before using power driven equipment for excavating or boring, and requires the excavator to notify the operator or emergency services, as appropriate, in the event damage is discovered or caused by the excavator. Compliance with Section 4216 is required before commencement of excavation.

California Code of Regulations Section 1541

California Code of Regulations Title 8, Chapter 4, Subchapter 4, Article 6, Section 1541 addresses construction safety orders related to excavations and requires safe conditions for workers involved with excavations or working near excavations.

LOCAL

Placer County General Plan

The Placer County General Plan (Placer County 2013) contains a Public Facilities and Services Element, which addresses public facilities and services, water supply, wastewater treatment and disposal, stormwater drainage, landfills, transfer stations, and solid waste recycling, law enforcement, fire protection services, and schools. The following policies, which are contained in the Public Facilities and Services Element, are relevant to the SR 89/Fanny Bridge Project.

- ▲ **Policy 4.G.2.** The County shall promote maximum use of solid waste source reduction, recycling, composting, and environmentally-safe transformation of wastes.
- ▲ **Policy 4.H.2.** The County Sheriff shall strive to maintain the following average response times for emergency calls for service:
 - a. 6 minutes in urban areas
 - b. 8 minutes in suburban areas
 - c. 15 minutes in rural areas
 - d. 20 minutes in remote rural areas
- ▲ **Policy 4.H.5.** The County shall consider public safety issues in all aspects of commercial and residential project design, including crime prevention through environmental design.
- ▲ **Policy 4.I.2.** The County shall encourage local fire protection agencies in the County to maintain the following standards (expressed as average response times to emergency calls):
 - a. 4 minutes in urban areas
 - b. 6 minutes in suburban areas
 - c. 10 minutes in rural areas
- ▲ **Policy 4.I.11.** The County shall encourage local fire protection agencies to provide and maintain advanced levels of emergency medical services (EMS) to the public.

4.12.3 Affected Environment

WATER

The Tahoe City Public Utility District (TCPUD) provides water to a portion of the West Shore and North Shore areas of Lake Tahoe encompassing unincorporated portions of Placer and El Dorado counties. The TCPUD currently serves water to approximately 3,910 connections. The TCPUD service area currently consists of five separate and distinct sub-regional water systems: Tahoe City Main, Rubicon, McKinney/Quail, Alpine Peaks, and the Tahoe-Truckee Forest Tract. With the exception of summer time surface water diversions to augment supply in the McKinney/Quail System, the TCPUD currently relies on groundwater to meet normal demands.

Due to restricted growth in the service area, future demands are expected to stay relatively flat, or increase only slightly. Therefore, the groundwater supply is seen as a sufficient source for the future (TCPUD 2011:3-5). Water supply lines for the Tahoe Park Water Company along with other water distribution mains also pass through the project site (Robinson, pers. comm., 2014).

The project site receives water via the Tahoe City Main system. The Tahoe City Main system supports approximately 2,600 connections through five groundwater wells capable of delivering up to 4.3 million gallons per day (mgd) of water (approximately 13.2 acre-feet per day or 4,817 acre-feet per year). Peak day demand is approximately 3.4 mgd (TCPUD 2014).

WASTEWATER

TCPUD provides wastewater collection service to the project site. Sewage collected by TCPUD enters TRI operated by T-TSA and is treated at the T-TSA Water Reclamation Plant located in Martis Valley, east of the Town of Truckee. The 17-mile long TRI pipeline runs along the Truckee River Corridor between Tahoe City and Truckee and serves the North Tahoe Public Utility District, TCPUD, the Alpine Springs County Water District, the Squaw Valley Public Service District, and the Truckee Sanitary District. The reinforced concrete pipe interceptor flows exclusively by gravity and varies in size from 24- to 42-inches in diameter. The interceptor conveys all of the untreated, raw sewage collected from the North Shore and West Shore of Lake Tahoe, including sewage collected by TCPUD. The North Shore Export Facility (NSEF), a sewer export main that serves the TPCUD and NTPUD, connects to the TRI. The NSEF is owned jointly by TPCUD and NTPUD and is located under SR 28 and SR 89 near the wye (Robinson, pers. comm., 2014). Another sewer force main is located on Fanny Bridge. The tributary area served by the plant includes that portion of the Lake Tahoe Basin beginning at the California-Nevada stateline at the north end of the Lake and extending along the Lake's west side to the northern edge of Emerald Bay.

The TRI passes through the project site just east of the California Department of Transportation (Caltrans) maintenance yard. It is within the construction area of the SR 89/Fanny Bridge Project. The average daily flow rate at the project site is approximately 2 mgd, but has exceeded 7 mgd. Peak instantaneous flow-rates of raw sewage at this location have been recorded in excess of 10 mgd (T-TSA 2012).

ELECTRICITY, NATURAL GAS, AND COMMUNICATIONS

Electrical service for the project site is provided by Liberty Utilities. Liberty Utilities is planning a rebuilding project for one major transmission line on the North Shore, and a variety of smaller projects are underway to ensure system-wide reliability for their planning horizon. Liberty Utilities estimates that demand is increasing by approximately one percent per year. Liberty Utilities and NV Energy both anticipate having enough excess capacity to accommodate future development proposed in the Tahoe Region under the Regional Plan (Matthews, pers. comm., 2012). Segment 625-1 of the existing 60 kilovolt (kV) power line crosses through the project site. Reconstruction and upgrade of this line to 120 kV is planned. The segment 625-1 would cross the Truckee River and SR 89 on the same alignment as the existing line.

Natural gas service in the Region is provided by Southwest Gas Corporation, which purchases, transports, and distributes natural gas to more than 1.8 million residential, commercial, and industrial customers in Arizona, Nevada, and portions of northeastern and southeastern California (California Public Utilities Commission [CPUC] 2010). Southwest Gas Corporation is investor-owned. The sales demand in northern California (including the Tahoe Region) is served by supplies purchased from Rocky Mountain and Canadian sources and at the Malin, Oregon northern California market point (CPUC 2010). A Southwest Gas Corporation line follows SR 89 from the east side of the project site, across Fanny Bridge, to the west side of the project site.

Communication services near the project site are provided by AT&T and Charter Communications. These providers have several overhead and underground communication lines passing through the project site.

SOLID WASTE SERVICE

The Tahoe-Truckee Sierra Disposal Company, Inc. (TTSDC) provides waste removal services for areas surrounding the project site. TTSDC is responsible for collecting household waste and recyclables, which are then transported to various facilities (TTSDC 2014). All materials collected by TTSDC, including garbage and recyclables, are hauled to the Eastern Regional Landfill Materials Recovery Facility (MRF), located between Truckee and Squaw Valley in Placer County, where they are sorted in an effort to meet California's mandatory solid waste diversion requirements. The MRF, which was built in 1994–1995, handles household recyclables, including plastics, aluminum, tin, glass, cardboard, newspaper, carpet, and computers. Also, the facility recycles "white goods," such as refrigerators and freezers, and waste wood, which includes dimensional wood (e.g., construction remnants) and lot clearing debris. Material that is not recyclable is treated as solid waste and transported to the Lockwood Regional Landfill in the state of Nevada.

The Lockwood Regional Landfill is a municipal solid waste landfill facility that presently has a permitted disposal area in a portion of a 2,673.49-acre parcel. Based on the April 2010 aerial survey, the landfill contained a waste volume of approximately 32.8 million cubic yards, of a total 302.5 million cubic yard capacity (Nevada Division of Environmental Protection 2013).

FIRE PROTECTION

Fire protection for the project site is provided by the North Tahoe Fire Protection District (NTFPD). The NTFPD protects an area of 31 square miles on the North and West Shores of Lake Tahoe. There are six fire stations within the District, which are located in Alpine Meadows, Tahoe City, Homewood, Dollar Hill, Cornelian Bay and Kings Beach that are staffed by 50 uniformed and support personnel to nearly 20,000 people within the area served (NTFPD 2014). The closest fire station to the project site is located at 222 Fairway Drive in Tahoe City, across from the TCPUD.

LAW ENFORCEMENT

Law enforcement in Tahoe City is provided by the Placer County Sheriff's Department. The Placer County Sheriff's Tahoe Station is located about 1 ½ miles east of Tahoe City on Highway 28 at 2501 N. Lake Boulevard. The station supports 48 positions and is commanded by a Sheriff's captain. Staffing includes one field operations lieutenant, 18 patrol deputy positions, six patrol sergeants, four detectives, one detective sergeant, one problem-oriented deputy (neighborhood disputes and Placer County code violations), one administrative sergeant, two jail deputies, one evidence technician, two community services officers and five professional staff (Placer County 2013).

PUBLIC SCHOOL FACILITIES

There are four schools in Tahoe City: Creekside Cooperative Charter School, Tahoe Lake Elementary School, North Tahoe School, and North Tahoe High School. The closest school to the project side is Creekside Charter School, located at 330 Fairway Drive in Tahoe City, approximately 0.15 miles from the existing wye intersection.

4.12.4 Environmental Consequences

METHODS AND ASSUMPTIONS

The information presented in this section was obtained from TRPA and Placer County planning documents, goals, and policies; and through consultation with representatives of public service and utility providers. Any potential effects of the project alternatives on public services and utilities would occur only as a result of construction; operational conditions would be the same as existing conditions.

Consistency with TRPA goals and policies is presented in Appendix D, Land Use Consistency Table. Project effects on recreational opportunities and facilities are addressed in Section 4.13, “Recreation.” Effects on drainage, including any stormwater drainage facilities are addressed in Section 4.7, “Hydrology and Water Quality.”

SIGNIFICANCE CRITERIA

NEPA Criteria

An environmental document prepared to comply with NEPA must consider the context and intensity of the environmental effects that would be caused by, or result from, the proposed action. Under NEPA, the significance of an effect is used solely to determine whether an EIS must be prepared. The factors that are taken into account under NEPA to determine the significance of an action in terms of the context and the intensity of its effects are encompassed by the TRPA and CEQA criteria used for this analysis.

TRPA Criteria

The “Public Services” and “Utilities” criteria from the TRPA Initial Environmental Checklist (IEC) were used to evaluate the public services and utilities impacts of the action alternatives. As described in Section 4.1.1, the purpose of the TRPA IEC is primarily to determine if a TRPA EIS is required and to help define the topics to be evaluated in greater detail. While many of the IEC checklist questions are conducive for use as significance criteria (that is, they include a defined standard, qualitative or quantitative), many are not, such as some of those for public services and utilities. The checklist asks if the project would result in the following conditions.

- ▲ result in an unplanned effect upon, or result in a need for altered fire or law enforcement protection services;
- ▲ result in a need for new systems, or substantial alterations to power or natural gas, communication systems, storm water drainage, or solid waste;
- ▲ utilize additional water that will exceed the maximum permitted capacity of the service provider; and
- ▲ utilize additional sewage treatment capacity that will exceed the maximum permitted capacity of the sewage treatment provider.

CEQA Criteria

To determine whether environmental impacts to public services or utilities are significant environmental effects, Appendix G of the State CEQA Guidelines asks whether a project would do any of the following:

- ▲ result in substantial adverse physical impacts associated with the provision of or need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts to maintain acceptable service ratios, response times, or other performance objectives for fire and law enforcement protection;
- ▲ create a water supply demand in excess of existing entitlements and resources;
- ▲ result in the determination by the wastewater treatment provider that serves or may serve the project that it does not have adequate capacity to serve the project’s projected demand in addition to the provider’s existing commitments;
- ▲ exceed wastewater treatment requirements of the applicable regional water quality control board;
- ▲ require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;

- ▲ require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- ▲ be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs; or
- ▲ not comply with federal, state, and local statutes and regulations related to solid waste.

ISSUES NOT WARRANTING DETAILED EVALUATION

Impacts to Existing Utility Systems

The SR 89/Fanny Bridge Project would not result in an increase in population in the vicinity of the project site. Employment generation during project construction would be temporary and would not cause an increase in permanent residents in the project vicinity (see Growth-Inducing Impacts of the Proposed Project in Chapter 6, "Other TRPA-, CEQA-, and NEPA-Mandated Sections"). In addition, the project would not generate wastewater nor consume water during operation. Water use would be limited to the construction period for fire suppression, dust control, and other minor construction needs. Portable restrooms provided for construction crews during the construction period would be serviced by a contractor and wastewater would be taken to the T-TSA water reclamation facility in Truckee for treatment. Thus, no impacts would occur related to wastewater treatment capacity, meeting wastewater treatment requirements, or construction of new water or wastewater treatment facilities or expansion of existing facilities. These topics are not discussed further in this EIR/EIS/EA.

Impacts to Parks, Recreational Facilities, Schools, and Library Facilities

The SR 89/Fanny Bridge Project does not include new housing or other project elements that would increase the permanent resident population in the Region, resulting in an increased demand for parks, recreational facilities, or school or library facilities. No impact would occur and impacts related to these services are not evaluated further in this EIR/EIS/EA.

Impacts to Law Enforcement, Fire, and Emergency Services

The Tahoe Region, including the Tahoe City area where the project site is located, is a tourist destination, marked by its variety of recreational opportunities, including boating, hiking, cycling, skiing, and passive forms of recreation (e.g., enjoying a view from a bench). To accommodate these activities, multiple local, state, and federal agencies provide police, fire, and emergency services to the project site, throughout high and low tourist seasons. The SR 89/Fanny Bridge Project does not include new housing or other project elements that would increase the permanent population in the project vicinity. Fluctuations in population related to tourism would not be altered by the project and would continue to occur on a temporary basis. Thus, the SR 89/Fanny Bridge Project would not result in an increased demand for police, fire, or emergency services, and there would be no impact. The potential impact related to the delivery of emergency services and emergency response times during project construction is discussed below.

Increases in Long-Term Solid Waste Production

The SR 89/Fanny Bridge Project would not be growth-inducing (see Chapter 6, "Other TRPA-, CEQA-, and NEPA-Mandated Sections") and would not increase long-term solid waste generation in the project vicinity that would require disposal at a landfill, because it would not increase permanent population levels. The potential short-term solid waste construction impact is discussed below.

ENVIRONMENTAL EFFECTS OF THE PROJECT ALTERNATIVES

Impact 4.12-1. Utility service lines.

Construction activities associated with the action alternatives include grading and other earthmoving activities. Realignment of the T-TSA TRI sewer line and modifications to the NSEF sewer export main is included as part of Alternatives 1 through 4 to accommodate the transportation improvements. Identification and location of all other known underground utility lines is a required standard condition of construction approvals. Therefore, construction contractors would be able to avoid potential conflicts with existing utility services. Thus, this impact would be **less than significant** for Alternatives 1, 2, 3, 4, 6, and 6a. There would be **no impact** under Alternative 5.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

Alternative 1 would include construction of a new bridge to be located approximately 1,800 feet southwest of the existing Fanny Bridge, the construction of a realigned SR 89 through the 64-Acre Tract, realignment of existing bike paths, modifications to the existing SR 89 to become a local road for approximately 2,000 feet south of SR 28, the rehabilitation or replacement of Fanny Bridge, and modifications to the Caltrans maintenance yard, T-TSA sewer line and NSEF sewer export main, and free-right-turn lanes at the wye. Construction activities associated with the SR 89/Fanny Bridge Project would include grading and other earthmoving activities.

As discussed above, Segment 625-1 of the existing 60 kilovolt power line crosses through the project site, a Southwest Gas Corporation line follows SR 89 from the east side of the project site, across Fanny Bridge to the west side of the project site, and the TRI passes through the project site just east of the Caltrans maintenance yard. Other utility lines and facilities identified above in Section 4.12.3, “Affected Environment,” are located on the project site and may be affected by construction activities. The project could result in the relocation of these utility lines or other utility facilities (Robinson, pers. comm., 2014).

Standard construction techniques are mandatory to identify and avoid conflict with or disruption of existing utilities. More precise location identification of all underground utility lines is a required standard condition of construction approvals. Therefore, grading and earthmoving activities require the exact location of all aboveground and underground utility lines within project boundaries, which would allow contractors to avoid potential conflicts with existing utility services and the impact would be **less than significant**.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Alternative 2 includes the project components described above under Alternative 1, except that bollards would be placed to the north and south of Fanny Bridge to prohibit vehicular traffic and access would be provided only for pedestrians, bicyclists, and emergency vehicles. Construction activities would occur at the same locations as under Alternative 1; therefore, the same types and magnitude of grading and earthmoving activities and aboveground and underground utility identification would occur, along with the necessary utility provider coordination (please see Alternative 1 under Impact 4.12-1 for a complete discussion). This impact would be **less than significant**.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Alternative 3 includes the project components described above under Alternative 1, except that access to Fanny Bridge would only be available from the north, via SR 28. A cul-de-sac would be constructed on the southern side of Fanny Bridge, near the transit center. Construction activities would occur at the same locations as under Alternative 1; therefore, the same types and magnitude of grading and earthmoving activities and aboveground and underground utility identification would occur, along with the necessary coordination with utility providers (please see Alternative 1 under Impact 4.12-1 for a complete discussion). This impact would be **less than significant**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Alternative 4 includes the components described above under Alternative 1, except the roundabout at the SR 89/SR 28 junction would be replaced with a traditional signalized intersection, and a sweeping curve diverting vehicles onto realigned SR 89 would replace the eastern roundabout. Construction activities would occur at the same locations as under Alternative 1; therefore, the same types and magnitude of grading and earthmoving activities and aboveground and underground utility identification and utility provider coordination would occur (please see Alternative 1 under Impact 4.12-1 for a complete discussion). This impact would be **less than significant**.

ALTERNATIVE 5: NO ACTION

Because there would be no improvements under the No Action Alternative, there would be no grading or earthmoving activities and therefore **no impact**.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Alternative 6 would include the rehabilitation or replacement and widening of Fanny Bridge and modifications to the free-right-turn lanes at the wye. While this alternative would have a smaller construction area than Alternative 1, and therefore less grading and earthmoving activities, aboveground and underground utility lines would still be encountered. As described under Alternative 1, precise location identification of all underground utility lines is a required standard condition of construction approvals, which would allow contractors to avoid potential conflicts with existing utility services and the impact would be **less than significant**.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Alternative 6a is similar to Alternative 6 except that it would rehabilitate or replace the existing bridge with a four-lane structure instead of a five-lane structure and would have a roundabout at the location of the current wye rather than a traffic signal. While this alternative would have a smaller construction area than Alternative 1, and therefore less grading and earthmoving activities, aboveground and underground utility lines would still be encountered, as discussed above. As described under Alternative 1, precise location identification of all underground utility lines is a required standard condition of construction approvals, which would allow contractors to avoid potential conflicts with existing utility services and the impact would be **less than significant**.

Impact 4.12-2. Demand for water supply.

Construction would require short-term water supply during construction activities, such as dust reduction techniques and irrigation to establish vegetation. Thus, this impact would be **less than significant** for Alternatives 1, 2, 3, 4, 6, and 6a. There would be **no impact** under Alternative 5.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

Alternative 1 would include construction of a new bridge to be located approximately 1,800 feet southwest of the existing Fanny Bridge, the construction of a realigned SR 89 through the 64-Acre Tract, realignment of existing bike paths, modifications to the existing SR 89 to become a local road for approximately 2,000 feet south of SR 28, the rehabilitation or replacement of Fanny Bridge, and modifications to the Caltrans maintenance yard, T-TSA sewer line and NSEF sewer export main, and free-right-turn lanes at the wye. Water would be required during the construction period for dust abatement and fire suppression. Water would be obtained from existing hydrants in public rights-of-way (ROW) or trucked into areas not served by public water lines. If the free-right-turn lanes at the existing SR 89/SR 28 intersection were to be replaced with expanded landscaping, water would be required to establish the vegetation. During operation, demand for water would be the same as under existing conditions.

Water required for project construction would likely be obtained from TCPUD. Non-potable water would be obtained through permit(s), metered, and extracted from designated wells or existing hydrants in the public ROW. As described above, the project site receives water via the Tahoe City Main system of the TCPUD. The Tahoe City Main system is capable of delivering up to 4.3 million gallons per day (mgd) of water while peak day demand is approximately 3.4 mgd. Construction activities, including vegetation clearing and development of unpaved access ways, would require water application for dust abatement. Overall project water demand for construction activities would be minor relative to existing available supplies. For these reasons, the impact would be **less than significant**.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Alternative 2 includes the project components described above under Alternative 1 except that bollards would be placed to the north and south of Fanny Bridge to prohibit vehicular traffic and access would be provided only for pedestrians, bicyclists, and emergency vehicles. Construction activities would occur at the same locations as under Alternative 1 and therefore the same types of water demand for construction activities would occur (please see Alternative 1 under Impact 4.12-2 for a complete discussion). This impact would be **less than significant**.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Alternative 3 includes the project components described above under Alternative 1, except that access to Fanny Bridge would only be available from the north, via SR 28. A cul-de-sac would be constructed on the southern side of Fanny Bridge, near the transit center (please see Alternative 1 under Impact 4.12-2 for a complete discussion). This alternative would have the same types of construction-related water demand as Alternative 1 and would therefore be **less than significant**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Alternative 4 includes the project components described above under Alternative 1 (please see Alternative 1 under Impact 4.12-2 for a complete discussion). However, the roundabout at the SR 89/SR 28 junction would be replaced with a traditional signalized intersection, and a sweeping curve diverting vehicles onto realigned SR 89 would replace the eastern roundabout. This alternative would have the same types of construction-related water demand as Alternative 1 and would therefore be **less than significant**.

ALTERNATIVE 5: NO ACTION

Because there would be no improvements under the No Action Alternative, there would be no water required during the construction period and therefore **no impact** to water supply.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Alternative 6 would include the rehabilitation or replacement and widening of Fanny Bridge and modifications to the free-right-turn lanes at the wye. While this alternative would have a smaller construction area than Alternative 1, water would still be required for the construction components (please see Alternative 1 under Impact 4.12-2 for a complete discussion). This impact would be **less than significant**.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Alternative 6a is similar to Alternative 6 except that it would rehabilitate or replace the existing bridge with a four-lane structure instead of a five-lane structure and would have a roundabout at the location of the current wye rather than a traffic signal. Similar to Alternative 6, water would still be required for the construction components (please see Alternative 1 under Impact 4.12-2 for a complete discussion). This impact would be **less than significant**.

Impact 4.12-3. Solid waste disposal capacity.

The action alternatives would generate solid waste during the construction phase. Some waste would be reused or recycled, while other waste would be taken to a landfill, and any hazardous wastes would be transported to an approved facility, such as the US Ecology Nevada, Inc. treatment and disposal facility in Beatty, Nevada. Lockwood Regional Landfill, utilized by TTSDC, has adequate capacity to accept construction waste generated by the project. There are numerous facilities available that can accept hazardous waste. Therefore, this impact would be **less than significant** for Alternatives 1, 2, 3, 4, 6, and 6a. There would be **no impact** under Alternative 5.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC ONLY

Alternative 1 would include construction of a new bridge to be located approximately 1,800 feet southwest of the existing Fanny Bridge, the construction of a realigned SR 89 through the 64-Acre Tract, realignment of existing bike paths, modifications to the existing SR 89 to become a local road for approximately 2,000 feet south of SR 28, the rehabilitation or replacement of Fanny Bridge, and modifications to the Caltrans maintenance yard, T-TSA sewer line and NSEF sewer export main, and free-right-turn lanes at the wye. This alternative would generate construction waste primarily from the removal of the existing pavement. Any waste material that is made of treated wood would be disposed of at a facility approved for hazardous waste treatment and disposal, such as the facility operated by US Ecology Nevada, Inc. in Beatty, Nevada. (As described in Section 4.8, “Hazards, Hazardous Materials, and Risk of Upset,” potentially hazardous materials would be handled and disposed of according to all applicable state and federal laws.) Waste composed of untreated wood could be taken to landfill or could be chipped and used at biomass energy facilities, or in landscaping or soil stabilization projects, if feasible. Waste that does not require treatment, or that cannot be recycled would be taken to the Lockwood Regional Landfill in Storey County, Nevada.

As described above, as of April 2010 the Lockwood Landfill contained a waste volume of approximately 32.8 million cubic yards, of a total 302.5 million cubic yard capacity, and has adequate capacity to accept construction-related waste materials. The SR 89/Fanny Bridge Project does not include new housing or other project elements that would increase the permanent population in the project vicinity and therefore would only contribute construction-generated waste. For these reasons, this impact would be **less than significant**.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Alternative 2 includes the project components described above under Alternative 1 except that bollards would be placed to the north and south of Fanny Bridge to prohibit vehicular traffic and access would be provided only for pedestrians, bicyclists, and emergency vehicles. Construction activities would be similar to those under Alternative 1; therefore, the same types of construction-related solid waste disposal needs would occur (please see Alternative 1 under Impact 4.12-3 for a complete discussion). This impact would be **less than significant**.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Alternative 3 includes the project components described above under Alternative 1, except that access to Fanny Bridge would only be available from the north, via SR 28. A cul-de-sac would be constructed on the southern side of Fanny Bridge, near the transit center. Construction activities would be similar to those under Alternative 1 and therefore the same types of construction-related solid waste disposal needs would occur (please see Alternative 1 under Impact 4.12-3 for a complete discussion). This impact would be **less than significant**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Alternative 4 includes the project components described above under Alternative 1 (please see Alternative 1 under Impact 4.12-3 for a complete discussion). However, the roundabout at the SR 89/SR 28 junction would be replaced with a traditional signalized intersection, and a sweeping curve diverting vehicles onto realigned SR 89 would replace the eastern roundabout. This alternative would have the same types of

construction-related solid waste disposal needs as Alternative 1 and would therefore be **less than significant**.

ALTERNATIVE 5: NO ACTION

Because there would be no improvements under the No Action Alternative, there would be no construction waste generated and therefore **no impact**.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Alternative 6 would include the rehabilitation or replacement and widening of Fanny Bridge and modifications to the free-right-turn lanes at the wye. While this alternative would have a smaller construction area than Alternative 1, construction waste would still be generated, similar to Alternative 1 described above. This impact would be **less than significant**.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Alternative 6a is similar to Alternative 6 except that it would rehabilitate or replace the existing bridge with a four-lane structure instead of a five-lane structure and would have a roundabout at the location of the current wye rather than a traffic signal. While this alternative would have a smaller construction area than Alternative 1, construction waste would be generated under this alternative, similar to Alternative 1, described above, and this impact would be **less than significant**.

Impact 4.12-4. Construction-related access for emergency services.

Construction of the project could affect police services, fire protection, emergency medical services response times, and the delivery of emergency services. Traffic control measures and a fire protection plan would be in place during construction. Therefore, no substantial increase in demand for emergency services would occur during construction that would alter government services or create the need for additional government facilities. This impact would be **less than significant** for Alternatives 1, 2, 3, 4, 6, and 6a. There would be **no impact** under Alternative 5.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

Alternative 1 would include construction of a new bridge to be located approximately 1,800 feet southwest of the existing Fanny Bridge, the construction of a realigned SR 89 through the 64-Acre Tract, realignment of existing bike paths, modifications to the existing SR 89 to become a local road for approximately 2,000 feet south of SR 28, the rehabilitation or replacement of Fanny Bridge, and modifications to the Caltrans maintenance yard, T-TSA sewer line and NSEF sewer export main, and free-right-turn lanes at the wye. Construction of the project could affect police services, fire protection, and emergency medical services response time and delivery of emergency services. Depending on the timing, location, and duration of construction activities, including intersection improvements, roadway and bike path construction, realignment of the TRI could delay emergency vehicle response time or otherwise disrupt delivery of emergency services.

The project would include traffic control measures during construction to minimize lane closure requirements, preserve access to businesses, and minimize travel delays. These strategies would be implemented in conformance with Caltrans and Placer County standards as they apply to each stage of construction. Traffic control measures may include: temporary signage, lane width reductions, reduced speeds, shoulder closures, and short periods of detour over the new bridge. Because rehabilitation or replacement of Fanny Bridge would require some periods of full closure of the bridge, construction efforts for Fanny Bridge would not begin until construction of the new bridge over the Truckee River is completed. Construction on Fanny Bridge would be scheduled in late spring or early fall, rather than the summer peak tourist season, to reduce effects on businesses, residents, and visitors. For these reasons, the impact would be **less than significant**.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Alternative 2 includes the project components described above under Alternative 1 except that bollards would be placed to the north and south of Fanny Bridge to prohibit vehicular traffic. Access would be provided only for pedestrians, bicyclists, and emergency vehicles. The same types of traffic control measures and a fire protection plan would be developed for construction (please see Alternative 1 under Impact 4.12-4 for a complete discussion). This impact would be **less than significant**.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Alternative 3 includes the project components described above under Alternative 1, except that access to Fanny Bridge would only be available from the north, via SR 28. A cul-de-sac would be constructed on the southern side of Fanny Bridge, near the transit center (please see Alternative 1 under Impact 4.12-4 for a complete discussion). This alternative would have the same types of traffic control measures and a fire protection plan as Alternative 1. For these reasons, this alternative would therefore be **less than significant**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Alternative 4 includes the project components described above under Alternative 1 (please see Alternative 1 under Impact 4.12-4 for a complete discussion). However, the roundabout at the SR 89/SR 28 junction would be rehabilitated or replaced with a traditional signalized intersection, and a sweeping curve diverting vehicles onto realigned SR 89 would replace the eastern roundabout. This alternative would have the same types of traffic control measures and a fire protection plan as Alternative 1. For these reasons, this alternative would therefore be **less than significant**.

ALTERNATIVE 5: NO ACTION

Because there would be no improvements under the No Action Alternative, there would be no disruption to emergency services during the construction period and therefore **no impact**.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Alternative 6 would include the rehabilitation or replacement and widening of Fanny Bridge and modifications to the free-right-turn lanes at the wye. Although Alternative 6 would not include the realignment of the TRI sewer line, construction of this alternative would require the same types of traffic control measures and a fire protection plan as Alternative 1 described above. This alternative does not include the construction of a new bridge southwest of the existing Fanny Bridge; however, full closures of the bridge would not be permitted during the rehabilitation or replacement of Fanny Bridge. The rehabilitation or replacement bridge would be constructed in phases with at least one lane open during the construction duration. In the event that full closure of the bridge is required (such as to re-position construction equipment), then closures would be limited to a maximum of 20 minutes with no delays to emergency vehicles. Additionally, full bridge closures would not be permitted to occur during peak summer months. Although construction of Alternative 6 would slow traffic across Fanny Bridge, delays to emergency vehicle response times would be minimized by ensuring their access across the bridge at all times resulting in a **less-than-significant** impact.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Alternative 6a is similar to Alternative 6 except that it would rehabilitate or replace the existing bridge with a four-lane structure instead of a five-lane structure and would have a roundabout at the location of the current wye rather than a traffic signal. Similar to Alternative 6, traffic control measures and a fire protection plan would still be required for the other construction components. This alternative does not include the construction of a new bridge southwest of the existing Fanny Bridge; however, full closures of the bridge would not be permitted during the rehabilitation or replacement of Fanny Bridge. The bridge improvements would be constructed in phases with one lane open at all times. In the event that full closure of the bridge is required, such as to re-position construction equipment, then closures would be limited to a maximum of 20 minutes with no delays to emergency vehicles. Additionally, full bridge closures would not be permitted to

occur during peak summer months. Although construction of Alternative 6 would slow traffic across Fanny Bridge, delays to emergency vehicle response times would be minimized by ensuring their access across the bridge at all times resulting in a **less-than-significant** impact.

Impact 4.12-5. Long-term access for emergency services.

Operation of the project could affect police services, fire protection, emergency medical services response times, and the delivery of emergency services. Construction of a new bridge southwest of the existing Fanny Bridge would reduce congestion on SR 89 and thereby improve long-term emergency access. This impact would be **beneficial** for Alternatives 1, 2, 3, and 4, and **less than significant** for Alternatives 6 and 6a. There would be **no impact** under Alternative 5.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

Alternative 1 would include construction of a new bridge to be located approximately 1,800 feet southwest of the existing Fanny Bridge, the construction of a realigned SR 89 through the 64-Acre Tract, realignment of existing bike paths, modifications to the existing SR 89 to become a local road for approximately 2,000 feet south of SR 28, the rehabilitation or replacement of Fanny Bridge, and modifications to the Caltrans maintenance yard, T-TSA sewer line and NSEF sewer export main, and free-right-turn lanes at the wye. The SR 89/Fanny Bridge Project will provide access for emergency service providers and agencies, including U.S. Forest Service and U.S. Bureau of Reclamation, via SR 89 to the south of the transit center. These improvements, primarily the construction of a new bridge, would create two points of access across Truckee River and would improve circulation in the Tahoe City area. For these reasons, this alternative would result in a **beneficial** impact to long-term access for emergency services.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Alternative 2 includes the project components described above under Alternative 1 except that bollards would be placed to the north and south of Fanny Bridge to prohibit vehicular traffic (please see Alternative 1 under Impact 4.12-5 for a complete discussion). Access would be provided only for pedestrians, bicyclists, and emergency vehicles. These improvements, primarily the construction of a new bridge, would create two points of access across Truckee River and would improve circulation in the Tahoe City area. For these reasons, this alternative would result in a **beneficial** impact to long-term access for emergency services.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Alternative 3 includes the project components described above under Alternative 1, except that access to Fanny Bridge would only be available from the north, via SR 28. A cul-de-sac would be constructed on the southern side of Fanny Bridge, near the transit center (please see Alternative 1 under Impact 4.11-5 for a complete discussion). This configuration would increase the travel distance for vehicles traveling between points east of the existing wye and south of the new bypass by approximately 0.25 miles. Assuming a speed of 30 miles per hour, this added distance would increase response times for emergency service providers, traveling on this section of road, by approximately 30 seconds. This increase in response time may be partially offset by a decrease in traffic congestion, which could improve response times. Response times from the fire station located on Fairway Drive would not be affected because Fairway Drive is located approximately midway between the old and new wye intersections. Response times for law enforcement would be affected only if the responding officer would have to travel along the new SR 89 to SR 28 alignment to reach his or her destination (TTD 2014). For all other emergency response destinations, access would be over the new bridge. Similar to Alternative 1, this new bridge would create two points of access across Truckee River and would improve circulation in the Tahoe City area. For these reasons, this alternative would result in a **beneficial** impact to long-term access for emergency services.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Alternative 4 includes the project components described above under Alternative 1 (please see Alternative 1 under Impact 4.12-5 for a complete discussion). However, the roundabout at the SR 89/SR 28 junction would be replaced with a traditional signalized intersection, and a sweeping curve diverting vehicles onto

realigned SR 89 would replace the eastern roundabout. Similar to Alternative 3, this configuration would increase the travel distance for vehicles traveling between points east of the existing wye and south of the new bypass by approximately 0.25 miles. Assuming a speed of 30 miles per hour, this added distance would increase response times for emergency service providers, traveling on this section of road, by approximately 30 seconds. This increase in response time may be partially offset by a decrease in traffic congestion, which could improve response times. The fire station is located on Fairway Drive, approximately midway between the old and new wye intersections; therefore, response times from this location would not be affected. Response times for law enforcement would be affected only if the responding officer would have to travel along the new SR 89 to SR 28 alignment to reach his or her destination (TTD 2014). For all other emergency response destinations, access would be over the new bridge. Similar to Alternative 1, this new bridge would create two points of access across Truckee River and would improve circulation in the Tahoe City area. For these reasons, this alternative would result in a **beneficial** impact to long-term access for emergency services.

ALTERNATIVE 5: NO ACTION

Because there would be no improvements under the No Action Alternative, there would be no changes to the long-term access of emergency services and therefore **no impact**.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Alternative 6 would include the rehabilitation or replacement of Fanny Bridge and modifications to the free-right-turn lanes at the wye. Although Alternative 6 would include the widening of Fanny Bridge to help relieve traffic congestion, it would not include the construction of a new bridge. Therefore, while traffic congestion would be improved somewhat, emergency responders would still have only one point of access across Truckee River and this alternative would be **less than significant**.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNABOUT AT EXISTING WYE INTERSECTION

Alternative 6a would include the rehabilitation or replacement of Fanny Bridge and would have a roundabout at the location of the current wye intersection rather than a traffic signal. Similar to Alternative 6, Alternative 6a would not include the construction of a new bridge and the rehabilitation or replacement of Fanny Bridge would result in a slightly wider bridge. Therefore, while traffic congestion would be improved somewhat, emergency responders would still have only one point of access across Truckee River and this alternative would be **less than significant**.

4.12.5 Avoidance, Minimization, and/or Mitigation Measures

No mitigation is required for any of the alternatives.

4.13 RECREATION

4.13.1 Introduction

This section describes the recreation resources, uses, and facilities in the study area, as well as the regulatory and planning influences on recreation. Potential impacts of the project alternatives are analyzed, and mitigation measures are provided for those impacts determined to be significant. Cumulative recreation impacts are addressed in Chapter 5, “Cumulative Impacts.”

4.13.2 Regulatory Background

The following provides an overview of the public agencies involved with recreation resources and facilities within study area. Laws, regulations, ordinances, management plans, and guidelines are also addressed that are applicable to the project alternatives.

FEDERAL AGENCIES

U.S. Forest Service, Lake Tahoe Basin Management Unit

The U.S. Forest Service (USFS), Lake Tahoe Basin Management Unit (LTBMU) manages 75 percent of lands within the Lake Tahoe Basin. Management of LTBMU lands in the project vicinity is currently guided by the LTBMU Forest Plan, originally called the 1988 Land and Resource Management Plan (USDA Forest Service 1988). Recently, LTBMU issued as an update to the Forest Plan a revised Forest Management Plan (FMP), final Environmental Impact Statement, and Draft Record of Decision (ROD) on November 22, 2013. A “Notice of Objections Filed” was published on January 31, 2014 and the Objection Reviewing Period is underway. The length of time needed to resolve objections is uncertain; therefore, it is not possible to predict whether the revised 2013 FMP would change from its current content or become effective prior to the approval of the SR 89/Fanny Bridge Community Revitalization Project. For this reason, this environmental document discusses the 1988 Land and Resources Management.

1988 Land and Resource Management Plan

The 1988 Land and Resource Management Plan (LRMP) provides for forestwide management direction through: 1) management goals, 2) management objectives, and 3) forestwide standards and guidelines. Forestwide goals describe the desired future state or condition of the LTBMU expected as a result of implementing the plan. Successful achievement of the goals is dependent upon accomplishing the activity and production levels described as objectives, employing the standards and guidelines, and receiving appropriate funding. Additionally, achievement of the goals is subject to adjustment of objectives and standards and guidelines that may occur to the plan due to monitoring and evaluation (USDA Forest Service 1988: p. IV-1).

The Recreation Goal for the LTBMU is to “provide opportunities for enjoying a variety of outdoor recreation experiences” (USDA Forest Service 1988: p. IV-7). Forest objectives related to this goal are shown as average annual outputs by decades and are used to prepare the annual work program. Forestwide standards and guidelines are used to implement various management practices, including recreation management practices, such as recreation and visitor information services (VIS) site construction or reconstruction; dispersed recreation facility construction or reconstruction; developed recreation and VIS site operation, maintenance, and protection; visual quality restoration or improvement; dispersed recreation management – summer and winter; and cultural resource management. For forest planning purposes, the LTBMU is divided into 21 management areas that represent areas of land having similar character and/or use (USDA Forest Service 1988: p. IV-1 to IV-15).

Management Area Direction, Lower Truckee River

The project site is located within the Lower Truckee River Management Area of the LTBMU. The Lower Truckee River Management Area consists of 1,188 acres located in a corridor along both sides of the Truckee River from the LTBMU boundary just south of River Ranch to the lakeshore at Tahoe City (USDA Forest Service 1988: p. IV-111). A total of 845 acres of National Forest System Lands are in the Management Area, which includes the 64-Acre Tract located at the east end of the management area.

The largest portion of the original 64-Acre Tract lies on the south side of the Truckee River, south of the wye in Tahoe City, and extends from the west side of SR 89 to the lakeshore on the east side of SR 89. This portion of the 64-Acre Tract is within the SR 89/Fanny Bridge Community Revitalization Project's study area, consisting of approximately 35 acres. USFS management area direction for this portion of the Lower Truckee Management Area describes future uses for this site and includes visitor information services, parking for day use along the Truckee River and beach, and access to the river for public rafting. Other potential uses described include traffic realignments on SR 89 and SR 28, a transit terminal, community parking, bike paths, and a trailhead for the Tahoe Rim Trail (USDA Forest Service 1988: p. IV-112.). The completed Tahoe City Transit Center is currently in operation; the potential realignment of SR 89 is the subject of this environmental document and is a permissible use.

Recreational Opportunity Spectrum

The USFS recreational opportunity spectrum (ROS) system is a means of classifying recreation experiences by the kind of facilities and degree of contact with visitors (USFS 1982). The system is used to assign a variety of existing and potential recreation activities and opportunities to national forest system lands. The ROS classes include primitive, semi-primitive non-motorized, semi-primitive motorized, roaded natural area, rural, and urban. LTBMU land includes all categories, except primitive and urban. The ROS for the study area is rural. Undeveloped National Forest System lands within or near an urban neighborhood or community may be classified rural, because they provide visual and recreational relief from nearby urban development.

A rural area is characterized as a substantially modified natural environment. Resource modification and utilization practices are used to enhance specific recreation activities and to maintain vegetative cover and soil. Sights and sounds of humans are readily evident, and the interaction between users is often moderate to high. A considerable number of facilities are designed for use by a large number of people. Facilities are often provided for special activities. Moderate densities are provided far away from developed sites. Facilities for intensified motorized use and parking are available (USFS 1982).

Management Prescriptions

National Forest System lands in the LTMBU are assigned management prescriptions in the 1988 LRMP. A management prescription is defined as "management practices and intensities selected and scheduled for application on a specific area to attain multiple use and other goals and objectives" (36 CFR Section 219.3). The project site is located in the Lower Truckee River Management Area, which assigns the 64-Acre Tract to the Developed Recreation management prescription, or Prescription 1. This prescription states:

"Construct, maintain, and operate recreation facilities. Assure an attractive and usable forest setting within and surrounding existing sites. Manage vegetation to insure a healthy forest, to prevent and/or reduce pest-related damage, and to reduce numbers of mechanically defective trees. Manage potential recreation development sites so that they remain suitable until they are utilized for recreation improvements. Other activities may be allowed on the undeveloped sites or within existing developed sites where they do not conflict with the primary emphasis on developed recreation. The visual quality objective is Partial Retention when viewed as middleground and Modification or better when viewed as foreground. The preferred ROS setting is Rural or Roaded Natural. (USFS 1988: p. IV-46.)

A Plan for the 64-Acre Tract, Tahoe City, California

The USFS prepared the 64-Acre Plan in October 1986, before adoption of the Tahoe City Community Plan by TRPA and Placer County in February 1994. USFS relied on the Tahoe City Urban Development Plan (UDP), prepared in 1974, when formulating the plan for the 64-Acre Tract. As noted in the 64-Acre Plan (USFS

1986: p. 12), the UDP recognized the need for an alternative highway alignment around the existing, congested wye to enhance development of the commercial center and wye at the human scale (Caltrans 2014: p. 32).

National Trails System Act

The National Trails System (NTS) was created in 1968 by the National Trails System Act (NTSA), Public Law 90-543. The NTSA authorized a national system of trails to provide additional outdoor recreation opportunities and to promote the preservation of access to the outdoor areas and historic resources of the nation. The NTS includes four classes of trails: National Historic Scenic Trails, National Historic Trails, National Recreation Trails (NRT), and Connecting or Side Trails (Johnson 1998).

The Tahoe Rim Trail is a designated NRT. It includes 96 miles of the 165-mile trail that runs along the ridges and mountaintops that encircle Lake Tahoe (NRTP 2014). The trail winds through two states (California and Nevada), five counties, three national forests, and state park land. In the project vicinity, the Tahoe Rim Trail descends from the ridgeline above the West Shore, traverses the 64-Acre Tract in the study area, crosses the Truckee River on the existing pedestrian/bicycle bridge, crosses the existing SR 89 and adjacent commercial land uses, and ascends back up to the ridgeline north of Tahoe City.

Criteria for Designation:

- ▲ The trail must be open to public use and be designed, constructed, and maintained according to best management practices, in keeping with the use anticipated. Trails that demonstrate state-of-the-art design and management are especially encouraged to apply for NRT designation.
- ▲ The trail is in compliance with applicable land use plans and environmental laws.
- ▲ The trail will be open for public use for at least 10 consecutive years after designation.
- ▲ NRT designation must be supported by the landowner(s), public or private, whose property the trail crosses.

The USFS has authority to designate NRTs on land administered by the Department of Agriculture (National Forests, National Grasslands, and National Recreation Areas) and associated lands.

Architectural Barriers Act of 1968.

The Architectural Barriers Act (ABA) of 1968 requires that buildings and facilities designed, built, altered or leased with Federal funds be accessible to persons with disabilities. The provisions of ABA Chapter 10: Recreation Facilities, apply to design and construction of recreation facilities, including parking spaces and trails. The USFS Outdoor Recreation Accessibility Guidelines (FSORAG) and the USFS Trail Accessibility Guidelines (FSTAG), both updated 2013, incorporate provisions of the ABA related recreation facilities.

TAHOE REGIONAL PLANNING AGENCY

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

Lake Tahoe Regional Plan

The Regional Plan describes the goals and objectives of the Region and provides statements of policy to guide decision making as it affects the Region's resources.

Goals and Policies

The Goals and Policies of the Regional Plan establish an overall framework for development and environmental conservation in the Lake Tahoe region. This framework allows development of master plans

to refine and implement Regional Plan policies appropriate to specific uses (i.e., marinas and ski areas). Chapter 5, “Recreation Element,” of the Goals and Policies considers dispersed recreation activities, urban recreation facilities, and developed recreation facilities (TRPA 2012: P. 5-1 to 5-9).

Dispersed Recreation

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

- ▲ **Policy R-1.1:** Low density recreational experiences shall be provided along undeveloped shorelines and other natural areas, consistent with the tolerance capabilities and character of such areas.

This policy notes that use and access to undeveloped, publicly owned segments of Lake Tahoe’s shoreline can be increased by providing or using transportation systems, such as buses and pull-out facilities, which link trail systems along the publicly owned portions of the shoreline.

Developed Recreation

Goal R-4: Provide for the appropriate type, location, and rate of development of outdoor recreational uses.

- ▲ **Policy R-4.2:** bike trails shall be expanded to provide alternatives for travel in conjunction with transportation systems.

This strategy encourages construction of additional trails for bicycling as part of the Region’s transportation system.

- ▲ **Policy R-4.7:** Development of day-use facilities shall be encouraged in or near established urban areas, whenever practical.

This policy notes that day-use facilities are generally in high demand close to urban areas. The proximity to urban services provides the user with nearby conveniences, such as stores and overnight accommodations.

- ▲ **Policy R-4.8:** Visitor information facilities shall be located, to the extent feasible, near entry points to the region or close to urban areas.

This policy notes that siting of these facilities should complement objectives to reduce the vehicle miles of travel in the Region.

- ▲ **Policy R-4.9:** Parking along scenic corridors shall be restricted to protect roadway views and roadside vegetation.

This policy is intended to reduce roadside parking by providing off-road parking lots in conjunction with roadside barriers to discourage on-road shoulder parking.

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

- ▲ **Policy R-5.2:** Regulate intensity, timing, type, and location of use to protect resources and separate incompatible uses.

This policy regulates the intensity and type of recreation uses in specific locations.

Urban Recreation

Goal R-7: Provide sufficient capacity for local-oriented forms of outdoor and indoor recreation in urban areas.

- ▲ **Policy R-7.1:** Reserve sufficient public service and facility capacity to accommodate all forms of urban recreation.

This policy promotes consideration of recreation use needs in planning for public service capacity.

Persons at One Time

The Regional Plan uses the concept of persons at one time (or PAOT) as a measure of recreation capacity. PAOT describes the number of people that a recreation use can accommodate at a given time. Allocations of PAOTs are used to both promote and control recreation facility development. Although certain recreation facilities have a design capacity for a given number of people at a time (e.g., developed campgrounds), PAOTs are not a management tool and do not indicate the overall use of a site. PAOTs are intended to ensure that a “fair share” of the Region’s remaining resource capacity (e.g., water and sewer services) is available for outdoor recreation areas and is allocated to projects that would result in an increase in the carrying capacity of recreation sites. If a qualifying recreation project would result in additional vehicle trips at a level that would trigger a traffic analysis, PAOTs would be needed in an amount commensurate with the intensity of new development.

Three categories of PAOTs are used under this system:

- ▲ Winter day-use PAOTs are necessary for winter recreation facilities, such as ski areas or snowmobile courses.
- ▲ Summer day-use PAOTs are necessary for summer day-use recreation facilities, such as beaches or trailhead parking.
- ▲ Summer overnight PAOTs are necessary for a new campground or existing campground expansion.

Dispersed recreation does not require the allocation of PAOTs unless the dispersed activity is associated with a facility that requires them (e.g., a kayak rental concession at a developed beach). The Regional Plan contains the following goal regarding allocation of PAOTs (TRPA 2012a: p. 5-4):

Goal R-3: Provide a fair share of the total basin capacity for outdoor recreation.

- ▲ **Policy R-3.3:** Provisions shall be made for additional developed outdoor recreation facilities capable of accommodating 6,114 PAOT in overnight facilities and 6,761 PAOT in summer day-use facilities and 12,400 PAOT in winter day-use facilities.

This policy is to assure that the fair share of remaining capacity in the plan area is allocated to outdoor recreation.

Code of Ordinances

The Code is designed, among other things, to implement the Goals and Policies in a manner that attains and maintains the TRPA environmental thresholds. 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. Chapter 50, Section 50.9 of the Code 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.

Environmental Threshold Carrying Capacities

TRPA has established environmental thresholds for nine resources, including recreation. There are two recreation threshold indicators; these correspond to two policy statements in the Recreation Element of the TRPA Goals and Policies document (TRPA 2012a: p. 5-1)).

- ▲ **Quality of Recreation Experience and Access to Recreational Opportunities.** It shall be the policy of the TRPA Governing Body in development of the Regional Plan to preserve and enhance the high-quality recreational experience, including preservation of high-quality undeveloped shorezone and other natural areas. In developing the Regional Plan, the staff and Governing Body shall consider provisions for

additional access, where lawful and feasible, to the shorezone and high-quality undeveloped areas for low-density recreational uses.

Fair Share Distribution of Recreation Capacity. It shall be the policy of the TRPA Governing Body in development of the Regional Plan to establish and ensure a fair share of the total Region capacity for outdoor recreation is available to the general public. Based on the most recent Threshold Evaluation Report completed in 2011, both recreation threshold indicators are in attainment (TRPA 2012b).

The first threshold consists of two parts: (1) preservation and enhancement of a high-quality recreation experience and (2) the provision of additional public access to the lake and other natural features. To determine attainment of the first part of this threshold, TRPA relied on recreation user surveys conducted by the USFS to determine whether the standard is being met. Such surveys compare the importance of an identified recreation attribute, such as recreation facilities and conditions, with the experience that the recreationists perceive. To determine attainment of the second part of this threshold, TRPA assessed the extent of public land acquired and the availability of additional amenities that provide public access for low density recreation uses (i.e., trails and trailheads). Based on the majority of satisfied recreational users surveyed (89.8 percent), 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, the 2011 threshold evaluation determined that the threshold standard has been implemented and is in attainment (TRPA 2012b).

The second threshold (i.e., Fair Share of Resource Capacity) is intended to ensure that a fair share of the Region's outdoor recreation capacity is available to the general public. Three indicators provide a mechanism for evaluation of this threshold: cumulative accounts of recreation allocations (PAOTs), when applicable; facility development for recreation projects that do not require PAOT allocations; and public acquisition of lands that support recreation purposes. Overall, the TRPA 2011 Threshold Evaluation Report concluded that an appropriate level of outdoor recreation facility development that is controlled by the PAOT capacity system has been planned (TRPA 2012b).

Environmental Improvement Program

The primary elements of the Environmental Improvement Program (EIP) Recreation Program include:

- ▲ Improving lake access: In response to growing demand, priorities will be placed on increasing acquisitions and retention of existing public access opportunities.
- ▲ Developing a comprehensive trail system: The focus of this program will be on the implementation of the USFS Road and Trail Access and Travel Management (Trail ATM) plans by providing facilities that will encourage multiple uses and improve recreation access on trails on public lands while reducing resource impacts.
- ▲ Improving recreational facilities.
- ▲ Improving educational programs and interpretive facilities.

Tahoe City Community Plan

The Tahoe City Community Plan (TCCP) was adopted by TRPA and Placer County in 1994, and was designed to serve as the guiding doctrine for commercial allocations and the rehabilitation of the community for the next ten years. The TCCP establishes goals, objectives, special policies, programs, and strategies for funding and implementation. Elements of the plan address land use, transportation, conservation, recreation, and public service.

Chapter 1 of the TCCP addresses the “Vision for 2007 and Beyond.” This includes improved river and lake access, increased trails and parking, a recreational/bike trail system along the river, on the 64-Acre Tract, and possibly along the Tahoe City lake front. The Vision also addresses transportation and allows for a future

realignment of the wye for SR 89. The Vision Map provided in the TCCP shows a conceptual layout for the realignment that crosses through the 64-Acre Tract.

The Recreation Element of the Tahoe City Community Plan (TRPA 1994) is a supplement to the Recreation Element of the TRPA Goals and Policies. Consistent with the Regional Plan, this element lists the specific recreation objectives and policies applicable to Tahoe City.

Community Plan Recreation Goal

- ▲ *Recreation Goal:* Preserve and enhance the high-quality recreational experience of Tahoe City and the Region.

The Community Plan area is divided into five special areas, each with its own policies regarding permissible uses to support the overall vision and goals of the Community Plan. Special Area 3 (Recreation Area) applies to the study area from the Dam Outlet Area and Gatekeepers Museum area along the Truckee River downstream to the vicinity of the Caltrans maintenance yard. The following Community Plan policy is applicable to Special Area 3:

“In Special Area 3 (Recreation Area), public outdoor recreation uses are encouraged by the permissible use list. This area is targeted for increased public access to lake and river access.”

Plan Area Statement 174, 64-Acre Tract

Plan Area Statement (PAS) 174 encompasses the portion of the 64-Acre Tract south of the wye. The land use classification for this PAS is “Recreation” and the management strategy is “Redirection.” The area has a special designation of “Scenic Restoration Area.”

The planning statement for PAS 174 is: “This area should be redeveloped into a public recreation area consistent with the overall design plan for Tahoe City.” Planning considerations include recognition of this property as a logical site for potential uses, such as development of a visitor information and education center, a west shore roadway realignment, a community theater or amphitheater, bike trail, and trailhead for the Tahoe Rim Trail (TRPA n.d.:1).

The following special policies have been adopted for this plan area (TRPA n.d.:1–2):

Use all appropriate opportunities to increase opportunities for public access to the Truckee River and Lake Tahoe.

Increase the total mileage of bicycle trails available for public use in the Placer County General Plan area, complete linkages in the system, and complete alignments as established in the Tahoe City P.U.D. Master Plan.

Coordinate with USFS [on] the overall development of the 64-Acre Tract property pursuant to requirements set forth in the Recreation Element. This development should include a Visitor Center/Interpretive facility and pier, as well as public parking for accessing the Truckee River and adjacent trail systems.

The Recreation Element shall consider the “Parks and Recreation Master Plan” of the Tahoe City P.U.D. along with the planning programs of the California State Parks Department, and USFS. Capital improvements in the Plan Area should be responsive to the needs assessment that was included in the Tahoe City P.U.D. Master Plan.

This Plan Area is a recreation area which is in the influence area of the Tahoe City Community Plan. All projects shall be subject to the policies and standards of this Plan Area and, where applicable, shall be consistent with the planning direction provided in Chapter 1 of the Tahoe City Community Plan.

TAHOE METROPOLITAN PLANNING ORGANIZATION

The Lake Tahoe Bicycle and Pedestrian Plan (BPP) (TMPO 2010), prepared by the Tahoe Metropolitan Planning Organization (TMPO), is 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 BPP includes maps and prioritized project lists for the bicycle and pedestrian network and lays out policies for local governing bodies and transportation agencies. In addition, the BPP identifies potential funding sources and specifies recommended designs to encourage consistency and safety within the Region. The BPP is incorporated into TMPO's Regional Transportation Plan (Mobility 2035). The study area contains existing shared-use paths and planned bike lanes and routes depicted in the BPP (TMPO 2010, App. B:Fig. 11).

Focused Goal: Bicyclist and Pedestrian Accommodation - Create and maintain bikeable, walkable communities through existing and new development

- ▲ **Policy 1.15** Accommodate bicyclists and pedestrians as described in the Lake Tahoe Bicycle and Pedestrian Plan in all roadway improvement projects. Include specialist pedestrian crossing treatments; traffic calming and bicycle activated signals as appropriate to the scale of the project (TMPO 2010, Page 64 BPP).

STATE

California State Parks

The California Department of Parks and Recreation, or California State Parks, defines its mission as follows: "to provide the health, inspiration, and education of the people of California by helping to preserve the state's extraordinary biological diversity, protecting its most valued natural and cultural resources, and providing opportunities for high-quality recreational experiences based on those resources."

The California State Parks facility in the vicinity of the project is William B. Layton Park, located adjacent to the project site and within the study area. Layton Park, including the historic Gatekeeper's Museum, is a part of the Truckee River Outlet Parcel, which is included in the Tahoe State Recreation Area (CSP 1999). The park and museum are managed by the North Lake Tahoe Historical Society.

California Recreational Trails Act of 1974

The California Recreational Trails Act includes two major components – the reauthorization of the California Recreational Trails Committee and the requirement to develop a California Recreational Trails System Plan.

The California Recreational Trails Act (Public Resources Code Section 5070.5) declares:

- ▲ Increase accessibility and enhance the use, enjoyment, and understanding of California's scenic, natural, historic, and cultural resources.
- ▲ Encourage hiking, horseback riding, and bicycling as important contributions to the health and welfare of the state's population.
- ▲ Provide for the use of recreational trails by physically disabled persons, the elderly, and others in need of graduated trails.
- ▲ Increase opportunities for recreational boating and use of recreational vehicles.
- ▲ Encourage the development by cities, counties, districts, and private groups of recreational and interpretive trails, including heritage corridors.

LOCAL GOVERNMENT

Placer County General Plan, Tahoe City Area

Placer County General Plan, Tahoe City Area, March 1994, amended October 2006.

The Open Space Element of the Placer County General Plan for the Tahoe City Area provides policies on recreation and a notation for the 64-Acre Tract. The following Goal and Policies apply to recreation:

Goal 1: Maintain and augment the existing inventory of open space lands in the Plan area.

- ▲ **Policy 2.** Improve and enhance those areas where lake access exists and where access is obtained in the future.
- ▲ **Policy 3.** Use all appropriate opportunities to increase opportunities for public access to the Truckee River.
- ▲ **Policy 4.** Implement the “Parks and Recreation Master Plan” of the Tahoe City Public Utility District as the recreation element of the Plan along with the planning programs of California State Parks and USFS.
- ▲ **Policy 6.** Integrate the overall development of the “64 acre” property with the recreation element of the Tahoe City Community Plan and General Plan. This development should include a Visitor Center/Interpretive facility, as well as public parking for accessing the Truckee River and adjacent trail system.

The following notation also appears in the presentation of Recreational Resources: “64 Acres” “Develop interpretive center, Tahoe Rim Trail trailhead, and river parking access. Improve beach access.”

Tahoe City Public Utility District Parks and Recreation Master Plan

The Tahoe Public Utility District (TCPUD) was founded in 1938 to provide some of the government service needs of residents of Tahoe City. TCPUD provides parks and recreation services to over 1,000,000 visitors and residents in the district. Recreation facilities in the district include: 64-Acre Tract (within the study area), Commons Beach Park, Elizabeth Williams Park, Kilner Park, Lake Forest Park, Marie Sluchak Community Park, Pomin Park, Skylandia Park and Beach, and 19 miles of trail network for bicyclists, joggers, and hikers (including the Truckee River Trail, West Shore Trail, and Lakeside Trail/North Shore Trail).

This Parks and Recreation Master Plan assesses existing sites, existing facilities, existing and future plans, improvement needs, and concerns regarding a variety of recreational facilities and sites within the TCPUD jurisdiction (TCPUD n.d.). The needs assessment for the 64-Acre Tract notes a need for additional parking spaces, regional sign standards, roadside markers, and debris clearing (TCPUD n.d.: Ch.5 p. 4). High priority facility improvements planned for the period from 2000 to 2010 include trail connection to North Shore/Fanny Bridge, erosion control on the river bank, and designation of foot path access to the river paddler’s launch site. Lower priority was assigned to additional restrooms, regional signage, and expansion of the parking lot.

4.13.3 Affected Environment

The TRPA Goals and Policies categorize recreation into three general types within the Region: dispersed, developed, and urban recreation. Dispersed recreation activities typically do not require the use of facilities other than access points and include: hiking, jogging, primitive camping, fishing, backcountry and cross country skiing, rafting/kayaking, and swimming. Developed recreation involves recreation activities enhanced by the use of built facilities, such as campgrounds, marinas, and ski resort. Urban recreation includes indoor and outdoor recreation facilities, such as athletic fields, ice skating rinks, swimming pools,

and neighborhood parks. Urban recreation includes indoor and outdoor recreation facilities such as athletic fields, ice skating rinks, and swimming pools. Tourists dominate the user groups during the peak recreational seasons, which are during the summer and winter months. Using the TRPA categories, the recreation resources in the study area are primarily oriented to dispersed recreation, as described below as well as those consistent with the USFS ROS classification of Rural. The site is currently managed as a developed recreation facility by the USFS. For the purposes of this analysis, the primary recreation uses are trail use and dispersed outdoor recreation.

EXISTING OUTDOOR RECREATION FACILITIES AND RESOURCES

Regionally, recreation activities are associated with the Lake Tahoe's open water (e.g., swimming, boating, personal watercraft use, and fishing), rivers and streams tributary to the lake (e.g., fishing, paddling, swimming), the shoreline and beaches (e.g., sunbathing, camping, bicycling, and sightseeing), the forest and mountains surrounding the lake (e.g., hiking, nature appreciation, mountain biking, backpacking, snowboarding, and skiing), and developed facilities (e.g., campgrounds, historic and interpretive facilities, and ski areas). The study area recreation resources include forest land, the Truckee River, and a small section of lake shoreline.

The 64-Acre Tract, which is publicly owned and managed by the LTBMU, comprises the majority of the study area. The 64-Acre Tract originally consisted of multiple parcels both north and south of the Truckee River; however, parcels have been transferred to other agencies and the remainder of the tract under LTBMU jurisdiction south of the river now consists of approximately 35 acres. It includes paved multi-use trails, Tahoe Rim Trail, a 66-space parking area, access roads, public raft launch site on the river, transit center, and the bicycle/pedestrian bridge across the river. Undeveloped forest recreation land generally consists of Jeffrey pine forest, with sparser density of trees on the north end and greater density on the south end of the property. Lake Tahoe may be seen from locations within the project site, such as from Fanny Bridge, and through tree-screened views from along SR 89 and within the 64-Acre Tract (see Section 4.14, Scenic Resources for more information) and can also be accessed within the site for lake-based recreation opportunities east of SR 89.

Existing recreation resources and facilities located in the study area include public forest land, publicly accessible river recreation, dispersed recreation facilities, developed facilities including public and commercial raft launching areas, and sightseeing opportunities related to Fanny Bridge, the Truckee River Outlet Dam, and the lake. In addition, William B. Layton State Park and Gatekeeper's Museum are located adjacent to the project site, within the study area. The study area does not provide urban recreation facilities, such as sports fields.

The recreational resources and facilities are shown in Exhibit 4.13-1 and described below.

RECREATION RESOURCES AND FACILITIES

Recreation resources and facilities located within the study area are associated with the forest, river, and lakeshore. Recreation facilities consist of day-use facilities and trails that allow access to forest lands on the 64-Acre Tract and connect with trails leading to adjacent and regional public lands. Several of the existing recreational facilities are managed under an agreement with the TCPUD.

Recreation Resources

The study area includes important resources with outdoor recreation values, including forest lands, river corridor, and lakeshore. These resources provide the opportunities for dispersed outdoor recreation activities that do not require the use of developed facilities other than access-related improvements including roads and trails. Recreation values associated with the study area resources include scenic forest, river, and lake views; diverse wildlife; a sense of relative solitude near urban neighborhoods and community areas; dynamic character of moving river and lake waters; and easy accessibility from many entry points. Dispersed recreation activities associated with the study area include walking, relaxing, viewing natural

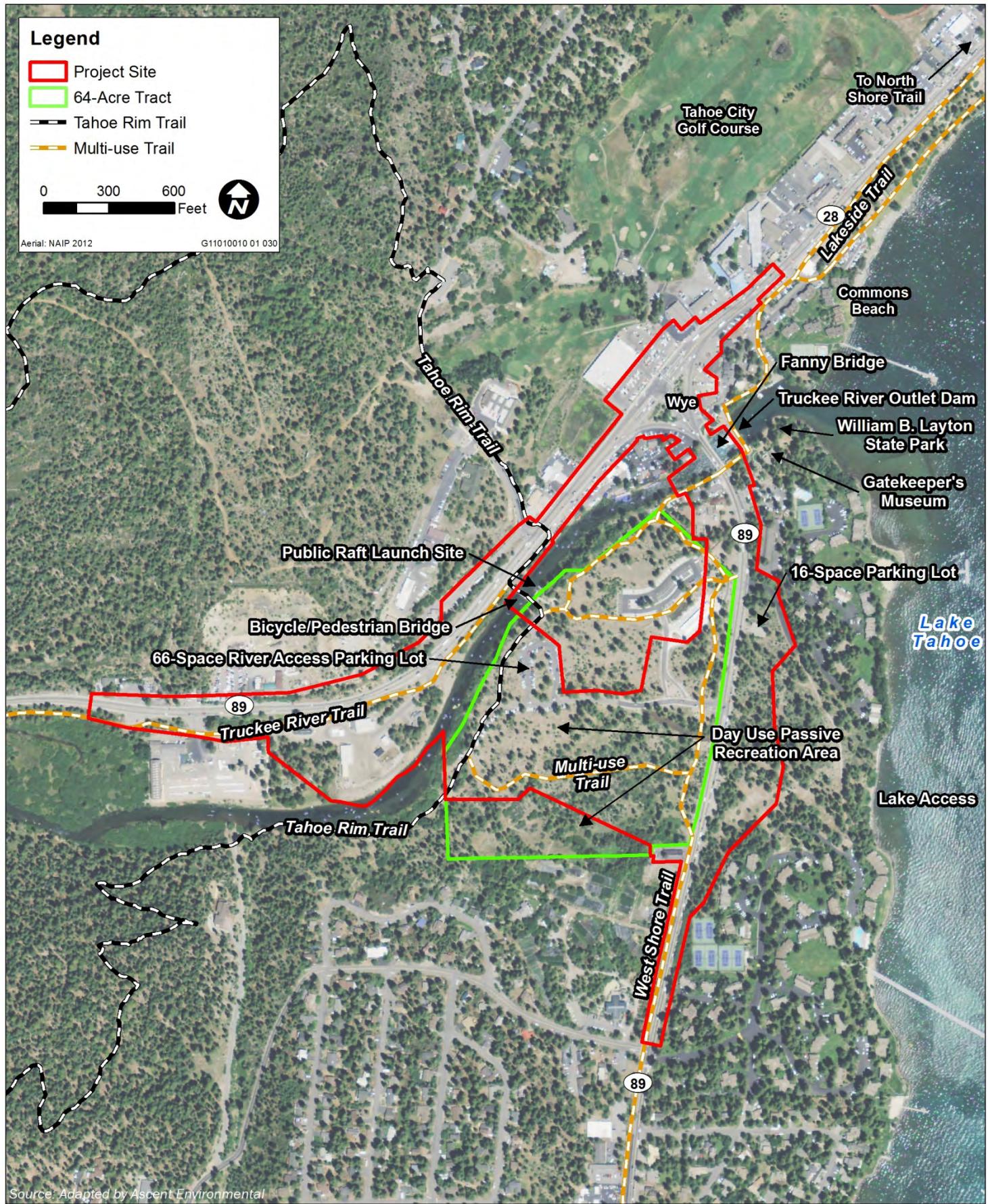


Exhibit 4.13-1

Recreational Facilities and Resources in the Study Area

features, wildlife appreciation, picnicking, and water or water-side activities (swimming, water play, sun-bathing). In addition, during the winter, open spaces within the study area are available for snow-related dispersed activities, such as sledding, snow play, snowshoeing, and cross-country skiing (all of which are dependent on snow and weather conditions).

Dispersed Recreation Facilities

Current outdoor recreation facilities supporting dispersed activities on the 64-Acre Tract include:

- ▲ Day-use areas, located on the lake side portion of the property to the east of SR 89, including beach access and picnicking. The southeast part of the site is also used as a snow-play area in the winter. There are 16 paved parking spaces on the east side of the highway.
- ▲ A loop trail, approximately 0.6 miles in length, provides a localized multi-use pathway for passive outdoor recreation and active trail uses within the 64-Acre Tract. Facilities associated with this loop trail include a small picnic area along the river with three barbecues and tables, parking, and portable toilets.
- ▲ A portion of the Tahoe Rim Trail, a National Recreation Trail, runs through a portion of the study area, traversing the 64-Acre Tract and crossing the river and existing SR 89 (described in greater detail below).
- ▲ Portions of Class I multi-use trail facilities, including (1) the Truckee River Trail, which extends from the 64-Acre Tract down river to Squaw Valley; (2) the West Shore Trail, which extends from 64-Acre Tract south down the West Shore of the lake; (3) the Lakeside Trail, which extends from 64-Acre Tract north and east towards and through Tahoe City along the lakefront; and (4) the North Shore Trail, which extends north and east from the end of Lakeside Trail in Tahoe City along SR 28 to Dollar Hill. The Truckee River Trail, West Shore Trail, and Lakeside Trail/North Shore Trail combination connect to trails within the 64-Acre Tract and are described further below. Tahoe Rim Trail

The Tahoe Rim Trail, a federally designated National Recreation Trail, is a 165-mile, single-track, multi-use trail encircling Lake Tahoe. In the project vicinity, the trail is located on LTBMU lands and is open to hikers, equestrians, and mountain bikers. Winter use by skiers and snowshoers is also popular. There is a trailhead on the 64-Acre Tract on the west side of SR 89, south of the wye near the bicycle/pedestrian bridge.

Approximately one-half mile of the Tahoe Rim Trail passes through the study area, including 0.35 mile of trail located along the Truckee River on the 64-Acre Tract. The trail runs across the river on the bicycle/pedestrian bridge and crosses existing SR 89 and adjacent commercial uses, before ascending up to the ridgeline north of Tahoe City (Refer to Exhibit 4.13-1). The trail is maintained by the USFS in partnership with the Tahoe Rim Trail Association.

Truckee River Trail, West Shore Trail, Lakeside Trail/North Shore Trail

The Truckee River Trail, Lakeside Trail/North Shore Trail, and West Shore Trail are Class I, separated, multi-use trail facilities that meet at the 64-Acre Tract, which provides extensive regional trail connectivity converging in the study area. The Lakeside Trail/North Shore Trail extends from the 64-Acre Tract north and east into and through Tahoe City to Dollar Hill. TCPUD plans a future extension of this trail to connect it to the North Tahoe Regional Park in Tahoe Vista. The West Shore Trail (which is maintained by Placer County) runs from the 64-Acre Tract south down the west shore of Lake Tahoe to the Tahoma area. Gap-closing trail sections are planned to ultimately connect the West Shore Trail to Meeks Bay and Sugar Pine Point State Park. The Truckee River Trail extends from the 64-Acre Tract west along SR 89 and the river to the entrance road to Squaw Valley. At Squaw Valley, the TCPUD trail connects with the Squaw Valley trail system. In the study area, the Truckee River Trail is aligned on the north river bank and connects to the 64-Acre Tract on the south side of the river via the bicycle/pedestrian bridge.

Truckee River Rafting

In the summer, both the TCPUD trail network and the Truckee River are popular for recreationists. River rafting, self-guided or through commercial raft services, is possible from Tahoe City to River Ranch, located near the Alpine Meadows entrance Road. The public raft launch site is immediately upstream from the

bike/pedestrian bridge and is accessible from the 64-Acre Tract. Commercial rafting companies have launch areas on the west (wye) side of the river, immediately downstream from Fanny Bridge. Fishing and enjoyment of natural surroundings along the river are also popular.

Developed Recreation Facilities

Other public recreation facilities located in and near the project site include pedestrian-oriented passive activities at Fanny Bridge and the Truckee River Outlet Dam. William B. Layton Park is located at the outlet from Lake Tahoe to the Truckee River and offers river and lake viewing and historic information/interpretation at the Gatekeeper's Museum.

ACCESS TO RECREATION RESOURCES AND FACILITIES

The project site provides an access point for recreation facilities serving the wye area, as described above. While pedestrians and cyclist may enter the area from the west, south, and north, access to recreation resources and facilities also relies upon parking lots and roadside parking spaces within the 64-Acre Tract. There are currently two parking lots: one is located south of the bicycle/pedestrian bridge and provides 66 spaces. The second contains 16 spaces and is located on the east side of SR 89 near Fanny Bridge. In addition, visitors park along the existing River Access Road within the project site and along the SR 89 right-of-way. The Tahoe City Transit Center also contains a parking lot; however, it is controlled by a special use permit from LTBMU and is restricted to use by transit riders.

Trail and river use within and near to the project site is most popular during the summer months, and also includes spring and fall recreation use with a smaller number of visitors. In addition, winter outdoor recreation use of the project site is available depending on the snow and weather conditions. Trails and parking areas on the project site are plowed to remove snow; limited cross-country skiing, snow shoeing, and snow play are available. Spring and fall represent the “shoulder seasons” of recreation use, when the use levels are generally less than during the summer or winter. Spring and fall outdoor recreation activities are primarily related to trail use and passive activities in the forested areas, along the river, and around Fanny Bridge.

EXISTING RECREATION SURVEYS

Lake Tahoe Basin Management Unit Surveys

Survey information regarding user satisfaction has been gathered for the overall LTBMU through the USDA Forest Service National Visitor Use Monitoring Program; however, it is not available for a single site, such as the 64-Acre Tract or the Truckee River. The national survey inquires about the level of satisfaction and level of importance of 14 “satisfaction elements,” i.e., restroom cleanliness, developed facilities, condition of environment, employee helpfulness, interpretive displays, parking availability, parking lot condition, recreation information availability, road condition, feeling of safety, scenery, signage adequacy, trail condition, and value for fee paid. The most important elements to respondents in the LTBMU were feeling of safety, scenery, value for fee paid, and condition of environment. The highest satisfaction elements were feeling of safety, scenery, employee helpfulness, condition of environment, and developed facilities. The lowest level of satisfaction was reported for parking availability, value for fee paid, and parking lot condition (USDA Forest Service 2010). Because of low satisfaction related to parking and value of fee paid, these elements were prioritized for management attention.

TCPUD Survey

User data has been collected annually since 2005 by TCPUD for trails in the project vicinity. These surveys are conducted during the peak period of August and include data on use level, type of use, and visitor characteristics. Information on user expectations and preferences is not collected. Surveys collected on August 14th and 15th, 2013 found that the majority of trail users in this area are visitors or seasonal residents and that most of the trail users (65 percent) begin their trip at their home or lodging facility. The

remaining 35 percent of trail users surveyed drove to their trail destination and 20 percent of those trail users chose to drive for safety reasons. The Truckee River Trail had the highest percentage of bicyclists and the Lakeside Trail had the highest percentage of pedestrians. Results of the trail user survey in the study area are shown in Table 4.13-1 (TCPUD 2013).

Table 4.13-1 TCPUD Trail User Survey Totals

Trail	Pedestrian	Mountain Bike	Road Bike	Other (Rollerblades, skateboard)	Total Users Surveyed
64-Acre Tract	177	357	257	2	793
Truckee River Trail	28	755	268	10	1,061
Lakeside Trail	588	99	263	6	956
Total	793	1,211	788	18	2,810

Source: TCPUD 2013.

The highest overall trail use was on the Truckee River Trail and the lowest use was on trails within the 64-Acre Tract (Table 4.13-1). These data indicated that the 64-Acre Tract and Truckee River Trail are primarily used by cyclists, while the Lakeside Trail is primarily used by pedestrians. No data is available from the TCPUD surveys related to off-trail use, such as dispersed uses within the forest, along the river, or on the lakeshore.

4.13.4 Environmental Consequences

METHODS AND ASSUMPTIONS

The evaluation of potential temporary and long-term impacts to recreation is based on a review of recreation-related plans and documents pertaining to the study area, site visits to observe warm-weather recreation use, and consultation with public agency personnel. The information obtained from these sources was reviewed and summarized to understand existing conditions and to identify potential environmental effects, based on the significance criteria. The impact analysis considers the potential effects of project construction and operation on dispersed recreation use of resources in the study area, developed recreation facilities, including disruption of public access, conversion of recreation resource lands, and influence on the quality of the recreation user's experience in the study area.

SIGNIFICANCE CRITERIA

NEPA Criteria

An environmental document prepared to comply with NEPA must consider the context and intensity of the environmental effects that would be caused by or result from the proposed action. Context means that the significance of the action must be considered in terms of the Region as whole, affected interests, and the specific locality. Intensity refers to the severity of an effect.

Under NEPA, the significance of an effect is used solely to determine whether an EIS must be prepared. The factors that are taken into account under NEPA to determine the significance of an action in terms of the context and the intensity of its effects and, in this case, while considering the TRPA and CEQA criteria, also examine the effect to the recreational experience in the context of the study area as whole.

An alternative is determined to result in a significant impact related to recreation resources if it would:

- ▲ adversely alter or decrease the recreation resource values of the project area to the extent that recreational user experience or opportunity is substantially diminished.

TRPA Criteria

The “Recreation” criteria from the TRPA Initial Environmental Checklist were used to evaluate the recreation impacts of the alternatives. According to the checklist, there would be a significant environmental effect if the project would:

- ▲ Create additional demand for recreation facilities,
- ▲ Create additional recreation capacity,
- ▲ Have the potential to create conflicts between recreation uses, either existing or proposed, or
- ▲ Result in a decrease or loss of public access to any lake, waterway, or public lands.

CEQA Criteria

In accordance with Appendix G of the State CEQA Guidelines, an alternative is determined to result in a significant impact related to recreation resources if it would:

- ▲ increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated, or
- ▲ include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

ISSUES NOT WARRANTING DETAILED EVALUATION

None of the action alternatives would provide additional housing or jobs and, as a consequence, would not result in population growth within the Basin. Therefore, no additional demand for recreational facilities or programs would be created and no additional recreation capacity would be required. This topic is not further addressed in this EIR/EIS/EA.

Trail use conflict can occur related to the type or style of recreation activity (mode of travel, level of technology, environmental dominance, etc.), focus of trip, expectations, attitudes toward and perceptions of the environment, level of tolerance for others, and different norms held by different users. Examples of use conflict issues can include: safety concerns between cyclists and pedestrians, large groups blocking trails, and the allowance/disallowance of dogs on trails. Because the action alternatives would not change any existing recreation uses or types of facilities, there would be no effect on use conflict. This topic is not discussed further.

ENVIRONMENTAL EFFECTS OF THE PROJECT ALTERNATIVES

Impact 4.13-1. Temporary disruption of public access to the Truckee River, recreational trails, 64-Acre Tract, or Fanny Bridge area.

During the construction period, the action alternatives would have a short-term effect on existing public access to recreation trails, a public river rafting launch site, and public lands, because of temporary trail closures, construction staging areas, and limitations on parking that supports access to public lands and river recreation. Also, brief closures of Fanny Bridge could occur during its rehabilitation or reconstruction. Cyclists would be directed to “share the road” and/or to temporary detour routes when trails are not available. This short-term decrease in access would be a **significant** impact for Alternatives 1, 2, 3, 4, 6, and 6a. **No impact** would occur under Alternative 5.

During project construction, the action alternatives would have the potential to temporarily reduce access to public lands used for recreation, including access to the Truckee River for rafting and fishing, pedestrian and biking trails, the lakeshore, and recreation facilities, as described below.

Access to the Truckee River. Recreational floating originating from the local rafting companies would not be substantially hindered during construction of Alternatives 1 through 4, because horizontal space and vertical clearance for floating under the new bridge would be maintained during construction when rafters would be present. Vertical clearance would be at least 10 feet above normal river flow levels. Minimal interruption may occur during bridge decking activities, however, construction of the bridge would also be phased to occur outside of the peak rafting season, to the extent possible, to further avoid impacts on recreational floating.

The existing parking lot serving the public raft launch site on the south side of the river would be used as a staging area during construction, so it would not be available for parking. The only other nearby parking on the 64-Acre Tract is associated with the transit facility and it is also not available for river raft parking, because of restrictions in the use permit for the transit facility held by Placer County. During times when the staging area has been established, temporary closure of the parking lot would be required, which would result in a short-term reduction of accessibility to the river by users driving to the study area.

Access to Trails. Construction activity related to the new alignment of SR 89 under Alternatives 1 through 4 would temporarily interrupt connectivity of multi-use trails within and adjacent to the 64-Acre Tract, including the Tahoe Rim Trail, because of the need for short-term closures of trails during construction of the new bridge and highway segment. Full closures are expected to be intermittent and brief in duration when a construction activity creates a safety issue that warrants exclusion of the public for their protection. It is anticipated that construction in this area would be completed in one season, so the temporary trail closures could occur from approximately May through October during one calendar year. During the majority of the construction period, however, trail connectivity would be maintained through the use of temporary detours.

For Alternatives 1 through 4, during construction of the new bridge, SR 89 near the bridge, and the Caltrans maintenance yard entrance, the Truckee River Trail would be obstructed and bicycle travel would be directed to “share-the-road,” mixed, motor vehicle/bicycle lanes on the highway from the western end of the construction zone on SR 89 to the existing bicycle/pedestrian bridge. Non-bicycle travel would not be feasible in mixed motor vehicle/bicycle highway lanes, so walkers, skateboarders, runners, and other non-bicycle trail users would be excluded from this section of the temporarily closed trail. It is anticipated that construction in this area would be completed in one season, so the temporary trail closure would occur from approximately May through October during one year. Signage would be provided at parking lots and approaching the construction zone to alert trail users about the timing, duration, and nature of construction-related impacts. This temporary trail closure would be a short-term, significant effect on trail access in the study area.

The existing parking lot on the 64-Acre Tract that serves the public raft launch site on the south side of the river also provides parking for trail access. When it is used as a staging area during construction, it would not be available for parking by trail users. The transit facility is also not currently available for trail user parking, because of restrictions in Placer County’s use permit. During times with the staging area has been established, temporary closure of the parking lot would be required, which would result in a short-term reduction of vehicle parking for public access to trails.

Pedestrian and Bicycle Access at Fanny Bridge. During construction of the action alternatives, pedestrian and bicycle access on trails and sidewalks on and around Fanny Bridge would be temporarily disrupted and/or relocated. The duration would vary between the alternatives depending on whether the bridge would be restored or replaced, but would be expected to last no more than one construction season. Access to the Gatekeeper Museum, the small parking area on the east side of existing SR 89, and the lake shoreline on the 64-Acre Tract would be intermittently restricted during construction activities. Access across the river from the north using Fanny Bridge would be unavailable while the existing bridge is being restored or

replaced; however, the existing bike and pedestrian bridge and the new SR 89 bridge would be in place and access across the river would be available at all times.

Considered together, during project construction for Alternatives 1 through 4, the combination of the loss of parking for trail and river users, temporary obstruction of trails, and brief interruption of trail connectivity for safety closures would result in a short-term **significant** effect on public access to recreation resources and facilities in the study area.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

This alternative would include construction of a new bridge to be located approximately 1,800 feet southwest of the existing Fanny Bridge, the construction of a realigned SR 89 through the 64-Acre Tract, realignment of existing bike paths, modifications to the existing SR 89 to become a local road for approximately 2,000 feet south of SR 28, the rehabilitation or replacement of Fanny Bridge, and modifications to the Caltrans maintenance yard, T-TSA sewer line and NSEF sewer export main, and the free-right-turn lanes at the wye.

With implementation of Alternative 1, construction activities would result in short-term, **significant** reductions in public access to the Truckee River, pedestrian and biking trails, parking, and Fanny Bridge, as described above.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

With implementation of Alternative 2, construction activities would result in short-term, **significant** reductions in public access to the Truckee River, pedestrian and biking trails, parking, and Fanny Bridge, as described above.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

With implementation of Alternative 3, construction activities would result in short-term, **significant** reductions in public access to the Truckee River, pedestrian and biking trails, parking, and Fanny Bridge, as described above.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

With implementation of Alternative 4, construction activities would result in short-term, **significant** reductions in public access to the Truckee River, pedestrian and biking trails, parking, and Fanny Bridge, as described above.

ALTERNATIVE 5: NO ACTION

Because Alternative 5, the No Action Alternative, would retain existing access to recreation resources and facilities in the study area, it would result in **no impact** to public access.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Alternative 6 would not include construction of a new bridge and realigned highway segment west of the existing Fanny Bridge. Instead, construction activity would occur on and immediately around Fanny Bridge, with an expected duration of one construction season. Therefore, construction of Alternative 6 would not affect the existing bicycle trails or other resources and facilities in the 64-Acre Tract, but would limit public access around Fanny Bridge. Access to the eastern portion of the 64-Acre Tract would remain open. During brief periods when Fanny Bridge must be closed during construction, access to the 64-Acre Tract by vehicle would not be feasible from the north, but would be available from the south. Access to bicycle paths would still be possible by using the existing pedestrian/bicycle bridge. Access to the Fanny Bridge area and Gatekeeper's Museum would be restricted by the construction activity. Alternatives 6 construction would not affect the Truckee River Trail, Lakeside Trail, Tahoe Rim Trail, rafting activities on the Truckee River, or parking availability for river or trail use, because construction disturbance would be limited to the vicinity of

Fanny Bridge. Nonetheless, the restrictions on public access around Fanny Bridge would be a short-term, **significant** effect for Alternative 6.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Construction of Alternative 6a would result in the same short-term effects on public access as Alternative 6. Access to the Fanny Bridge area and Gatekeeper's Museum would be restricted by the construction activity. Alternatives 6a construction would not affect the Truckee River Trail, Lakeside Trail, Tahoe Rim Trail, rafting activities on the Truckee River, or parking availability for river or trail use, because construction disturbance would be limited to the vicinity of Fanny Bridge. Nonetheless, the restrictions on public access around Fanny Bridge would be a short-term, **significant** effect for Alternative 6a.

Impact 4.13-2. Long-term impacts on public access to the Truckee River, recreational trails, 64-Acre Tract, or Fanny Bridge area.

In the long-term, the action alternatives would result in a **beneficial** impact on recreational access to and use of public lands and resources for Alternatives 1, 2, 6, and 6a, because project components include improvements to trail connectivity, improved safety, and public access to the forest areas of the 64-Acre Tract, rafting areas, multi-use trails, parking lots, day-use areas, Fanny Bridge, and the Truckee River. Alternatives 3 and 4 would also improve connectivity of recreational trails, restoration of day-use areas, Fanny Bridge, and launching points for river floating; however, a **significant** impact on forest, trail, and lake shore public access would result from the removal of 16 parking spaces on the east side of SR 89 for development of the cul-de-sac at the south end of a local roadway. There would be **no impact** under Alternative 5, the No Action Alternative.

Access to Truckee River. Upon completion of construction, operation of the realigned SR 89 and the new bridge over the Truckee River would not affect rafting activities or river access for fishing and passive recreational uses. Bridge clearances would be sufficient for comfortable raft floats beneath them. Access to the 64-Acre Tract parking area would be maintained for use by rafters and other river users.

Access to Trails. For action alternatives that include the new bridge, the Truckee River Trail on the north side of the river would be retained on the north side of the river between the existing bicycle/pedestrian bridge west to a point beyond the construction zone. When completed, the Truckee River Trail would be re-established so that future trail connectivity would be the same as pre-project conditions. A third Truckee River crossing in the study area would be created for pedestrians and cyclists with the new bridge (in addition to the bicycle/pedestrian bridge, and the sidewalk on Fanny Bridge). The multi-use trail would be separated from vehicle traffic over the new bridge for cyclist safety. Adding a new trail crossing of the river would be beneficial for the local and regional trail system by increasing river access and pedestrian/bicycle crossing choices.

Long-term operation of the action alternatives would not affect access to trails, but would reroute trails in some areas to accommodate the new roadway and bridge configurations. The rerouted trails would provide continued connectivity to regional bicycle paths to the north/east, south, and west (refer to Section 3.1.6, Bike Path Alignment, in Chapter 3, "Proposed Project and Alternatives"). The bicycle pedestrian bridge would remain, and the Truckee River Trail at the Caltrans maintenance yard would have improved safety with a tunnel that separates the trail from the facility's driveway.

Access to Fanny Bridge. Following construction of the new bridge, Fanny Bridge would be rehabilitation or replaced with a new structure to address structural and seismic deficiencies. The replaced Fanny Bridge would be accessible from areas north and south of the bridge and would have a sidewalk on the western (downstream) side of the bridge. Overall, public access at Fanny Bridge would be improved by any of the action alternatives.

Public Parking Capacity on the 64-Acre Tract. Access to the river access parking lot and other facilities on the 64-Acre Tract would remain under all Alternatives. The 16-space parking lot on the east side of SR 89 (old) would be retained under all alternatives, except for Alternatives 3 and 4. The loss of access to 16 parking spaces for development of Alternatives 3 and 4 would be necessary with the installation of the cul-de-sac, which would substantially reduce parking capacity for access to the 64-Acre Tract, including the nearby lake shore. Use of the roadway shoulder for parking along the roadway segment between the SR 89 roundabout and Fanny Bridge may also be restricted; however, these areas are informal, and are not designated or striped parking spaces under existing conditions.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

In the long term, under Alternative 1, public access to trails, Truckee River, parking, and the Fanny Bridge area would be maintained and, in several ways, improved. For instance, the driveway to the Caltrans maintenance facility on SR 89 west of the new bridge would be relocated and a short trail tunnel would be constructed beneath the new entrance to accommodate bicycle and pedestrian traffic on the Truckee River Trail (i.e., through the embankment of the new entrance), which would eliminate the risk of conflict between vehicles and trail users. Multi-use trail connectivity on the 64-Acre Tract would be maintained for the Tahoe Rim Trail, Truckee River Trail, Lakeside/North Shore Trail, and West Shore Trail, with a grade-separated trail crossing beneath the new highway segment near the new Truckee River bridge. An additional multi-use trail crossing of the Truckee River would be provided on the new SR 89 bridge, and the existing sidewalk on Fanny Bridge would be restored or replaced, resulting in three available trail crossings of trails. Parking for access to the public river rafting launch point and the lake shore area would be maintained.

Upon completion of the rehabilitation or replacement of Fanny Bridge, access to recreation facilities and public lands would be fully restored and improved. Local vehicle access would be maintained across Fanny Bridge. Improved pedestrian access to Fanny Bridge would be provided, which would be a beneficial effect of the project.

Upon completion of Alternative 1, all access to the Truckee River, trails, public parking lots, and Fanny Bridge area would be maintained, restored, or improved. Because completion of the project would result in substantial improvements to access to recreation resources, connections to various trail and sightseeing opportunities, and increased safety to cyclist and pedestrians, this would be a **beneficial** impact.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Operational impacts under Alternative 2 would be same as those described above for Alternative 1 related to the new bridge and highway segment, restoration or replacement of Fanny Bridge, and the Caltrans maintenance yard. Parking for recreational use would remain accessible on the 64-Acre Tract from River Access Road and near the lake shore. While through traffic would not be allowed on the relinquished section of SR 89, access to the existing 16-space parking area on east side of this roadway would be provided to local traffic from the south. Therefore, under this alternative all access to recreational trails, parking, and the Truckee River would be restored after construction is completed.

Upon completion of Alternative 2, all access to the Truckee River, trails, public parking lots, and Fanny Bridge area would be maintained, restored, or improved. Because completion of the project would result in substantial improvements to access to recreation resources, connections to various trail and sightseeing opportunities, and increased safety to cyclist and pedestrians, this would be a **beneficial** impact.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Operational impacts under Alternative 3 would be same as those described above for Alternative 1 related to the new bridge and highway, restoration or replacement of Fanny Bridge, and the Caltrans maintenance yard. However, while parking for recreational use would remain accessible on the 64-Acre Tract on River Access Road, no access to the existing 16-space parking area south of Fanny Bridge near the lake shore would be provided, because this road would be converted to a cul-de-sac south of Fanny Bridge and just north of these parking spaces. The remainder of this portion of SR 89 would provide access to the transit center, and provide emergency access, but would not be open to through traffic. This roadway section and

the 16 parking spaces currently facilitate access to the eastern side of the 64-Acre Tract, including the area south of Fanny Bridge and along the lake. Because of loss of public access to 16 parking spaces serving the area south of Fanny Bridge and the nearby lake shore, the long-term effect of Alternative 3 on public access to recreation resources would be **significant**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Operational impacts under Alternative 4 would be same as those described above for Alternative 1 related to the new bridge and highway, restoration or replacement of Fanny Bridge, and the Caltrans Maintenance Facility. In addition, similar to Alternative 3, access to parking for recreational use would remain on the 64-Acre Tract on River Access Road, but no access to the existing 16-space parking area south of Fanny Bridge would be provided. Because of loss of public access to 16 parking spaces serving the area south of Fanny Bridge, the long-term effect of Alternative 4 on public access to recreation resources would be **significant**.

ALTERNATIVE 5: NO ACTION

Because Alternative 5, the No Action Alternative, would retain existing access to recreation resources and facilities in the study area, it would result in **no impact** to public access.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Following completion of construction of Alternative 6, public access to Fanny Bridge would be improved with wider walkways for pedestrians and an additional multi-use trail across the river. Other trails and recreation resources on the 64-Acre Tract and associated with the Truckee River would be unaffected. Because public access would be maintained, restored, or improved, in the long-term Alternative 6 would result in increased public access, and thus, a **beneficial** impact.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Following completion of construction of Alternative 6a, public access to Fanny Bridge would be improved with wider walkways for pedestrians and an additional multi-use trail across the river. Other trails and recreation resources on the 64-Acre Tract and associated with the Truckee River would be unaffected.

Because public access would be maintained, restored, or improved, in the long-term Alternative 6 would result in increased public access, and thus, a **beneficial** impact.

Impact 4.13-3. Reduction of public forest land available for dispersed recreation.

Alternatives 1, 2, 3, and 4 involve the conversion of public forest land currently managed by LTBMU and used for dispersed recreation activities to highway corridor for the implementation of the planned realignment of a highway segment within the 64-Acre Tract. The existing portion of the 64-Acre Tract that contains the project site is estimated to be 35 acres. Alternatives 1, 2, and 3 would convert approximately 3.2 acres (about 9 percent) of the public forest land to a highway corridor and Alternative 4 would convert approximately 3.4 acres (almost 10 percent). Alternatives 5, 6, and 6a would not result in any conversion of public forest land. Land use plans for the 64-Acre Tract have included a highway realignment since the 1980s, so Alternatives 1, 2, 3, and 4 would implement long-established plans; in the interim, the entire 35 acres of public forest land has been available for dispersed recreation. Because of reduction of forest area available for this recreation use, the conversion of the public forest land would be an adverse change for Alternatives 1 through 4; however over 90 percent of the 64-Acre Tract would remain available for dispersed recreation and existing recreation facilities would be maintained. For these reasons, the adverse effect would be **less than significant** for Alternatives 1 through 4. **No impact** would occur with implementation of Alternatives 5, 6, and 6a.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

Alternative 1 includes the construction of the realigned SR 89 from a roundabout intersection on the east side of the 64-Acre Tract to a new bridge across the Truckee River. The highway cross-section would be two travel lanes and shoulders with flare-outs to multiple travel lanes approaching the rotary intersection and new bridge. The highway segment would be built on an earthen embankment above the current forest floor so the highway would connect with the profile height of the new bridge. This embankment would occupy land that previously provided dispersed recreation opportunity within the 64-Acre Tract forest. Conversion of the existing public forest land would reduce the amount of forest available for dispersed recreation.

Based on conceptual engineering plans of Alternative 1, the area of the 64-Acre Tract to be occupied by highway and embankment, and therefore, no longer available for dispersed recreation uses, would be approximately 3.2 acres. This is about 9 percent of the 35 acres that constitute the existing remainder of public land from the original 64-Acre Tract. This forest land conversion would result in an adverse impact by decreasing opportunities and available public land for dispersed recreation. The conversion of a portion of the public forest for use as a realigned highway has been reflected in adopted land use plans for decades (since the 1980s), so Alternative 1 would implement this long-established plan. After development of the realigned highway, at least 90 percent of the 64-Acre Tract would remain available for dispersed recreation use and existing recreation facilities would be maintained. Forest land on both sides of the realigned highway would be connected via a new trail section and grade-separated crossing (i.e., trail tunnel through the highway embankment). Consequently, although conversion of public forest land would be an adverse consequence, it would not be substantial because of the retention of 90 percent of the public land for dispersed recreation use, and re-established trail connectivity; this impact would be **less than significant**.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Alternative 2 includes the same proposed construction as Alternative 1 related to the realigned SR 89 from a rotary intersection on the east side of the 64-Acre Tract to a new bridge across the Truckee River west of the Tract.

Based on conceptual engineering plans of Alternative 2, the area of the 64-Acre Tract to be occupied by highway and embankment, and therefore, no longer available for dispersed recreation uses, would be approximately 3.2 acres (the same as Alternative 1). For the same reasons described under Alternative 1, this impact would be **less than significant**.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Alternative 3 includes the same proposed highway realignment as Alternative 1 with the realigned SR 89 crossing the 64-Acre Tract from a rotary intersection on the east side to a new bridge across the Truckee River. The amount of public forest converted to highway corridor would be the same (3.2 acres). Unlike Alternatives 1 and 2, removal of a section of the existing SR 89 would also restore a new area to open space which would be available for public recreation use. However, this alternative would result in the loss of a 16-space parking lot and a portion of roadside typically used as overflow parking. Thus, any benefit from new open space would be negated by decreased vehicle access to public recreation lands.

As described above for Alternatives 1 and 2, this land use conversion is considered to be adverse; however, for the same reasons described under Alternative 1, this impact would be **less than significant**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Alternative 4 includes the construction of the realigned SR 89 from a sweeping curve beginning at the existing SR 89 alignment on the east side of the 64-Acre Tract to a new bridge across the Truckee River west of the Tract. The highway cross-section would be three or four lanes, including turn lanes, and shoulders with a new “T” intersection for the transit center access road. The highway segment would be built partially above the current grade on an earthen embankment. Conversion of the existing public forest land would occur where the highway, “T” intersection, and embankment would occupy the existing forest land within the 64-Acre Tract. The amount of forest land converted would be 3.4 acres, slightly more than Alternatives 1 – 3.

In terms of reduction of public land available for dispersed recreation use, Alternative 4 would be similar to Alternatives 3; public forest land would be eliminated by the new SR 89 alignment and a portion of that area gained through removal of the existing SR 89. In addition, the loss of a 16-space parking lot and roadside parking availability would effectively reduce the ability to access by vehicle any new land gained through restoration of a portion of the existing SR 89 highway. As described above for Alternatives 1, 2, and 3, this land use conversion would be adverse; however, for reasons explained under Alternative 1, this impact would be **less than significant**.

ALTERNATIVE 5: NO ACTION

The No Action Alternative would retain existing public land in the 64-Acre Tract entirely for dispersed, outdoor recreation use. No highway construction would occur; therefore, no conversion of public forest land would occur. There would be **no impact**.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Construction related to Alternative 6 would be limited to the Fanny Bridge area, a short section of the existing SR 89 to the south, and the intersection area where SR 89 and 28 connect. It would require no use or conversion of the 64-Acre Tract.

Because this alternative would retain existing public lands for recreation uses on the project site, there would be **no impact** related to conversion of public recreation lands.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Like Alternative 6, construction related to Alternative 6a would be limited to the Fanny Bridge area, a short section of the existing SR 89 to the south, and the intersection area where SR 89 and 28 connect. It would require no use or conversion of the 64-Acre Tract.

Because this alternative would retain existing public lands for recreation uses on the project site, there would be **no impact** related to conversion of public recreation lands.

Impact 4.13-4. Effects on the quality of recreation use experience.

The quality of an outdoor recreation user's experience relates greatly to expectations for a visit and the ability to meet those expectations during an intended activity. Expectations are typically influenced by user experiences, physical characteristics of the recreation resource setting, and perceptions about the level and pattern of use. All the action alternatives would alter the resource setting of the 64-Acre Tract, regional trails, Truckee River, and Fanny Bridge area, which are the four major outdoor recreation resources in the study area. While survey research data is not available to precisely define user expectations and perceptions in the study area, the existing setting would make it reasonable to anticipate that expectations reflect the understanding that the area, which is heavily used and located where traffic, surrounding urban development, and considerable human interactions are present. Designation of the affected land as "rural" within the recreation opportunity spectrum of the USFS would be consistent with both current and post-project conditions. As such, it is also reasonable to anticipate that the action alternatives would result in **less-than-significant** changes to the quality of recreation user experiences, because the alternatives improve, restore, or replace existing infrastructure in the study area that is compatible with its existing setting. The elevated highway realignment on an earthen embankment as part of Alternatives 1-4 would alter the visual and noise conditions of the study area, but the recreation character of the forest would not be significantly changed for dispersed recreation use. The No Action Alternative, Alternative 5 would have **no impact** on the quality of recreation user experience.

Outdoor recreation occurs in many outside settings, from wilderness to downtown urban parks, in undeveloped or undisturbed landscapes to developed facilities and highly altered resorts, and involving a wide variety of activities. The preferences, expectations, and experiences of recreation visitors determine the

degree of satisfaction or, in other words, the quality of the outdoor recreation experience. A common measure of recreation experience quality is the degree of congruence between visitor expectations and outcomes. Expectations are defined in large part by the character of the facility or site being visited and the prior experiences of the visitor.

Visitors who recreate on National Forest System lands typically seek to benefit their physical, psychological, intellectual, and/or spiritual wellbeing. Recreation activities vary widely, both in character and location. Some relax as they view natural features or wildlife from the roadside, while others pursue solitude as they hike in the remote backcountry. Some engage in adrenaline-producing sports, like mountain biking or off-highway vehicles. Others enjoy water-based recreation, hunting, or camping. Based on recreation visitor use monitoring conducted nationally by the USDA Forest Service, the two most common recreational activities in National Forest System lands are hiking/walking and downhill skiing. Fifty-five percent of visitors engage in a primary activity that is physically active, which helps the public stay healthy (USDA Forest Service 2012). As described above in Section 4.13.3, Affected Environment, surveys conducted on TCPUD trail users indicated that the 64-Acre Tract and Truckee River Trail are primarily used by cyclists, while the Lakeside Trail is primarily used by pedestrians. The extent to which people use the project site for recreation activities during the winter, and for off-trail use in general, is unknown. It is reasonable to infer, however, that the character of the surroundings influence the experience of trail and other recreation users.

The 64-Acre Tract (including its forest), Truckee River, regional trails, and Fanny Bridge area are the four most important and well-used recreation resources in the study area. The physical and perceptual characteristics of these resources in the study area are heavily influenced by existing site conditions, existing demand levels and use patterns, and the setting of nearby urban uses that essentially surrounds the property. Site conditions reflect approximately 35 acres of forested outdoor area and a straightened, constrained river reach that creates opportunities for passive leisure activities and active trail or river recreation pursuits. Existing demand for the study area resources is seasonal, with high use levels during the peak summer season, particularly on weekends, and lower use in the spring, fall, and winter (although winter recreation use can increase with good snow and weather conditions). In the summer, parking lots fill and traffic to and from the area becomes congested. The Truckee River Trail and Lakeside Trail are both heavily used in warm seasons and this section of Tahoe Rim Trail descends down to the urban community before returning to the ridgelines. The setting of the forested area includes a nearby urban community. A regional transit center shares the 64-Acre Tract. State highways adjoin two-thirds of the perimeter of the project site. Urban development is visible through the trees or along the river in the project area from most locations. Urban uses essentially surround the study area, including retail, restaurant, commercial office, auto service/repair, and maintenance facility uses, and a residential neighborhood.

All the action alternatives are intended to improve, restore, or replace existing highway, bridge, and trail facilities with the goal of enhancing mobility and reducing peak-period traffic congestion. Alternatives 1 through 4 would increase the total area devoted to highway infrastructure, occupying 3.2 to 3.4 acres of the existing forest recreation land. They would also add a highway bridge over the Truckee River and a section of realigned highway on an earthen embankment. Alternatives 6 and 6A would focus only on the Fanny Bridge area and restore or replace and widen that bridge. While the infrastructure development would result in new and/or restored facilities, all of the improvements would be the same character as the existing setting surrounding the forest, river, and Fanny Bridge recreation resources. The new section of highway in Alternatives 1 through 4 would be elevated between three and nine feet above natural grade. It would detract from the existing resource conditions of the forest recreation land and separate the relatively undeveloped southern portion of the site from the more heavily used northern portion, except for the trail connection beneath the highway. However, the trail and pedestrian improvements (e.g., addition of two river crossings of separated trails, pedestrian facilities at Fanny Bridge) would enhance recreational trail facility and pedestrian use conditions. After completion, the presence of a new bridge over a straightened, urbanized river reach would not substantially change the site conditions or setting of river floating use.

The existing USFS recreation opportunity spectrum designation as rural reflects the presence of intensive facilities, surrounding urban uses, and a high level of human interaction, all of which exist both in the

existing setting and with post-project conditions. “Rural” is the second most development and human use-intensive designation of the spectrum among six categories (urban is the most intensive). The category is applied to substantially modified natural areas.

Recognizing the influence of the combination of both detractions and enhancements to recreation resource site conditions (i.e., adverse for forest use, beneficial for trail and pedestrian use, minimal for river use) and reasonably anticipating that user expectations take into account the setting, nearby urban area, and existing use patterns, the effect of the project’s infrastructure improvements would have a **less-than-significant** effect on the quality of recreation user experiences in the study area (see Section 4.10, Noise, and Section 4.14, Scenic Resources for a discussion related to these types of recreation effects).

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

Alternative 1 would include a new highway segment through the 64-Acre Tract; two roundabout intersections; a new bridge over the Truckee River; two new multi-use trail connections over the river; improved pedestrian facilities at Fanny Bridge; and continued connections with regional trails. Upon completion of construction, the relocated segment of SR 89 would occupy approximately 3.2 acres of the existing 35-acre forested area within the 64-Acre Tract. This additional highway segment would detract from the resource’s site conditions by reducing the amount of forest land available for outdoor recreation and introducing a new segment of highway through the forest that can be seen and heard by onsite users and separate the relatively undeveloped southern portion of the site from the more heavily used northern portion of the site, except for the trail connection under the highway.

Specific effects on recreation resources and facilities in the study area include the following.

Multi-use Trails

There would be no substantial changes to the facility quality or connectivity of multi-use trails after completion of Alternative 1. Trail connectivity would be maintained throughout the study area, including on the north side of the Truckee River. While trails located to the south of the new SR 89 alignment would become longer, they would be located within similar landscapes as the existing conditions, i.e., the existing mixture of sparse Jeffrey pine forests and transportation-related development (parking lots, roadways, the Transit Center) would be similar as a result of realignment of SR 89 and other project features. Visitor experience on multi-use trails would change from existing conditions because landscape views and the experience of open forest land would be altered by the presence of the elevated highway alignment that would separate (except for trail underpass) the southern portion of the recreation site from the northern portion of the site.

Under Alternative 1, the project site would remain as a centralized, regional, and multimodal access point for various regional trails, providing extensive trail access to recreational opportunities within and near to the project site. All trails would meet Class I design-standard criteria, thereby providing a similar expectation for comfort and space between users as the existing conditions. In addition, while vehicular traffic along a freeway would be a noise source, this would represent a relocation of existing motor vehicle noise from one area to another within the 64-Acre Tract and would not be a substantial change to what one may expect at the site (see Impact 4.10-3, Long-Term Noise Impacts). Thus, while there would be changes to the multi-use trails in the study area, they would result in a **less-than-significant** effect on the quality of user experience.

Tahoe Rim Trail

Under Alternative 1, users would be required to cross an additional section of highway through an underpass and travel through a trail roundabout, compared to existing conditions. The portion of the Tahoe Rim Trail within the study area is a point within the trail route where users already expect to cross a highway and its adjacent urban uses within Tahoe City. As a result, an additional highway crossing would be within the user’s expected character of the area. While relocating SR 89 to the west would increase noise exposure for Tahoe Rim Trail users, it would not be significant because user expectation of crossing a highway already exists with the current SR 89 alignment north of the river. Thus, while there would be changes to the Tahoe Rim Trail in the study area, the effect on the quality of user experience would be **less than significant**.

Pedestrian Sightseeing (Lake, Dam, Fanny Bridge)

As described in Section 4.14, Scenic Resources, scenic quality for pedestrians in the Lake, dam, and Fanny Bridge sightseeing area would not change substantially. Under Alternative 1, the pedestrian setting would improve and Fanny Bridge rehabilitation or replacement would not substantially alter its visual mass or design character. Furthermore, pedestrian facilities and safety would be enhanced in the area through decreased traffic, thereby improving the user experience and safety. Thus, there would be **beneficial** effects on pedestrian sightseeing activities in the Fanny Bridge area.

Passive Forest Recreation (64-Acre Tract)

Realignment of SR 89 would decrease the amount of forest area available for passive outdoor activities. In addition, the elevated embankments on the highway approach to the new bridge would interrupt some views through the forest, and would increase the presence of vehicles and roadway in some locations.

Realignment would also shift vehicular noise west toward the center of the forest. Thus, the land area conducive to nature-based activities would be decreased in a portion of the site. However, highway and vehicle features would not be new to the study area, and trail connections across the realigned highway would be maintained, so access remains to the surrounding forest land. Thus, there would be an adverse, but a **less-than-significant effect** on user experience for visitors seeking passive outdoor activities.

River Recreation (access to river and rafting)

Under Alternative 1, there would be no substantial changes to river access compared to the existing conditions. Although a new bridge would be clearly visible, it would be located within a relatively developed reach of the river and near other river overpasses, such as the pedestrian/bicycle bridge. Furthermore, floating on the river would not be impeded, because adequate clearance height would be provided with the new SR 89 bridge. Thus, effects on river recreation user experience would be **less than significant**.

While the highway would have an adverse effect on the quality of recreation experience for forest users, other users would benefit from improved facilities, particularly the multi-use trail river crossings and the pedestrian facilities at Fanny Bridge. Therefore, changes in the quality of recreation experiences would be both adverse and beneficial, depending on the type of recreation user. Because the alternatives involve the relocation of an existing highway, some recreation users would reasonably recognize the highway to be consistent with the existing setting of the study area. Considered together, the effects on the quality of recreation user experiences by Alternative 1 would be **less than significant** as a result of the reduction of recreation land and presence of the new highway segment in the 64-Acre Tract forest in combination with improvement, restoration, or replacement of the existing highway, bridge, and trail facilities accomplished by the project.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

For Alternative 2, impacts related to the quality of recreation experience would be the same as described for Alternative 1. Considered together, the effects on the quality of recreation user experiences by Alternative 2 would be **less than significant** as a result of the reduction of recreation land and presence of the new highway segment in the 64-Acre Tract forest in combination with improvement, restoration, or replacement of the existing highway, bridge, and trail facilities accomplished by the project.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

For Alternative 3, impacts related to the quality of recreation experience would be mostly the same as described for Alternative 1. An additional adverse influence on user experience would occur, because of the reduction in parking capacity (16 spaces) east of the existing SR 89 (see Impact 4.13-2). A beneficial effect to recreation experience would be the addition of open space for public recreation use, and improved connectivity between the river- and trail-oriented recreation opportunities and lake-oriented opportunities, particularly for non-motorized users. Considered together, the effects on the quality of recreation user experiences by Alternative 3 would be **less than significant** as a result of the reduction of recreation land, presence of the new highway segment in the 64-Acre Tract forest, and reduction in parking capacity, in combination with improvement, restoration, or replacement of the existing highway, bridge, and trail facilities accomplished by the project.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

For Alternative 4, impacts related to the quality of recreation experience would be mostly the same as described for Alternative 1. Like Alternative 3, an additional adverse influence on user experience would occur, because of the reduction in parking capacity (16 spaces) east of the existing SR 89 (see Impact 4.13-2). A beneficial effect to recreation experience would be the addition of open space for public recreation use, and improved connectivity between the river- and trail-oriented recreation opportunities and lake-oriented opportunities, particularly for non-motorized users. Also, a slightly larger area of the forested public land on the 64-Acre Tract would be occupied by the realigned SR 89 highway segment than Alternatives 1 – 3, i.e., 3.4 acres versus 3.2 acres.

Considered together, the effects on the quality of recreation user experiences by Alternative 4 would be **less than significant** as a result of the reduction of recreation land, presence of the new highway segment in the 64-Acre Tract forest, and reduction in parking capacity, in combination with improvement, restoration, or replacement of the existing highway, bridge, and trail facilities accomplished by the project.

ALTERNATIVE 5: NO ACTION

The No Action Alternative would retain existing recreational facilities on the project site. No construction would occur; therefore, no change of the quality of recreation experience would take place. There would be **no impact**.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Alternative 6 would be limited to rehabilitation or replacement of a widened Fanny Bridge and “T” intersection improvements at the existing wye. Specific effects on recreation resources in the project site include the following.

Multi-use Trails

Effects on multi-use trails would be similar to those discussed under Alternatives 1 through 4, except that trail lengths through the study area would generally be the same as under the existing conditions. Thus, there would be a **less-than-significant** effect on multi-use trails.

Tahoe Rim Trail

There would be no substantial changes to the Tahoe Rim Trail. Thus, there would be **no effect** on the Tahoe Rim Trail.

Pedestrian Sightseeing (Lake, Dam, Fanny Bridge)

The widened bridge would include a new multi-use trail crossing of the Truckee River. The widened bridge would require right-of-way acquisition that could displace long-established, visitor-serving businesses, which would detract from the quality of visitor experiences for people who expect to patronize those businesses. However, the effect on the quality of pedestrian recreation experiences in the study area would be beneficial from improved pedestrian facilities at Fanny Bridge. Therefore, changes in the quality of recreation experiences would be **both adverse** (from displacement of visitor-serving businesses) **and beneficial** (from enhanced pedestrian facilities), depending on the type of visitor or recreation user.

Passive Forest Recreation (64-Acre Tract)

There would be no substantial changes to the 64-Acre Tract. Thus, there would be **no effect** on passive forest recreation.

River Recreation (Access to River and Rafting)

There would be no substantial changes to access to river and rafting facilities. Thus, there would be no effects on river recreation.

Considered together, the effects on the quality of recreation user experiences by Alternative 6 would be **less than significant** as a result of the displacement of visitor-serving businesses in combination with restoration or replacement of the existing Fanny Bridge and its associated pedestrian and trail improvements.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

For Alternative 6a, impacts related to the quality of recreation experience would be the same as described for Alternative 6. Considered together, the effects on the quality of recreation user experiences by Alternative 6a would be **less than significant** as a result of the displacement of visitor-serving businesses in combination with restoration or replacement of the existing Fanny Bridge and its associated pedestrian and trail improvements.

4.13.5 Avoidance, Minimization, and/or Mitigation Measures

Mitigation Measure 4.13-1: Provide detours and trail access management for the Tahoe Rim Trail and Truckee River Trail through or around construction areas.

The following mitigation applies Alternatives 1 through 4, 6, and 6a, except where noted.

The Traffic Management Plan shall address all modes of transportation used to access recreation areas, including trail access, public transit, pedestrian and bicycle modes. In order to mitigate short-term decreases in access to recreation resources, trail detour plans shall be included in the Traffic Management Plan, which will meet, at minimum, the following specifications.

1. For Alternatives 1 through 4, during construction of the new bridge, SR 89 near the bridge, and the Caltrans maintenance yard entrance, the Truckee River Trail will be temporarily closed and all bicycle and pedestrian travel will be required to “share-the-road” and/or detoured to a temporary trail/path on the highway consisting of a physical barrier such as “K-Rail.” The temporary separated path shall be established from the western end of the construction zone on SR 89 to the existing bicycle/pedestrian bridge to the east. It is anticipated that construction in this area will be completed in one season, thus the temporary trail will be used from May through October during one year. Signage will be provided at parking lots and approaching the construction zone to alert trail users about the timing, duration, and nature of construction-related impacts.
2. The contractor shall submit a plan to create detours for trail users on the Tahoe Rim Trail, West Shore Trail, Lakeside Trail, and the Truckee River Trail.
3. Signage shall be provided at trail heads and parking lots for all trails directly affected by construction and for connecting trails to alert trail users about the timing, duration, and nature of construction-related impacts, detours and closures.
 - a. Sign locations shall include, but are not limited to parking lots and trail entrances at Tahoe City, Alpine Meadows, Squaw Valley, and Tahoma for the Truckee River Trail and the Lakeside Trail, and Barker Pass and Brockway Summit trailheads for the TRT.
4. The Traffic Management Plan shall include trail access management and require extensive public information via a variety of media outlets in the region to inform the public regarding the construction-related detours and closures that affect access to recreational facilities, including parking, and trail closures.
5. The Traffic Management Plan shall provide a “recreation hotline” and or website link that is frequently updated to provide current information on construction related detours and closures.

The Traffic Management Plan shall be subject to the review and approval of TTD, TRPA, CFLHD, BOR, Placer County, USFS, and TCPUD. Measures will be taken to keep the public informed of the project construction activities. When closures and/or detours are required by the contractor(s), warning signs and signs regarding restricted access, trail closures, and detours will be posted before and during construction to ensure adequate public safety. Postings, including public notices, will be posted no less than 5 working days in advance of the closures and/or detours. Detour routes will be clearly marked, and construction limit fencing or physical barriers will be installed in order to prevent access to the project site and to clearly delineate the detour route. Full trail closure by the contractor(s) will be prohibited from July 1 through September 9 without an approved detour. All bicycle and pedestrian detours will be included in the Traffic Control Plan to be reviewed and approved prior to construction. Approval must be granted before the start of earth-moving activities. No trail shall be closed without an approved detour plan.

Significance after Mitigation

Implementation of Mitigation Measure 4.13-1 will minimize the adverse effects associated with Impact 4.13-1, under Alternatives 1, 2, 3, and 4, because it will allow continued recreational use of the Tahoe Rim Trail and Truckee River Trail, when feasible, and will allow the public to make informed decisions regarding recreation destinations prior to arriving in the study area. Implementation of the measure under all action alternatives will reduce the impact to a **less-than-significant** level.

Mitigation Measure 4.13-2: Replace 16 parking spaces serving the 64-Acre Tract.

The following mitigation applies Alternatives 3 and 4.

To avoid reduction of parking capacity for recreation visitors to the 64-Acre Tract, the project shall include replacement of 16 off-street parking spaces that would be made inaccessible by the project. These spaces shall be located on the 64-Acre Tract as close to the east side of the study area as feasible to maintain parking capacity on the 64-Acre Tract and, to the extent feasible, support public recreational access to the east side/lake shore area.

Significance after Mitigation

Implementation of Mitigation Measure 4.13-2 would minimize the adverse effects associated with Impact 4.13-2, under Alternatives 3 and 4, because it would restore parking capacity for recreational access to the 64-Acre Tract. Implementation of the measure would reduce the impact to a **less-than-significant** level.

4.14 SCENIC RESOURCES

4.14.1 Introduction

This section describes the existing scenic characteristics and conditions in the vicinity of the project site and provides an assessment of changes to those conditions that would result from implementation of the project alternatives. Effects of the project on the scenic environment are generally defined in terms of the project's physical characteristics and the potential visibility of those changes, the extent to which the project would change the perceived scenic character and quality of the visual environment where it is located, and the expected level of sensitivity for the affected viewing public. In the Tahoe Basin, the Tahoe Regional Planning Agency (TRPA) and USDA Forest Service (USFS) have special methods and standards for scenic analysis. The discussion below, under "Methods and Assumptions," provides further detail on the approach used in this section.

The following discussion is based in part on the *Visual Impact Assessment; State Route 89/Fanny Bridge Community Revitalization Project (VIA)* prepared for the project (Tahoe Transportation District, April 2014). The descriptions of scenic resources and accompanying photographs of representative views and photographic simulations are from the VIA, unless otherwise stated. Exhibit 4.14-2 in subsection 4.14.2, "Affected Environment," shows the location of the representative project viewpoint photographs, and Exhibit 4.14-10 in subsection 4.14.3, "Environmental Consequences," shows the location of Key Observation Points (KOPs) where photographic simulations are provided.

Comments received on the Notice of Preparation pertaining to scenic resources addressed the potential visual effects from construction of a new bridge and road through the 64-Acre Tract, the potential expansion of Fanny Bridge to four lanes, and night lighting on the proposed bridge and roundabouts. These issues are addressed in this section.

For effects related to recreation user experience, see Section 4.13, "Recreation."

CONCEPTS RELATED TO SCENIC RESOURCES

Scenic resources are generally defined as both the natural and built features of the landscape that contribute to the experience and appreciation of the environment by the general public. Depending on the extent to which a project would adversely alter the perceived visual character and quality of the environment, a scenic impact may occur. Familiarity with the following terms and concepts will aid the reader in understanding the content of this chapter. These terms and definitions are not specific to any one visual resource assessment methodology (i.e., FHWA, TRPA or USFS), but instead are general in nature such that the setting can be described in a manner that allows for adequate assessment of scenic impacts under any of these frameworks.

Viewer Groups

Viewer groups are differentiated by physical factors that modify perception. For roadway projects, a distinction can be made between two basic groups, highway users (motorists and passengers in cars or buses) and highway neighbors, (those who view the road from nearby areas). These groups are further differentiated by the activities they are engaged in. Activities such as commuting or working can distract the observer from the visual environment. On the other hand, activities such as driving for pleasure, hiking or relaxing in scenic surroundings can heighten awareness of visual surroundings.

Viewer Exposure

Viewer exposure addresses the variables that affect viewing conditions from potentially sensitive areas. Viewer exposure considers the following factors:

- ▲ landscape visibility – the ability to see the landscape;
- ▲ viewing distance – the proximity of viewers to the project;
- ▲ viewing angle – whether the project would be viewed from above (superior), below (inferior), or from a level (normal) line of sight;
- ▲ extent of visibility – whether the line of sight is open and panoramic to the project site or restricted by terrain, vegetation and/or structures; and
- ▲ duration of view – the elapsed time the project site would be visible to a particular viewer.

Generally, the closer a resource is to the viewer, the more dominant, and thus the more visually important it is to the viewer.

For purposes of analysis, landscapes are separated into foreground, middleground, and background views (USDA Forest Service 1995). In general, the foreground is characterized by clear details (within 0.25 or 0.5 mile of the viewer); the middleground is characterized by the loss of clear detail in a landscape, creating a uniform appearance (from the foreground to 3–5 miles in the distance); and the background extends from the middleground to the limit of human sight, such as a ridgeline or horizon line (Bacon 1979).

Scenic Vista

A scenic vista is generally considered to be a location from which the public can experience unique and exemplary high-quality views—typically from elevated vantage points that offer panoramic views of great breadth and depth.

4.14.2 Regulatory Setting

A variety of laws, regulations, plans, and policies related to scenic quality and scenic resource management are administered by federal and state agencies, the Tahoe Regional Planning Agency (TRPA), and local agencies. Those that apply to the project alternatives are discussed below.

FEDERAL AGENCIES

US Forest Service, Lake Tahoe Basin Management Unit

The National Forest Management Act requires the development of long-range land and resource management plans for National Forest Service. The Lake Tahoe Basin Management Unit (LTBMU) Land and Resource Management Plan (LRMP) was approved in 1988 as required by the act (USDA Forest Service 1988). It has been amended several times, including the Sierra Nevada Forest Plan Amendment (2004). The LRMP provides guidance for all natural resource management activities within LTBMU managed lands.

LTBMU issued a revised Forest Management Plan, final EIS, and Draft Record of Decision (ROD) on November 22, 2013. The “Notice of Objections Filed” was published on January 31, 2014 and the Objection Reviewing Period is underway. Therefore it is not possible to confirm the approved contents of the revised 2013 Forest Management Plan (FMP) or whether it would be in effect at the time the lead agencies consider approval of this project. For this reason, policies and guidance regarding visual resources found in the current 1988 LRMP is described below.

1988 Land and Resource Management Plan

The 1988 LRMP provides for forestwide management direction through 1) management goals, 2) management objectives, and 3) forestwide standards and guidelines. Forestwide goals describe the desired future state or condition of the LTBMU expected as a result of implementing the plan. Successful

achievement of the goals is dependent upon accomplishing the activity and production levels described as objectives, employing the standards and guidelines, and receiving appropriate funding. Additionally, achievement of the goals is subject to adjustment of objectives and standards and guidelines that may occur to the plan due to monitoring and evaluation. (USDA Forest Service 1988 p. IV-1).

The Visual Goal for the LTBMU is to “Maintain an attractive forest appearance by meeting or exceeding established visual quality objectives.” (USDA Forest Service 1988 p. IV-10). Forest objectives related to this goal are shown as average annual outputs by decades, and are used to prepare the annual work program. Forestwide standards and guidelines are used to implement various management practices, including visual quality restoration or improvement. For forest planning purposes the LTBMU is divided into 21 management areas that represent areas of land having similar character and/or use. (USDA Forest Service 1988 pp. IV-1 to IV-15). The project site is located within the Lower Truckee River Management Area.

Management Area Direction, Lower Truckee River

The Lower Truckee River Management Area consists of 1,188 acres located on both sides of the Truckee River from the LTBMU boundary just south of River Ranch to the lakeshore at Tahoe City. Eight hundred forty-five acres of National Forest System Lands are in the Management Area, which includes the 64-Acre Tract, located at the east end of the Lower Truckee Management Area (see Section 4.13, “Recreation,” for a detailed description of the 64-Acre Tract, and to Section 4.9, Land Use and Planning for a detailed description of the 64-Acre Tract background, and planning history).

Management Prescriptions

Management prescription is defined as “management practices and intensities selected and scheduled for application on a specific area to attain multiple use and other goals and objectives.” (36 Code of Federal Regulations [CFR] Section 219.3). The Lower Truckee River management area assigns the 64-Acre Tract to the Developed Recreation management prescription, or Prescription 1. This prescription states:

“Construct, maintain, and operate recreation facilities. Assure an attractive and usable forest setting within and surrounding existing sites. Manage vegetation to insure a healthy forest, to prevent and/or reduce pest-related damage, and to reduce numbers of mechanically defective trees. Manage potential recreation development sites so that they remain suitable until they are utilized for recreation improvements. Other activities may be allowed on the undeveloped sites or within existing developed sites where they do not conflict with the primary emphasis on developed recreation. The visual quality objective (VQO) is Partial Retention when viewed as middleground and Modification or better when viewed as foreground.”

The VQO Partial Retention refers to management activities that remain visually subordinate to the characteristic landscape when managed according to the partial retention VQO. Activities may introduce form, line, color, or texture into the characteristic landscape that is not found infrequently or not at all, but these introduced changes should remain subordinate to the visual strength of the characteristic landscape.

Under the Modification VQO, activities may visually dominate the original characteristic landscape. Activities such as introduction of facilities, including roads, should borrow naturally established form, line, color and texture so completely and at such scale that its visual characteristics are compatible with the natural

National Wild and Scenic Rivers Act

The Wild and Scenic Rivers Act (WSRA) of 1968, as amended (Public Law 90-542; 16 U.S. Code 12371-1287), established the National Wild and Scenic Rivers System (National System), which identifies distinguished rivers of the nation that possess remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values. The WSRA requires that all federal agencies, when planning for use and development of water and related land resources, consider potential national wild, scenic, and recreational river areas. The Truckee River is the only river within the project site and it is not designated as a Wild and Scenic River (National Wild and Scenic Rivers System 2012).

TAHOE REGIONAL PLANNING AGENCY

Lake Tahoe Regional Plan

TRPA implements its authority to regulate growth and development in the Lake Tahoe Region through the Lake Tahoe Regional Plan, which was updated by TRPA in 2012. The Regional Plan includes Resolution 82-11, the Environmental Threshold Carrying Capacities (threshold standards), Goals and Policies, Code of Ordinances, Plan Area Statements (PASs), the Scenic Quality Improvement Plan (SQIP)/Environmental Improvement Program (EIP), and other guidance documents.

Regional Plan Goals and Policies

The Goals and Policies document of the Regional Plan establishes an overall framework for development and environmental conservation in the Lake Tahoe region. The goals and policies present the overall approach to meeting TRPA's environmental threshold carrying capacities, also known as thresholds (discussed below), and establish guiding policy for each resource element. The Conservation Element (Chapter IV) of the Goals and Policies document considers 10 subelements, including a Scenic subelement.

Code of Ordinances

According to the TRPA Code of Ordinances, if a project is visible from Lake Tahoe, a state or federal highway in the Tahoe Basin, Pioneer Trail, or a public recreation area or bikeway, the potential scenic impacts of the project must be analyzed. Roadways in the Tahoe Basin have been divided by TRPA into 53 travel segments (called "travel units"), each representing a continuous two-directional viewshed of similar visual character. The applicable provisions regarding scenic standards in the TRPA Code are summarized below.

Scenic Standards

Chapter 36, "Design Standards," and Chapter 66, "Scenic Quality," of the TRPA Code contain standards pertaining to scenic quality. These chapters establish a process for analyzing projects for scenic quality and define those circumstances that require preparation of scenic assessments and/or other documents. Sections 66.1.3, 66.1.4, and 66.1.5 describe scenic quality standards for roadway and shoreline units, and for public recreation areas and bicycle trails.

Vegetation Protection and Management, Tree Removal, and Revegetation

The Code of Ordinances requires the protection and maintenance of all native vegetation types, including review and approval by TRPA for tree removal. The chapters listed here are described in detail in Section 4.1, "Agricultural and Forestry Resources," and Section 4.3, "Biological Resources" in this Draft EIR/EIS/EA.

Chapter 61.3, "Vegetation Protection and Management," provides for the protection of SEZ vegetation, and Chapter 61.4, "Revegetation," specifies policies for re-vegetation programs. Provisions for tree removal are provided in Chapters 61.1, "Tree Removal"; 36, "Design Standards"; 33.6, "Vegetation Protection during Construction"; and 61.3.6, "Sensitive and Uncommon Plant Protection and Fire Hazard Reduction."

Height

Chapter 37 of the TRPA Code contains standards pertaining to height. Specifically, Subsection 37.6 establishes height standards for structures other than buildings. Subsection 37.6.1 states that no structure, other than a building, shall have a height greater than 26 feet. Subsection 37.6.2 states that this maximum height may be increased for certain structures.

Scenic Quality Improvement Plan/Environmental Improvement Program

The Scenic Quality Improvement Plan (SQIP) was adopted to provide a program for implementing physical improvements to the built environment in the Tahoe Basin. The SQIP is intended to contribute to the attainment of the scenic resources thresholds in the Goals and Policies document of the Regional Plan (see above) and serves as an implementation guide for the Regional Plan. The SQIP is an overall action plan to specifically improve the scenic quality of 23 roadways and four shoreline travel routes that do not meet the scenic resources thresholds (TRPA 1989).

The Environmental Improvement Program, adopted in 1998 and updated in 2001, incorporates elements of the SQIP. The Environmental Improvement Program includes a list of specific projects throughout the Basin that are needed to attain and maintain the thresholds (TRPA 2001). One of the program elements addresses improving the scenic quality of roadways.

The focus of the roadway element of the program is to reduce the visual dominance of buildings and structures along roadways by using techniques such as moving overhead utility lines underground, implementing architectural design guidelines, and installing appropriate landscaping that reflects the natural attributes of the surrounding environment.

Four projects located within the project boundaries or immediately adjacent are listed in the EIP Project List (January 1, 2012 through December 31, 2016). These projects include the State Route 89/Fanny Bridge Community Revitalization Project, which is the topic of this document, plus the following three projects:

- ▲ State Route 89 Water Quality Improvement Project, El Dorado County Line to State Route 28: Implementation by Caltrans; on-going through 2015.
- ▲ The 64 Acres Bike Path Reconstruction: Implementation by USFS; scheduled to commence 2016.
- ▲ Scenic Roadway Unit #42 Outlet Improvements: Implementation by private property owners; partially completed.

Environmental Threshold Carrying Capacities

Four scenic thresholds have been established by TRPA:

- ▲ SR-1: Travel Route Ratings,
- ▲ SR-2: Scenic Quality Ratings,
- ▲ SR-3: Public Recreation Areas and Bike Trails, and
- ▲ SR-4: Community Design.

Scenic Resources-1 Travel Route Ratings

The TRPA travel route rating threshold tracks long-term cumulative changes to views seen from federal and state highways in urban, transitional, and natural landscapes in the region and to the views seen from Lake Tahoe looking toward the shore. Lake Tahoe's shoreline is divided into 33 segments called "Shoreline Travel Units." The project would neither directly affect nor be visible from any of the Shoreline Travel Units because of screening by trees and man-made structures; therefore, Shoreline Travel Units are not discussed further.

Major roadways have been divided into 53 "Roadway Travel Units," each representing a continuous two-directional viewshed of similar visual character. The following six criteria are rated to determine the travel route rating threshold score for each Roadway Travel Unit:

1. Human-made features along roadways and shoreline,
2. Physical distractions to driving along roadways,
3. Roadway characteristics,
4. Views of the lake from roadways,
5. General landscape views from roadways and shoreline, and
6. Variety of scenery from roadways and shoreline.

The travel route rating is a unit-less, numerical rating (composite score) consisting of the sum of the ratings of the six different aspects of the landscape within each travel unit. The travel unit is rated on a scale from one (i.e., has a strong negative effect on scenic quality) to five (i.e., has a strong positive effect on scenic quality) for each of the six criteria listed above. These ratings are then summed resulting in a composite rating for an individual travel route to range from five to 30. To secure threshold attainment, travel route ratings must meet or exceed the threshold standard. To do this, the composite score of those roadway travel

routes with a 1982 score of 15.5 or greater must be maintained at 1982 levels, and the composite score of all roadway travel routes with a 1982 score of 15 or lower must improve until the minimum score of 15.5 is reached. Portions of the project are visible from the following TRPA Roadway Travel Units (Exhibit 4.14-1): Unit 14 – Tahoe Tavern on SR 89 from Fanny Bridge to the south; Unit 15 – Tahoe City on SR 28 from the wye through Tahoe City to the northeast; and Unit 42 – Outlet to Lower Truckee River on SR 89 from the wye to the west. As of 2011, Units 14 and 15 currently meet or exceed the scenic threshold standard and Unit 42 does not (TRPA 2012).

Nonattainment areas are required to implement projects to improve scenic quality.

Scenic Resources-2 Scenic Quality Ratings

The purpose of TRPA's scenic quality threshold is to maintain or enhance views of individual existing scenic resources. The scenic resources in the region include the views of the natural landscape and distinctive natural features that were identified, mapped, described, and evaluated as part of the 1982 Scenic Resource Evaluation.

Numerical scenic quality ratings are derived for each mapped scenic resource, using four visual indicators—unity, vividness, variety, and intactness—as subcomponents of the composite rating.

Scenic Resources-3 Public Recreation Area Scenic Quality Threshold

TRPA's 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 have more time to focus their attention on the views and scenic resources.

Scenic resources visible 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 in or adjacent to the recreation area that influence the viewing experience.

Scenic quality threshold ratings for scenic resources associated with public recreation areas and bike paths are derived in the same manner described above for scenic resources within Roadway Travel Units, using the same visual indicators of unity, vividness, variety, and intactness.

TRPA's inventory of public recreation areas and bike paths was developed in 1993. Since then, new public recreation areas and bike paths have been developed but are not yet included in the inventory. The 64-Acre Tract in Tahoe City that now serves as a recreation area and the Truckee River Bike Trail that passes through the 64-Acre Tract and alongside the Truckee River are among these facilities. One TRPA-mapped scenic resource is within the study area: the meadow area across from Tahoe Tavern. The TCPUD trail network consists of the Truckee River Trail, the West Shore Trail, the Lakeside Trail, and the North Shore Trail. Portions of the project site are visible from these facilities and the analysis of scenic impacts considers these views.

Tahoe City Community Plan

The Tahoe City Community Plan includes the following urban design and development goal related to scenic resources:

- ▲ Ensure the design elements of new, remodeled and rehabilitated development are compatible with the scenic, recreation, and community values of Tahoe City and the Region.

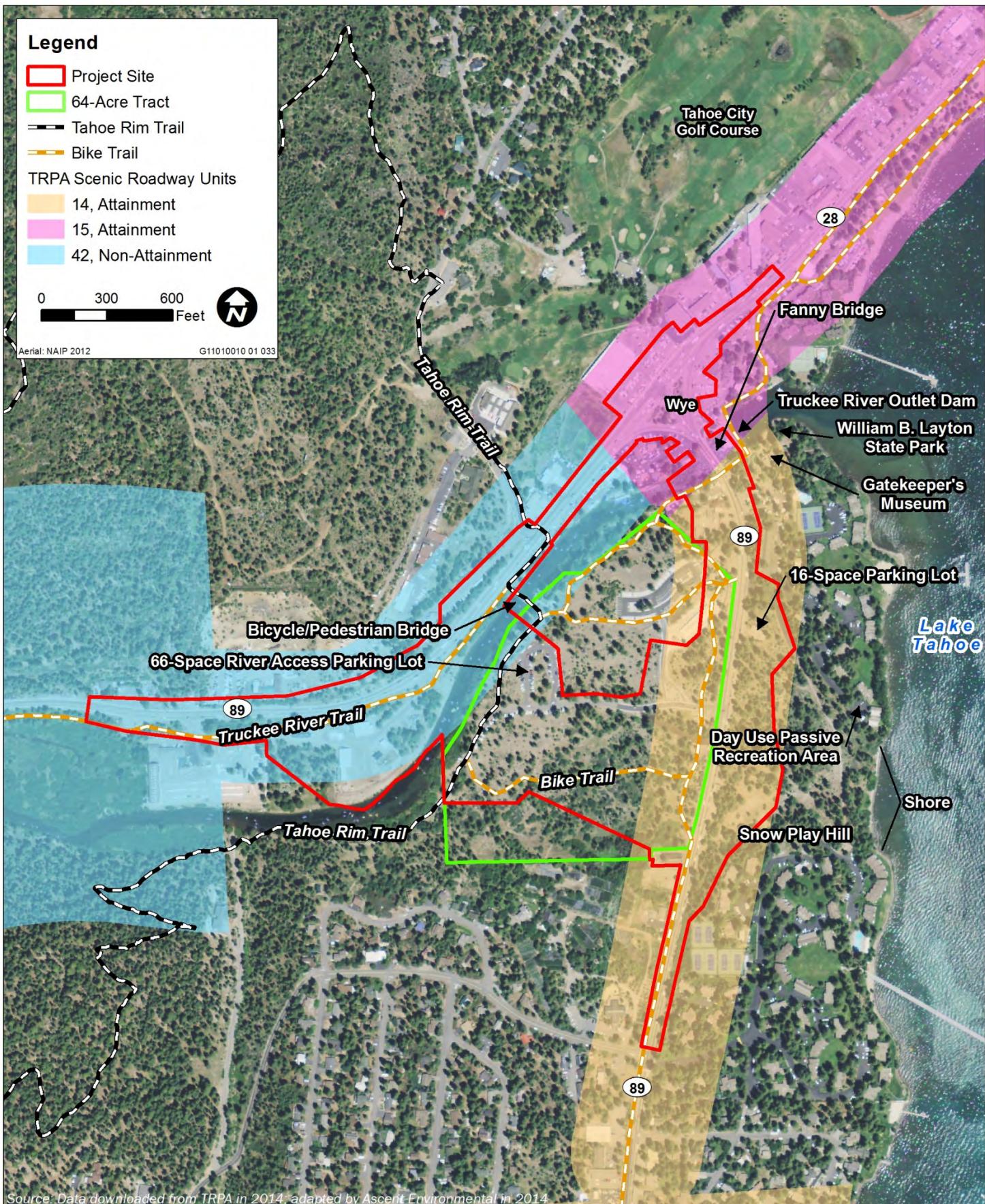


Exhibit 4.14-1

TRPA Roadway Travel Units



STATE

California 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. Official designation requires a local jurisdiction to enact a scenic corridor protection program that protects and enhances scenic resources (Caltrans 2008). The Program includes a list of highways eligible to become, or designated as, official scenic highways and includes a process for the designation of official State or County Scenic Highways.

State Route (SR) 89 from the Placer County line south (including the project site) to the Alpine County line is classified as an eligible State Scenic Highway (Caltrans 2013). This roadway travels along alpine forests and meadows, with scenic views of mountain ranges and peaks. Portions of SR 89 between Tahoe City and South Lake Tahoe overlook the Lake with a spectacular backdrop of mountains ridges and peaks on the east side of Lake Tahoe.

LOCAL

Placer County Design Standards and Guidelines for the Lake Tahoe Region Including Community Plan Areas

The Placer County Design Standards and Guidelines for Tahoe City Community Plan (Placer County 1994a) include guidelines for scenic highway corridors and contain regional design goals for urban areas, rural transition areas and rural areas. The guidelines apply the standards contained in the TRPA Code of Ordinances.

Placer County General Plan

The Placer County General Plan (Placer County 1994b) contains a number of policies related to scenic resources. Scenic Routes are specified in Community Plans. See Tahoe City Community Plan below.

4.14.3 Affected Environment

The descriptions of visual resources in this section are accompanied by photographs of representative views. Exhibit 4.14-2 shows the location of viewpoints for photographs referenced in the following description.

REGIONAL LANDSCAPE CHARACTER

The region is defined as the northwest portion of the Lake Tahoe Basin within the Sierra Nevada mountain range. In this region, snow commonly covers the landscape for much of the winter to early spring (November–April). The landform of the region is characterized by the basin in which Lake Tahoe is situated with steep-sided mountains rising above the basin. The landform immediately adjacent to Lake Tahoe consists of narrow beaches or steep slopes meeting the lake's edge.

Important visual and recreation resources in within and adjacent to the project site include the Truckee River and adjacent forested areas. The Truckee River outlet from Lake Tahoe is adjacent to the project site in Tahoe City. The river flows out of Lake Tahoe and passes through the project site. The predominant vegetation type on the project site is mixed conifer forest with Jeffrey Pine, white fir, and incense cedar. Riparian vegetation along the Truckee River consists primarily of mountain alder and willow with an understory of mountain rose, alpine knotweed, sedges, and grasses. Some white fir and black cottonwood are present on the south bank of the River. Views of Lake Tahoe from the project site are obscured by the intervening vegetation.

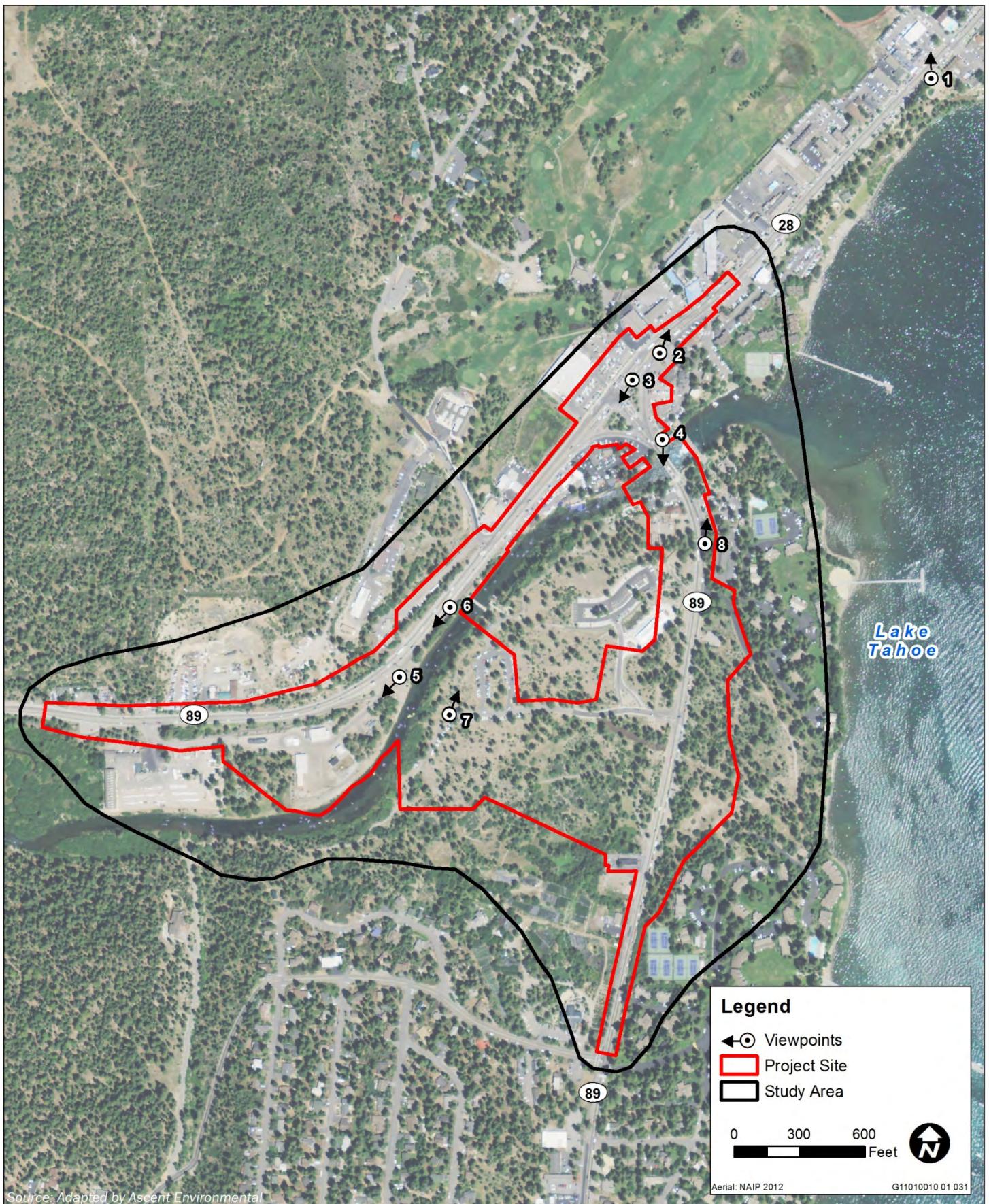


Exhibit 4.14-2

Photograph Viewpoints



The scenic environment of the study area reflects a transition from an urban setting to a forest landscape. The urban elements of the landscape setting consist of SR 89 and SR 28, bridges, overhead power lines, trails, recreation facilities, commercial and light industrial buildings, Caltrans maintenance yard, residential developments, a transit center, utility lines across the river, parking areas, the Gate Keepers Museum, Lake Tahoe Dam, and a Truckee River channel that is straightened and physically constrained from its natural hydrologic process. Commercial development is concentrated along SR 28, at the intersection of SR 89 and SR 28, and south for a short distance along SR 89 in Tahoe City. Residential subdivisions, resorts and campgrounds, and small roadside retail businesses are interspersed with forested areas outside of the immediate vicinity of Tahoe City. Commons Beach, a lakeside park with stairs leading down to the lakeshore, lakeside walkways, restrooms, a playground, and landscaping are located in Tahoe City, outside and east of the study area.

In the south and west portions of the study area, the landscape becomes less urban in appearance, with the aesthetic character defined primarily by the existing pine forest. The forest is mostly located on public land, including the 64-Acre Tract, and contains recreational elements, such as trails and sitting or view spots. Overhead power lines are evident in parts of the forest and urban features of the adjacent landscape can be seen through the trees from many viewpoints, which reflects its character as a transitional area between urban and rural settings.

PROJECT SITE LANDSCAPE CHARACTER

The project site is surrounded by retail, commercial, light industrial, and residential development. The center of the project site contains approximately 35 acres of public open space with forest vegetation (USFS 64-Acre Tract). Recreation facilities within the 64-Acre Tract include the Tahoe Rim Trail, TCPUD multi-use trails, public raft launch site on the river, and the south end of the bicycle/pedestrian bridge across the river. The land uses in the vicinity of the project site include single-family residential (to the south and southwest), visitor accommodations (hotel/motel), restaurants, public utilities, a transit center, commercial uses, and industrial uses. The Caltrans maintenance yard is located at the west end of the project site. The Truckee River Bike Trail is parallel to SR 89 and is located between SR 89 and the Truckee River on the west side of the Truckee River. Bike paths are managed by TCPUD and are closed during the winter months. The project site is nearly level, but includes scattered depressions on the forest floor, as well as the incised channel of the Truckee River. Much of the project site is on land that was, in part, previously developed (as a mobile home park), but that has been restored to forest vegetation. Vegetation within the project site consists primarily of open Jeffrey pine forest and montane riparian scrub. Non-vegetated areas include the channel of the Truckee River, parking lots, and developed areas. During the winter, the landscape is often covered in snow.

Landscape Units

To provide a framework for understanding the visual effects of the project alternatives, the regional landscape can be broken out into units. A landscape unit may be thought of as an outdoor room, perceived as a complete visual environment with certain visual characteristics that distinguish it from other landscape units. Exhibit 4.14-2 provides the location of the photographic views referenced in this section.

The project site consists of three landscape units:

- ▲ SR 89 and SR 28 wye and Fanny Bridge vicinity,
- ▲ SR 89/Truckee River between Tahoe City and the Caltrans maintenance yard,
- ▲ 64-Acre Tract (includes SR 89 south of Fanny Bridge to the southern end of the 64-Acre Tract).

SR 89 and SR 28 Wye and Fanny Bridge

Views from the wye to the west, across SR 89, include the Save Mart supermarket and Jeffrey pine forest. Foreground views to the north of the wye, along SR 28, include the commercial area of Tahoe City (Exhibit 4.14-3, Viewpoint 1). Viewpoint 1 is from northbound SR 28, near Grove Street. Foreground views consist of typical commercial and residential uses along tree-lined sidewalks in Tahoe City. Views to the east of the wye intersection include Lake Tahoe and the mountains and pine forest in the background. Foreground views west of the wye include SR 89 and commercial land uses along SR 89 interspersed with forest and the Truckee River with background views of distant mountain peaks and dense pine forest (Exhibit 4.14-4,



Source: AECOM 2014

Exhibit 4.14-3

Viewpoint 1



Source: AECOM 2014

Exhibit 4.14-4

Viewpoint 3



Viewpoint 3). Viewpoint 3 is looking southwest towards the SR 89/SR 28 Wye. Built elements associated with the Wye intersection dominate this view. Foreground views include commercial uses, a landscaped median, roadway signage, mixed conifers and other vegetation north of the existing Fanny Bridge and Truckee River. Views of the surrounding mountains and forested areas are seen in the background. Views to the southwest include forested views along SR 89 and commercial buildings. Views also in this area include the Lake Tahoe Dam and Fanny Bridge (Exhibit 4.14-5, Viewpoint 4). Viewpoint 4 is from the north side of the Truckee River looking southwest. Foreground views from SR 89 include the Truckee River, existing Fanny Bridge, and commercial uses. Built elements, including signs, street lights, roadway paving, and adjacent commercial buildings are visible but are partially screened by landscaping. The landscaped median provides visual relief from a predominately paved area. The backdrop of natural forest is visible beyond the urban development in views from along SR 28 and the wye. The Truckee River is not visible from SR 28 and the wye, itself, but can be seen from SR 89 just west of the wye, from an existing trail along SR 89 and an associated bicycle/pedestrian bridge, and from commercial properties just south of the wye.

SR 89/Truckee River between Tahoe City and the Caltrans Maintenance Yard

Southeast and eastbound views along SR 89 consist of forest interspersed with a few commercial and residential buildings. The river channel is mostly (but not entirely) obscured for views from the roadway, because it is incised and water flows in a lower elevation channel; however, views of riparian habitat areas, upper river banks, and across the river of the 64-Acre Tract can be seen from several locations. Westbound views include the Caltrans maintenance yard in the foreground. Exhibit 4.14-6 provides an existing view of the entrance to the Caltrans maintenance yard (Viewpoint 5). Viewpoint 5 is of the entrance to the facility looking southwest from the Truckee River Bike Trail. The view of the forested hillside behind the facility is interrupted by built elements in the foreground, including chain link fencing and gate, industrial type buildings with light surfaces, extensive paved area and signs mounted on the fence. Under existing conditions the entrance drive view has a moderately low visual quality rating. Views to the east are of commercial businesses. Westbound views are also of forest interspersed with buildings in the foreground. There are also views of the Truckee River Bike Trail that runs along SR 89 between the highway and river (Exhibit 4.14-7, Viewpoint 6). Viewpoint 6 provides the recreationist and motorist views on SR 89 and the Truckee River Bike Trail looking west towards the Caltrans maintenance yard. The north side of the road includes views of sloping terrain covered in vegetation. In this area, views to the south of the roadway include the Truckee River running parallel to the trail and SR 89. The terrain slopes up on the north side of the road, and topography and vegetation obscure. Viewpoint 7 (in Exhibit 4.14-8) is of the paved Tahoe Rim Trail/Recreational Trail looking north toward the proposed new bridge site within the 64-Acre Tract. Areas adjacent to the trail contain dense vegetation and mixed conifer forest.

Views from the Truckee River are also important, because it supports recreation floating and other river recreation. The river reach in the study area appears straightened by the blocking presence of SR 89. Channel banks are often steep and riparian is sparse on the west bank. Just downstream of Fanny Bridge, the west river bank has been developed and in some places paved nearly to the top of riverbank. The urban setting of the study area, including commercial buildings and the Caltrans maintenance yard, is clearly visible from the river. The east river bank is more naturally appearing with pine forest and riparian vegetation. Fanny Bridge, an existing bicycle/pedestrian bridge, and multiple utilities cross the river in the study area. Downstream of the project site, the river continues adjacent to SR 89 for many miles any distant views to north. Views to the west are of distant forested mountains that are often covered in snow in the winter.

64-Acre Tract

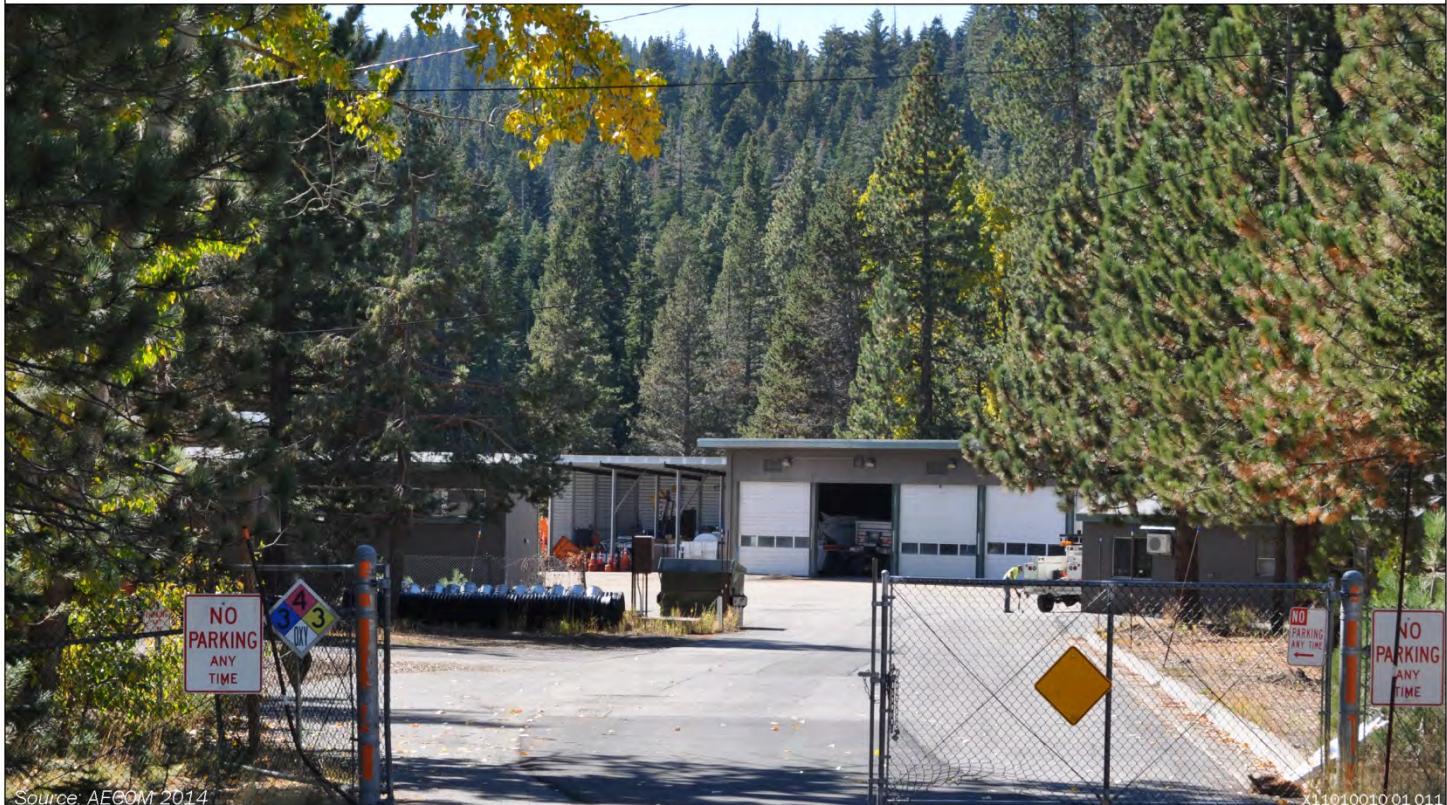
The scenic setting of the 64-Acre Tract is a pine forest landscape that has been influenced by the urban character of the surrounding land uses and infrastructure. Also, the Truckee River corridor adds visual interest to the landscape. Public access points that include the River Access Road, bicycle/pedestrian bridge, Tahoe Rim Trail, bike trails, and the Tahoe City Transit Center. Internally, views of this unit are dominated by Jeffrey pine forest, parking lot, paved trails in some areas, and the Tahoe City Transit Center. Exhibit 4.14-8 shows the view to the north toward the bridge site that includes the Tahoe Rim Trail and trees in the foreground. In other portions of the site foreground views to the east include forest and intermittent



Source: AECOM 2014

Exhibit 4.14-5

Viewpoint 4



Source: AECOM 2014

X11010010'01 011

Exhibit 4.14-6

Viewpoint 5

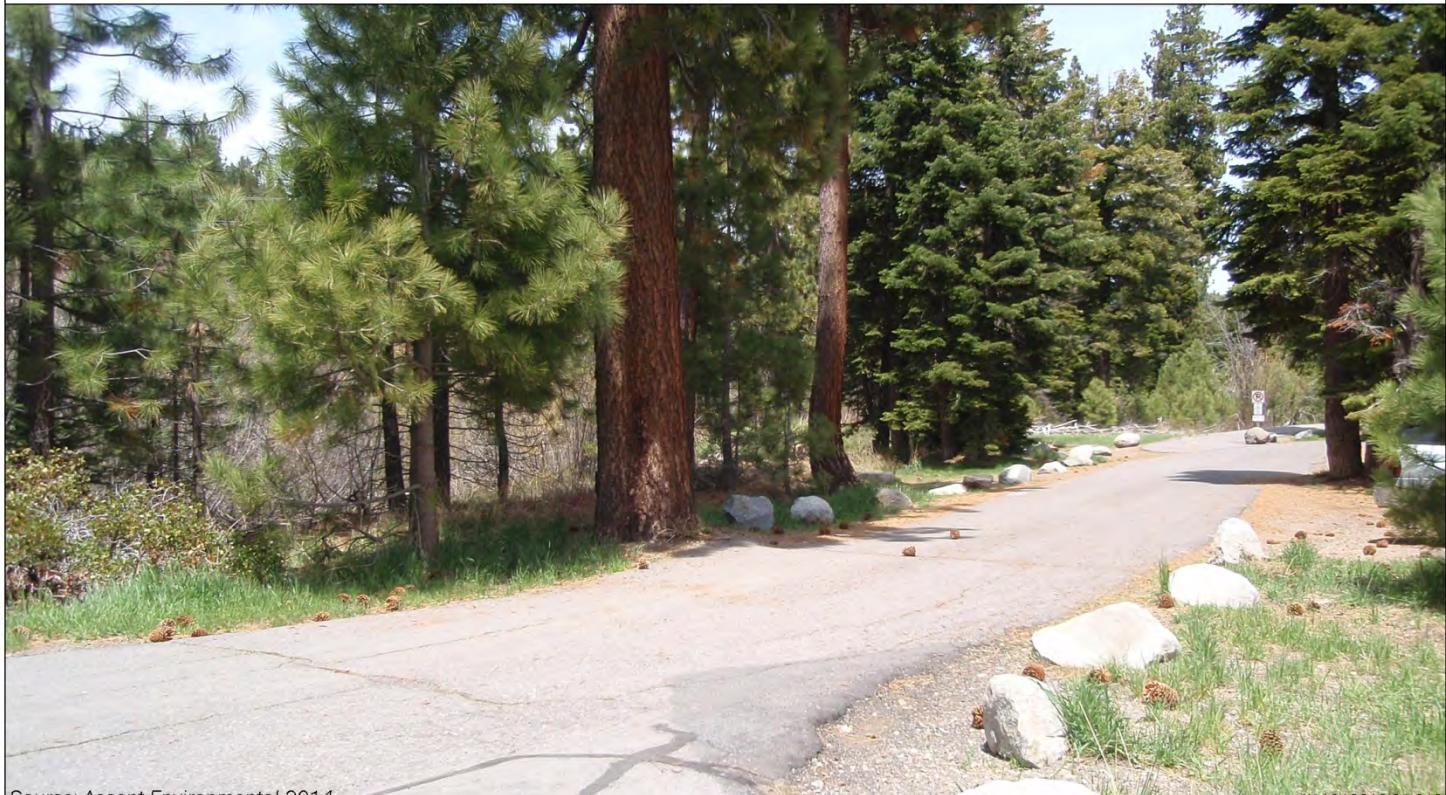




Source: AECOM 2014

Exhibit 4.14-7

Viewpoint 6



Source: Ascent Environmental 2014

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Exhibit 4.14-8

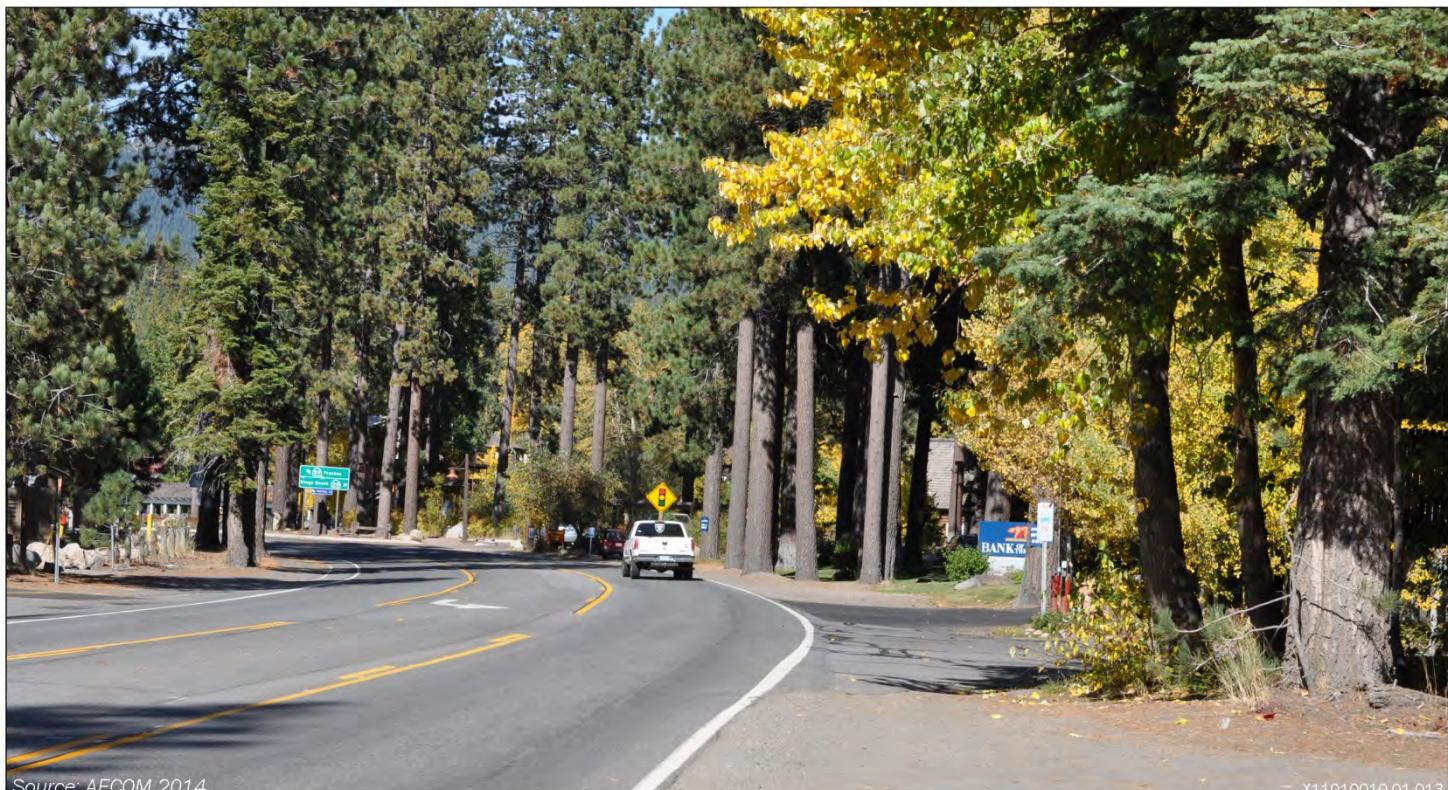
Viewpoint 7



views of SR 89 with motor vehicle traffic east and west of the 64-Acre Tract, and background views are of commercial buildings visible through the trees. Views to the west are also of forest and intermittent views of the 64-Acre Tract parking area through the trees. Views to the south are of forest and the road connecting the parking area with SR 89 and the Transit Center. Views of the Truckee River are generally not available from the interior of the forest, because of the incised channel and screening by intervening forest trees. River views are available from locations close to the channel,

SR 89 South of Fanny Bridge to the Southern End of the 64-Acre Tract

Northbound and southbound views along SR 89 between Fanny Bridge and the south end of the 64-Acre Tract include the commercial development on either side of the highway with a backdrop of forest (Exhibit 4.14-9, Viewpoint 8). Viewpoint 8 is looking north on SR 89, south of Fanny Bridge. Foreground views consist of commercial uses set within forested areas. Views of development include businesses, residential developments, parking areas, the Transit Center, and a utility station. Views of the south end of the 64-Acre Tract are primarily of forest. Terrain is relatively flat and the forest landscape of the 64-Acre Tract is visible from the highway; however, vegetation and buildings block any distant views to the east (i.e., to the lake) or west (i.e., to mountain peaks).



Source: AECOM 2014

X11010019 01.013

Exhibit 4.14-9

Viewpoint 8



VISIBILITY FROM OFFSITE AREAS

Viewer Groups

Roadway Travelers

This viewer group is composed of travelers on SR 89 and SR 28 and includes drivers and passengers in vehicles. For viewers traveling through the study area, foreground and middleground views along the highway consist of trees, geologic features, and where available, expansive forest landscape views. The

viewers on these segments of SR 89 and SR 28 primarily include travelers commuting to and from work, tourists visiting the area, and customers of nearby businesses.

Recreational Users

These viewers consist of people involved in various outdoor recreational activities in and around the project site, including trail use, summer activities, and winter activities. Because the Truckee River Bike Trail and the Tahoe Rim Trail pass through the project site, a large portion of this group consists of bicyclists and walkers/hikers. Another major recreational group is river users including rafters, kayakers, swimmers, anglers, and picnickers along the riverbanks. Sightseers or others engaged in nature appreciation along the river or within the forest are included in this group. In the winter, people engaged in cross-country skiing and snow shoeing on the 64-Acre Tract also have views of the study area. It is reasonable to anticipate that forest recreation and trail users would expect a scenically attractive forest and river landscape, but not a pristine environment, because the study area includes a mix of a rural-character landscape and urban land uses, with visible utilities and infrastructure.

Viewers from Residential Property

The project site is not visible from surrounding residences to the south and southwest of the study area, because views are obscured by distance, vegetation, or other buildings. Residential areas closest to the project site include Tavern Shores, south of Fanny Bridge on the east side of SR 89, and condominiums opposite Granlibakken Road on the lake side of SR 89.

Viewers from Businesses

These viewers consist of business owners or operators, employees of businesses, and patrons and customers of businesses adjacent to or near to the project site. The majority of businesses adjacent to the project site are in the wye area. These include a grocery store, offices, restaurants, and recreational outfitters (e.g., rafting, bicycle rentals). Other businesses along SR 89, west of the wye, include the Caltrans maintenance yard, Ice House Furnishings, Chevron and Shell Stations, and Williamson Engineering. Businesses are located in built-up areas near Fanny Bridge, and associated viewers generally consist of indoor/outdoor diners, pedestrians, and those using recreation facilities or patronizing the businesses. Motorists may also stop in the parking areas near the river for a sight-seeing opportunity, if parking spaces are available.

LIGHT AND GLARE CONDITIONS

The terms “glare” and “skyglow” are used to describe the visual effects of lighting. For the purposes of this impact analysis, glare is considered to be direct exposure to bright lights or reflected sunlight, and skyglow is a glow that extends beyond the light source and can dominate or partially dominate views above the horizon.

Existing lighting conditions in the study area vary. Nighttime lighting is present in the vicinity of the wye and Fanny Bridge associated with businesses and intersection lighting and lighting at the Transit Center. At night, motor vehicles on SR 89 and SR 28 are a source of light and glare. During the day, sunlight reflecting off of motor vehicles is a source of glare. With the exception of the Transit Center, lighting conditions in areas of the project site south of Fanny Bridge are less intense. No night lighting is present on the 64-Acre Tract, and areas in the interior of the 64-Acre Tract are screened from daytime glare by coniferous forest.

4.14.4 Environmental Consequences

METHODS AND ASSUMPTIONS

Potential impacts on scenic resources from implementation of the action alternatives were assessed using a methodology adapted from guidelines prepared by the Federal Highway Administration (FHWA) (1981) for assessing visual impacts associated with transportation projects, guidelines prepared by the United States

Forest Service (USDA Forest Service 1995) for visual resource assessment, and guidance derived from TRPA requirements (such as the Initial Environmental Checklist).

Given that the analysis of scenic resources in this EIR/EIS/EA must be consistent with multiple criteria and measures, as identified below, scenic impact statements are organized in a manner that allows an organized discussion of visual impacts while considering all relevant criteria and measures.

This assessment of visual impacts uses photography and photographic simulations to describe and portray existing scenic resources and scenic qualities of the project site and surrounding area; assess the changes caused by the project alternatives on scenic qualities; make a determination of the degree of adverse change; and recommend mitigation measures to reduce the effects of visual change where needed and feasible to do so. The assessment draws in part upon the conclusions reached in the *Visual Impact Assessment; State Route 89/Fanny Bridge Community Revitalization Project, Tahoe City, California* (Tahoe Transportation District, April 2014). This section includes photo-simulations representing visual changes that would occur with the project alternatives and visual quality evaluations describing the visual changes resulting from the project. Exhibit 4.14-10 shows the locations of the KOPs for which the photo-simulations are provided.

The following criteria were used to select key viewpoints:

- ▲ sensitive or protected views including public open space and recreation trails, residential areas, and designated scenic roadways or vista points;
- ▲ views that represent the visual experience of a relatively large number of affected viewers; and
- ▲ views that portray a representative range of viewing conditions along the project corridor (i.e., varied viewing distance and landscape character).

SIGNIFICANCE CRITERIA

Significance criteria relevant to scenic resources are summarized below.

NEPA Criteria

An environmental document prepared to comply with NEPA must consider the context and intensity of the environmental effects that would be caused by or result from the proposed action. Context means that the significance of the action must be considered in terms of the region as whole, affected interests, and the specific locality. Intensity refers to the severity of an effect. Under NEPA, the significance of an effect is used solely to determine whether an EIS must be prepared. A decrease in scores or ratings assigned to landscape units in scenic resources inventories conducted by either USFS or TRPA would constitute an adverse impact.

VQOs under the USFS framework commit lands to specific levels of visual quality, which becomes part of the overall land management plans adopted for each Forest. The USFS visual management system was designed to: 1) inventory visual resources and provide the basis for ascribing visual resource management objectives to lands under agency management, and 2) to determine whether a proposed action or its alternatives would meet those management objectives. While visual management objectives in the regulatory setting will frequently reflect the baseline visual inventory of the landscape, that is not always the case, and VQOs do not in and of themselves offer a NEPA-compliant framework for identifying the intensity of impacts on visual resources or the significance of those impacts. Specifically, the degree of visual change that constitutes a significant impact is not defined and no criteria or standards for significance are offered. However, because conformance or non-conformance with VQOs relate to the project's consistency with existing plans and policies, these are addressed separately (under Impact 4.14-3 below).

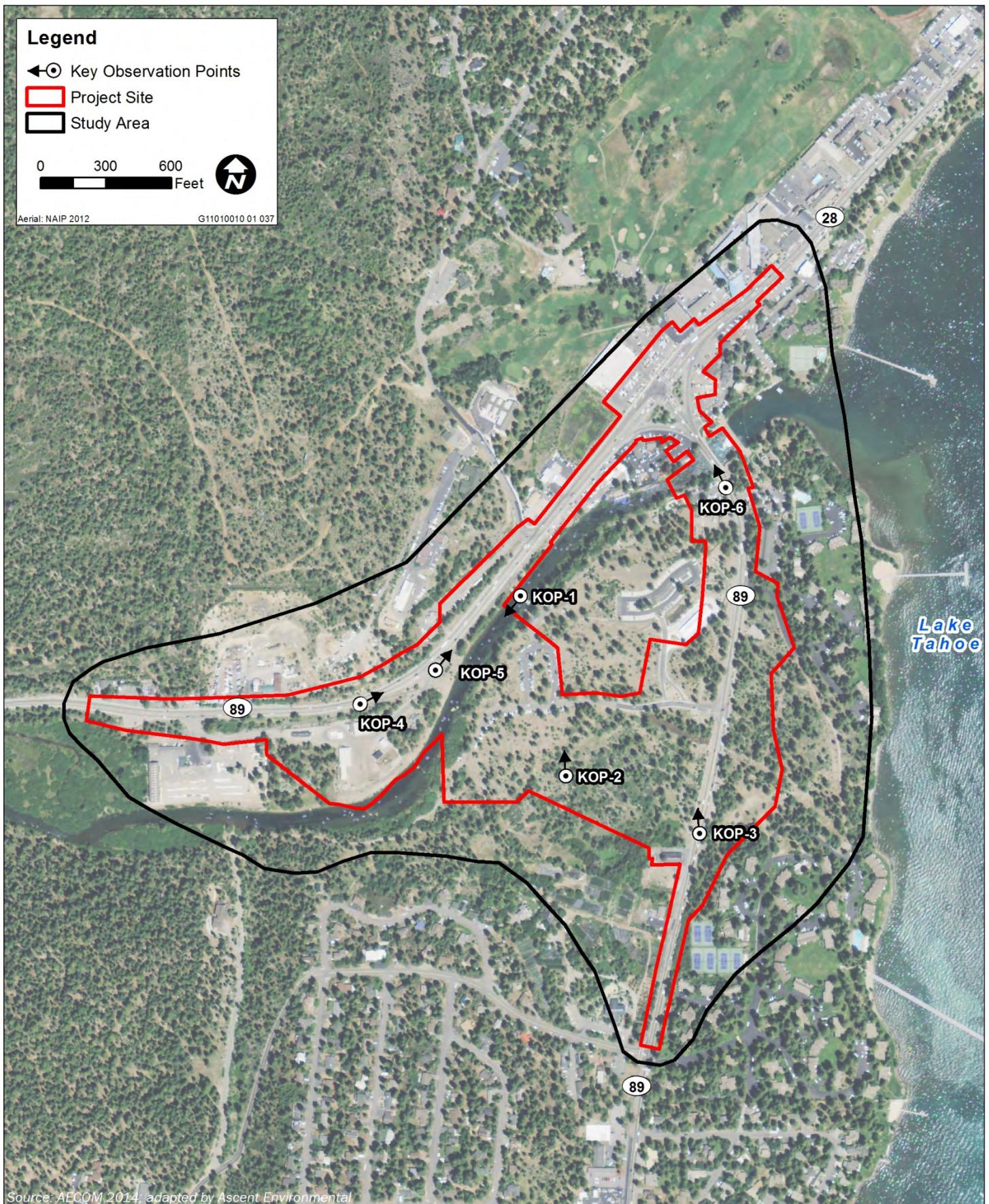


Exhibit 4.14-10

Key Observation Points



TRPA Criteria

The “Light and Glare” and “Scenic Resources/Community Design” criteria from the TRPA Initial Environmental Checklist were used to evaluate the scenic resources impacts of the alternatives. The checklist inquires as to whether the project alternatives would result in any of the following conditions.

- ▲ Be visible from any state or federal highway, Pioneer Trail or from Lake Tahoe?
- ▲ Be visible from any public recreation area or TRPA designated bicycle trail?
- ▲ Block or modify an existing view of Lake Tahoe or other scenic vista seen from a public road or other public area?
- ▲ Be inconsistent with the height and design standards required by applicable ordinances or Community Plans?
- ▲ Be inconsistent with the TRPA SQIP or Design Review Guidelines?
- ▲ Include new or modified sources of exterior lighting?
- ▲ Create new illumination which is more substantial than other lighting, if any, within the surrounding area?
- ▲ Cause light from exterior sources to be cast off-site or onto public lands?
- ▲ Create new sources of glare through the siting of improvements or the use of reflective materials?

CEQA Criteria

Based on Appendix G of the State CEQA Guidelines, an alternative would have a significant impact on scenic resources if implementation of the alternative would do any of the following:

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

ISSUES NOT WARRANTING DETAILED EVALUATION

A scenic vista is generally defined to be a location from which the public can experience unique and exemplary high-quality views over a large area or long distance—typically from elevated vantage points that offer panoramic views of great breadth and depth. The majority of views onto and from the project site are localized and enclosed by forest, along with commercial, residential buildings, maintenance structures, utility structures, and roadway features. The area affected by the project does not contain any important scenic vistas. Therefore, the project alternatives would not affect any scenic vista and this topic is not addressed further in the EIR/EIS/EA. Because the project alternatives would not be visible from an officially designated state scenic highway, the second criteria listed in Appendix G of the State CEQA Guidelines (i.e., substantial damage to scenic resources [...] within a state scenic highway) is not applicable and is not discussed further.

ENVIRONMENTAL EFFECTS OF THE PROJECT ALTERNATIVES

Impact 4.14-1. Degrade the existing visual character or quality of the project site during project construction.

During construction under all action alternatives, visual quality of views in the project vicinity would be reduced to moderately low to low levels. Construction would take place in phases; therefore, visual effects would be limited to portions of the project site at one time. Construction period impacts would be temporary; therefore this impact would be **less than significant**. Alternative 5, the No Action Alternative, would have **no impact** on visual quality or character.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

SR 89/Truckee River between Tahoe City and the Caltrans Maintenance Yard Landscape Unit

This landscape unit would be affected by construction of the new bridge over the Truckee River and the western roundabout, realignment of the T-TSA sewer line and necessary alterations to the NSEF sewer export main, and modifications to the Caltrans maintenance yard.

Construction of the new bridge would change portions of near and distant views of the forest and river because of glare from machinery, movement, and dust. Recreational users generally have a high sensitivity to changes in views; however, recreational use of the bike paths closest to the bridge would be restricted, and exposure by some sensitive viewing groups would be limited. Nonetheless, recreationists in the vicinity would still have limited views of construction activity. The length of exposure to these views while rafting along this segment of the river is not expected to be of long duration; however, recreational users on the river banks and trails would have longer views. Construction activities would affect the visual quality of views downstream from the pedestrian bridge and from the river. However, the construction period for the new bridge would be temporary and is expected to last one season.

The existing view of the Caltrans maintenance yard from westbound SR 89 is shown in Exhibit 4.14-6. This view shows the entrance to maintenance facility with forested slopes in the background. Due to the presence of the maintenance facility in the foreground, this view is considered to be dominated by industrial structures. Construction in the area of the Caltrans maintenance yard would change existing views of the facility, but would not be out of character with the existing maintenance facility in the foreground. During construction, it is probable that the recreation trail would be closed or rerouted for through pedestrian and bicycle traffic. Therefore, sensitive viewing groups would not have extensive exposure to this view. Views for motorists would be temporarily disrupted by equipment and construction activity. The visual quality of the view would remain similar to the existing conditions.

Construction work related to realignment of the T-TSA sewer line and modifications to the NSEF sewer export main would occur within the roadway; therefore the effects of construction would be the similar to that for the bridge work and work at the Caltrans maintenance yard, described above.

64-Acre Tract Landscape Unit

The realignment of SR 89 would include construction of a new portion of the road and the eastern roundabout through the 64-Acre Tract. Existing views of forested land from recreational trails in the southern portion of the 64-Acre Tract would be temporarily interrupted by construction activity and equipment. Although the views are of a mostly intact forest, views of forested areas are generally typical of the vicinity and region and do not contain any distinctive features. Because an existing bike path would be reconstructed as part of the project, it would be closed or rerouted away from the construction area; therefore, recreational users would not have close views of the construction area. Therefore, under Alternative 1 construction activity would not substantially affect sensitive viewing groups within this landscape unit.

SR 89 and SR 28 Wye and Fanny Bridge Landscape Unit

Construction related to rehabilitation or replacement of Fanny Bridge and modifications to the wye intersection would alter views around this location during the construction phase due to construction equipment that would detract from views of, and across, the bridge. However, sensitive viewing groups would have limited exposure to this change in views because access to nearby recreational facilities may be restricted during construction, and recreational rafters would be focused on downstream views rather than views of Fanny Bridge upstream. Additionally, this would be a temporary effect, and views would be restored upon project completion.

Exhibit 4.14-4 provides a view of the existing wye intersection, north of Fanny Bridge. Viewers would generally be motorists or patrons of nearby businesses. Modification of the free right-turn lanes at the wye would temporarily alter views with the introduction of machinery and equipment. Construction materials and activities in the foreground would temporarily affect visual quality.

Conclusion

During construction, visual effects would be limited in extent and focused on different locations within the project site at one time (rather than the whole project site at once). Recreational use of some portions of the project site would be limited because recreational bike path users would be detoured around the project site during construction; therefore, the group most sensitive to visual change would not have extensive exposure to views of the construction zones. The recreation visitors using the river for paddling, sightseeing, and fishing would view the construction activity associated with construction of the new bridge. While these temporary construction-activity intrusions in the river views would be very visible, they would not constitute a significant impact because of their temporary nature and the already urbanized visual character of this reach of the Truckee River (which reduces visual sensitivity to the presence of construction activity). Construction on each of the project components would not occur simultaneously and construction disturbance would be temporary, generally limited to a single construction season for each area. Required construction best management practices would minimize factors such as erosion and dust that detract from visual quality. For these reasons, this impact would be considered **less than significant**.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Impacts would be the same as described for Alternative 1 because construction under this alternative would occur in the same areas and would include the same components as Alternative 1 with the exception of the proposed operation of SR 89 following relinquishment to Placer County. For the reasons explained above, this impact would be considered **less than significant**.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Impacts would be the same as described for Alternative 1 because construction under this alternative would occur in the same areas and would include the same components as Alternative 1 with the exception of the proposed operation of SR 89 following relinquishment to Placer County. For the reasons explained above, this impact would be considered **less than significant**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Impacts would be similar to those described for Alternative 1. However, because the eastern roundabout would be replaced with the sweeping curve, approximately 131 fewer trees would be removed than under Alternative 1. For the reasons explained above, this impact would be considered **less than significant**.

ALTERNATIVE 5: NO ACTION

Because the no action alternative would retain existing conditions on the project site, there would be no changes to visual character or quality of visual resources. Therefore, there would be **no impact**.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISITING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE

Construction at the wye intersection and Fanny Bridge would be highly visible to motorists passing north of the bridge, to recreationists using the Truckee River Trail on the north side of the river, or trail users on the south side of the river, and to patrons of businesses in Tahoe City near the wye. Construction would detract

from views of the river and outlet area with the introduction of machinery and equipment. Construction materials and activities in the foreground of these views would reduce visual quality of the view to a low level. The quality of the views of the wye intersection and bridge area would be reduced during construction. However, these changes would be temporary and implementation of required construction best management practices would minimize factors such as erosion and dust that detract from visual quality. Also, Alternative 6 would not include visual effects of constructing a new bridge over the Truckee River or realigned highway through the 64-Acre Tract. Therefore, this impact would be **less than significant**.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Impacts would be the same as described for Alternative 6. The quality of the views of the wye intersection and bridge area would be reduced during construction. However, these changes would be temporary and required construction best management practices would minimize factors such as erosion and dust that detract from visual quality. Therefore, this impact would be considered **less than significant**.

Impact 4.14-2. Change the existing visual character or quality of the project site after completion.

Alternatives 1 through 4 would increase built environment features within the 64-Acre Tract and across the Truckee River. Views from the Tahoe Rim Trail in the 64-Acre Tract near the new bridge approach and from the river, itself, would experience visual change; however, the area is already altered by the presence of urban features. Because the reduction in the quality of scenic resources would be substantial near the bridge in the 64-Acre Tract and within the river corridor, this impact would be **potentially significant** for Alternatives 1 - 4. Alternatives 6 and 6a would rehabilitate or replace Fanny Bridge and reconfigure the existing wye intersection, but would not substantially alter the appearance of the bridge, once completed, nor the scenic quality of views in the area. Therefore, impacts under Alternatives 6 and 6A would be **less than significant**. Alternative 5, the No Action Alternative, would have **no impact** on visual quality or character.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

SR 89/Truckee River between Tahoe City and the Caltrans Maintenance Facility Landscape Unit

The existing southeast and eastbound views along SR 89 consist of forest interspersed with a few commercial and residential buildings. The river is generally obscured from the roadway, because water flows at a much lower elevation, however, views across the river of the 64-Acre Tract can be seen from some locations. Westbound views include the Caltrans maintenance yard in the foreground. In addition, views from the river channel by paddlers, sightseers, trail users crossing the bicycle/pedestrian bridge, and anglers are focused on the river and riparian corridor. Under Alternative 1, views onto and from the project site at the location of the new bridge would change with the addition of a new engineered feature (bridge and highway) in the existing forested landscape that is already affected by visibility of the urban features around it. The addition of the bridge and realigned highway would add substantial new and visible infrastructure features into the forest and river corridor landscape. The highway would be elevated on an embankment of between three and nine feet in height from the bridge approach on the west to the roundabout intersection with the existing SR 89 highway to the east.

Viewer groups most affected by changes to this viewpoint would be pedestrians and bicyclists using the existing pedestrian bridge, recreationists using the Truckee River Bike Trail and Tahoe Rim Trail, hikers, people fishing and lingering by the river for nature enjoyment, and rafters on the Truckee River. Rafters would have the most direct exposure to the change in views because of the new bridge crossing above them while they are paddling. Recreational users engaged in outdoor activities are generally sensitive to changes in views; however, user expectation would reasonably include encountering infrastructure and urban features, because such features are already present in the study area and surrounding vicinity. For instance, this reach of the Truckee River already includes the Fanny Bridge and an existing pedestrian/bicycle bridge and motor vehicles can be seen and heard from the river channel. While the new bridge would be larger than Fanny Bridge or the bicycle/pedestrian bridge, it would be similar in its visual character as highway infrastructure.

The change in view from the existing pedestrian bridge on the Truckee River looking downstream is depicted on Exhibit 4.14-11. The bridge would have a low profile so that it would not substantially obscure views of the surrounding forest but would partially truncate the distant view of the river and the forested hillside beyond.

Existing View from the Pedestrian Bridge Looking Downstream



Conceptual View of New Bridge under Alternatives 1 through 4 Looking Downstream



Source: AECOM 2014

X11010010701019

Exhibit 4.14-11

KOP 1



The bridge would incorporate natural colors and textures to reduce the contrast of the structure with the surrounding environment. Exhibit 4.14-12 provides an example of the type of surface treatments and railing designs that could be used on the bridge. Removal of trees and other vegetation would occur within the bridge and highway footprint. The view from this viewpoint is expected to remain distinctive, because of the foreground views of the river.

Under Alternative 1, a roundabout would be constructed near the existing Caltrans maintenance yard entrance, and the existing entrance drive would be relocated to the west. Operational views onto and from the Caltrans maintenance facility would be similar to existing views and would continue to include built elements in the foreground, including chain link fencing and a gate, industrial type buildings with light surfaces, extensive paved area, and signs mounted on the fence. Viewers would generally be recreationists or motorists on SR 89. Under Alternative 1, motorists would experience short-term views similar to existing conditions as they pass the Caltrans maintenance facility and travel through the new western roundabout (see KOP 4 on Exhibit 4.14-13 and KOP 5 on Exhibit 4.14-14). Recreationists using the trail would generally have high sensitivity and expectations of natural views along the river. However, the Truckee River Trail between the bicycle/pedestrian bridge and this location is situated close to SR 89; trail users are experiencing views leading up to the maintenance facility that include the roadway and vehicles. The Truckee River Trail west of the entrance drive is situated between SR 89 and the frontage of the maintenance facility and Tahoe Lumber for a distance of approximately 0.25 mile. In addition, the Truckee River Trail would pass through an at-grade crossing at the new entrance to the maintenance facility. Because, trail users would continue to have views of urban development in this area, though different from the existing conditions, view would not be substantially altered for Truckee River Trail users.

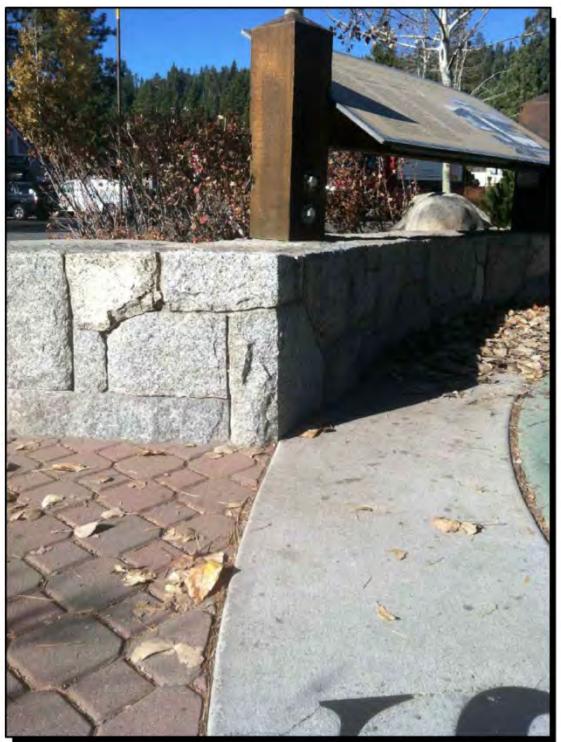
The T-TSA sewer trunk line relocation and modifications to the NSEF sewer export main would be installed in the SR 89 roadway and would not be visible upon completion of the project. Therefore, this project component would have no effect on scenic resources.

64-Acre Tract Landscape Unit

Under Alternative 1, project components in this landscape unit would include the new bridge, a new portion of the realigned SR 89 and portions of the realigned bike paths through the 64-Acre Tract and the eastern roundabout at the southeast corner of the project site. Construction would result in the removal of a number of conifers within the 64-Acre Tract (refer to Section 4.3, "Biological Resources"). The realigned SR 89 would be also raised approximately three to nine feet on an earthen embankment, traveling from east to west, which would increase the visibility of the roadway and passing vehicles. The bridge site would be visible from the Tahoe Rim Trail/bicycle path along the south side of the River within the 64-Acre Tract in some locations. Exhibit 4.14-8 shows the view to the north along the path of the bridge site.

From the Tahoe Rim Trail at the southwest corner of the project site, foreground views would be changed to include bridge components on the east end of the bridge and approach embankment. The bridge approach would alter the view of the trail with a change in terrain and bridge foundation structure. This path would continue to reach the various urban-type uses in the 64-Acres Tract, including parking lots, views of commercial uses, and paved bike paths. Because the Tahoe Rim Trail already travels across SR 89, through Tahoe City, before increasing elevation back into the forested land surrounding Lake Tahoe, trail user expectations included spending a short time in an urban setting. While the realigned highway would be highly visible, and in fact, hikes would be required to cross beneath it on a grade-separated trail crossing, it would be generally within the scenic character associated with the portion of the trail. That is, users would expect to experience increasing urban uses upon entering Tahoe City.

Existing views of and from within the 64-Acre Tract consist of forest landscape, along with the Truckee River riparian corridor and urban features visible from some locations. This differs from the many of the forested public lands in the Region, which contain little to no encroachment from human-made elements. However, from certain vantage points in the 64-Acre Tract, views contain few or no urban features. The potential change in views of the 64-Acre Tract from a location adjacent to the existing bike path south of the realigned SR 89 looking north would be available at KOP 2. The view from KOP 2 consists of a forest scene that provides relatively intact forest vegetation, which does not contain any urban features.



EXISTING ROCK WALLS AT TAHOE CITY VISITORS CENTER



EXISTING ROCK WALLS AND STREET LIGHT STANDARD AT TAHOE CITY VISITORS CENTER



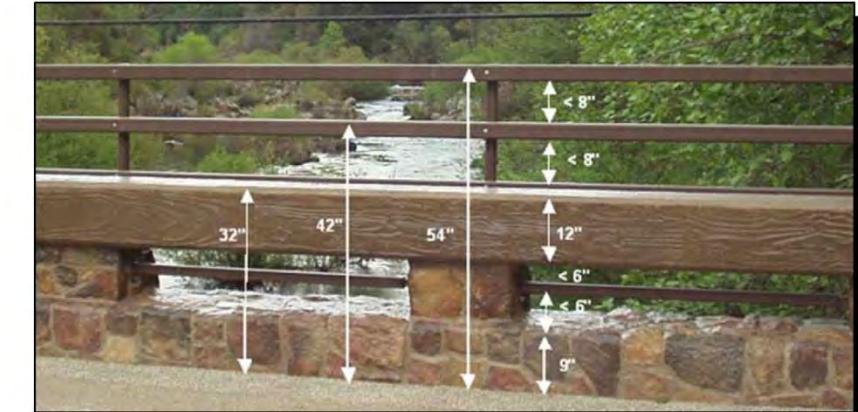
EXAMPLE OF DECORATIVE PEDESTALS AND BICYCLE RAILING COMBINATION



EXAMPLE OF DECORATIVE PEDESTALS AND LARGE BLOCK RUNNING BOND FORM LINER PATTERN ON COLUMNS AND WINGWALLS



EXAMPLE OF DECORATIVE DARK BROWN RAILING AND LARGE BLOCK RUNNING BOND FORM LINER PATTERN ON COLUMNS AND WINGWALLS



TYPE 80 BARRIER EXAMPLE WITH TIMBER TEXTURE AND STAIN ON TOP BEAM



TYPE 80 BARRIER EXAMPLE WITH TIMBER TEXTURE AND STAIN ON TOP BEAM AND STONE VENEER ON POSTS AND BRIDGE DECK



TYPE 80 BARRIER EXAMPLE WITH TIMBER TEXTURE AND STAIN ON TOP BEAM, STONE VENEER ON POSTS AND METAL PICKETS BETWEEN POSTS

Source: Received from Wood Rodgers in 2014

X11010010 01 019

Exhibit 4.14-12

New Truckee River Bridge – Example Images



Source: AECOM 2014

X11010010.01.039

Exhibit 4.14-13

KOP 4



Existing View Looking North toward Tahoe City



Conceptual View of Western Roundabout under Alternatives 1 through 3



Source: AECOM 2014

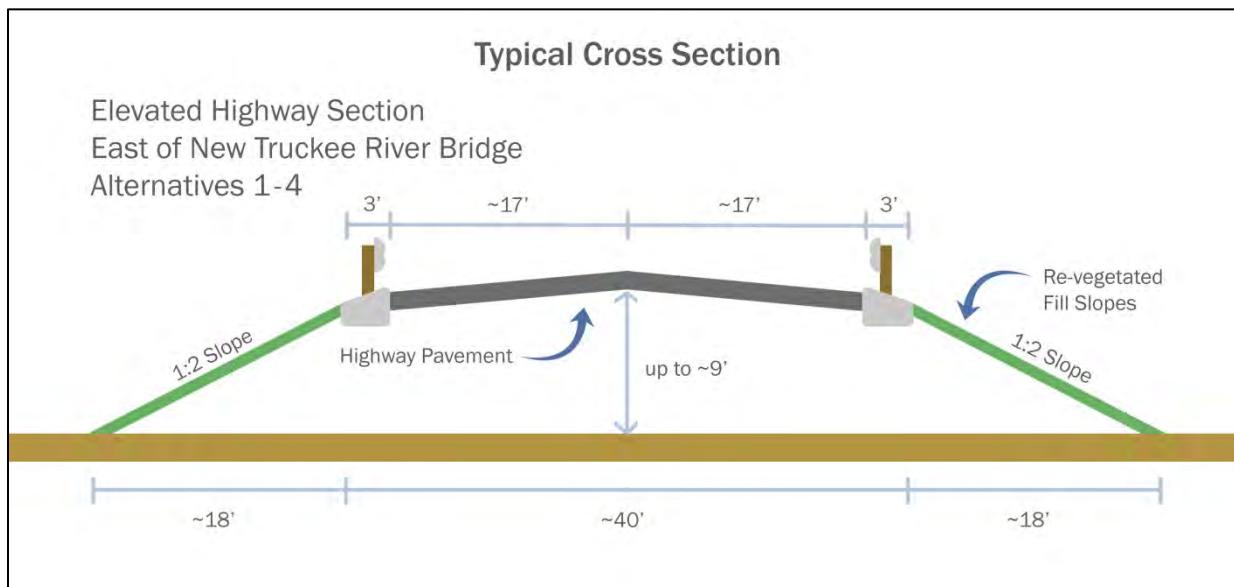
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Exhibit 4.14-14

KOP 5



Implementation of the Alternative 1 would result in construction of the realigned portion of SR 89, which would be visible from KOP 2 and other locations within the 64-Acre Tract. The realigned portion of SR 89 would be elevated on an earthen embankment from three feet above current grade near the eastern roundabout, up to nine feet above current grade near the bridge (see Exhibit 4.14-15, typical cross-section). Slopes of the embankment would be re-vegetated with ground-covering plants as a standard erosion control measure. From locations within the 64-Acre Tract, the new SR 89 alignment and associated vehicles would be visible to onsite recreation users. The recreation users' ability to travel through the project site would remain intact, in part via a trail connection that would be provided beneath the realigned highway, so visual access to the forest would be retained on both sides of the embankment. Thus, while the realigned portion of SR 89 would be visible as an elevated roadway on an embankment, trail users would retain full visual access to the entire forest. Regardless, the visibility of the bridge approach and highway embankment from the Tahoe Rim Trail and the 64-Acre Tract would constitute a substantial visual change, and these views would be significantly affected.

**Exhibit 4.14-15****Typical Cross Section of Elevated Portion of SR 89 Views along the existing SR 89 Route**

The potential change in view from the existing SR 89 on the eastern edge of the 64-Acre Tract looking north along the highway towards the new eastern roundabout is depicted by KOP 3 on Exhibit 4.14-16. Under the existing conditions, this view appears as a highway crossing through forest lands. Construction of the new roundabout intersection would introduce an additional features of the built-environment to the project site (including paved surface and landscaped roundabout median); however, it would remain a highway view that is not be substantially different than the character of the existing highway. Therefore, the view would remain representative of the existing roadways travelling through the forest and would not substantially alter the character or the quality of this view.

SR 89/SR 28 Wye and Fanny Bridge Landscape Unit

Existing views of Fanny Bridge in the vicinity of Tahoe City are represented by KOP 6 on Exhibit 4.14-17. There are a number of intrusions in the view including Fanny Bridge, traffic lights, roadway signs, and commercial development in the background. In general, views are dominated by the roadway and other built-environment features that do not create a distinctive view.

Existing View Looking North along SR 89



Conceptual View of Alternatives 1 through 3



Source: AECOM 2014

X11010010 01 017

Exhibit 4.14-16

KOP 3



Existing View Looking North from SR 89



Conceptual View of Alternative 6 and 6A



Source: AECOM 2014

X11010010.01.017

Exhibit 4.14-17

KOP 6



Under Alternative 1, Fanny Bridge would either be rehabilitated or replaced with a new bridge. A new bridge would have the same width and similar architecture as the existing bridge. Therefore, under this alternative, no substantial change in view would occur at this viewpoint. Alternative 1 would include modifications at the existing wye. Option 1, could result in landscaped medians, new parking spaces, or minimal modifications. While landscaped medians could improve the visual quality of the area, new parking space would increase the amount of paved area in this view and eliminate any benefit of landscape screening, potentially increasing glare from cars parked on the site. Under Option 2, a roundabout would be constructed at the existing wye intersection with expanded landscaping and gateway features. Business access would require minor modifications associated with consolidation and/or reconfiguration of ingress/egress. This would increase the amount of paved area visible within this view, substantially change the layout of the wye, and eliminate landscape screening, increasing the visual presence of cars parked on the site. The visual character and quality of views of the wye area would change under this option.

Conclusion

After completion, the visual character of Alternative 1 would generally remain the same for the area near the wye intersection and Fanny Bridge, because these would constitute transportation improvements that are similar to the existing conditions (Fanny Bridge, roadway intersections). The new bridge over the Truckee River would be visible from the bicycle/pedestrian bridge and the river corridor; however, several nearby urban features are already present, reducing viewer sensitivity to change. The low-profile of the bridge and maintenance of views of the surrounding forest and rivers would allow the viewer to experience similar visual character to the existing conditions. Views from some portions of the Tahoe Rim Trail and the 64-Acre Tract near the new bridge approach and highway embankment would experience more substantial visual change, because of the visibility of the highway and bridge approach elevated on an embankment, and these views would be significantly affected. Thus, due to the visibility of the new, realigned highway and bridge approach within the forest of the 64-Acre Tract, changes to visual character of the forest landscape would be a **significant impact for Alternative 1**.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Post-completion scenic impacts would be the same as described for Alternative 1, because this alternative would include the same components as Alternative 1 with the exception of the proposed operation of the existing SR 89 following relinquishment to Placer County. This impact would be **significant**.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Post-completion scenic impacts would be the same as described for Alternative 1, because this alternative would include the same components as Alternative 1 with the exception of the proposed operation of SR 89 following relinquishment to Placer County and that 15 fewer tree would be removed than under Alternative 1. This impact would be **potentially significant**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Under Alternative 4, the sweeping curve at the eastern end of the realigned SR 89 would occupy less area than the proposed roundabout under Alternative 1. This alternative would reduce the number of trees that would need to be removed. However, views of the roadway from the recreation trail and surrounding area under this alternative would be similar to those described for Alternative 1. Visual quality would be reduced for viewers using the recreational trail, because of the addition of the bridge and realigned highway (KOP 2). Change in views related to the new bridge structure would similar to those described for Alternative 1. However, under Alternative 4, a standard intersection would be constructed on the west side of the river instead of a roundabout.

Similar to Alternatives 1 through 3, after completion, Alternative 4 would reduce quality of views from the 64-Acre Tract and from along the Truckee River at the new bridge and along the realigned SR 89 within the Tract. Visual quality would generally remain the same for the area near the wye intersection and Fanny Bridge, because these would constitute similar types of improvements to the existing conditions (Fanny Bridge, roadway intersections). Views of the Truckee River from the bicycle/pedestrian bridge and river

corridor would be affected by the addition of the new bridge over the river, and views within the 64-Acre Tract would be affected by the visibility of the elevated section of realigned SR 89 built on an earthen embankment. Views from the Tahoe Rim Trail in the 64-Acre Tract near the new bridge approach and elevated highway would experience substantial visual change, and these views would be significantly affected. Thus, because of the visibility of the elevated bridge approach and realigned highway, as seen from locations within the 64-Acre Tract and Tahoe Rim Trail, this impact would be **significant**.

ALTERNATIVE 5: NO ACTION

Because the No Action Alternative would retain existing conditions on the project site, there would be no changes to visual character or quality of visual resources. Therefore, there would be **no impact**.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISITING BRIDGE , MODIFY LANE GEOMETRICS AT EXISTING WYE

This alternative would replace Fanny Bridge with a structure 60 feet wider than the existing bridge. This alternative would require full take of three properties: the hardware store, the Bridgetender Restaurant, and River Grill.

Views of Fanny Bridge would change from the existing two-lane Fanny Bridge to a new four- or five-lane bridge across the Truckee River (see KOP 6 on Exhibit 4.14-17 for a simulation from the southern approach). In addition, the existing wye intersection would be modified by replacing the free right turns on eastbound and northbound SR 89 with right-turn pockets on both approaches, or a two-lane roundabout. Landscaping could be expanded into the area where the right-turn lanes were located. Trees would be removed to accommodate the larger bridge. This could result in a decrease in the quality of the viewpoint; however, the overall quality of the views from this viewpoint would not change substantially from existing conditions because views from this KOP are already highly developed and a wider bridge is not expected to be substantially more or less memorable than views of the existing Fanny Bridge. The bridge would be widened and approximately 23 trees would be removed, which would decrease the unity and intactness; however, the Bridgetender Restaurant on the west side of SR 89 would likely be removed and the area adjacent to the roadway would be revegetated. The view would remain representative of the surrounding developed area in Tahoe City.

Primary viewer groups aware of this change in views would be roadway users traveling along SR 89 and Fanny Bridge, visitors to the Gatekeeper's Museum, Dam Outlet, and pedestrians on or near the bridge. The roadway travelers would have varying sensitivities to changes in views along SR 89 depending on whether they are tourists or commuters; however, their sensitivity would generally be moderately low. Pedestrians on or near the bridge would have moderate sensitivity because they generally have a high awareness of visual resources and moderately long exposure to views. Therefore, this viewer group would be most affected by these changes in views from this KOP. Overall, the visual quality from this viewpoint under Alternative 6 is expected to remain as average.

Upon completion of the construction phase, the overall quality of the views from this viewpoint would not change substantially from existing conditions. Therefore, impacts related to replacement of Fanny Bridge would be **less than significant**.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

This alternative would rehabilitate or replace Fanny Bridge with a wider structure 49 feet wider than the existing structure. The wye would be converted to a two-lane roundabout. This alternative would require removal of approximately 23 trees and full take of two properties, including an office and the Bridgetender Restaurant. The roundabout would remove landscaping at the existing intersection, but landscaping would be installed in the center island; therefore, changes to visual quality and character would not be substantial. The views would remain representative of the surrounding commercial area. Impacts to visual resources from this alternative would be similar to those described for Alternative 6. Overall, the visual quality from this viewpoint under Alternative 6a is expected to remain as average, and this would be a **less-than-significant** impact.

Impact 4.14-3. Relationship to USFS LTBMU visual quality objectives.

Under Alternatives 1 through 4, the new portion of the realigned SR 89 and a portion of the new bridge would be located on land under the jurisdiction of the USFS LTBMU. These project components would increase built environment features within the 64-Acre Tract and across the Truckee River. These project components would not be visible in middle-ground views due to screening provided by existing vegetation. In foreground views from the 64-Acre Tract, the realigned SR 89, roundabout, and bridge would be partially visible from some locations, in most; however, it would not be visible due to the screening effect of trees, and dense shrubs along the river side. Therefore, the roundabouts, roadway, and bridge would not be considered dominant in views along the trails within the 64-Acre Tract. The bridge structure would be surfaced to replicate the colors and textures of surrounding vegetation and soils, and the roadway embankment and interior of the roundabout would be revegetated to replicate the surrounding vegetation. These measures would make the visual characteristics of the bridge and roadway compatible with the surrounding environment. Therefore these project components would not conflict with the VQO Modification for foreground views and the project would meet USFS LTBMU visual quality objectives. This would be a **less-than-significant** impact for Alternatives 1 through 4.

Under Alternative 5, **no impact** would occur because existing conditions would be retained and no conflict with the USFS LTBMU Visual Quality Objectives would occur. Under Alternatives 6 and Alternative 6a, no portion of these projects would be located on land under the jurisdiction of the USFS LTBMU. Therefore, no conflict with the USFS LTBMU Visual Quality Objectives would occur and there would be **no impact** under Alternatives 6 and 6a.

The VQO for Forest Lands within the project site is Partial Retention when viewed as Middleground and Modification or better when viewed as foreground. Middleground is defined as one-quarter to one-half (0.25 to 0.5) mile to 4 miles from the observer. Foreground is defined as zero to one-quarter to one-half (0.25 to 0.5) mile from the observer (USDA Forest Service 1995: pp. Glossary 3 – 4).

VQO Partial Retention refers to management activities that remain visually subordinate to the characteristic landscape. Activities may introduce form, line, color, or textures that are found infrequently or not at all in the characteristic landscape, but they should remain subordinate to the visual strength of the characteristic landscape.

Under Modification VQO activities may visually dominate the original characteristic landscape. Activities such as introduction of facilities such as roads should borrow naturally established form, line, color and texture so completely and at such scale that its visual characteristics are compatible with the natural surroundings. (Bacon 1979: p. 663)

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

The new bridge, realigned SR 89, and two roundabouts would not be visible from most locations 0.5 mile away because existing terrain, structures, and vegetation would block views. At such a distance, these elements would be visually subordinate to the characteristic landscape. Therefore, construction of these elements would not conflict with the VQO Partial Retention for Middleground views.

In foreground views from the 64-Acre Tract, the new bridge, realigned SR 89, and two roundabouts would be partially visible or not visible at all from most vantage points due to the screening effect of trees and dense shrubs along the river side and in the southern portion of the 64-Acre Tract. Approaching the bridge on the Tahoe Rim Trail/recreation trail in the 64-Acre Tract, the bridge would not be visible until the viewer is quite close (80-100 feet) on the north and south approaches; the bridge would be partially screened by trees and shrubs until the viewer is nearly adjacent. Therefore, the bridge would not be considered dominant in views along the trail within the 64-Acre Tract because it would be fully visible only from limited locations. The bridge structure would be surfaced to replicate the colors and textures of surrounding vegetation and soils in order to make the visual characteristics of the bridge compatible with the surrounding environment to the greatest extent feasible (see Exhibit 4.14-12). Viewers on the recreation trail in the 64-Acre Tract south of

the realigned SR 89 would have glimpses of the roadway to the north, and cars traveling on the bypass would be partially visible through the vegetation. The eastern roundabout would be screened from most areas and pedestrians using the path that connects to the roundabout would not have a full view of that feature until they were nearly adjacent to the roundabout. Therefore, the realigned SR 89 and roundabout would not be considered dominant in views along the trail within the 64-Acre Tract because they would be fully visible only from limited locations. The roadway embankment would be visible in foreground views from the River Access Road and the existing parking lot; however this project element would be similar in character to the existing visual character of these viewpoints. The roadway embankment and interior of the roundabout would be revegetated to replicate the surrounding vegetation in order to make the visual characteristics of the roadway compatible with the surrounding environment to the greatest extent feasible. Therefore, the new bridge, realigned SR 89 roadway and roundabouts would not conflict with the VQO Modification for foreground views.

Under Alternative 1, the existing section of SR 89 between Fanny Bridge and the eastern roundabout would become a local street. Traffic calming and aesthetic features would be installed within this section of roadway. The visual quality of views of this area would remain the same as existing conditions, or could be improved over existing conditions. Therefore, modifications to SR 89 following relinquishment to Placer County would not conflict with the VQO Modification for foreground views.

The VQOs only apply to lands under the jurisdiction of the USFS and no other portions of the project site are located on Forest System Lands. Alternative 1 would meet USFS LTBMU visual quality objectives. Because the project would not conflict with the VQOs assigned to Forest System Lands within the project site, this impact would be **less than significant**.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Impacts would be the same as described for Alternative 1 because this alternative would include the same components as Alternative 1 with the exception of the proposed operation of SR 89 following relinquishment to Placer County. Construction would occur in the same areas and the built components would be the same, and this impact would be **less than significant**.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Impacts would be the same as described for Alternative 1 because this alternative would include the same components as Alternative 1 with the exception of the proposed operation of SR 89 following relinquishment to Placer County. Construction would occur in the same areas and the built components would be the same, and this impact would be **less than significant**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Under Alternative 4, the SR 89 realignment would follow a similar alignment as described above under Alternative 1. However, the two-lane roundabout at the SR89/28 junction would be replaced with a traditional signalized intersection, and a sweeping curve diverting vehicles onto realigned SR 89 would replace the eastern roundabout. The roadway, including the sweeping curve, would not be visible from most locations 0.5 mile away from the realigned SR 89 because terrain, structures, and vegetation would block views. At such a distance the realigned SR 89 would be visually subordinate to the characteristic landscape. Therefore, construction of the bypass would not conflict with the VQO Partial Retention for Middleground views. The remaining elements would be the same as for Alternative 3. As described above under Alternative 1, implementation of this alternative would meet USFS LTBMU visual quality objectives, and this impact would be **less than significant**.

ALTERNATIVE 5: NO PROJECT

Because the No Action Alternative would retain existing conditions on the project site, there would be **no impact** under this alternative.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISITING BRIDGE , MODIFY LANE GEOMETRICS AT EXISTING WYE

The VQOs only apply to lands under the jurisdiction of the USFS, and this alternative would not be located on Forest System Lands. **No impact** would occur.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

The VQOs only apply to lands under the jurisdiction of the USFS, and this alternative would not be located on Forest System Lands. **No impact** would occur.

Impact 4.14-4. Create a new source of light and glare that would adversely affect day or nighttime views in the area.

The action alternatives would increase lighting within the 64-Acre Tract and across the Truckee River by adding new light fixtures. Existing regulations and standard design practices would restrict light fixture locations, lighting visibility from surrounding area, the type and intensity of lights, and the direction of light projection. The localized nature of new light sources and use of standard low glare and night glow designs would minimize light and glare effects in the study area. Thus, because new lighting sources would be limited to roundabouts and the new bridge, this impact would be **less than significant** for Alternatives 1 through 4. Lighting under Alternatives 6 and 6a would not be substantially altered from existing conditions; thus, impacts would be **less than significant**. Alternative 5, the No Action Alternative, would not alter the existing lighting conditions and would have **no impact** related to light and glare.

Existing light sources on and around the project site include lighting at the Caltrans Maintenance Facility, the County buildings on the north side of SR 89, the existing Transit Center on the north end of the 64-Acre Tract and development located to the south and southeast of the 64-Acre Tract, from street lights and parking lot lights in Tahoe City, street lights and signal lights in the wye intersection area, lights at businesses just south of Fanny Bridge, and vehicle lights on SR 89. Additionally, existing sources of glare seen from the project site include vehicles traveling on SR 89, SR 28, the River Access Road and 66-space parking lot, and the Transit Center. Action alternatives 1 through 4 would construct the new SR 89 alignment through the 64-Acre Tract that would result in similar sources of glare that could be seen by recreation users throughout the project site. The action alternatives would not result in the construction or operation of new buildings on the project site. Design of the new bridge and rehabilitate or replacement of Fanny Bridge would not include the use of glass or reflective materials; therefore the project alternatives would not introduce new sources of glare to the project site.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC**Construction Phase**

Most of the construction under Alternative 1 would occur during daytime hours and would not include nighttime lighting. Some elements of the new bridge over the Truckee River may be constructed during evening or nighttime hours to minimize effects on recreational river users. There are no residential areas or other land uses with receptors sensitive to nighttime lighting in the area around the new bridge location. Travelers on SR 89 would be the main viewing group that would be affected by nighttime lighting because the recreational trail would not have extensive use at night. Any construction lighting would be required to be shielded to avoid interference with visibility. Therefore, construction impacts related to light and glare would be **less than significant**.

Operational Phase

Under this alternative, new sources of light would include lighting for the bicycle/pedestrian undercrossing of bridge, lighting on the new bridge, street lighting at the two roundabout intersections and lighting at the entrance to the Transit Center onto the newly localized road (relinquished portion of SR 89). Rehabilitation or replacement of Fanny Bridge and modifications to the free-right turn lanes would not result in a substantial change to lighting conditions in the wye area. Modifications to the Caltrans maintenance facility, T-TSA sewer line, and NSEF sewer export main would not result in a substantial change to existing lighting conditions.

There are no sensitive receptors for nighttime lighting in the vicinity of the new bridge. The nearest residential area to the eastern roundabout is approximately 350 feet to the southeast and is screened by dense coniferous forest. There are few sensitive receptors to nighttime lighting in this area. Compliance with Caltrans standards for roadway lighting would be part of the project. Thus, because the project lighting would be limited to the new bridge, intersections, and roundabouts, would be located in areas that do not have receptors sensitive to nighttime lighting, and would have to comply with Caltrans standards for roadway lighting, this impact would be **less than significant**.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Construction and operational impacts would be the same as described for Alternative 1 because this alternative would include the same components as Alternative 1 with the exception of the proposed operation of SR 89 following relinquishment to Placer County. Similar to Alternative 1, this impact would be **less than significant**.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Construction and operational impacts would be the same as described for Alternative 1 because this alternative would include the same components as Alternative 1 with the exception of the proposed operation of SR 89 following relinquishment to Placer County. Construction would occur in the same areas and the built components would be the same; therefore, for the reasons described above under Alternative 1, this impact would be **less than significant**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Construction and operational impacts would be the same as described for Alternative 1 because this alternative would include the same components as Alternative 1 with the exception of the proposed operation of SR 89 following relinquishment to Placer County. Alternative 4 would result in local improvements to visual quality compared to Alternatives 1, 2, and 3 because visual quality would improve in areas where the abandoned section of SR 89 would be restored. Construction would occur in the same areas and the built components would be the same; therefore, for the reasons described above under Alternative 1, this impact would be **less than significant**.

ALTERNATIVE 5: NO PROJECT

Under the No Action Alternative, existing conditions related to nighttime lighting and glare would not change. There would be **no impact**.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISITING BRIDGE , MODIFY LANE GEOMETRICS AT EXISTING WYE

Impacts related to construction phase and operational phase lighting would be the same as described for replacement of Fanny Bridge under Alternative 1, above. Upon completion, lighting conditions would be similar to existing conditions. Thus, this impact would be **less than significant**.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Impacts related to construction phase and operational phase lighting would be the same as described for replacement of Fanny Bridge under Alternative 1, above. Upon completion, lighting conditions would be similar to existing conditions. Thus, this impact would be **less than significant**.

4.14.5 Avoidance, Minimization, and/or Mitigation Measures

Mitigation Measure 4.14-2. Visually soften and blend realigned highway visibility within the forest landscape.

The following mitigation applies to Alternatives 1 through 4.

To decrease the visual effects caused by the realigned highway and bridge approach built with an elevated profile on an earthen embankment, the following design and construction actions will be implemented. These actions will soften the visual intrusion of the new bridge approach and realigned highway within the 64-Acre Tract and blend them into the forest landscape.

- ▲ Minimize tree removal and retain existing rock outcroppings to the extent feasible.
- ▲ Restore forest vegetation, including trees, within the disturbed areas of the realigned highway following construction. As a supplement to standard revegetation for erosion control, trees and understory vegetation will be planted on the earthen slopes of the elevated embankment supporting the realigned highway. Forest restoration will be conducted in accordance with a replanting plan approved by the USFS, the public agency landowner of the 64-Acre Tract, and by TRPA.
- ▲ Select forest-appropriate species and design plant spacing for a natural appearance and for achieving scenic and fire fuel objectives of the USFS and TRPA.
- ▲ Save, stockpile, and reapply duff and topsoil on disturbed slopes to reduce the newly constructed look and to promote natural revegetation.
- ▲ The forest restoration plantings will be designed by a Landscape Architect or similar qualified specialist. All vegetation planting on USFS lands shall be approved by USFS botanist for areas on National Forest System lands.

Significance After Mitigation

While Alternatives 1 through 4 would alter views from some portions of the Tahoe Rim Trail and the 64-Acre Tract near the new bridge approach and highway embankment, implementation of this mitigation measure would reduce the visual effects from the addition urban features by restoring disturbed forest vegetation and increasing native trees and understory vegetation. The forest restoration would visually soften and blend the realigned highway into the forest landscape. All tree and vegetation plans will be approved by TRPA and the USFS, before construction of the project begins. Thus, by restoring the forest with replanted trees and understory vegetation, the visibility and adverse scenic impact of the realigned highway would be reduced to a **less-than-significant** level.

4.15 TRAFFIC AND TRANSPORTATION

This section evaluates the potential impacts on the vehicular, transit, bicycle, and pedestrian components of the transportation system that may result from implementation of each of the alternatives. The traffic and transportation regulatory framework and existing environmental setting are described, and the impacts of each alternative are identified and assessed. The primary sources of information referenced for this section is the *SR 89/Fanny Bridge Community Revitalization Project Traffic Forecasts and Operations Analysis Technical Memorandum* (Appendix G). Impacts related to parking and recreation access on lands managed by the U.S. Forest Service (USFS) are addressed in Section 4.13, “Recreation.”

4.15.1 Regulatory Setting

TAHOE REGIONAL PLANNING AGENCY

Lake Tahoe Regional Plan

Chapter 3, Transportation Element, of the Regional Plan provides 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. TRPA’s Goals and Policies sets standards for vehicle “level of service (LOS).” A more detailed definition of LOS is provided below. The TRPA Goals and Policies require that peak period traffic flow not exceed the following:

- ▲ LOS C on rural recreational/scenic roads;
- ▲ LOS D on rural developed area roads;
- ▲ LOS D on urban developed area roads;
- ▲ LOS D for signalized intersections; and
- ▲ LOS E may be acceptable during peak periods in urban areas, not to exceed four hours per day.

These vehicle LOS standards may be exceeded when transit, bicycling, and walking facilities provide a mobility level that is similar to the mobility level that would be provided to the project-generated traffic in relation to overall traffic conditions on affected roadways. While the Tahoe Regional Planning Compact looks to “reduce the dependency on the private automobile” there are currently no adopted requirements or standards regarding the quality of service of other travel modes (i.e.: transit, biking, or walking) that could potentially reduce the demand on the roadway system.

Regional Transportation Plan

The Tahoe Metropolitan Planning Organization’s (TMPO’s) *Regional Transportation Plan: Mobility 2035* (TRPA and TMPO 2012) is 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. Important objectives 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. Mobility 2035 presents 14 goals that are consistent with Regional and federal requirements that focus on a reduction in dependency on the automobile and giving preference to projects that increase the capacity of the Region’s transportation system through public transportation projects and programs. The Regional Transportation Plan focuses on long-range transportation planning and includes the Fanny Bridge Project.

Code of Ordinances

Changes in daily vehicle trip ends (DVTE) as a result of a change in project operation are discussed in Section 65.2, Traffic and Air Quality Mitigation Program, of the Code of Ordinances. The Code does not address transportation or traffic related to construction activities.

Environmental Threshold Carrying Capacities

Although transportation is not a standard program area, two standards pertaining to air quality are set forth in terms of basin-wide vehicle miles traveled (VMT). These standards are applicable to transportation analyses. VMT is a computed value which correlates to the extent of an area's reliance on the private automobile for trip-making. The TRPA TransCAD transportation model provides a forecast of the number of trips made on the highway network and the distance between trip origins and destinations for each trip purpose. Total VMT is the sum of all these trip lengths.

The *Environmental Threshold Carrying Capacity Study Report* includes two air quality management standards that relate to transportation facilities in the Region: (1) the reduction in VMT by 10 percent from 1981 base year conditions to reduce nitrate deposition; and (2) the reduction in VMT by 10 percent from 1981 base year conditions to improve visibility. Since then, and since completion of the most recent TRPA Threshold Evaluation Report in 2012, traffic volumes in the Tahoe Basin have continued an overall declining trend, indicating that the basin-wide VMT threshold is currently in attainment. While in attainment, TRPA is mandated to maintain attainment status or develop control measures which will achieve attainment.

STATE

California Department of Transportation

The California Department of Transportation (Caltrans) is responsible for the operation and maintenance of the state highway system in California. Caltrans has the following concept (that is, a target or goal) levels of service (LOS) for Caltrans facilities in the Tahoe Region:

- ▲ Concept LOS E: SR 89 (El Dorado/Placer County line to SR 28), and
- ▲ Concept LOS E: SR 28.

LOCAL AGENCIES

Placer County General Plan

The circulation element of the Placer County general plan provides guidance to help achieve efficiency and economy in the transportation system, and to facilitate the planning required to maintain and expand the existing transportation network. Goal 3.A of the general plan is to provide for the long range planning and development of the county's roadway system. To meet this goal, the county manages its roadway system to maintain a LOS C on all roadways except within 0.5 mile of state highways, where the LOS standard is LOS D.

4.15.2 Affected Environment

The project site includes the area within the immediate vicinity of Truckee River Bridge # 19-0033 (locally known as the "Fanny Bridge") in Tahoe City, located in the North Shore area of Lake Tahoe in Placer County. Fanny Bridge is currently the only vehicular bridge crossing over the Truckee River that provides access to the West Shore from the north. This bridge provides one 12-foot lane in each direction with a 5-foot shoulder on west side and a 3-foot shoulder and a 5-foot sidewalk on the eastside. Based on 2010 Caltrans count data, Fanny Bridge experiences an average daily traffic of approximately 22,300 vehicles during the summer peak season. Based on the review of bike path counts conducted by TRPA in 2009, the bridge is also subject to high levels of pedestrian and bicycle activity (approximately 400 persons per hour) traveling across/along the bridge during the peak summer season. Exhibit 4.15-1 is a project vicinity map.

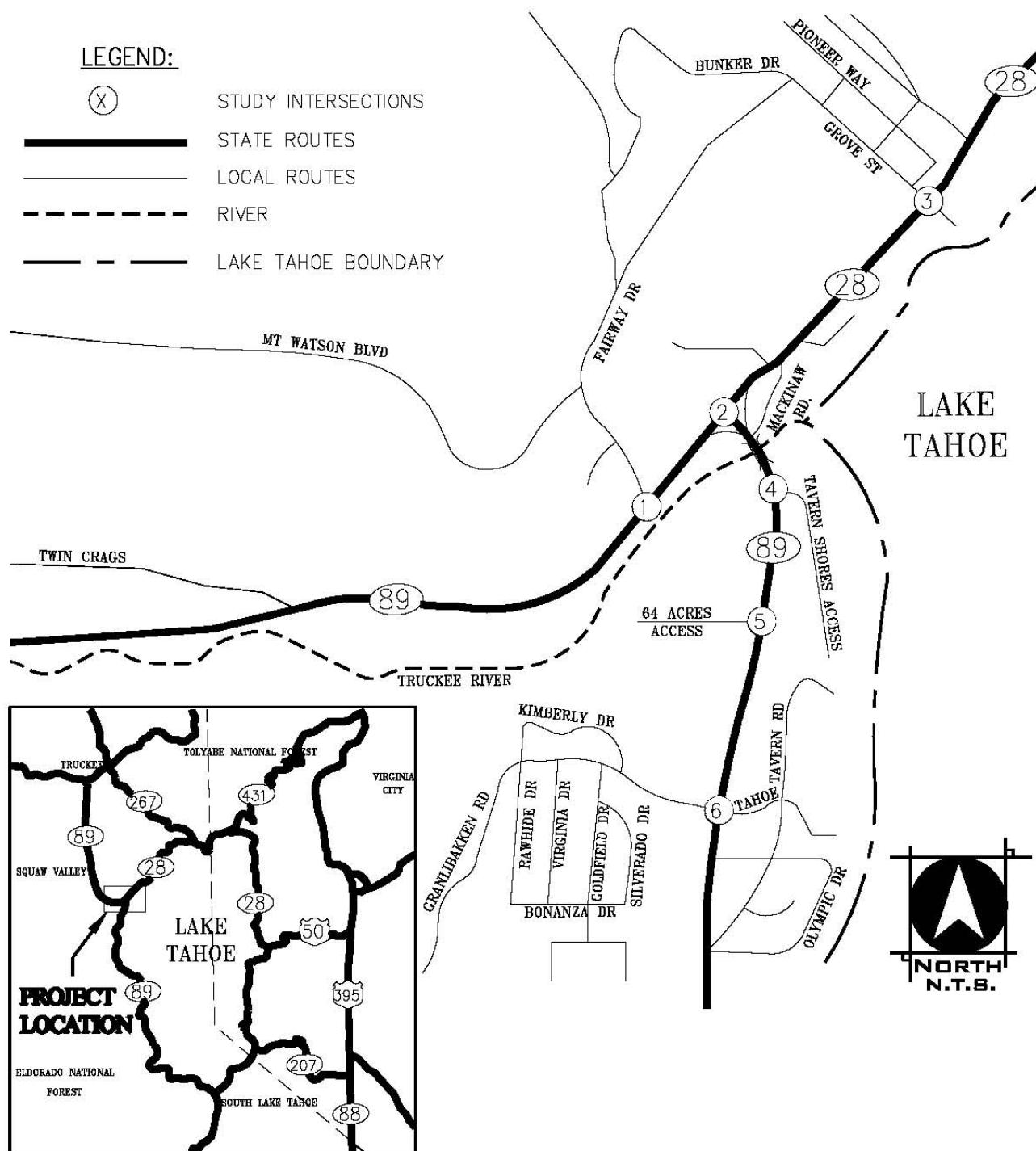


EXHIBIT 4.15-1

PROJECT LOCATION AND VICINITY MAP

WOOD RODGERS
CH2MHILL.

EXISTING TRANSPORTATION FACILITIES

The primary transportation corridors in the study area are State Route 89 and State Route 28. Placer County maintains a network of local roads in the study area. The USFS maintains roads in the Tahoe National Forest and Lake Tahoe Basin Management Unit (LTBMU). Existing roadways in the study area, as shown on Exhibit 4.15-1, include SR 89, SR 28, Fairway Drive, Granlibakken Road, and Grove Street. These facilities are described as follows.

SR 89 is a state highway that traverses north-south through the project site. Caltrans District 3's *SR 89 Transportation Concept Report* (TCR, dated April 2012) categorizes SR 89 as a "two-lane conventional highway" from the El Dorado/Placer County line to Tahoe City. The SR 89 study corridor segment is functionally classified as a "Minor Arterial." The corridor is not a National Highway System route, but it is part of the Federal Aid Primary System, the Interregional Highway System (IRRS), and the Surface Transportation Assistance Act (STAA) truck network. SR 89 is not a lifeline route (a route that is likely to be intact after a major earthquake event) in Placer County. Regionally, SR 89 begins in Mono County, north of the town of Topaz, and continues predominantly northward until reaching Interstate 5, near Mt. Shasta in Siskiyou County. To the north, SR 89 is the most direct all-weather road connecting the Tahoe area to the Interstate 80 corridor and the Sacramento and San Francisco Bay areas; therefore the route carries large traffic volumes through the basin. SR 89 also serves as a critical roadway for traffic circulation within the Tahoe Basin.

Within the project site, SR 89 is generally a two-lane arterial with left-turn pockets at major intersections. SR 89 operates as a traffic signal-controlled intersection with SR 28 and as side-street stop-controlled intersections with Fairway Drive, Tahoe Tavern Shores Access Road, 64-Acres Tract Recreational Access, and Granlibakken Road. Per Caltrans 2010 traffic count data, the SR 89 segment west of the wye intersection experiences an AADT of 10,600 vehicles and a peak month average daily traffic (ADT) of 14,800 vehicles. SR 89, just south of Fanny Bridge, carries an AADT of 13,200 and a summer peak month ADT of 22,300. Note that summer peak month ADT on Fanny Bridge are approximately 70 percent higher than AADT demands.

SR 28 is a state highway that provides a link between Incline Village, Nevada and Tahoe City along the North Shore of Lake Tahoe. SR 28 also serves as a critical roadway for traffic circulation within the Tahoe Basin. Within the project site, SR 28 generally operates as a two-lane arterial with a continuous left-turn median lane. SR 28 intersects SR 89 at the signalized wye intersection, and intersects with Grove Street at a side-street stop-controlled intersection. The signalized wye intersection has dual through lanes on eastbound and westbound approaches and dual left-turn lanes on the westbound and northbound approaches. Per Caltrans 2010 traffic count data, the SR 28 segment east of the wye intersection experiences an AADT of 12,400 vehicles and a peak month ADT of 17,000 vehicles.

Fairway Drive is a two-lane, local major collector roadway serving Tahoe City. This roadway provides direct access to some of the schools in the area. Fairway Drive intersects with SR 89 to the west of wye intersection at a stop-controlled intersection.

Granlibakken Road is a two-lane, local roadway in the Tahoe City area. Granlibakken Road intersects with SR 89 at a stop controlled intersection.

Grove Street is a two-lane major collector roadway in the Tahoe City area that provides access to the beach and other recreational uses. Grove Street intersects with SR 28 at a stop-controlled intersection east of wye intersection.

Fanny Bridge consists of one 12-foot lane in each direction with a 5-foot shoulder on the west side and a 3-foot shoulder and 5-foot sidewalk on the east side. Fanny Bridge serves as the main artery for vehicles, cyclists, and pedestrians between Lake Tahoe's West Shore and Tahoe City or Truckee. It is currently the only vehicular bridge crossing the Truckee River that provides access to the West Shore from the north.

EXISTING TRAFFIC VOLUMES

The existing traffic volumes discussion includes counts taken in the years 2013 and 2014 during the summer peak hours. The volumes used for the existing conditions analysis were derived from these counts. The *SR 89/Fanny Bridge Community Revitalization Project Traffic Forecasts and Operations Analysis Technical Memorandum* (Appendix G) contains a detailed explanation of historical traffic volumes and basin-wide variations in volumes over the past decade.

2013 Traffic Counts. Wood Rodgers conducted new morning and evening peak hour intersection turning movement traffic counts on Friday, August 2, 2013 at the six study intersections. The field-collected p.m. peak hour counts were regarded as the “2013 summer peak hour” counts. Using the same relative ratios between annual average and summer daily average volumes from count years 2003 and 2009-10, “2013 annual average” daily traffic counts were then derived.

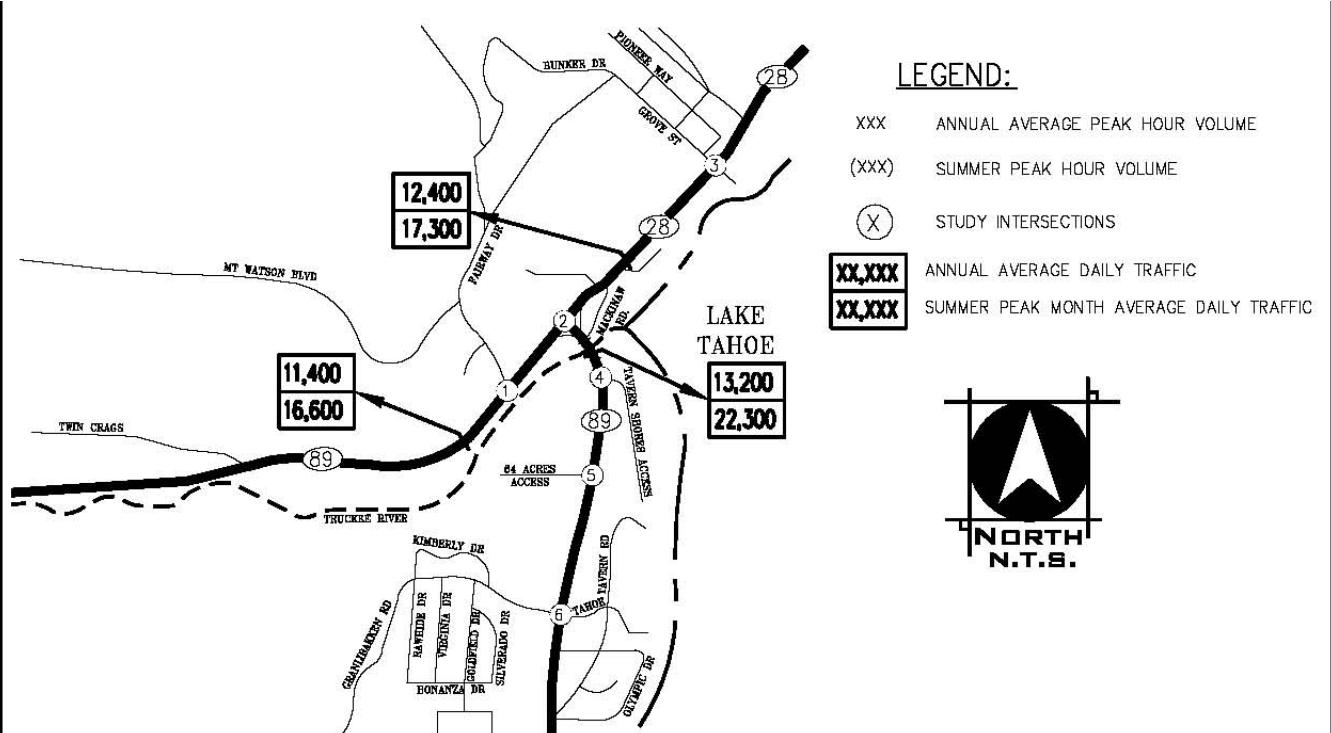
The peak hour traffic counts at the six study intersections increased by approximately 0.1 percent between years 2009-10 and year 2013. Some movements at a few study intersections noticeably increased (such as, by 16 percent in both peak hours on eastbound SR 89 at Fairway Drive). On the other hand, some movements decreased during this timeframe (such as, by 3 to 4 percent on northbound and southbound SR 89 at 64-Acres Access and Granlibakken Road). These changes can be attributed to a new Fire Station which opened off Fairway Drive and relocation of the Tahoe City Public Utility District offices to Fairway Drive, and the opening of a transit center on 64-Acres Access Road. These recently constructed uses caused a slight increase in peak hour traffic to/from Fairway Drive and 64 Acres Access driveways that both intersect with SR 89.

2014 Traffic Counts. For the SR 89/SR 28 intersection, TRPA provided 2014 summer peak traffic counts, collected on August 15, 2014 (Friday). Northbound and southbound volumes at the wye stayed the same between 2013 and 2014 traffic counts. While the eastbound volumes on SR 89 were higher in 2014, there was a slight reduction in westbound volumes on SR 28.

Although some marginal variations were observed between years 2013 and 2014, the differences are not significant. In addition, traffic counts were not collected at the other five study intersections in 2014. Therefore, 2013 volumes are used to represent current-year traffic operations within and through the project site and were used to develop 2018 and 2038 conditions. These 2013 traffic volumes, shown in Exhibit 4.15-2, represent the baseline condition for the study area and were used to reassess the roadway segment and intersection peak hour traffic operations in the study area. A reassessment of the existing traffic operations was necessary because previous volume assumptions are no longer applicable in the study area (three developments are no longer planned to move forward and a ski area is planned to be developed) and a lower level of confidence was associated with the previous volumes because they were based on estimates rather than actual field counts.

BIKEWAYS AND PEDESTRIAN FACILITIES AND ACTIVITY LEVELS

The project site is currently served by separated Class I Bicycle facilities along SR 89 and SR 28. Class I bicycle facilities provide a separated right-of-way for the exclusive use of bicyclists and pedestrians, and crossings with roads are minimized. SR 89 crosses the Truckee River on Fanny Bridge and bicyclists share the road with motor vehicles or the sidewalk with pedestrians to cross the bridge. Class I bicycle facilities consists of the (1) Truckee River Trail, which extends from 64 acres down river to Squaw, (2) the West Shore Trail, which extends from 64-Acre Tract south down the West Shore, (3) the Lakeside Trail, which extends from 64-Acre Tract towards and through Tahoe City along the lakefront, and (4) the North Shore Trail, which extends north from the end of Lakeside Trail along Highway 28 to Dollar Hill. The Truckee River Trail, West Shore Trail, and Lakeside Trail all connect and run through the 64-Acre Tract. A detailed discussion of these paths is provided in Section 4.13, “Recreation.”



1	SR 89/ FAIRWAY DR
	20(28) 24(31) FAIRWAY DR ← 41(54) ← 466(613) SR 89 44(58) → 593(780) →

2	SR 89/SR 28 ("EXISTING WYE")
	10(13) 88(89) 23(30) ← 18(21) ← 245(323) ← 275(362) SR 89 35(46) 261(344) 317(417) SR 28 242(318) 58(74) 231(304)

3	SR 28/ GROVE ST
	27(35) GROVE ST ← 28(37) ← 18(21) ← 454(598) ← 13(17) SR 28 21(27) 572(752) 9(12) SR 28 5(7) 14(19)

4	SR 89 / TAVERN SHORES ACCESS
	632(632) SR 89 ← 11(14) ← 8(11) ← 3(4) SR 89 541(712) 2(3)

5	SR 89/ 64 ACRES ACCESS
	23(30) 588(771) 64 ACRES ACCESS SR 89 52(69) 21(27) SR 89 4(6) 510(671)

6	SR 89/ GRANLIBAKKEN RD
	65(85) 527(694) GRANLIBAKKEN RD ← 11(15) ← 2(2) ← 4(5) SR 89 115(151) 2(3) 38(47) SR 89 14(18) 38(51) 3(4)

EXHIBIT 4.15-2**EXISTING (2013) TRAFFIC VOLUMES****WOOD RODGERS
CH2MHILL.**

Fanny Bridge is a popular destination for the attraction of fish viewing and visiting the Gatekeeper's Museum. The sidewalk adjacent to the northbound traffic lane on the bridge is the best location to view the large fish that congregate just upstream of the bridge. The south end of the bridge also provides access to trail heads and bicycle paths in the area. Due to these attractions, there are high levels of pedestrians and bicycles traveling across and along SR 89 at Fanny Bridge. A pedestrian/bicycle bridge downstream of Fanny Bridge, which is part of the overall trail system, does not have the attraction of fish viewing or commercial activity.

According to a study conducted in 2003, approximately 445 pedestrians and 99 bicyclists were observed on Fanny Bridge on a Saturday afternoon during the summer peak visitation period (2:45 p.m. to 3:45 p.m., in August 2002). (Note: the vehicular peak hour is not necessarily the same as the pedestrian/bicyclist peak hour because the vehicular peak hour includes weekday commuter, recreational, and tourist traffic whereas vehicular traffic on Saturdays during the pedestrian/bicyclists peak period most likely includes a lower amount of weekday commuter volume.) The bicycle counts were observed to be approximately equal on the two sides of the bridge, indicating that practically all of the bicycle trips are through trips. However, the pedestrian counts indicated substantial (approximately 70 percent) pedestrian traffic on the sidewalk located on the east side of the bridge, which is a popular location for the attraction of viewing fish. The count data also indicated that approximately 60 percent of the total pedestrians were at the north end, and approximately 45 percent at the south end of the bridge. The count data indicated a pattern of pedestrians walking onto the bridge from the north observing the fish and then returning to the north. This pattern is more prevalent than the similar pattern to/from the south of the bridge (Appendix G).

From bike path counts conducted by TRPA in 2009, approximately 274 bicyclists and 121 pedestrians were observed on a Saturday afternoon during the summer peak visitation period (12:30 p.m. to 1:30 p.m. on August 8, 2009) crossing the bridge on the south side of Truckee River in the picnic area. Tahoe City Public Utility District's 2008 Recreational Survey Results indicated that the number of bicyclists and pedestrians during the peak hour of the peak day observed on Commons Beach was approximately 250 persons. Approximately 20 people were observed on the Lake Forest Ramp/Pomin and approximately 100 on the 64-Acre Tract (Appendix G).

FIELD OBSERVATIONS

During a field study conducted in 2003, large traffic volumes were observed on southbound SR 89 just south of the existing wye on peak summer days between 10 a.m. and 5 p.m., with the peak hour occurring in the mid-afternoon. However, peak volumes in the northbound direction were observed at/around 11 a.m. and 5 p.m., with a drop in traffic volumes between these two peaks. This period of relatively low volume demand north of the bridge corresponds to the observed high period of pedestrian/bicycle activity on Fanny Bridge and the period of traffic queues forming along northbound SR 89 to the south of Fanny Bridge. The observed mid-day "drop" in traffic volumes represents saturated conditions when the outgoing/discharge capacity of SR 89 southbound across Fanny Bridge is lower than the incoming traffic demand level. The key factors responsible for this drop in capacity of SR 89 in the vicinity of Fanny Bridge are as follows (Appendix G):

- ▲ Pedestrian and bicycling activity on the bridge: During the summer peak period from 11 a.m. to 5 p.m. the pedestrian and bicycle traffic activities in the Fanny Bridge vicinity are also at their peak. The sidewalk on Fanny Bridge adjacent to the northbound lane is the most popular spot for pedestrians to watch fish. Drivers on northbound SR 89 react to the presence of large amounts of pedestrian and bicycle traffic adjacent to their travel lane by slowing down significantly. This lower travel speed reduces the vehicular capacity of northbound SR 89. Also, vehicular traffic is frequently required to stop at a pedestrian crossing signal at the south end of the bridge where significant pedestrian and bicycle traffic crosses SR 89. This causes further reduction in SR 89 travel capacity at the south end of the Fanny Bridge. These influences reduce the capacity of Fanny Bridge below that of the SR 89 roadway, so the bridge is effectively the limiting factor in the capacity of this segment of SR 89.
- ▲ Unlimited access for vehicle movements just south of wye intersection: Several atypical roadway features and traffic controls exist at the south end of the wye intersection where the eastbound to

southbound free right-turn lane, Macinaw Street, and parking access on both sides of SR 89 create the potential for a variety of unexpected and uncontrolled traffic movements. This lack of driver expectancy results in further slowing down/stopping of vehicular traffic which leads to decreased capacity on SR 89 at the north end of the bridge.

- ▲ Driver Behavior: Observations taken during a 2003 field study indicate that, under summer peak saturated traffic conditions on SR 89, side-street drivers (from Granlibakken Road, 64 Acres Access, Grove Street etc.) often force their way into the slow-moving through traffic stream on SR 89, or drivers on SR 89 courteously wave side-street drivers ahead of them. This situation wherein side-street traffic gains “priority” over major street traffic as a result of driver yielding behavior is one of the factors in further reducing the traffic capacity of SR 89 through the wye area during peak saturated demand conditions.
- ▲ Unfamiliar Drivers: The areas in the vicinity of Fanny Bridge are generally recreational by use. Some travelers passing through/visiting this area are not familiar with the unique traffic conditions encountered due to large amount of pedestrian/bicycle activity and atypical roadway features at the south end of the wye intersection. The unfamiliar drivers, typically from other regions outside of the project site, generally react to the observed conditions by traveling at slow speeds. The presence of unfamiliar drivers in the traffic stream on the highways through Tahoe City results in a further reduction in the traffic-carrying capacity of these study segments during the summer peak hour.
- ▲ Mid-block Pedestrian Crossing Activity: During summer peak periods, pedestrians frequently cross SR 28 at various locations northeast of the existing wye intersection. When drivers slow down or stop because of pedestrians in the roadway, the through capacity of this roadway segment is reduced and drivers incur delay. The queues that form occasionally extend into the wye intersection.
- ▲ Traffic Operations on SR 28: On some days, the capacity of eastbound SR 28 east of the existing wye intersection is not adequate to handle the summer peak period volume demands. Queuing and slower speeds result. The mid-block pedestrian crossings near Grove Street further exacerbate these conditions. Lack of capacity on this segment of SR 28 contributes to the long queues on northbound SR 89 in the vicinity of Fanny Bridge and the existing wye intersection.

During the summer peak hour conditions, some or all of the above-described factors play a role in reducing the capacity of the study segments. Extremely long vehicular queues result, especially on northbound SR 89 and westbound SR 28. These queues are sometimes so long that they do not dissipate in every signal cycle or within a single peak hour. Thus, the queuing tends to extend through multiple peak-hour periods. Up to approximately 1.43 mile-long traffic queues on northbound SR 89 south of Fanny Bridge and up to 1.46 mile-long traffic queues on westbound SR 28 east of the wye intersection have been observed during the summer peak hour periods(Appendix G) .

It is important to note that the arterial progression evaluation completed in this traffic analysis (using *Synchro/SimTraffic* 8 software) assumes/models random traffic arrival/discharge patterns occurring within the peak hour, and not the actual field-observed saturated traffic arrival/discharge conditions resulting from “un-serviced” residual queues from the prior peak hours. Furthermore, it should also be noted that without an extensive calibration effort, this analysis tool does not adequately account for all of the driver-based field behaviors and human factors previously discussed. Therefore, the observed queuing and congestion in the Tahoe City area is worse than the analysis results indicate in this study. For instance, high levels of pedestrian activity at/near Fanny Bridge and at Grove Street along with driving behavior of out-of-town vacationers typically exacerbate the duration of long queues on the northbound SR 89 and westbound SR 28 approaches to Tahoe City during the peak summer season.

The *Synchro/SimTraffic* software is an industry standard tool for analysis of intersection and roadway operations, respectively. *Synchro* and *SimTraffic* are intended to be used as companion models. *Synchro* is used to first determine macro level LOS and delays at intersections, and then *SimTraffic* is used to simulate real world conditions. While *Synchro* looks at individual intersections independently without the impact of queuing or blocking from downstream intersections, *SimTraffic* measures the full impacts of queuing and

blocking by individually tracking each vehicle in the roadway system and collecting comprehensive measures of effectiveness for them at 0.1-second intervals during the simulation. For the purposes of this arterial roadway segment analysis, the following steps were undertaken to reduce variability in results:

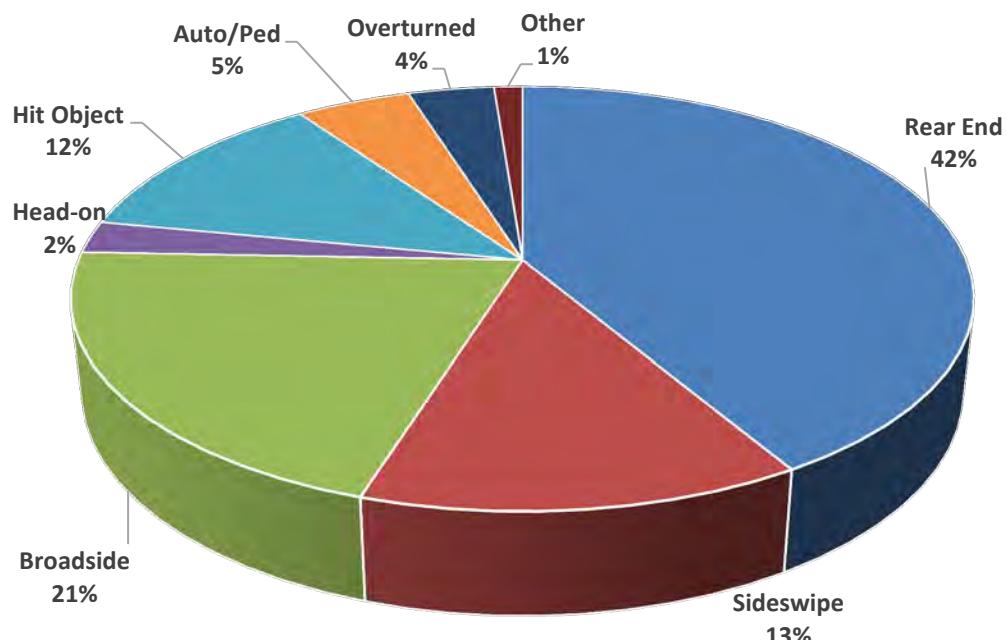
- ▲ Multiple simulation runs (five) were averaged to account for different arrival/discharge patterns.
- ▲ The default SimTraffic seed and recording times of 3 and 10 minutes were increased to 10 and 60 minutes, respectively, for generating more reliable results.

However, a calibration to match real-world conditions was not performed as part of this analysis. Calibrating simulation models is a time-intensive effort that involves multiple data collection efforts across all modes of travel. For instance, the pedestrian/bicyclist activity at the Fanny Bridge signal crossing and other mid-block pedestrian crossings on eastbound SR 28 between the existing wye and Grove Street would have to be counted and entered as model inputs into the *SimTraffic* microscopic analysis tool. After a re-run with these parameters, observed field conditions would then need to be compared with the model outputs to verify the calibration of the model. These steps would be repeated until the results match real-world operating conditions. Microscopic models like *SimTraffic* are resource intensive.

TRAFFIC CRASHES

Crash data were collected for the project roadways for the five-year period of September 1, 2008 through August 31, 2013. During this timeframe, there were a total of 82 reported crashes involving 151 motor vehicles, 7 bicycles, and 5 pedestrians. These 82 crashes occurred at intersections and along roadway segments. Two of the bicycle crashes did not involve a motor vehicle. In only 1 of the 5 pedestrian-involved crashes was the pedestrian in a marked crosswalk (Grove Street). No fatalities were reported during this timeframe within the project study area. Seven of the crashes involved an impaired driver (Appendix G).

Of the 82 reported crashes, 23 resulted in injuries and 59 resulted in property-damage only. As Exhibit 4.15-3 shows, the highest percentage of crashes was of the rear-end type, which is typical for congested traffic conditions. The majority of the broadside crashes were a result of a vehicle making either a left-turn or a U-turn in front of oncoming traffic (Appendix G).



Source: Appendix G

Exhibit 4.15-3 Crash Type Distribution for Study Area, September 1, 2008 – August 31, 2013

Table 4.15-1 shows the number of reported crashes per intersection in the project area. A total of 21 crashes were recorded at intersections during this timeframe. The intersection crashes represent approximately 25 percent of the 82 total crashes reported in the study area. The Grove Street and Commons Beach Road intersections had the highest number of reported crashes.

Table 4.15-1 Intersection Crash Breakdown September 1, 2008 through August 31, 2013

Route	Cross Street	Crashes	Involved			Severity		
			Vehicles	Bicycles	Pedestrians	Fatal	Injury	PDO
SR89	64 Acre Tract Access	2	4				1	1
SR89	Fairway Dr	1	2					1
SR89	Granlibakken Rd	1	2					1
SR28	Grove St	6	12		1		1	5
SR28	SR 89	5	9		1		1	4
SR28	Commons Beach Rd	6	11	1			2	4

Note: PDO indicates property-damage only crashes

Source: Appendix G

Table 4.15-2 shows the number of reported crashes per roadway segment in the project area and the associated crash rate, which is a measure of the number of crashes per one million vehicle miles of travel. SR 28 on the east end of the study area had the highest number of reported crashes and resultant crash rate during this timeframe.

Table 4.15-2 Roadway Segment Crash Breakdown September 1, 2008 through August 31, 2013

Roadway Segments	Total Crashes	Involved			Severity			Crash Rates	
		Vehicles	Bicycles	Pedestrians	Fatal	Injury	PDO	Injury	Total
SR89, Twin Crags to existing wye	6	10					6	0.00	0.419
SR89, Granlibakken Rd to ex. wye	22	37	3	1		8	14	0.620	1.704
SR28, Existing wye to Grove St	33	62	3	2		9	24	0.955	3.500

Notes: PDO indicates property-damage only crashes

Crash rates are based on crashes per 1,000,000 miles traveled

Sources: Crashes are from California Highway Patrol Statewide Integrated Traffic Records System (SWITRS)

Data Compilation and Calculations by CH2M Hill

Source: Appendix G

ANALYSIS METHODS AND ASSUMPTIONS

This section discusses the computer-based simulation tools used and methodologies followed to assess existing LOS (affected environment) and predict future LOS for the roadway segments and intersections in the study area based on the alternatives (environmental consequences). See Appendix G for detailed information.

Analysis Tools. *Synchro/SimTraffic 8* operational analysis software was used to implement the Transportation Research Board's *Highway Capacity Manual, 2010* (HCM-2010) analysis procedures for signalized and unsignalized intersections. Where counts were available, pedestrian crossing volumes are included in the analysis. Signal timings were optimized by *Synchro 8* for all the future No Action versus Action Alternatives. Based on discussions with FHWA Resource Center for Roundabouts and Caltrans staff, a sensitivity analysis of roundabout operations was performed with the *Georgia Department of Transportation Roundabout Analysis Tool* and the *SIDRA* operational analysis tool for four different calibrations across multiple analysis scenarios. Of the four different options, the results from the GDOT Calibrated methodology were chosen to represent the results.

Level of Service. Traffic operations have been quantified through the determination of LOS). LOS is a qualitative measure of traffic operating conditions, whereby a letter grade “A” through “F” is assigned to an intersection or roadway segment, representing progressively worsening traffic operations.

In this analysis, LOS was calculated for all intersection control types using methods documented in HCM-2010. For signalized and all-way-stop-controlled intersections, the intersection delays and corresponding LOS are determined for each approach and the average for the whole intersection. For roundabouts and two-way-stop-controlled intersections, delay and corresponding LOS for each approach was determined with the analysis tools. The delay-based HCM-2010 LOS criteria for signalized and stop-controlled intersections are outlined in Table 4.15-3. For the signalized intersections, the overall projected delay and LOS are reported in this document for the alternatives. For the unsignalized intersections and roundabouts, the results for the approach at each intersection with the highest projected delay / lowest LOS are reported in this document for the alternatives. The existing conditions delay/LOS are reported for each approach. For the condition in which an approach does not exist, diagonal hatch marks are entered into the tables.

The roadway segment analysis uses average travel speed to determine LOS. For this analysis, the average speed as determined from five runs in *SimTraffic* is compared to the free-flow speed of the roadway segment to estimate the percentage of base free-flow speed. Free-flow speed along the roadway segment is calculated based on *Equations 17-2, 17-3, 17-4 and Exhibit 17-11* from the HCM-2010. Table 4.15-4 shows the speed-based LOS threshold for different types of urban street classifications. *SimTraffic* assigns random arrival platoons for each individual model run and the speeds collected over the course of a single hour vary depending on the arrival patterns. Poor operations at downstream intersections can affect the arrival patterns and reduce travel speeds along roadway segments.

Table 4.15-3 LOS Definitions and Criteria for Intersections

LOS	Flow Type	Operational Characteristics	Intersection Control Delay (seconds/vehicle)	
			Signal Control	Roundabouts or Two-Way-Stop or All-Way Stop Control
“A”	Stable Flow	Free-flow conditions with negligible to minimal delays. Excellent progression with most vehicles arriving during the green phase and not having to stop at all. Nearly all drivers find freedom of operation.	≤ 10	0 – 10
“B”	Stable Flow	Good progression with slight delays. Short cycle-lengths typical. Relatively more vehicles stop than under LOS “A.” Vehicle platoons are formed. Drivers begin to feel somewhat restricted within groups of vehicles.	> 10 – 20	> 10 – 15
“C”	Stable Flow	Relatively higher delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear. The number of vehicles stopping is significant, although many still pass through without stopping. Most drivers feel somewhat restricted.	> 20 – 35	> 15 – 25
“D”	Approaching Unstable Flow	Somewhat congested conditions. Longer but tolerable delays may result from unfavorable progression, long cycle lengths, and/or high volume-to-capacity ratios. Many vehicles are stopped. Individual cycle failures may be noticeable. Drivers feel restricted during short periods due to temporary back-ups.	> 35 – 55	> 25 – 35
“E”	Unstable Flow	Congested conditions. Significant delays result from poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures occur frequently. Typically long queues of vehicles waiting upstream of the intersection. Driver maneuverability is very restricted.	> 55 – 80	> 35 – 50
“F”	Forced Flow	Jammed or grid-lock type operating conditions. Generally considered to be unacceptable for most drivers. Zero or very poor progression, with over-saturation or high volume-to-capacity ratios. Several individual cycle failures occur. Queue spillovers from other locations restrict or prevent movement.	> 80	> 50

Source: HCM-2010, Exhibits 18-4 and 19-1

Table 4.15-4 Speed-based LOS Criteria for Roadway/ Highway Segments		
Travel Speed as a Percentage of Base Free-Flow Speed (%)	LOS by Volume to Capacity Ratio*	
	≤1.0	>1.0
>85	A	F
>67-85	B	F
>50-67	C	F
>40-50	D	F
>30-40	E	F
≤30	F	F

Source: HCM-2010, Exhibit 17-2
 * Volume to Capacity ratio of through movement at downstream boundary intersection

The Caltrans' *Guide for the Preparation of Traffic Impact Studies* (dated December 2002) states:

"Caltrans endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" on State highway facilities, however, Caltrans acknowledges that this may not be always feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS."

The *Transportation Concept Reports* for both SR 89 and SR 28 through the study area state that LOS "E" is the 20-year target LOS for these Caltrans facilities. Therefore, the target LOS for this environmental analysis is LOS "E" for roadway segments. For study facilities that fall under local agency jurisdiction, TRPA-defined LOS "D" operations is still used as the minimum acceptable threshold; however, peak hour LOS "E" is regarded as acceptable if the duration of such operations (based on statistical probability) does not exceed four hours per day. These are the intersection target LOS for this environmental analysis. TRPA vehicle LOS standards may be exceeded when provisions for multi-modal amenities and/or services (such as transit, bicycling, and walking facilities) are adequate to provide mobility for users at a level that is proportional to the project-generated traffic in relation to overall traffic conditions on affected roadways.

For this analysis, a general suburban peak hour factor of 0.92 (as recommended by HCM-2010) has been used in the study intersection analyses under all analysis scenarios. Based on a review of Caltrans Average Annual Daily Traffic (AADT) and truck counts for the year 2012, a heavy-vehicle percentage of 7 percent in the peak hour periods was applied to the SR 89 north-south approaches, a 5 percent heavy-vehicle percentage was applied to the SR 28 east-west approaches and a 3 percent peak-hour heavy-vehicle percentage was applied to the local street approaches at the study intersections. The heavy-vehicle percentages mentioned are based on truck AADT volumes and are representative of the average annual traffic conditions. The spike in volumes in the summer peak hour can be primarily attributed to tourist traffic, therefore a downward adjustment of the heavy-vehicle percentage is necessary to accurately represent the vehicular mix in the summer peak conditions. For the purposes of arterial and intersection operational analyses, the above-mentioned average annual heavy-vehicle percentages were conservatively applied to the summer peak analysis scenarios. Because truck operating characteristics differ from those of passenger vehicles in that they accelerate/decelerate more slowly, a higher number of trucks that results from a conservative percentage could project lower LOS and higher delay at intersections and along roadway segments in the study area.

EXISTING ROADWAY SEGMENT AND INTERSECTION LEVELS OF SERVICE

Table 4.15-5a shows estimated peak hour arterial/highway directional segment operations for 2013 traffic volume conditions (refer to Exhibit 4.15-2) for the segments that will be analyzed for the various alternatives. These LOS are the baseline condition for the roadway segment analysis. As shown in Table 4.15-5a, the study arterial segments are estimated to have operated at LOS "C" or better during both annual average and summer peak hour volume conditions. As noted in the Field Conditions section, Fanny Bridge has a lower

capacity than the segment of SR 89 between the existing wye intersection and Granlibakken Road. The effects of this pinch point are a lower average travel speed and LOS experienced by motorists, particularly during the summer peak hour.

Table 4.15-5a Existing Conditions Arterial Segment Traffic Operations

Arterial Segment	Direction	2013 Volumes			
		Annual Average Peak Hour		Summer Peak Hour	
		Speed	LOS	Speed	LOS
SR 89 - between Twin Crags Way and existing wye intersection	EB	24.6	B	19.3	C
	WB	20.9	C	20.3	C
SR 89 - between existing wye intersection and Granlibakken Rd	NB	21.7	C	20.9	C
	SB	21.7	C	19.9	C

Notes: 1. Speed = Average Travel Speed in miles per hour; EB = Eastbound; WB = Westbound; NB = Northbound; LOS = Level of Service

2. Study arterial segments are Class III Arterials based on 2010 Highway Capacity Manual, Two-Lane Highways.

3. Free flow speeds of 35-37 miles per hour were calculated based on HCM 2010.

4. LOS is likely worse for the SR 89 segment between the existing wye intersection and Granlibakken Road than shown in this table.

Source: Appendix G

Tables 4.15-5b and 4.15-5c show the estimated signalized and unsignalized intersection operations under 2013 volume conditions. These LOS are the baseline condition for the intersection analysis. As shown in Table 4.15-5b, the existing wye overall is estimated to have operated at an acceptable LOS “D” or better during both annual average and summer peak hour volume conditions.

At the unsignalized intersections, the uncontrolled movements on SR 89 and SR 28 are estimated to operate at high LOS. However, the stop-controlled side street approaches are estimated to have experienced significant delay and low LOS due to a lack of adequate gaps in the through traffic streams on the state routes. The delays are estimated to have been greater during the summer peak than the average annual peak hour. The previous discussion about the field conditions explains the low throughput capacity of SR 89 due to pedestrian/bicyclist activity at/near Fanny Bridge.

4.15.3 Environmental Consequences and Mitigation Measures

TRAFFIC FORECAST METHODS AND ASSUMPTIONS

This section discusses the development of the volume forecasts used in the roadway and intersection operational analysis. The previous section discussed the computer-based simulation tools used to predict future LOS for the roadway segments and intersections in the study area based on the alternatives.

For traffic operations analysis purposes, it is anticipated and assumed at this time that the SR 89/Fanny Bridge Community Revitalization Project would initiate construction by 2015 and would fully complete construction and be opened to the public by 2018. As discussed previously, the 2013 traffic counts and forecasts are used to illustrate existing conditions. The proposed project and project alternatives would not result in the generation of new traffic trips in the study area; therefore “existing plus project” conditions for this analysis does not address the addition of project traffic onto existing conditions but rather addresses the traffic effects of the redistribution of existing and forecasted traffic in the study area due to implementation of the project alternatives. In order to do so, the traffic analysis developed 2018 forecasted traffic volumes and distributions, and 2038 future conditions. Roadway segment and intersection operations for the action alternatives are discussed in relation to the No Action (Alternative 5) scenario.

Table 4.15-5b Existing Conditions Signalized Intersection Traffic Operations

Intersection	Peak Hour	Analysis Method	Calibration	By Approach								Intersection	
				Southbound		Westbound		Northbound		Eastbound			
				LOS	Average Delay	LOS	Average Delay	LOS	Average Delay	LOS	Average Delay	LOS	Average Delay
SR 89 / SR 28 (existing wye)	Average Annual	Synchro	HCM 2010	C	25.7	C	22.7	C	26.5	C	27.7	C	25.1
	Summer			C	33.2	C	32.0	D	50.8	D	35.8	D	37.5

Note: Delay in seconds per vehicle

Source: Appendix G

Table 4.15-5c Existing Conditions Signalized Intersection Traffic Operations

Intersection	Peak Period	Analysis Method	Calibration	By Approach								Intersection	
				Southbound		Westbound		Northbound		Eastbound			
				LOS	Average Delay	LOS	Average Delay	LOS	Average Delay	LOS	Average Delay	LOS	Average Delay
SR 89 / Fairway Dr	Average Annual	Synchro	HCM 2010	C	15.6	A	0.0					A	8.8
	Summer			C	20.8	A	0.0					A	9.5
SR 28 / Grove St	Average Annual	Synchro	HCM 2010	E	39.7	A	9.5	C	24.2	A	9.0		
	Summer			F	144.2	B	10.3	E	42.8	A	9.7		
SR 89 / Tavern Shores Access Rd	Average Annual	Synchro	HCM 2010	A	8.8	C	16.2	A	0.0				
	Summer			A	9.5	C	22.9	A	0.0				
SR 89 / 64 Acres Recreational Access Rd	Average Annual	Synchro	HCM 2010	A	0.0					A	8.9	D	30.3
	Summer			A	0.0					A	9.7	F	97.7
SR 89 / Granlibakken Rd	Average Annual	Synchro	HCM 2010	A	8.3	C	16.2	A	8.7	F	57.8		
	Summer			A	8.7	C	23.0	A	9.4	F	415.0		

Note: Delay in seconds per vehicle

Source: Appendix G

The LOS results presented in this section represent the best available information based upon modeling efforts. Actual, opening day and design year conditions may differ from those projected because the required model calibration effort to accurately simulate random, mid-block pedestrian crossings and queues that do not discharge within the peak hour was not undertaken as part of this traffic analysis. For example, the models cannot adequately account for pedestrian/bicyclist crossing activity at the at-grade crosswalk on the south end of the bridge. The pedestrian signal at this location has been observed to cause delay for motorists on this existing segment of SR 89, particularly during the peak summer hour, as they stop when the pedestrian signal is actuated. More delay is experienced in the summer peak periods on the northbound SR 89 approach to the existing wye intersection than predicted, due to turbulence in the traffic stream associated with uncontrolled movements and unexpected situations likely to be encountered with multiple access points and high volumes of pedestrians/bicyclists.

To develop “project opening day” (i.e. 2018) traffic forecasts for study facilities, the year 2010 traffic forecasts, as published in the Draft SR 89 Realignment Project Traffic Study, were reviewed. Per discussions with TRPA staff, this traffic study updates the status of all approved / pending development projects. These approved / pending development projects are listed as follows:

- ▲ Village at Squaw Valley: This proposed development project is currently being reviewed by Placer County and has not yet been approved. Therefore, traffic generated by this project was not included for the purpose of forecasting opening day conditions.
- ▲ Lake of the Sky (LOTS) Interpretive Center: This development project was approved over a decade ago. Because it is not funded and not planned for construction at this time, the traffic generated by this project was not included for the purpose of forecasting opening day conditions.
- ▲ 64-Acre Recreational Tract Intermodal Center: This project is constructed and volumes in / out of the development project were captured in the 2013 traffic counts.

In addition to the above-mentioned approved/pending development projects, a new development (Homewood Ski Resort) is projected to be completed by 2018. Based on discussions with TTD/TRPA/CFLHD/Caltrans staff, traffic generated by this development is included in opening day conditions.

Year 2018 traffic forecasts for project site facilities were estimated by incrementally adding the following two components to the base year (2013) traffic count database:

- ▲ A general background traffic growth rate of 0.5 percent per year compounded over 5 years. Note: The 0.5% annual growth rate is an interpolated rate estimated based on review of cumulative long-term growth rates and was agreed among the lead agencies based on a review of historical data and development projections).
- ▲ Homewood Ski Resort: The traffic volumes associated with this development project were drawn from the *Homewood Mountain Resort Ski Area Master Plan EIR/EIS*.

Based on the above estimates, an overall growth in study area site traffic of approximately 3 percent is projected between the baseline (2013) and project opening day (2018) conditions. This is a lower estimate than the 5 to 10 percent growth projected by the 2012 RTP. The 0.5 percent annual growth rate for the years 2018 through 2038 was agreed among the lead agencies based on a review of historical data and development projections. Exhibit 14.5-4 shows the opening year traffic volumes for the study area roadway segments and intersections. These volumes were redistributed as necessary to determine the appropriate volumes for each action alternative. The redistribution is based on turn and through movement percentages at each intersection that were determined during previous traffic studies and based on discussions with local agencies. To develop “20-year planning horizon” (i.e. 2038) traffic forecasts for study area segments and intersections, the annual background traffic growth rate of 0.5 percent per year was applied to the 2018 volumes. Exhibit 4.15-10 shows these volumes.

To determine whether LOS E intersection operations occur for more than four hours, hourly traffic volume data were obtained from Caltrans' PeMS database (<http://pems.dot.ca.gov/>) for a Friday in August, 2011 for SR 89. On the segment 0.3 miles south of the existing wye, the 5th highest travel hour carried about 8 percent less traffic than the highest travel hour.

SIGNIFICANCE CRITERIA

NEPA Criteria

An environmental document prepared to comply with NEPA must consider the context and intensity of the environmental effects that would be caused by or result from the proposed action. Under NEPA, the significance of an effect is used solely to determine whether an EIS must be prepared. The *Transportation Concept Reports* for both SR 89 and SR 28 through the study area state that LOS "E" is the 20-year target LOS for these Caltrans facilities. Therefore, the target LOS for this environmental analysis is LOS "E" for roadway segments.

TRPA Criteria

The "Transportation/Circulation" criteria from the TRPA Initial Environmental Checklist for Determination of Environmental Impact were used to evaluate the transportation impacts of the alternatives for TRPA compliance. According to the check, the project would result in a significant impact if it would:

- ▲ generate 100 or more new DVTE during operation;
- ▲ change existing parking facilities, or demand for new parking;
- ▲ substantially impact existing transportation systems, including highway, transit, bicycle, or pedestrian facilities;
- ▲ alter present patterns of circulation or movement of people and/or goods;
- ▲ alter waterborne, rail, or air traffic; or
- ▲ increase in traffic hazards to motor vehicle drivers/passengers, bicyclists, or pedestrians.

For study intersections that fall under local agency jurisdiction, TRPA-defined LOS "D" operations is still used as the minimum acceptable threshold; however, peak hour LOS "E" is regarded as acceptable if the duration of such operations (based on statistical probability) does not exceed four hours per day. TRPA vehicle LOS standards may be exceeded when provisions for multi-modal amenities and/or services (such as transit, bicycling, and walking facilities) are adequate to provide mobility for users at a level that is proportional to the project-generated traffic in relation to overall traffic conditions on affected roadways.

CEQA Criteria

Based on Appendix G of the state CEQA Guidelines, an alternative would have a significant impact on traffic and transportation if it would:

- ▲ conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit;
- ▲ conflict with an applicable congestion management program, including, but not limited to, LOS standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways;
- ▲ result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- ▲ substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- ▲ result in inadequate emergency access; or

- ▲ conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

ISSUES NOT WARRANTING DETAILED EVALUATION

The action alternatives propose options to meet the project purpose and need, including designs that would reduce congestion and improve the safety and operations of the SR 89/28 wye intersection. Because the project involves improvements to existing transportation infrastructure, no new daily trips are anticipated to occur as a result of implementation of the proposed project. Thus, the generation of new DVTE would not occur with project implementation and this topic is not discussed further in the EIR/EIS/EA.

No alternative would result in increasing, creating, or interfering with waterborne, rail traffic, or air traffic. The project alternatives would have no impact on waterborne or rail traffic and these issues are not discussed further in the EIR/EIS/EA. Recreational rafting is discussion in Section 4.13, "Recreation." Construction-related and long-term emergency access effects are addressed in Section 4.12, "Public Services and Utilities."

None of the action alternative would install sharp curves or dangerous intersections, or result in incompatible uses such as farm equipment. Thus, impacts related to increased hazards due to a design feature are not discussed further in the EIR/EIS/EA.

Please refer to Appendix D for an analysis of the project alternatives' ability to meet TRPA goals and policies.

Issues related to parking are discussed in Section 4.13, "Recreation."

ENVIRONMENTAL EFFECTS OF THE PROJECT ALTERNATIVES

Impact 4.15-1. Roadway segment operations.

The project would not generate additional vehicle trips; rather it would implement improvements to existing transportation infrastructure. For Alternatives 1 through 4, SR 89 would be realigned through the 64-Acre Tract; and under Alternatives 6 and 6a, the existing SR 89 roadway alignment would remain the same as existing conditions. The wye would be modified for all action alternatives. Under the 2018 conditions, Alternatives 1, 2, 3, 4, 6, and 6a would result in acceptable roadway-segment LOS during the peak hours. Under the 2038 conditions, Alternatives 1, 4, 6, and 6a would maintain acceptable roadway segment LOS; however, under Alternatives 2 and 3, the westbound approach to the New SR 89/28 intersection would not provide acceptable roadway-segment LOS for the westbound segment between the western roundabout and existing wye. Thus, Alternatives 1, 4, 6, and 6a would result in **less-than-significant** roadway segment operations in 2018 and 2038; and Alternatives 2 and 3 would result in **less-than-significant** roadways segment operations in 2018 and **significant** impacts in 2038. Because no modifications would occur under Alternative 5, there would be **no impact**.

The roadway segments in the Tahoe Region serve an important function for residents and visitors alike to provide local and regional mobility. Roadways are subject to the LOS policies of local, Regional, and state agencies. Degraded roadway operations can result in a variety of adverse effects including congestion, unacceptable delay, increased vehicle emissions, and unsafe driver behavior. Impacts associated with two future conditions are provided: 2018, which represents opening day; and 2038, which provides the 20-year outlook. As noted in the discussion about the modeling tools used for this analysis, the capacity limitations imposed by Fanny Bridge and the random mid-block pedestrian crossings known to occur in the study area likely would result in lower average travel speeds and LOS than presented in the following tables.

In the following tables for Alternatives 1 through 4, the relocated segment of SR 89 is referenced with a northbound/southbound direction. The northbound direction is toward the western roundabout and the southbound direction is toward the eastern roundabout. This nomenclature allows for a direct comparison to

the existing SR 89 segment which is referenced as northbound/southbound. All delay is represented by average seconds per vehicle. The source for all the data in the tables is available in Appendix G.

The No Action Alternative is used as a baseline point of comparison to describe impacts under the action alternatives. For Alternatives 1 through 4, the existing SR 89 segment between the existing wye intersection and Granlibakken Road is compared to the relocated segment of SR 89 between the new SR 89/28 intersection and the new intersection between existing SR 89 and this relocated segment. The existing SR 89 segment between Twin Crags Way and the existing wye intersection is compared to two segments: one is between Twin Crags Way and the new SR 89/28 intersection and the other is between the new SR 89/28 intersection and the existing wye intersection (referred to as New SR 28). Because SR 89 would not be realigned under Alternatives 6 and 6a, this analysis directly compares SR 89 segments between the wye intersection and Granlibakken Road and between Twin Crags Way and the existing wye intersection.

2018, Opening Day

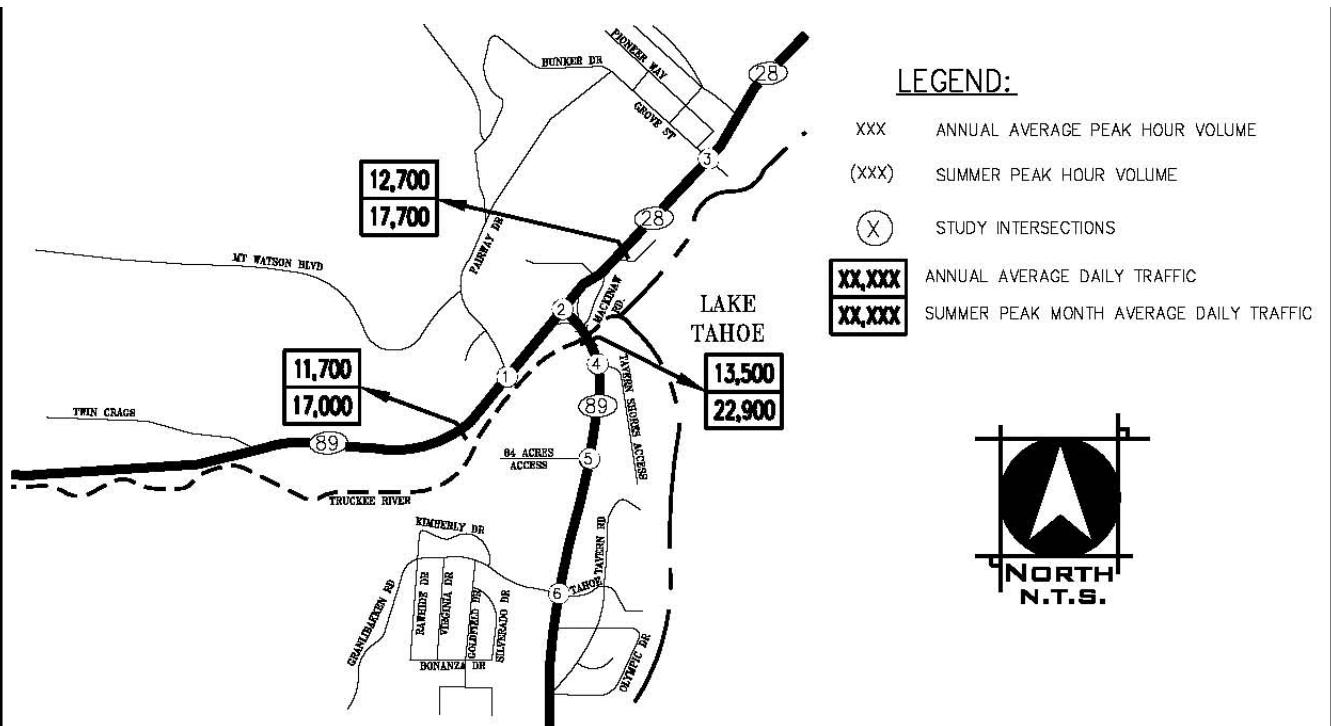
This subsection discusses the projected roadway segment operations for the alternatives in 2018. Exhibit 14.5-4 shows the projected opening day peak hour and daily traffic volumes in the study area for the No Action Alternative in 2018. The exhibits in the 2018 roadway segment section show the projected segment volumes for the annual average and summer peak month periods. Table 4.15-6 summarizes 2018 projected roadway segment traffic operations under all of the project alternatives. The table shows the projected average travel speed in miles per hour and the associated LOS by direction for each segment.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

Exhibit 4.15-5 shows the study area volumes associated with Alternative 1 in 2018. As shown in Table 4.15-6, the roadway segments are projected to operate at acceptable LOS during both peak hours with existing capacity configurations (i.e., as shown for Alternative 5, the No Action Alternative). Both the SR 89 segment between Twin Crags Way and the new SR 89/28 intersection and the new SR 28 segment between this intersection and the existing wye are projected to operate at the same LOS in both directions as under the No Action Alternative. The relocated SR 89 segment (between the western and eastern roundabouts) is projected to operate at the same LOS in the northbound direction toward SR 28 during both peak hours as compared to the existing alignment under the No Action Alternative (between the existing wye and Granlibakken Road). Along this same segment between the western and eastern roundabouts, the southbound projected travel speed and associated LOS is lower during the summer peak hour than the No Action Alternative. The operations at the eastern roundabout could contribute to the projected average speed reduction. The projected LOS for the existing segment of SR 89 between the wye and Granlibakken Road is the same for Alternative 1 as under the No Action Alternative. Thus, because LOS segment operations would remain at acceptable levels, implementation of Alternative 1 would result in a **less-than-significant** impact.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Exhibit 4.15-6 shows the study area volumes associated with Alternative 2 in 2018. As shown in Table 4.15-6, the roadway segments are projected to operate at acceptable LOS during both peak hours with existing capacity configurations. Both the SR 89 segment between Twin Crags Way and the new SR 89/28 intersection and the new SR 28 segment between this intersection and the existing wye are projected to operate at the same LOS in both directions as under the No Action Alternative during the annual average peak hour. In the summer peak hour, the projected average travel speed on new SR 28 in the westbound direction (toward the new SR 89/28 intersection) is projected to be lower than the speed projected under the No Action Alternative. This result could be attributed to the western roundabout operations under Alternative 2. The relocated SR 89 segment between the western and eastern roundabouts is projected to operate at the same LOS as compared to the existing alignment between the wye and Granlibakken Road under the No Action Alternative. Thus, because LOS segment operations would remain at acceptable levels, implementation of Alternative 2 would result in a **less-than-significant** impact.



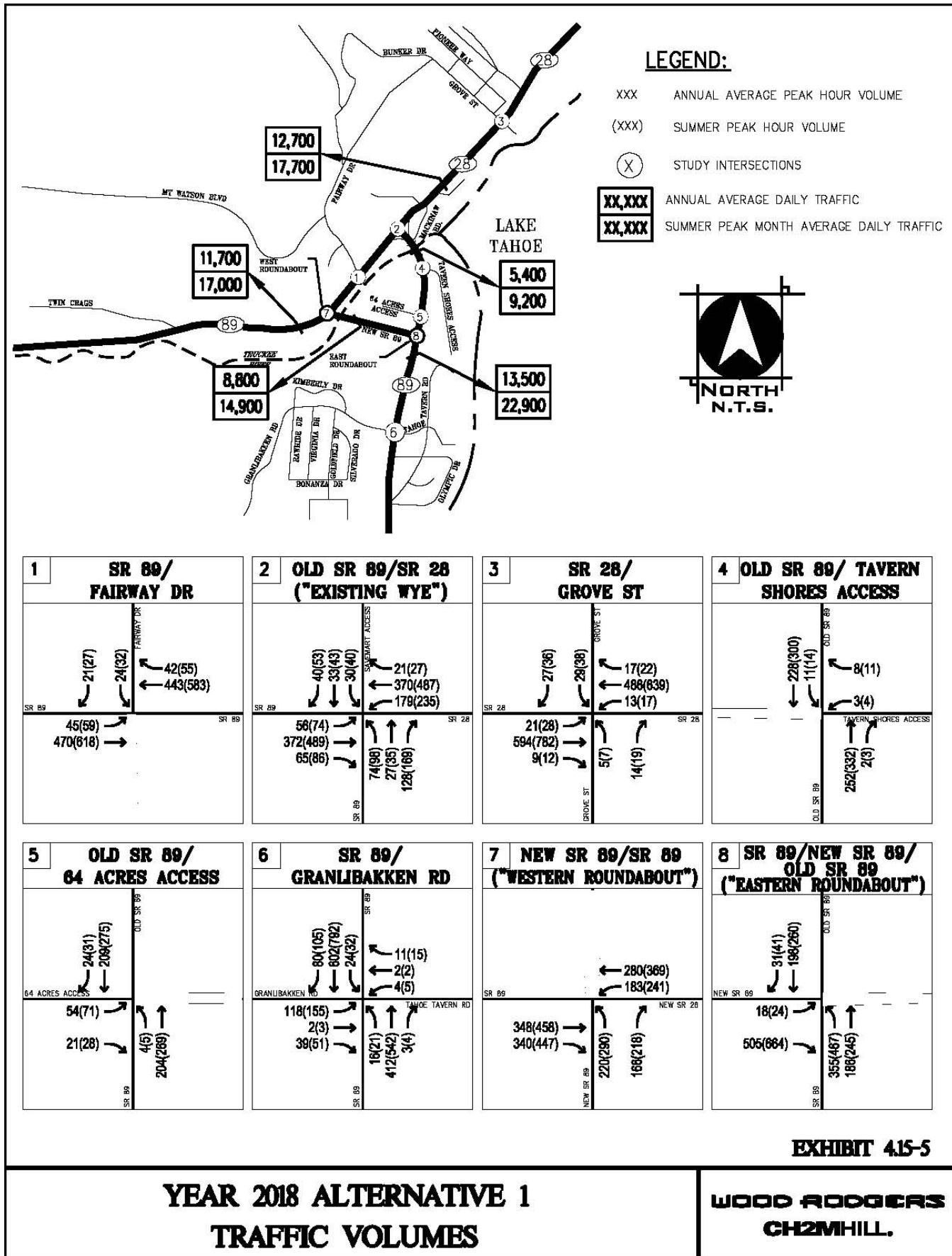
1	SR 89/ FAIRWAY DR	2	SR 89/SR 28 ("EXISTING WYE")	3	SR 28/ GROVE ST	4	SR 89/ TAVERN SHORES ACCESS
	21(27) 24(32) FAIRWAY DR 42(55) 483(635) SR 89 45(59) 643(846)	10(13) 89(91) 24(31) 302(397) SR 89 36(47) 268(353) 360(474) SR 89 253(333) 58(76) 245(323)	17(22) 252(331) SR 28 13(17) 21(28) 594(782) 9(12) SR 28 5(7) 14(19)	27(36) 29(38) GROVE ST 17(22) 486(639)	13(17) SR 28 8(11) 3(4) SR 28 568(748) 2(3)		

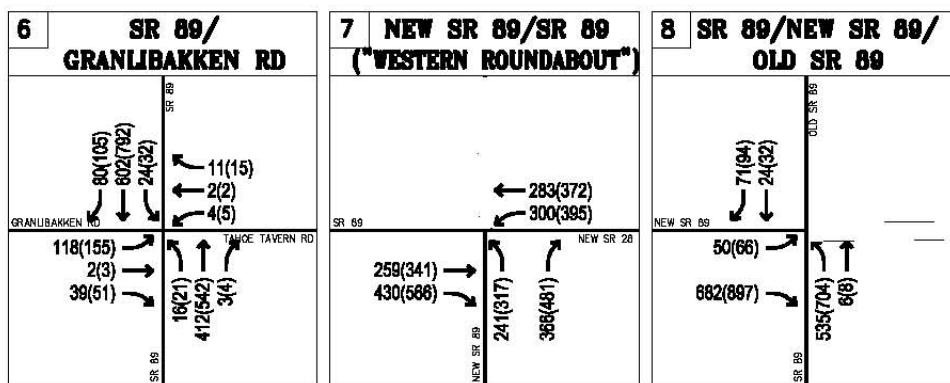
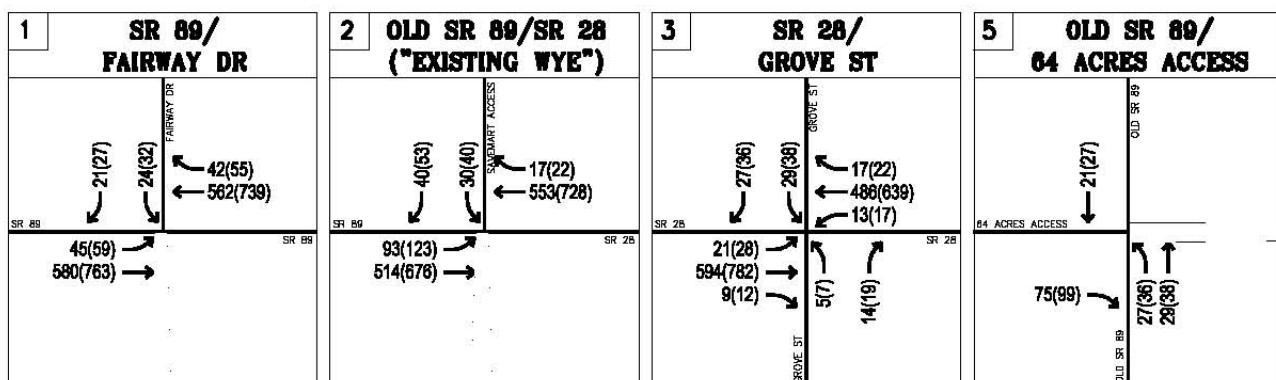
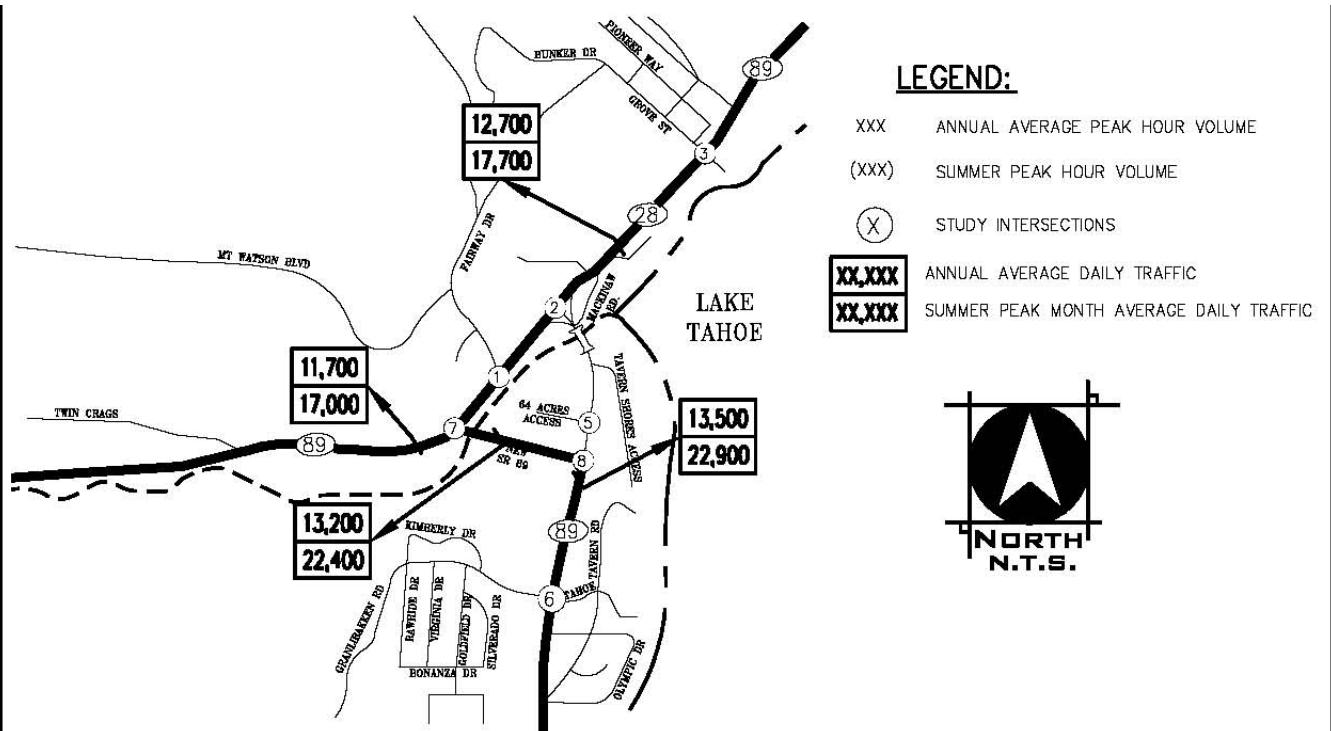
5	SR 89/ 64 ACRES ACCESS	6	SR 89/ GRANLIBAKKEN RD
	24(31) 608(801) SR 89 54(71) 21(28) SR 89 4(6) 537(706)	68(87) 598(784) 16(21) SR 89 118(155) 2(3) 39(51) SR 89 16(21) 412(542) 3(4)	11(15) 2(2) 4(5) SR 89 16(21) 412(542) 3(4)

EXHIBIT 4.15-4

**YEAR 2018 NO BUILD
TRAFFIC VOLUMES**

**WOOD RODGERS
CH2MHILL.**



**EXHIBIT 4.15-6**

**YEAR 2018 ALTERNATIVE 2
TRAFFIC VOLUMES**

**WOOD RODGERS
CH2MHILL.**

Table 4.15-6 2018 Roadway Segment Traffic Operations for all Alternatives

Arterial Segment	Direction	Alternative 5 (No Action)		Alternative 1		Alternative 2		Alternative 3		Alternative 4		Alternative 6		Alternative 6A	
		Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS
Annual Average Peak Hour															
SR 89 – between Twin Crags Way and existing wye intersection	EB	19.0	C	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	17.9	C	17.9	C
	WB	20.8	C	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	20.7	C	20.7	C
SR 89 – between Twin Crags Way and New SR 89/28 intersection (Western Roundabout for Alts 1,2,3 or signal for Alt 4)	EB	N/A	N/A	21.8	C	22.0	C	22.0	C	21.6	C	N/A	N/A	N/A	N/A
	WB	N/A	N/A	19.0	C	19.5	C	19.5	C	23.3	C	N/A	N/A	N/A	N/A
New SR 28 – between New SR 89/28 intersection (Western Roundabout for Alts 1,2,3 or signal for Alt 4) & existing wye intersection	EB	N/A	N/A	19.3	C	22.7	C	20.3	C	20.8	C	N/A	N/A	N/A	N/A
	WB	N/A	N/A	21.0	C	21.3	C	20.0	C	20.5	C	N/A	N/A	N/A	N/A
SR 89 – between existing wye intersection and New SR 89/existing SR 89 intersection (Eastern Roundabout) for Alt 1 or between existing wye intersection and Granlibakken Rd for Alts 5, 6, 6a	NB	21.6	C	23.5	C	N/A	N/A	N/A	N/A	N/A	N/A	21.4	C	21.4	C
	SB	20.0	C	23.5	C	N/A	N/A	N/A	N/A	N/A	N/A	20.0	C	20.0	C
New SR 89 – between New SR 89/28 intersection (Western Roundabout for Alts 1,2,3 or signal for Alt 4) & New SR 89/existing SR 89 intersection (Eastern Roundabout for Alts 1,2,3 or Granlibakken Rd for Alts 4)	NB	N/A	N/A	23.7	C	21.3	C	20.7	C	18.3	D	N/A	N/A	N/A	N/A
	SB	N/A	N/A	22.0	C	22.3	C	22.3	C	19.3	C	N/A	N/A	N/A	N/A
Summer Peak Hour															
SR 89 – between Twin Crags Way and existing wye intersection	EB	18.1	C	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	17.2	D	17.2	D
	WB	20.6	C	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	20.1	C	20.1	C
SR 89 – between Twin Crags Way and New SR 89/28 intersection (Western Roundabout for Alts 1,2,3 or signal for Alt 4)	EB	N/A	N/A	21.8	C	21.2	C	21.2	C	20.2	C	N/A	N/A	N/A	N/A
	WB	N/A	N/A	19.3	C	19.3	C	19.5	C	23.3	C	N/A	N/A	N/A	N/A
New SR 28 – between New SR 89/28 intersection (Western Roundabout for Alts 1,2,3 or signal for Alt 4) & existing wye intersection	EB	N/A	N/A	19.0	C	22.3	C	20.0	C	20.5	C	N/A	N/A	N/A	N/A
	WB	N/A	N/A	18.8	C	13.3	E	16.3	D	19.5	C	N/A	N/A	N/A	N/A
SR 89 – between existing wye intersection and New SR 89/existing SR 89 intersection (Eastern Roundabout) for Alt 1 or between existing wye intersection and Granlibakken Rd for Alts 5, 6, 6a	NB	20.9	C	23.5	C	N/A	N/A	N/A	N/A	N/A	N/A	20.6	C	20.6	C
	SB	19.1	C	23.8	C	N/A	N/A	N/A	N/A	N/A	N/A	19.9	C	19.9	C
New SR 89 – between New SR 89/28 intersection (Western Roundabout for Alts 1,2,3 or signal for Alt 4) & New SR 89/existing SR 89 intersection (Eastern Roundabout for Alts 1,2,3 or Granlibakken Rd for Alt 4)	NB	N/A	N/A	22.0	C	20.0	C	17.0	D	18.0	D	N/A	N/A	N/A	N/A
	SB	N/A	N/A	16.0	D	19.7	C	21.3	C	18.3	D	N/A	N/A	N/A	N/A

Notes: 1. Speed = Average Travel Speed in miles per hour, EB = Eastbound, WB = Westbound, NB = Northbound, LOS = Level of Service

2. Study arterial segments are Class III Arterials based on 2010 Highway Capacity Manual, Two-Lane Highways.

3. Free flow speeds of 35-37 mph were calculated based on HCM 2010.

4. LOS Source: 2010 Highway Capacity Manual, Urban Street Segments.

5. Speed is represented in miles per hour.

6. LOS is likely worse for the SR 89 segment between the existing wye intersection and Granlibakken Road than shown in this table.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Exhibit 4.15-7 shows the study area volumes associated with Alternative 3 in 2018. As shown in Table 4.15-6, the roadway segments are projected to operate at acceptable LOS during both peak hours with existing capacity configurations. Both the SR 89 segment between Twin Crags Way and the new SR 89/28 intersection and the new SR 28 segment between this intersection and the existing wye are projected to operate at the same LOS in both directions as under the No Action Alternative during the annual average peak hour. In the summer peak hour, the projected average travel speed on new SR 28 in the westbound direction (toward the new SR 89/28 intersection) is projected to be lower than the speed projected under the No Action Alternative. This result could be attributed to the western roundabout operations under Alternative 3. The relocated SR 89 segment between the western and eastern roundabouts is projected to operate at the same LOS as compared to the existing alignment between the wye and Granlibakken Road during the annual average peak hour as under the No Action Alternative. Like the new SR 28 westbound segment, the average speed in the northbound direction of the relocated SR 89 segment (toward the new SR 89/28 intersection) is projected to be lower than the speed projected under the No Action Alternative. This result could be attributed to the western roundabout operations under Alternative 3. Thus, because LOS segment operations would remain at acceptable levels, implementation of Alternative 3 would result in a **less-than-significant** impact.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Exhibit 4.15-8 shows the study area volumes associated with Alternative 4 in 2018. As shown in Table 4.15-6, the roadway segments are projected to operate at acceptable LOS during both peak hours with existing capacity configurations. Both the SR 89 segment between Twin Crags Way and the new SR 89/28 intersection and the new SR 28 segment between this intersection and the existing wye are projected to operate at the same LOS in both directions as under the No Action Alternative during both peak hours. The relocated SR 89 segment through the 64-Acre Tract is projected to operate with slower average travel speeds as compared to the existing location under the No Action Alternative during both peak hours. This could be attributed to operations at the western roundabout. Thus, because LOS segment operations would remain at acceptable levels, implementation of Alternative 4 would result in a **less-than-significant** impact.

ALTERNATIVE 5: NO ACTION

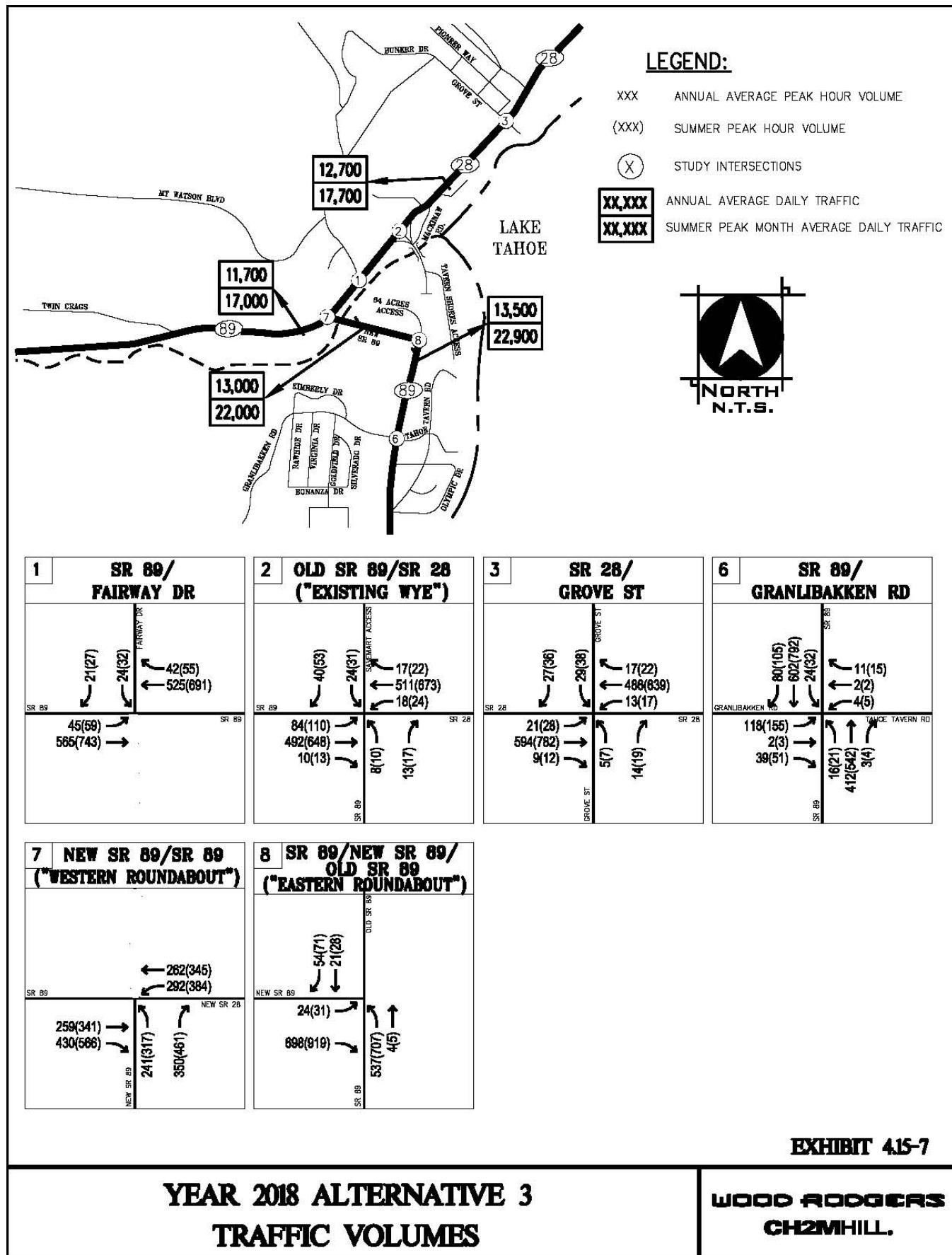
Exhibit 4.15-4 shows the study area volumes associated with the No Action Alternative in 2018. Under Alternative 5, there would be no changes to the roadways in the study area. Thus, there would be **no** impact.

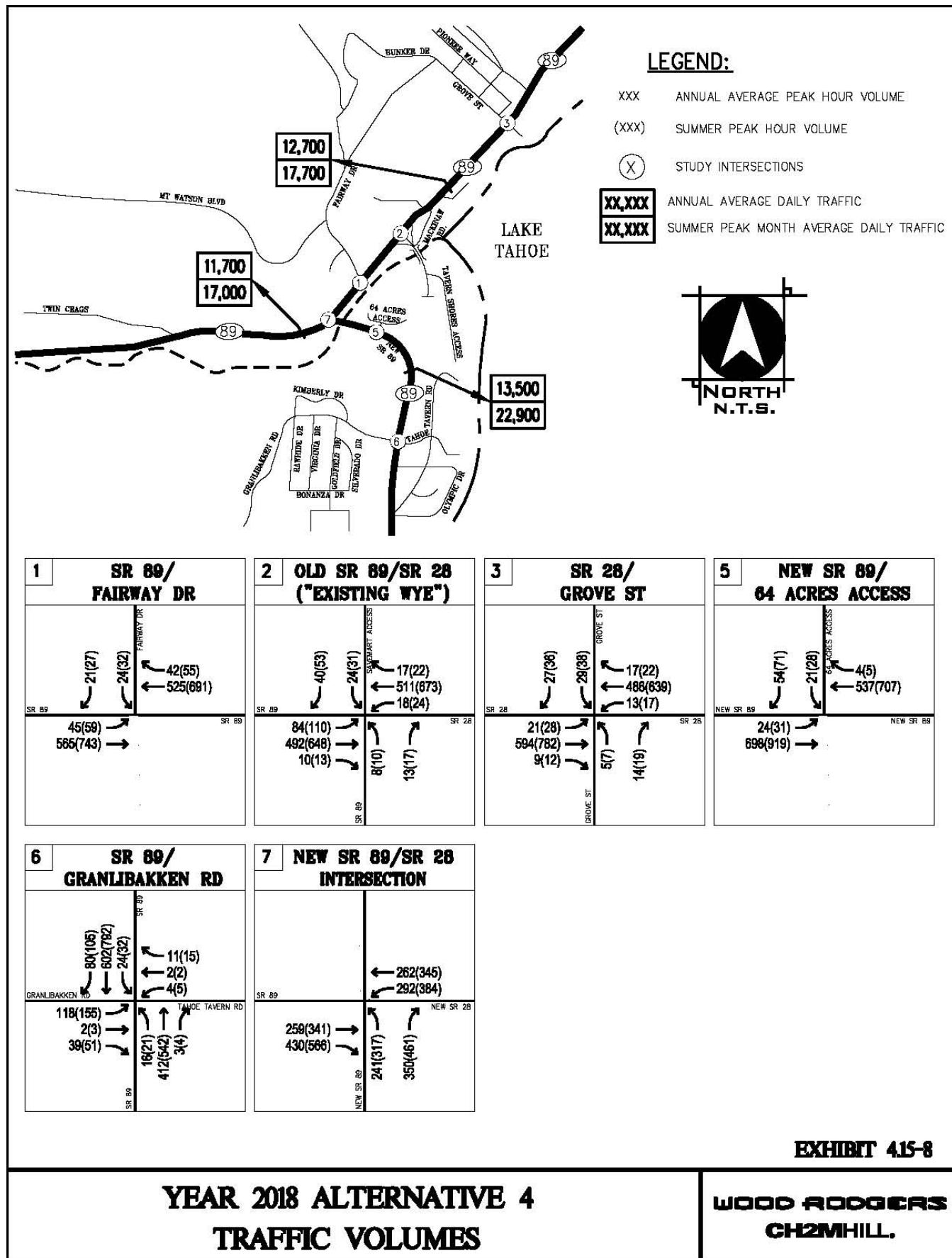
ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

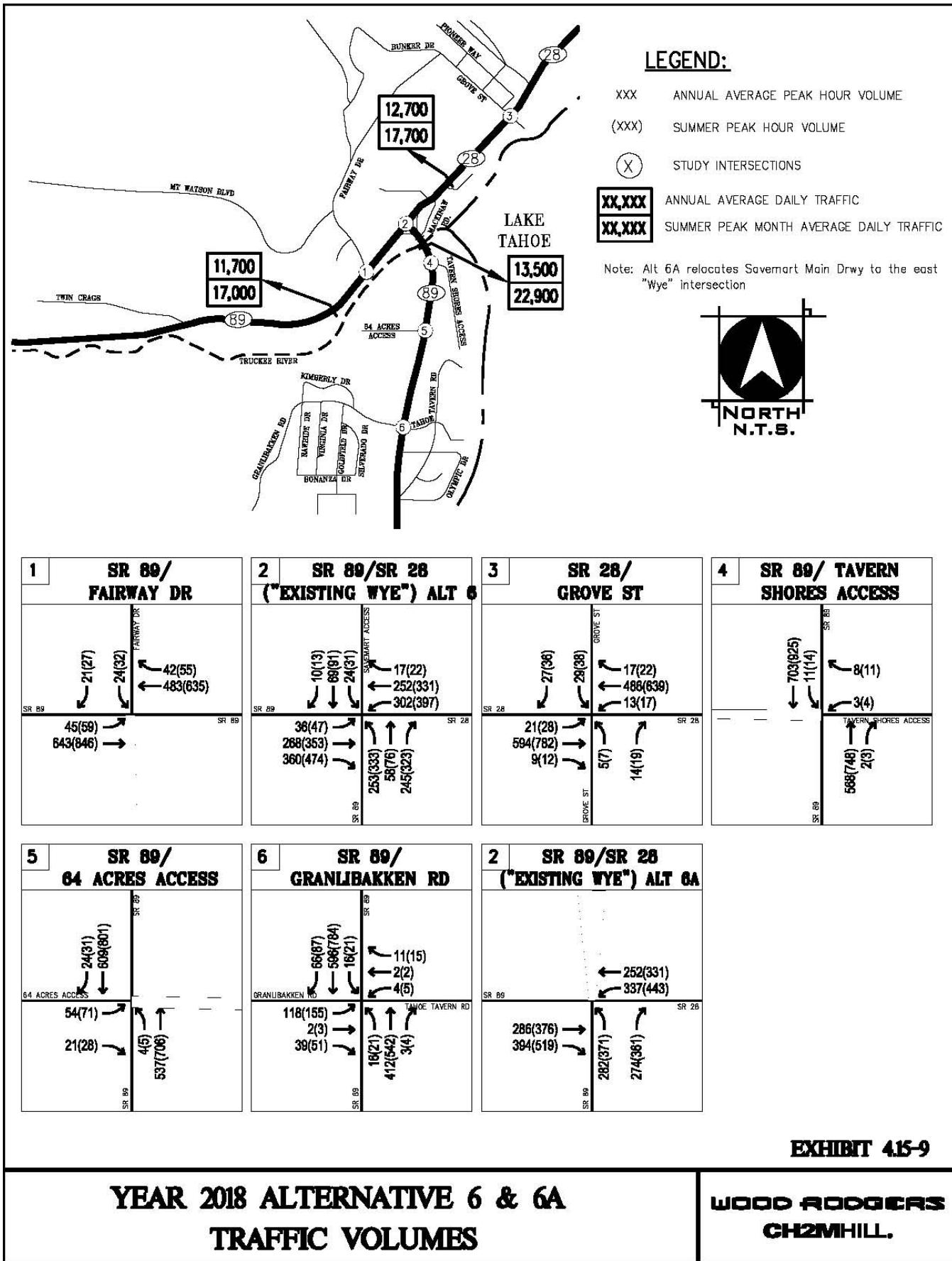
Exhibit 4.15-9 shows the study area volumes associated with Alternative 6 in 2018. As shown in Table 4.15-6, the roadway segments are projected to operate at acceptable LOS during both peak hours with existing capacity configurations. The projected LOS for this alternative during both peak hours is the same as projected under the No Action Alternative. Thus, because LOS segment operations would remain at acceptable levels, implementation of Alternative 6 would result in a **less-than-significant** impact.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Projected roadway segment operations for Alternative 6a are the same as described above for Alternative 6. Thus, because LOS segment operations would remain at acceptable levels, implementation of Alternative 6a would result in a **less-than-significant** impact.







2038, 20-Year Planning Horizon

This subsection discusses the projected roadway segment operations for the alternatives in 2038. Exhibit 4.15-10 shows the projected peak hour and daily traffic volumes in the study area for the No Build condition in year 2038. The exhibits in the 2038 roadway segment section show the projected segment volumes for the annual average and summer peak month periods. Table 4.15-7 summarizes 2038 projected roadway segment traffic operations under all of the project alternatives. The table shows the projected average travel speed in miles per hour and the associated LOS by direction for each segment. As previously noted, the projected speeds and LOS shown in these tables may be higher than the conditions that would be encountered by motorists due to the influencing factors of mid-block pedestrian crossings.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

Exhibit 4.15-11 shows the study area volumes associated with Alternative 1 in 2038. As shown in Table 4.15-7, the roadway segments are projected to operate at acceptable LOS during both peak hours with existing capacity configurations (i.e., as shown for Alternative 5, the No Action Alternative). Both the SR 89 segment between Twin Crags Way and the new SR 89/28 intersection and the new SR 28 segment between this intersection and the existing wye are projected to operate at the same LOS in both directions as under the No Action Alternative. The relocated SR 89 segment (between the western and eastern roundabouts) is projected to operate at the same LOS in the northbound direction toward SR 28 during both peak hours as compared to the existing alignment under the No Action Alternative (between the existing wye and Granlibakken Road). Along this same segment between the western and eastern roundabouts, the southbound projected travel speed and associated LOS is lower during the summer peak hour than the No Action Alternative. The operations at the eastern roundabout could contribute to the projected average speed reduction. The projected LOS for the existing segment of SR 89 between the wye and Granlibakken Road is the same for Alternative 1 as under the No Action Alternative. Thus, because LOS segment operations would remain at acceptable levels, implementation of Alternative 1 would result in a **less-than-significant** impact.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Exhibit 4.15-12 shows the study area volumes associated with Alternative 2 in 2038. As shown in Table 4.15-7, most of the roadway segments are projected to operate at acceptable LOS during both peak hours with existing capacity configurations. Both the SR 89 segment between Twin Crags Way and the new SR 89/28 intersection and the new SR 28 segment between this intersection and the existing wye are projected to operate at the same LOS in both directions as under the No Action Alternative during the annual average peak hour. In the summer peak hour, the LOS for both directions on new SR 28 (west of the new SR 89/28 intersection) is projected to be lower than under the No Action Alternative. The westbound approach to the roundabout is projected to operate at an unacceptable LOS “F” during the summer peak hour. Likewise, the departure from the SR 89/28 intersection in the eastbound direction is projected to operate at a slower speed during the summer peak hour. This result could be attributed to the western roundabout operations under Alternative 2. The relocated SR 89 segment between the western and eastern roundabouts is projected to operate at a lower LOS with slower average travel speeds as compared to the existing alignment between the wye and Granlibakken Road under the No Action Alternative. Again, this result could be attributed to roundabout operations at the intersections. Thus, because LOS segment operations for one direction of new SR 28 would fall to an acceptable level, implementation of Alternative 2 would result in a **significant** impact.

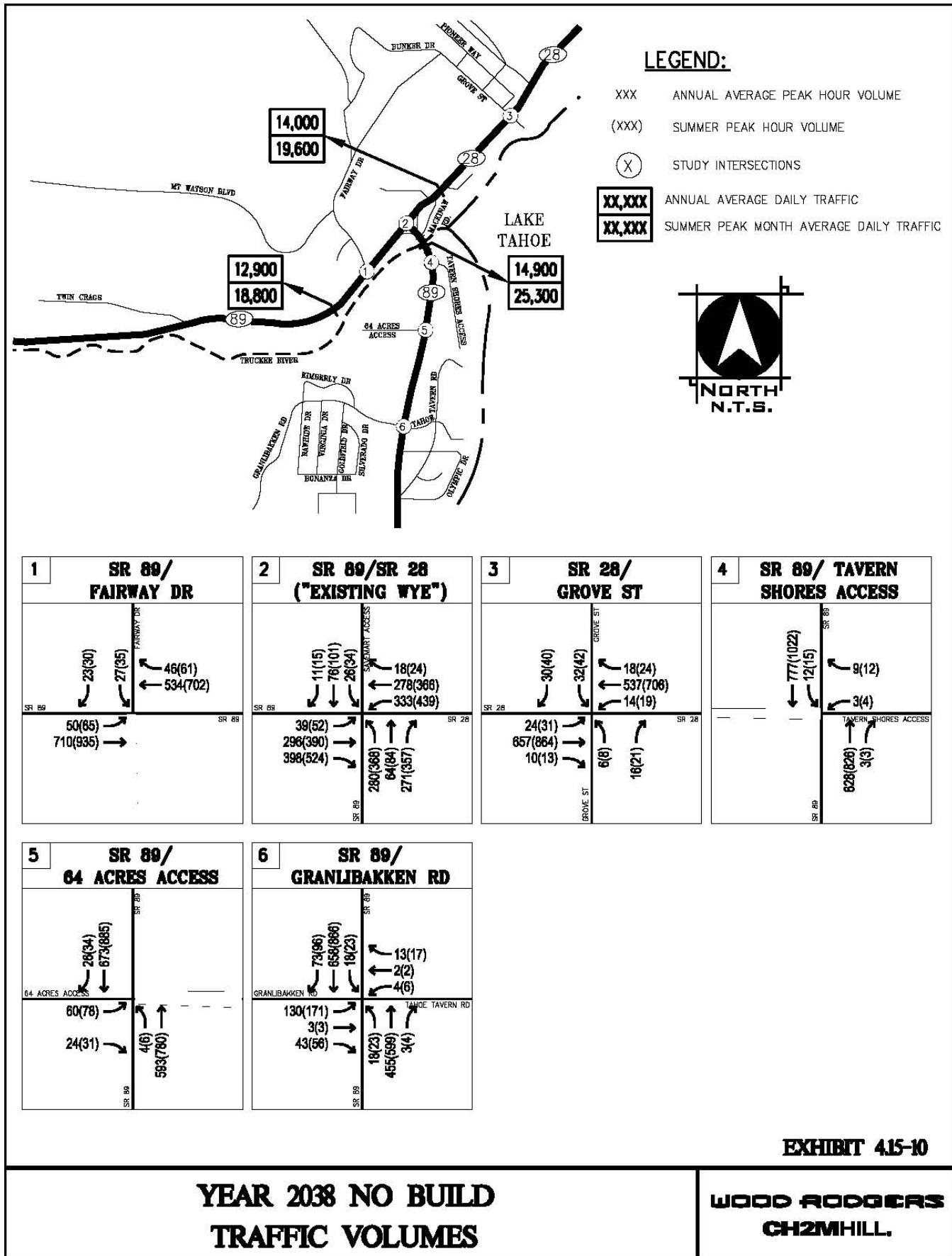


Table 4.15-7 2038 Roadway Segment Traffic Operations for all Alternatives

Arterial Segment	Direction	Alternative 5 (No Action)		Alternative 1		Alternative 2		Alternative 3		Alternative 4		Alternative 6		Alternative 6A	
		Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS
Annual Average Peak Hour															
SR 89 – between Twin Crags Way and existing wye intersection	EB	19.0	C	N/A	N/A	N/A	N/A	N/A	N/A	N/A	18.1	C	18.1	C	
	WB	20.8	C	N/A	N/A	N/A	N/A	N/A	N/A	N/A	20.7	C	20.7	C	
SR 89 – between Twin Crags Way and New SR 89/28 intersection (Western Roundabout for Alts 1,2,3 or signal for Alt 4)	EB	N/A	N/A	21.8	C	21.6	C	22.0	C	20.4	C	N/A	N/A	N/A	N/A
	WB	N/A	N/A	19.5	C	19.5	C	19.5	C	23.3	C	N/A	N/A	N/A	N/A
New SR 28 – between New SR 89/28 intersection (Western Roundabout for Alts 1,2,3 or signal for Alt 4) & existing wye intersection	EB	N/A	N/A	19.0	C	22.3	C	20.0	C	21.0	C	N/A	N/A	N/A	N/A
	WB	N/A	N/A	19.8	C	21.0	C	19.3	C	19.8	C	N/A	N/A	N/A	N/A
SR 89 – between existing wye intersection and New SR 89/existing SR 89 intersection (Eastern Roundabout) for Alt 1 or between existing wye intersection and Granlibakken Rd for Alts 5, 6, 6a	NB	21.4	C	23.5	C	N/A	N/A	N/A	N/A	N/A	21.3	C	21.3	C	
	SB	19.6	C	23.8	C	N/A	N/A	N/A	N/A	N/A	20.0	C	20.0	C	
New SR 89 – between New SR 89/28 intersection (Western Roundabout for Alts 1,2,3 or signal for Alt 4) & New SR 89/existing SR 89 intersection (Eastern Roundabout for Alts 1,2,3 or Granlibakken Rd for Alts 4)	NB	N/A	N/A	22.3	C	20.7	C	20.0	C	18.3	D	N/A	N/A	N/A	N/A
	SB	N/A	N/A	21.0	C	21.0	C	22.3	C	19.0	C	N/A	N/A	N/A	N/A
Summer Peak Hour															
SR 89 – between Twin Crags Way and existing wye intersection	EB	18.4	C	N/A	N/A	N/A	N/A	N/A	N/A	N/A	16.6	D	16.6	D	
	WB	20.2	C	N/A	N/A	N/A	N/A	N/A	N/A	N/A	20.1	C	20.1	C	
SR 89 – between Twin Crags Way and New SR 89/28 intersection (Western Roundabout for Alts 1,2,3 or signal for Alt 4)	EB	N/A	N/A	21.0	C	14.8	D	20.2	C	19.6	C	N/A	N/A	N/A	N/A
	WB	N/A	N/A	18.5	C	19.3	C	19.5	C	23.0	C	N/A	N/A	N/A	N/A
New SR 28 – between New SR 89/28 intersection (Western Roundabout for Alts 1,2,3 or signal for Alt 4) & existing wye intersection	EB	N/A	N/A	19.0	C	14.7	D	20.0	C	20.0	C	N/A	N/A	N/A	N/A
	WB	N/A	N/A	17.8	C	4.7	F	7.3	F	19.0	C	N/A	N/A	N/A	N/A
Existing SR 89 – between existing wye intersection and New SR 89/existing SR 89 intersection (Eastern Roundabout) for Alt 1 or between existing wye intersection and Granlibakken Rd for Alts 5, 6, 6a	NB	20.6	C	23.0	C	N/A	N/A	N/A	N/A	N/A	20.3	C	20.3	C	
	SB	18.9	C	23.8	C	N/A	N/A	N/A	N/A	N/A	19.7	C	19.7	C	
New SR 89 – between New SR 89/28 intersection (Western Roundabout for Alts 1,2,3 or signal for Alt 4) & New SR 89/existing SR 89 intersection (Eastern Roundabout for Alts 1,2,3 or Granlibakken Rd for Alts 4)	NB	N/A	N/A	22.3	C	15.7	D	15.7	D	17.3	D	N/A	N/A	N/A	N/A
	SB	N/A	N/A	13.7	E	16.3	D	19.7	C	18.0	D	N/A	N/A	N/A	N/A

Notes: 1. Speed = Average Travel Speed in miles per hour, EB = Eastbound, WB = Westbound, NB = Northbound, LOS = Level of Service

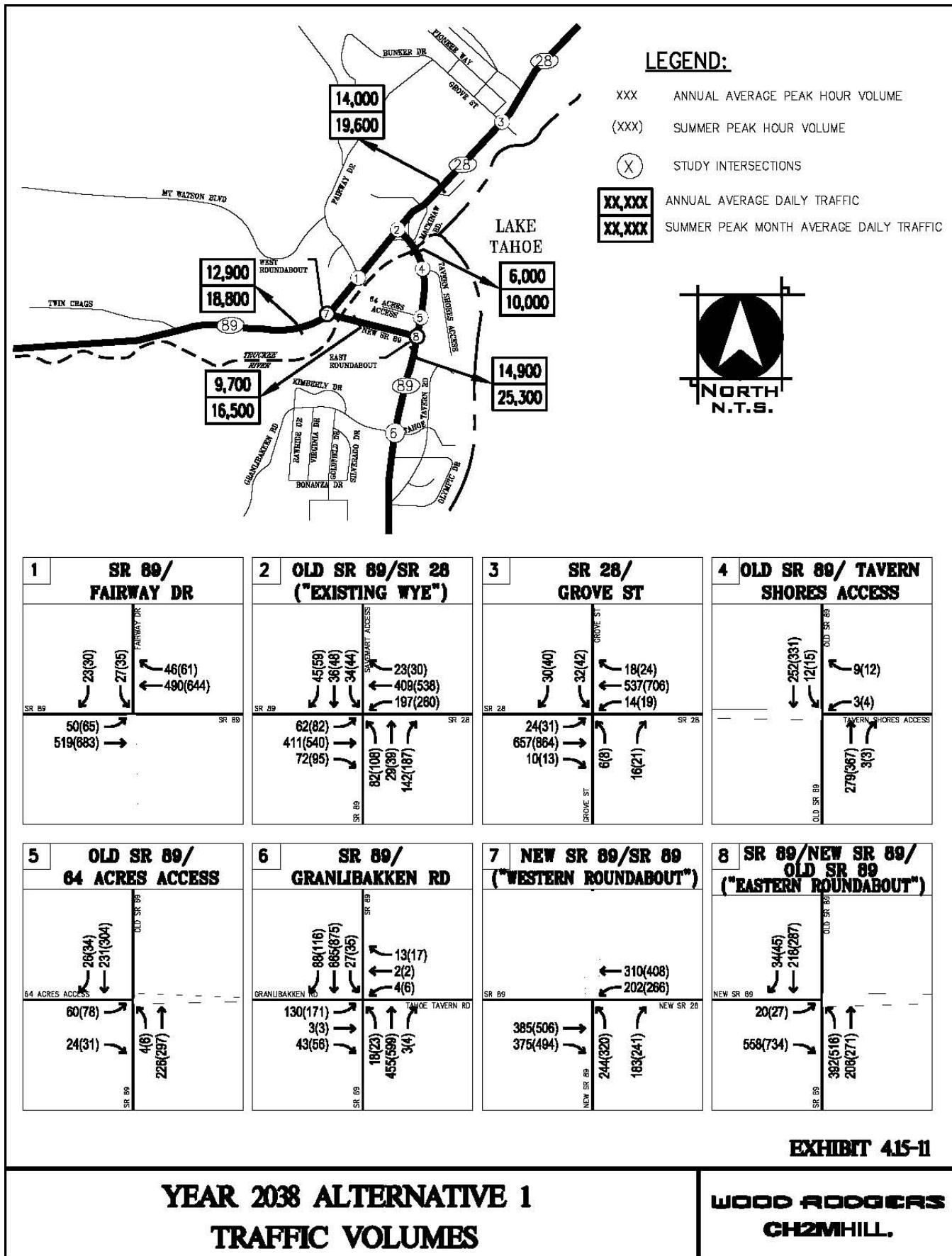
2. Study arterial segments are Class III Arterials based on 2010 Highway Capacity Manual, Two-Lane Highways.

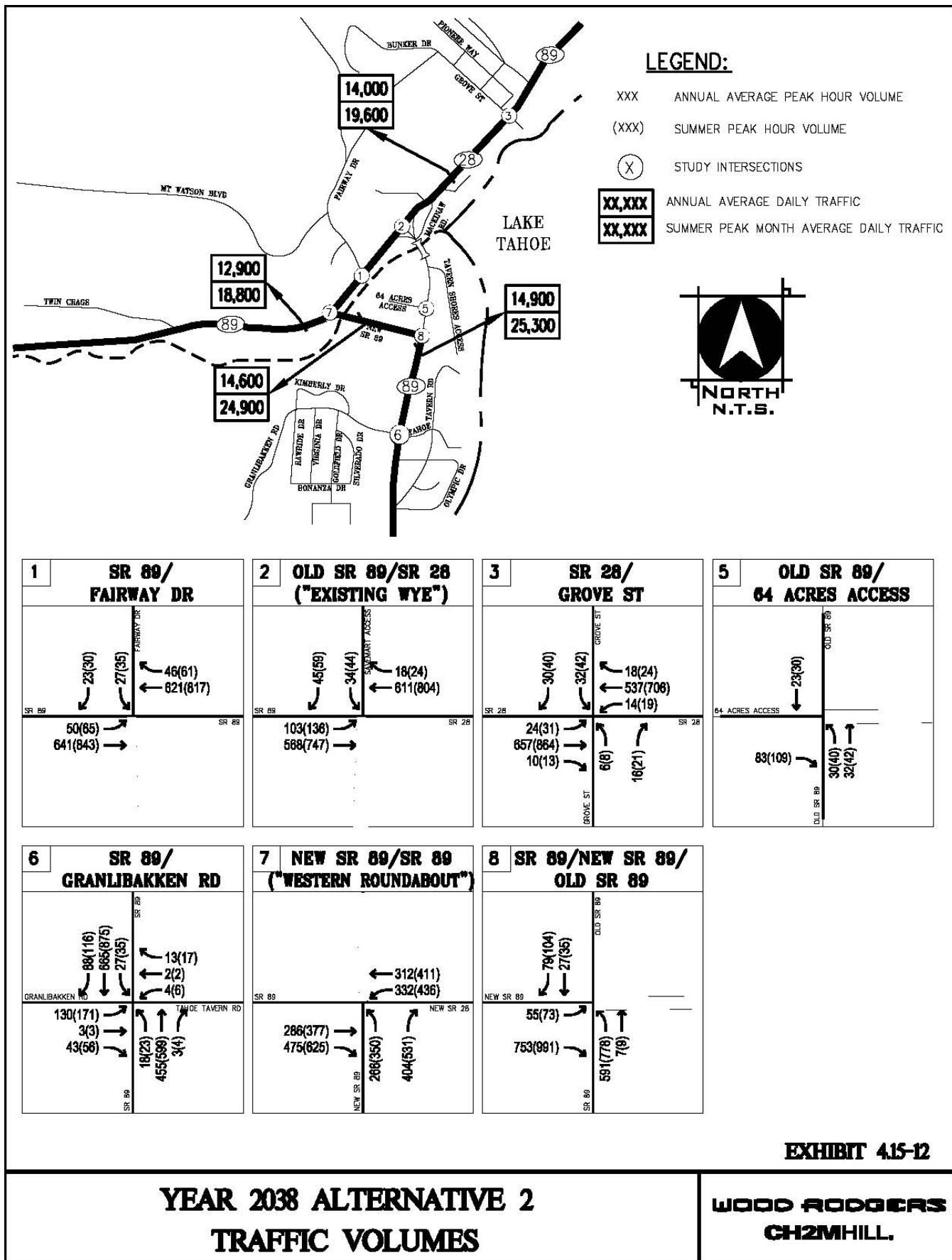
3. Free flow speeds of 35-37 mph were calculated based on HCM 2010.

4. LOS Source: 2010 Highway Capacity Manual, Urban Street Segments.

5. Speed is represented in miles per hour.

6. LOS is likely worse for the SR 89 segment between the existing wye intersection and Granlibakken Road than shown in this table.





ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Exhibit 4.15-13 shows the study area volumes associated with Alternative 3 in 2038. As shown in Table 4.15-7, most of the roadway segments are projected to operate at acceptable LOS during both peak hours with existing capacity configurations. Both the SR 89 segment between Twin Crags Way and the new SR 89/28 intersection and the new SR 28 segment between this intersection and the existing wye are projected to operate at the same LOS in both directions as under the No Action Alternative during the annual average peak hour. In the summer peak hour, the westbound direction on new SR 28 (toward the new SR 89/28 intersection) is projected to operate at an unacceptable LOS ‘F’. This result could be attributed to the western roundabout operations under Alternative 3. The relocated SR 89 segment between the western and eastern roundabouts is projected to operate at a lower LOS with slower average travel speeds in the northbound direction (toward the new SR 89/28 intersection) as compared to the existing alignment between the wye and Granlibakken Road under the No Action Alternative. Again, this result could be attributed to the western roundabout operations. Thus, because LOS segment operations for one direction of new SR 28 would fall to an acceptable level, implementation of Alternative 3 would result in a **significant** impact.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Exhibit 4.15-14 shows the study area volumes associated with Alternative 4 in 2038. As shown in Table 4.15-7, the roadway segments are projected to operate at acceptable LOS during both peak hours with existing capacity configurations. Both the SR 89 segment between Twin Crags Way and the new SR 89/28 intersection and the new SR 28 segment between this intersection and the existing wye are projected to operate at the same LOS in both directions as under the No Action Alternative during both peak hours. The relocated SR 89 segment through the 64-Acre Tract is projected to operate with slower average travel speeds in both directions as compared to the existing location under the No Action Alternative during both peak hours. This could be attributed to operations at the western roundabout. Thus, because LOS segment operations would remain at acceptable levels, implementation of Alternative 4 would result in a **less-than-significant** impact.

ALTERNATIVE 5: NO ACTION

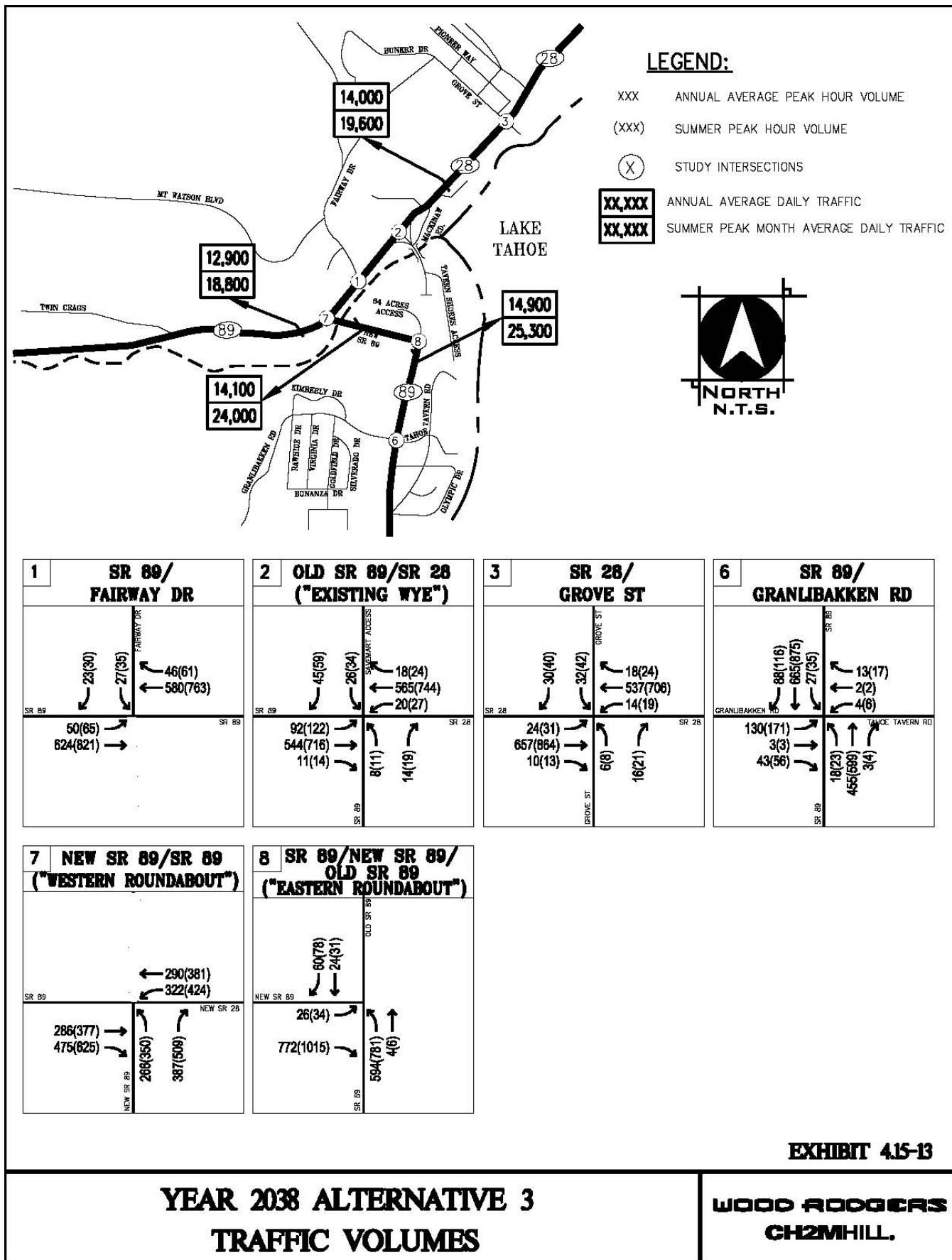
Exhibit 4.15-10 shows the study area volumes associated with the No Action Alternative in 2038. Under Alternative 5, there would be no changes to the roadways in the study area. Thus, there would be **no impact**.

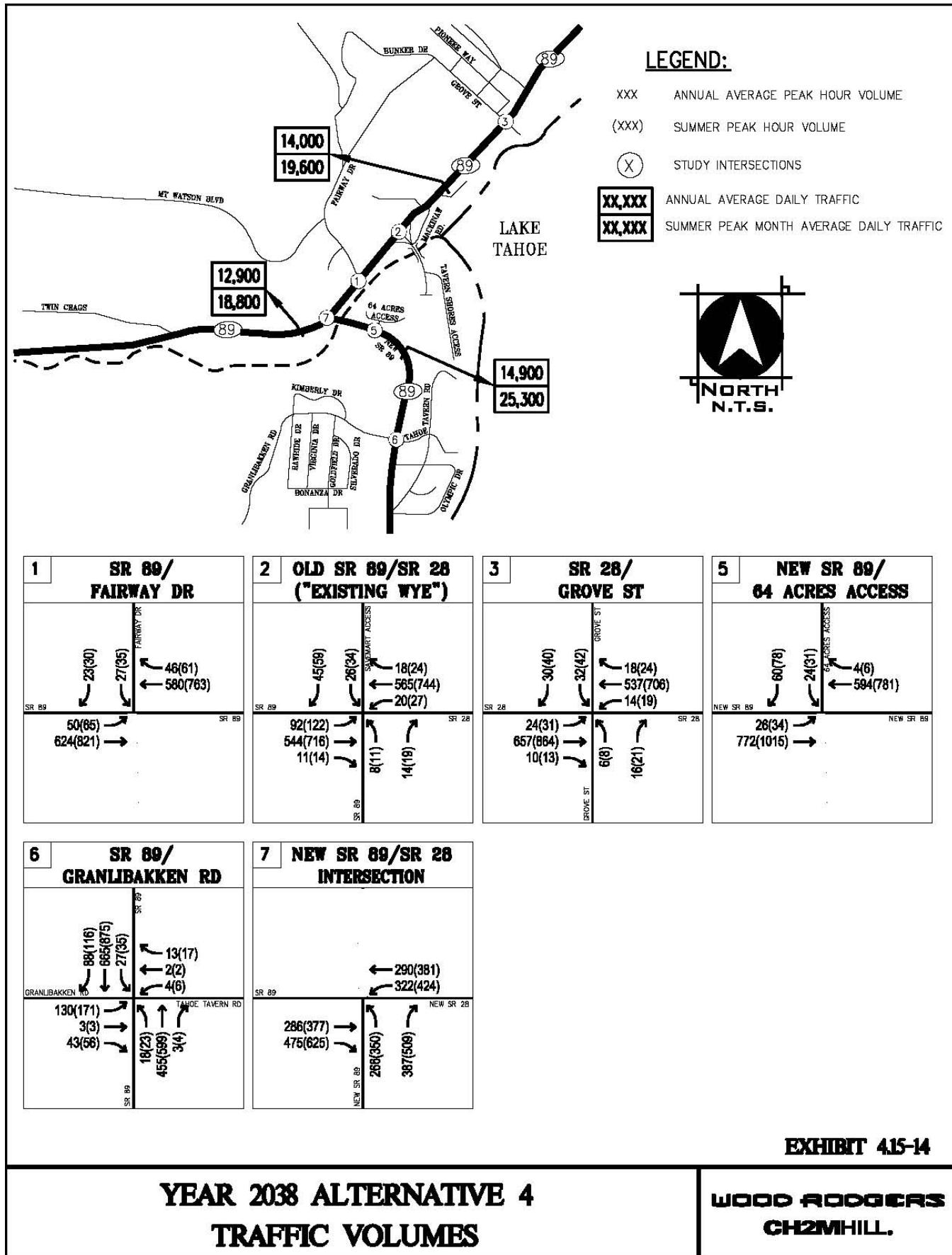
ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

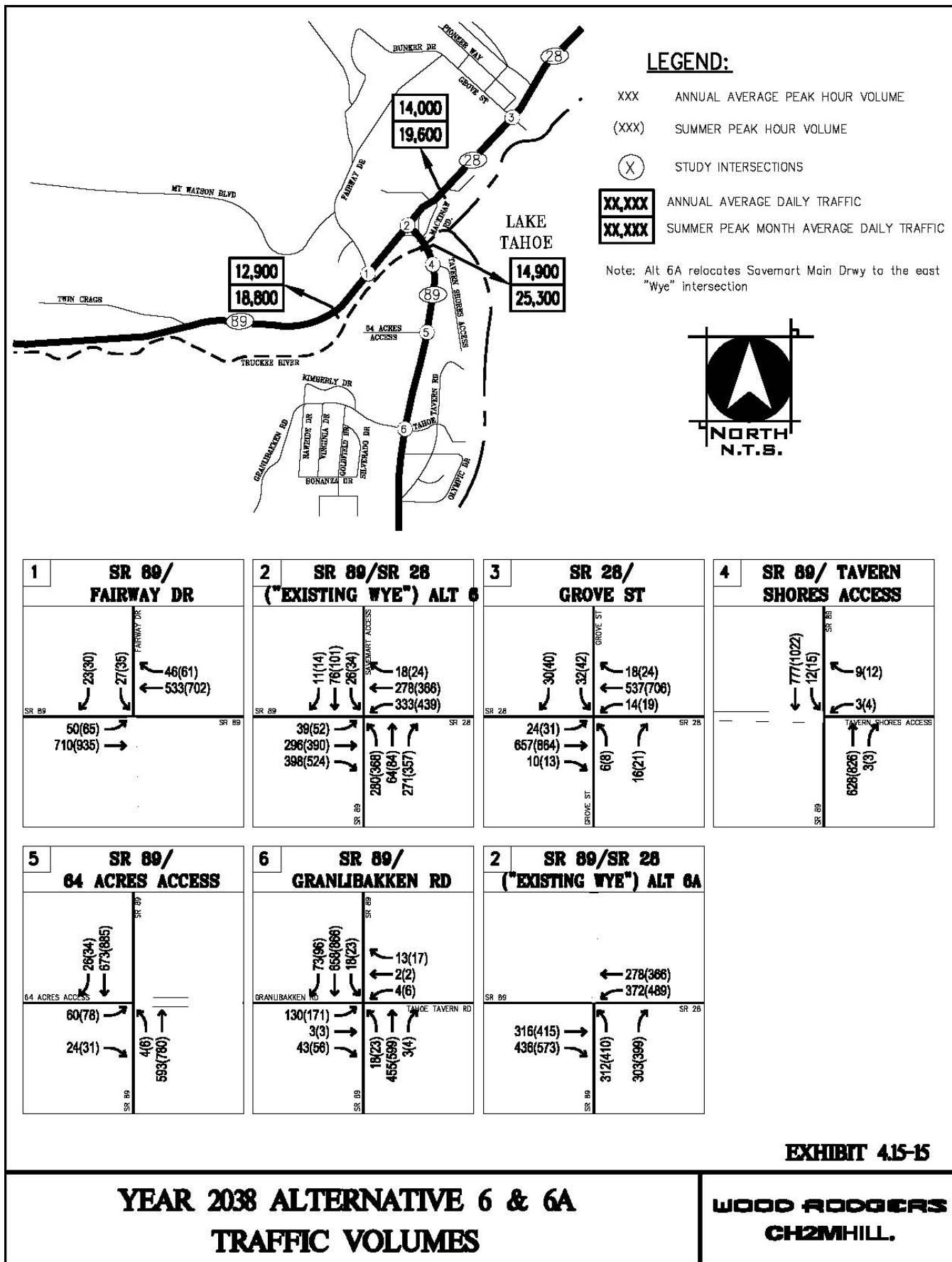
Exhibit 4.15-15 shows the study area volumes associated with Alternatives 6 in 2018. As shown in Table 4.15-7, the roadway segments are projected to operate at acceptable LOS during both peak hours with existing capacity configurations. The projected LOS for this alternative between Twin Crags Way and the existing wye intersection during the annual average peak hour is the same as projected under the No Action Alternative. In the summer peak hour, the eastbound direction is projected to operate at a lower LOS than under the Action Alternative. With the same volume and intersection configurations, the existing segment of SR 89 between the wye and Granlibakken Road is projected to operate at the same LOS as under the No Action Alternative. Thus, because LOS segment operations would remain at acceptable levels, implementation of Alternative 6 would result in a **less-than-significant** impact.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Projected roadway segment operations for Alternative 6a are the same as described above for Alternative 6. Thus, because LOS segment operations would remain at acceptable levels, implementation of Alternative 6a would result in a **less-than-significant** impact.







Impact 4.15-2. Intersection operations.

The project would not generate additional vehicle trips that could affect intersection operations; rather, it would implement improvements to existing transportation infrastructure. For Alternatives 1 through 4, SR 89 would be realigned through the 64-Acre Tract; and under Alternatives 6 and 6a the existing SR 89 roadway alignment would remain the same as under the existing conditions. The wye would be modified for all action alternatives. The additional delay that is projected for the Granlibakken Road intersection with SR 89 is greater under Alternatives 1 through 4, than under the No Action Alternative for both 2018 and 2038. Under 2038 conditions, implementation of Alternatives 2 and 3 would result in an additional unacceptable intersection LOS at the western roundabout during summer peak conditions. Thus, intersection impacts would be **significant** under Alternatives 1 through 4. Under Alternative 6, intersection operations would remain the same as the No Action Alternative, with the exception of a slight improvement at the Tavern Shores intersection, resulting in a **less-than-significant** impact under 2018 and 2038 conditions. Under Alternative 6a, the intersection modifications improve the projected operations at the wye and result in a **beneficial** impact under 2018 and 2038 conditions. Because no project would be implemented under Alternative 5 there would be **no impact**.

Intersections are the critical nodes within the roadway system. Similar to roadways, intersections are subject to the LOS policies of local, Regional, and state agencies. Degraded intersection operations can result in a variety of adverse effects including congestion, unacceptable delay, lengthy vehicle queues that may block upstream intersections and driveways, increased vehicle emissions, and unsafe driver behavior. Impacts associated with two future conditions are provided: 2018, which represents opening day; and 2038, which provides the 20-year outlook.

Tables 4.15-8 and 4.15-9 depict intersection operations under 2018 and 2038 conditions, respectively. At the new SR 89/28 intersection (termed the western roundabout for Alternatives 1, 2, and 3), the northbound approach refers to the segment with vehicles traveling on relocated SR 89 toward the new SR 89/28 intersection. The eastbound approach refers to the segment with vehicles traveling eastbound on SR 28 toward the new SR 89/28 intersection from Twin Crags Way. Likewise, the westbound approach refers to the segment with vehicles traveling westbound on SR 28 toward the new SR 89/28 intersection toward Twin Crags Way. At the intersection with relocated SR 89/existing SR 89 (termed the eastern roundabout for Alternatives 1, 2, and 3), the eastbound approach refers to the segment of relocated SR 89 with vehicles traveling away from the new SR 89/28 intersection and toward the eastern roundabout. The northbound approach refers to the segment of existing SR 89 with vehicles traveling toward the relocated SR 89/existing SR 89 intersection from Granlibakken Road. The southbound approach refers to the segment of existing SR 89 with vehicles traveling away from Fanny Bridge and toward the relocated SR 89/existing SR 89 intersection. All delay is represented by average seconds per vehicle (Appendix G).

2018, Opening Day

This subsection discusses the projected intersection operations for the alternatives in 2018. The exhibits in the 2018 roadway segment section show the projected intersection traffic volumes by movement for each alternative. Table 4.15-8 summarizes 2018 projected intersection traffic operations under all of the project alternatives. For the unsignalized intersections and roundabouts, the LOS for the movement with the lowest LOS/highest delay is shown. At these intersections, the movements on the state route segments operate at acceptable LOS. The shaded cells indicate that the projected LOS is worse than the No Action Alternative, which is significant impact.

Table 4.15-8 2018 Intersection Traffic Operations for all Alternatives

#	Intersection	Control Type	Alternative 5 (No Action)		Alternative 1		Alternative 2		Alternative 3		Alternative 4		Alternative 6		Alternative 6A	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Annual Average Peak Hour																
1	SR 89 / Fairway Dr	TWSC	16.2	C	14.5	B	16.7	C	16.1	C	16.1	C	16.2	C	16.2	C
2	SR 89 / SR 28 Existing wye	Signal (1,3,4,5,6) TWSC (2)	27.7	C	20.8	C	15.9	C	11.1	B	11.2	B	28.0	C	8.8	A
		Roundabout (6a)			11.2	B			8.8	A						
3	SR 28 / Grove St	TWSC	45.8	E	45.8	E	45.8	E	45.8	E	45.8	E	45.8	E	45.8	E
4	SR 89 / Tavern Shores Access Rd	TWSC	17.4	C	10.5	B	N/A	N/A	N/A	N/A	N/A	N/A	17.4	C	17.4	C
5	SR 89 / 64 Acres Recreational Access Rd	TWSC	34.2	D	12.4	B	9.0	A	N/A	N/A	17.0	C	34.2	D	34.2	D
6	SR 89 / Granlibakken Rd	TWSC	107.3	F	109.4	F	109.4	F	109.4	F	109.4	F	107.3	F	107.3	F
7	New SR 89/28	Western Roundabout (1,2,3) Signal (4)	N/A	N/A	11.4	B	14.2	B	13.1	B	13.5	B	N/A	N/A	N/A	N/A
8	New SR 89 / Old SR 89	Eastern Roundabout (1,2,3)	N/A	N/A	11.5	B	12.1	B	11.7	B	N/A	N/A	N/A	N/A	N/A	N/A
Summer Peak Hour																
1	SR 89 / Fairway Dr	TWSC	22.3	C	18.6	C	23.3	C	22.0	C	22.0	C	22.3	C	22.3	C
2	SR 89 / SR 28 Existing wye	Signal (1,3,4,5,6) TWSC (2)	42.2	D	23.7	C	21.7	C	11.7	B	12.6	B	38.7	D	14.1	B
		Roundabout (6a)			23.1	C			13.5	B						
3	SR 28 / Grove St	TWSC	210.4	F	210.4	F	210.4	F	210.4	F	210.4	F	210.4	F	210.4	F
4	SR 89 / Tavern Shores Access Rd	TWSC	26.0	D	11.5	B	N/A	N/A	N/A	N/A	N/A	N/A	26.0	D	26.0	D
5	SR 89 / 64 Acres Recreational Access Rd	TWSC	126.7	F	14.7	B	9.1	A	N/A	N/A	25.4	D	126.7	F	126.7	F
6	SR 89 / Granlibakken Rd	TWSC	640.2	F	716.6	F	716.6	F	716.6	F	716.6	F	640.2	F	640.2	F
7	New SR 89/28	Western Roundabout (1,2,3) Signal (4)	N/A	N/A	24.2	C	27.2	D	23.1	C	24.1	C	N/A	N/A	N/A	N/A
8	New SR 89 / Old SR 89	Eastern Roundabout (1,2,3)	N/A	N/A	24.1	C	26.0	D	24.1	C	N/A	N/A	N/A	N/A	N/A	N/A

Notes:

1. "Average" delay (in seconds/vehicle) for the overall intersection are indicated for signal-controlled intersections.
 2. "Worse" case delay (in seconds/vehicle) are indicated for Two-way-stop (TWSC) controlled intersections.
 3. Roundabout analysis was completed using GDOT / SIDRA software.
 4. Shaded cells highlight the intersections which are projected to operate with lower LOS than the No Action Alternative.
- Source: Appendix G

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

As shown in Table 4.15-8, under Alternative 1 in 2018, most of the stop- and signal-controlled study area intersections are projected to operate at LOS “C” or better conditions during annual average and summer peak hour conditions. This alternative is projected to reduce delays and improve LOS as compared to the No Action Alternative at three unsignalized intersections (Fairway Drive, Tavern Shores Access Road, and 64-Acres Recreational Access Road) during annual average and summer peak hour conditions. These are the three intersections at which the through traffic volumes are reduced on portions of existing SR 89 and SR 28 due to the relocation of the SR 89 through movement. The western and eastern roundabouts are projected to operate with acceptable LOS during both peak hours. Due to the reduction in volume through the intersection, the existing wye as a signal or roundabout is projected to operate with less average delay per vehicle as compared to the No Action Alternative (with either the signal or roundabout configuration).

Alternative 1 is projected to provide the same delay and LOS as the No Action Alternative at the Grove Street intersection with SR 28. Alternative 1 is projected to operate with a higher amount of average delay per vehicle for the side street movements at the Granlibakken Road intersection with SR 89 and result in LOS “F” conditions. Thus, while there would be improvements to the majority of intersections in the project area, because intersection operations would be degraded at Granlibakken Road, implementation of Alternative 1 would result in a **significant** impact.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

As shown in Table 4.5-8, under Alternative 2 in 2018, most of the stop- and signal-controlled study area intersections are projected to operate at LOS “C” or better conditions during annual average and summer peak hour conditions. This alternative is projected to reduce delays and improve LOS as compared to the No Action Alternative at the unsignalized intersection between SR 89 and 64-Acres Access due to the closure of SR 89 to through traffic. Likewise, the reduction in turning volume at the existing wye intersection is projected to result in reduced delay as compared to the No Action Alternative during peak hour conditions. The eastern roundabout is projected to operate with an acceptable LOS. Based on the four-hour analysis, the western roundabout is projected to provide acceptable LOS. Alternative 2 is projected to provide the same delay and LOS as the No Action Alternative at the Grove Street intersection with SR 28. Alternative 2 is projected to operate with a higher amount of average delay per vehicle for the side street movements at the Granlibakken Road intersection with SR 89 and result in LOS “F” conditions. Thus, while there would be improvements to the majority of intersections in the project area, because intersection operations would be degraded at Granlibakken Road, implementation of Alternative 2 would result in a **significant** impact.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

As shown in Table 4.15-8, under Alternative 3 in 2018, the existing wye and Fairway Drive intersections are projected to operate at LOS “C” or better conditions during summer and annual average peak hour conditions. The proposed eastern roundabout is projected to operate with acceptable LOS during both peak hours. Based on the four-hour analysis, the western roundabout is projected to provide acceptable LOS. This alternative is projected to provide the same delay and LOS as the No Action Alternative at the Grove Street intersection with SR 28. Alternative 3 is projected to provide the same delay and LOS as the No Action Alternative at the Grove Street intersection with SR 28. Alternative 3 is projected to operate with a higher amount of average delay per vehicle for the side street movements at the Granlibakken Road intersection with SR 89 and result in LOS “F” conditions. Thus, while there would be improvements to the majority of intersections in the project area, because intersection operations would be degraded at Granlibakken Road, implementation of Alternative 3 would result in a **significant** impact.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

As shown in Table 4.15-8, under Alternative 4 in 2018, most of the stop- and signal-controlled study area intersections are projected to operate at acceptable LOS. Operations are projected to improve for the side-street movements at the relocated 64-Acres Access intersection as compared to the No Action Alternative. As a signalized intersection, the new SR 89/28 intersection is projected to operate at acceptable LOS during both peak hours and with less delay than projected for the existing wye intersection under the No Action

Alternative. This alternative is projected to provide the same delay and LOS as the No Action Alternative at the Grove Street intersection with SR 28. Alternative 4 is projected to operate with a higher amount of average delay per vehicle for the side street movements at the Granlibakken Road intersection with SR 89 and result in LOS "F" conditions. Thus, while there would be improvements to the majority of intersections in the project area, because intersection operations would be degraded at Granlibakken Road, implementation of Alternative 4 would result in a **significant impact**.

ALTERNATIVE 5: NO ACTION

Under Alternative 5, there would be no modifications to the intersections or roadways in the study area. Thus, there would be **no impact**.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

As shown in Table 4.15-8, under 2018 conditions with Alternative 6, the LOS projected for the intersections is the same as under the No Action Alternative. The geometric improvements at the existing wye with this alternative result in a lower projected average delay during summer peak hour conditions. Thus, implementation of Alternative 6 would result in a **small beneficial impact**.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

As shown in Table 4.15-8, a roundabout at the existing wye intersection is projected to substantially reduce delay and improve LOS in both peak hours in 2018. Other study area intersections are projected to provide the same LOS as the No Action Alternative. Thus, because intersection operations at the existing wye would improve, implementation of Alternative 6 would result in a **small beneficial impact**.

20-Year Planning Horizon

This subsection discusses the projected intersection operations for the alternatives in 2038. The exhibits in the 2038 roadway segment section show the projected intersection traffic volumes by movement for each alternative (Exhibits 4.15-11 through 4.15-15). Table 4.15-9 summarizes 2038 projected intersection traffic operations under all of the project alternatives. The shaded cells indicate that the projected LOS is worse than the No Action Alternative, which is significant impact. For Alternatives 1, 2, and 3, the table includes the projected operations results for the fifth peak hour during the summer period. LOS "E" operations projected for one approach each at the western and eastern roundabouts necessitated further analysis to determine if the LOS "E" result is projected for more than four hours per day during the summer peak hour.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

As shown in Table 4.15-9, under Alternative 1 in 2038, most of the signal and stop-controlled intersections are projected to operate at LOS "C" or better during summer and annual average peak hour conditions. This alternative is projected to reduce delays and improve LOS as compared to the No Action Alternative at three unsignalized intersections (Fairway Drive, Tavern Shores Access Road, and 64-Acres Recreational Access Road) during summer and annual average peak hour conditions. These are the three intersections at which the through traffic volumes are reduced on portions of existing SR 89 and SR 28 due to the relocation of the SR 89 through movement. The existing wye is projected to provide less average delay per vehicle as compared to the No Action Alternative (with either the signal or roundabout configuration). Both the western and eastern roundabouts are projected to provide acceptable LOSs. Alternative 1 is projected to provide the same delay and LOS as the No Action Alternative at the Grove Street intersection with SR 28. Alternative 1 is projected to operate with a higher amount of average delay per vehicle for the side street movements at the Granlibakken Road intersection with SR 89 and provide LOS "F" conditions during both peak hours. Thus, while there would be improvements to the majority of intersections in the project area, because intersection operations would be degraded at Granlibakken Road, implementation of Alternative 1 would result in a **significant impact** in 2038.

Table 4.15-9 2038 Intersection Traffic Operations for all Alternatives

#	Intersection	Control Type	Alternative 5 (No Action)		Alternative 1		Alternative 2		Alternative 3		Alternative 4		Alternative 6		Alternative 6A	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Annual Average Peak Hour																
1	SR 89 / Fairway Dr	TWSC	17.9	C	15.7	B	18.5	C	17.8	C	17.8	C	17.9	D	17.9	D
2	SR 89 / SR 28 Existing wye	Signal (1,3,4,5,6) TWSC (2)	34.4	C	22.5	C	9.8	A	11.2	B	10.3	B	33.1	C	10.2	B
		Roundabout (6a)			13.6	B			10.4	B						
3	SR 28 / Grove St	TWSC	68.9	F	68.9	F	68.9	F	68.9	F	68.9	F	68.9	F	68.9	F
4	SR 89 / Tavern Shores Access Rd	TWSC	19.1	C	10.8	B	N/A	N/A	N/A	N/A	N/A	N/A	17.4	C	17.4	C
5	SR 89 / 64 Acres Recreational Access Rd	TWSC	47.9	E	13.1	B	9.0	A	14.2	B	19.1	C	47.9	E	47.9	E
6	SR 89 / Granlibakken Rd	TWSC	209.5	F	238.8	F	238.8	F	238.8	F	238.8	F	209.5	F	209.5	F
7	New SR 89/28	Western Roundabout (1,2,3) Signal (4)	N/A	N/A	14.0	B	18.7	C	16.8	C	15.3	B	N/A	N/A	N/A	N/A
8	New SR 89 / Old SR 89	Eastern Roundabout (1,2,3)	N/A	N/A	14.0	B	14.8	B	14.2	B	N/A	N/A	N/A	N/A	N/A	N/A
Summer Peak Hour																
1	SR 89 / Fairway Dr	TWSC	26.1	D	21.0	C	27.7	D	25.8	D	25.9	D	26.1	D	26.1	D
2	SR 89 / SR 28 Existing wye	Signal (1,3,4,5,6) TWSC (2)	50.2	D	29.7	C	11.4	B	12.3	B	11.1	B	50.2	D	18.5	C
		Roundabout (6a)			24.8	C			19.1	C						
3	SR 28 / Grove St	TWSC	427.6	F	427.6	F	427.6	F	427.6	F	427.6	F	427.6	F	427.6	F
4	SR 89 / Tavern Shores Access Rd	TWSC	30.6	D	12.0	B	N/A	N/A	N/A	N/A	N/A	N/A	30.6	D	30.6	D
5	SR 89 / 64 Acres Recreational Access Rd	TWSC	272.8	F	16.1	B	9.2	A	39.5	E	32.5	D	272.8	F	272.8	F
6	SR 89 / Granlibakken Rd	TWSC	1126.4	F	1257.1	F	1257.1	F	1257.1	F	1257.1	F	1126.4	F	1126.4	F
7	New SR 89/28	Western Roundabout (1,2,3) Signal (4)	N/A	N/A	26.1	D	49.6	E	39.1	E	29.1	C	N/A	N/A	N/A	N/A
8	New SR 89 / Old SR 89	Eastern Roundabout (1,2,3)	N/A	N/A	25.9	D	28.2	D	25.8	D	N/A	N/A	N/A	N/A	N/A	N/A

Notes:

1. "Average" delay (in seconds/vehicle) for the overall intersection are indicated for signal-controlled intersections.
2. "Worse" case delay (in seconds/vehicle) are indicated for Two-way-stop (TWSC) controlled intersections.
3. Roundabout analysis was completed using GDOT / SIDRA software.
4. Shaded cells highlight the intersections which are projected to operate with lower LOS than the No Action Alternative.

Source: Appendix G

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

As shown in Table 4.15-9, under Alternative 2 in 2038, most of the signal- and stop-controlled intersections are projected to operate at LOS “D” or better conditions during summer and annual average peak hour conditions. This alternative is projected to reduce delays and improve LOS as compared to the No Action Alternative at the unsignalized intersection between SR 89 and 64-Acres Access due to the closure of SR 89 to through traffic. Likewise, the reduction in turning volume at the existing wye intersection is projected to result in reduced delay as compared to the No Action Alternative during peak hour conditions. Based on the four-hour analysis, the eastern roundabout is projected to provide acceptable LOS. The western roundabout is not projected to provide acceptable LOS during the fifth summer peak hour. Alternative 2 is projected to provide the same delay and LOS as the No Action Alternative at the Grove Street intersection with SR 28. Alternative 2 is projected to operate with a higher amount of average delay per vehicle for the side street movements at the Granlibakken Road intersection with SR 89 and result in LOS “F” conditions during both peak hours. Thus, while there would be improvements to the majority of intersections in the project area, because intersection operations would be degraded at Granlibakken Road and the westbound approach to the western roundabout would not provide acceptable LOS, implementation of Alternative 2 would result in a **significant impact** in 2038.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

As shown in Table 4.15-9, under Alternative 3 in 2038, the Fairway Drive and existing wye intersections are projected to operate at LOS “D” or better conditions during summer and annual average peak hour conditions. The reduction in turning volume at the existing wye intersection is projected to result in reduced delay as compared to the No Action Alternative (with either the signal or roundabout configuration) during peak hour conditions. Based on the four-hour analysis, the eastern roundabout at the 64-Acres Access Road is projected to provide acceptable LOS during the summer peak hour. The western roundabout is not projected to provide acceptable LOS during the fifth summer peak hour. This alternative is projected to provide the same delay and LOS as the No Action Alternative at the Grove Street intersection with SR 28. Alternative 3 is projected to operate with a higher amount of average delay per vehicle for the side street movements at the Granlibakken Road intersection with SR 89 and result in LOS “F” conditions during both peak hours. Thus, while there would be improvements to the majority of intersections in the project area, because intersection operations would be degraded at Granlibakken Road and the westbound approach to the western roundabout would not provide acceptable LOS, implementation of Alternative 3 would result in a **significant impact** in 2038.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

As shown in Table 4.15-9, under Alternative 4 in 2038, most of the signal- and stop-controlled intersections are projected to operate at acceptable LOS. Operations are projected to improve for the side-street movements at the relocated 64-Acres Access intersection as compared to the No Action Alternative. As a signalized intersection, the new SR 89/28 is projected to operate at acceptable LOS during both peak hours and with less delay than projected for the existing wye intersection under the No Action Alternative. This alternative is projected to provide the same delay and LOS as the No Action Alternative at the Grove Street intersection with SR 28. Alternative 4 is projected to operate with a higher amount of average delay per vehicle for the side street movements at the Granlibakken Road intersection with SR 89 and result in LOS “F” conditions during both peak hours. Thus, while there would be improvements to the majority of intersections in the project area, because intersection operations would be degraded at Granlibakken Road, implementation of Alternative 4 would result in a **significant impact** in 2038.

ALTERNATIVE 5: NO ACTION

Under Alternative 5, there would be no modifications to the intersections or roadways in the study area. Thus, there would be **no impact**.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

As shown in Table 4.15-8, under 2038 conditions with Alternative 6, the LOS projected for the intersections is the same as under the No Action Alternative. The projected average delay is slightly less at the Tavern Shores Access Road intersections during the annual average peak hour. Thus, implementation of Alternative 6 would result in a **less-than-significant** impact.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

As shown in Table 4.15-8, a roundabout at the existing wye intersection is projected to reduce delay and improve LOS in both peak hours in 2038. Thus, because intersection operations at the existing wye would improve, implementation of Alternative 6a would result in a **small beneficial** impact.

Impact 4.15-3. Vehicle miles of travel.

VMT is a measure of the efficiency of the transportation system and the degree to which the land use pattern would reduce personal motor vehicle travel. When VMT increases, it results in indirect environmental impacts (such as air pollutant emissions). VMT would decrease a small amount for Alternatives 1 through 4 as a result of the realignment of SR 89. For Alternatives 1, 2, 3, and 4, reduced VMT would result in a **small beneficial** impact. For Alternatives 5, 6, and 6a, the existing roadway alignment would remain the same; thus, no change to existing VMT would occur and there would be **no impact**.

VMT is a measure of the efficiency of the transportation system and its level of integration with planned land use patterns. For the Tahoe Region, VMT may be influenced by a number of variables including land use location, emphasis on personal motor vehicle travel modes compared to other modes (such as walking, cycling, or transit), and implementation of vehicle trip reduction strategies. Environmental consequences are indirectly related to a change in the volume of VMT or a change in the efficiency of VMT. Motor vehicle travel involves air pollutant emissions, greenhouse gas emissions, and noise generation. If VMT increases, indirect environmental impacts would occur related to air, GHG, and noise emissions.

The new SR 89/28 intersection is located approximately 1800 feet southwest of the existing wye. The change in VMT due to the relocated segment of SR 89 common to Alternatives 1 through 4 is dependent upon travel direction. For the westbound-to-southbound and northbound-to-eastbound through movements, the additional travel distance for these movements along SR 28 and the relocated SR 89 is approximately one-quarter mile longer. For the eastbound-to-southbound and northbound-to-westbound through movements, the travel distance is shorter by approximately one-half mile. Assuming the turn movement volumes shown in Exhibit 4.15-5 for Alternative 1 represent the through movements (Alternative 1 maintains the existing segment of SR 89 south of the bridge for local traffic only), the predominate movements through the study area are eastbound-to-southbound and northbound-to-westbound. Thus, it can be estimated that each through trip will be approximately one-half mile shorter, resulting in a small decrease in VMT due to the relocated wye intersection.

This simplified analysis does not account for induced demand that may result if motorists choose to travel during the peak hours once the project is implemented. However, it can logically be assumed that these trips are occurring sometime during the day other than the peak hour, so the VMT in the study area likely would not change as a result of project implementation. Table 4.15-10 summarizes the expected change in VMT for each alternative.

Table 4.15-10 Expected Change in VMT for Project Alternatives

Impact Criterion	Alternative						
	5 (No Action)	1	2	3	4	6	6A
Impact on Vehicle-Miles Traveled (VMT)	No change to existing VMT	Small decrease in VMT	No change to existing VMT	No change to existing VMT			

Note: Small decrease refers to a trip length reduction of approximately one-half mile or less per vehicle.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

As shown in Table 4.15-10, implementation of Alternative 1 would result in a small decrease in VMT. Implementation of Alternative 1 would result in a **beneficial** impact.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

As shown in Table 4.15-10, implementation of Alternative 2 would result in a small decrease in VMT. Implementation of Alternative 2 would result in a **beneficial** impact.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

As shown in Table 4.15-10, implementation of Alternative 3 would result in a small decrease in VMT. Implementation of Alternative 3 would result in a **beneficial** impact.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

As shown in Table 4.15-10, implementation of Alternative 4 would result in a small decrease in VMT. Implementation of Alternative 4 would result in a **beneficial** impact.

ALTERNATIVE 5: NO ACTION

With the No Action alternative, no change to the roadway alignments would occur. Implementation of Alternative 5 would result in **no impact**.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

As shown in Table 4.15-10, implementation of Alternative 6 would result in no change to the roadway alignments. Implementation of Alternative 6 would result in **no impact**.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

As shown in Table 4.15-10, implementation of Alternative 6a would result in no change to the roadway alignments. Implementation of Alternative 6a would result in **no impact**.

Impact 4.15-4. Construction-related traffic impacts.

Construction of the action alternatives would result in temporary construction traffic and temporary disruption to traffic circulation in the area of construction. The project could be constructed over a total of up to three construction seasons. Project construction would require the preparation of a traffic control plan prior to construction activities, in coordination with TTD, TRPA, Caltrans, Placer County, Bureau of Reclamation, and the USFS. However, although this plan would preserve access to businesses, provide emergency access, and minimize travel delays, traffic flow could be adversely affected. The potential disruptions would be **potentially significant** for Alternatives 1, 2, 3, and 4. Because no construction would occur under Alternative 5, there would be **no impacts**. The reduction to one travel lane over Fanny Bridge necessitated by Alternatives 6 and 6a would be a **significant** impact.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

Alternative 1 would include construction of a new bridge to be located approximately 1,800 feet southwest of the existing Fanny Bridge, the construction of a realigned SR 89 through the 64-Acre tract, realignment of existing bike paths, modifications to the existing SR 89 segment to become a local road for approximately 2,000 feet south of the SR 28 intersection, the rehabilitation or replacement of Fanny Bridge, modifications to the Caltrans maintenance yard, realignment of the T-TSA sewer line, and modifications related to the free-right-turn lanes at the existing wye. It is expected that construction would occur over three construction seasons. The construction plan would be to build the new bridge downstream of the existing Fanny Bridge during the first construction season, and then close the existing bridge to all pedestrian, bicycle, and vehicle traffic for rehabilitation or replacement. This concept allows for at least one bridge crossing to remain operational at all times during constriction. Effects to area businesses would likely be limited to the construction phase where the existing Fanny Bridge is being rehabilitated or replaced. Project construction would require the preparation of a traffic control plan prior to construction activities, in coordination with TTD, TRPA, Caltrans, Placer County, Bureau of Reclamation, and the USFS. However, although this plan would preserve access to businesses, provide emergency access, and minimize travel delays, traffic flow could be adversely affected. Thus, implementation of Alternative 1 would result in a **potentially significant impact**.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Implementation of Alternative 2 would result in the same construction-related traffic effects as Alternative 1 because it would include similar construction elements as described for Alternative 1. Implementation of Alternative 2 would result in a **potentially significant impact**.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Implementation of Alternative 3 would result in the same construction-related traffic effects as Alternative 1 because it would include similar construction elements as described for Alternative 1. Implementation of Alternative 3 would be a **potentially significant impact**.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Implementation of Alternative 4 would result in the same construction-related traffic effects as Alternative 1 because it would include similar construction elements as described for Alternative 1. Implementation of Alternative 4 would result in a **potentially significant impact**.

ALTERNATIVE 5: NO ACTION

The No Action Alternative would not include project construction, so no effects on existing traffic would occur. Implementation of Alternative 5 would result in **no impact**.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

During construction of Alternative 6, existing traffic crossing Fanny Bridge would be affected because Fanny Bridge may need to be closed partially to pedestrian, bicycle and vehicle traffic during rehabilitation or reconstruction. Operational delays and queuing would occur if the bridge is even partially closed. This effect would be exacerbated by the fact that construction season in the Tahoe Basin is limited to a period of time that can coincide with the highest traffic volumes. It is currently anticipated that construction would likely occur over three seasons. If Fanny Bridge is closed, there would be no alternative river crossings available within the immediate vicinity, and construction impacts would adversely affect traffic through the area. Thus, a full closure of the bridge for construction will not be permitted. The bridge rehabilitation or reconstruction would occur in phases with one lane open to traffic most of the time. There will be periods which require a full closure to move construction-related equipment or provide emergency vehicle access to/across the bridge. These closures will generally be 20 minutes in length, but could extend to 30 minutes upon occasion. Emergency services providers will be notified when situations arise that necessitate the longer closure period. Although this river crossing would remain open during construction, implementation of Alternative 6 would result in a **significant impact** because temporary delays would occur during construction as a result of the lane closure and periodic full closures.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Construction-related traffic effects would be the same for Alternative 6a as described above for Alternative 6 because it would include similar elements to be constructed in the bridge location. Furthermore, the existing wye at the intersection of SR 89 and SR 28 would remain open as the intersection is reconstructed as a roundabout. Although this river crossing would remain open during construction, implementation of Alternative 6a would result in a **significant impact** because temporary delays would occur during construction as a result of the lane closure and periodic full closures.

Impact 4.15-5. Traffic and pedestrian safety impacts.

Alternatives 1 through 4 would realign SR 89, which would result in construction of a new SR 89/28 intersection and improvements to the existing wye. A comparison of the safety-related features for these alternatives suggests they would result in **beneficial impacts** under Alternatives 1, 2, 3, 4, 6, and 6a. Because the existing wye would remain in the same location with no improvements under Alternative 5, there would be **no impact** associated with this alternative.

The geometry of the existing wye intersection provides the potential for conflict at multiple locations; this potential is exacerbated during the summer peak season when volumes increase and motorists unfamiliar with the area drive through the intersection. These conflicts occur when drivers with varying purposes are required to complete conflicting maneuvers within a relatively short distance. For example, the eastbound to southbound free-flowing right turn lane in the southwest quadrant also serves as the access lane for adjacent parking spaces. In the southeast quadrant, the location at which northbound SR 89 widens from one to two lanes is also the location where Macinaw Street intersects SR 89, the northbound to eastbound free-flowing right turn lane diverges, and motorists must choose which of the two lanes at the intersection to maneuver into. On southbound SR 89, the two lanes departing the intersection merge to one lane within 300 feet of the intersection. On the westbound and eastbound departures, two lanes merge into one lane within 200 feet of the intersection. Another conflict point for vehicles occurs where the northbound to eastbound free-flowing right turn lane merges into eastbound SR 28 at the point at which the second through lane ends. The pedestrians and bicyclists traveling through this intersection to access Fanny Bridge and bike paths south of the intersection also introduce potential for conflict as they cross the various travel lanes without using the marked crosswalks. Drivers that are not familiar with summer peak hour field conditions may not expect vehicles to be stopped in the roadway or other drivers to be slowing down for mid-block pedestrian crossings; this can increase the potential for rear-end collisions.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

Alternative 1 would reduce vehicular traffic through the existing wye intersection (annual average and peak hour volumes are projected to decrease approximately 60 percent along this segment of SR 89), and extend the pedestrian/bike path from south of Fanny Bridge to further south of proposed New SR 89 to connect with the existing bike path. Fewer vehicles reduces exposure along this roadway segment and reduces the potential for vehicular crashes to occur. Pedestrian and bicyclist exposure to vehicular traffic would also be reduced because project features associated with Alternative 1 would provide a grade-separated crossing for the pedestrian/bike path on proposed New SR 89 at the west leg of proposed New SR 89/Old SR 89 intersection (connecting it to the existing path in the southwest quadrant of the proposed intersection). The exposure due to crossing the roadway is eliminated, which reduces the potential for pedestrian/bicyclist collisions with motor vehicles.

The new SR 89/28 intersection would be constructed as roundabout rather than a signalized intersection. Roundabouts tend to reduce the severity of traffic crashes because the geometric design of the entry points eliminates right angle crashes and high entry speeds as well as reduces conflict points. The low-speed, sideswipe collisions that can occur in roundabouts generally result in a less severe outcome. Furthermore, the existing wye with Alternative 1 improvements is projected to operate at a higher LOS in 2018 than the existing signalized wye intersection, which would likely reduce queues on the SR 89 approaches. Shorter queue lengths may lead to a reduction in rear-end crashes, which is the most predominate crash type in the

study area. Likewise, elimination of the at-grade pedestrian/bike path crossing that necessitates motorists to stop reduces the potential for rear-end vehicular crashes to occur at this location. Thus, because many design features would improve traffic and pedestrian safety, implementation of Alternative 1 would result in **beneficial** impacts.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Alternative 2 would eliminate through traffic (with the exception of emergency vehicles) on the bridge. Removal of this travel mode eliminates the potential for collisions to occur between motorists and pedestrians/bicyclists traveling along SR 89. Also, pedestrian and bicyclist exposure to vehicular traffic would be reduced because project features associated with Alternative 2 would provide a grade-separated crossing for the pedestrian/bike paths under Fanny Bridge.

The new SR 89/28 intersection would be constructed as a single-lane, hybrid roundabout. Roundabouts tend to reduce the severity of traffic crashes because the geometric design of the entry points eliminates right angle crashes and high entry speeds as well as reduces conflict points. The low-speed, sideswipe collisions that can occur in roundabouts generally result in a less severe outcome. Revisions at the existing wye intersection (either a roundabout or pavement markings on the northbound and eastbound approaches, the elimination of through traffic to/from the south side of the bridge, and the elimination of free-flowing right turn lanes) will eliminate conflicting maneuvers and reduce the potential for rear-end collisions to occur (the most common crash type in the study area). Furthermore, the existing wye with Alternative 2 improvements is projected to operate at a higher LOS during summer peak hours in 2018 than the existing signalized wye intersection, which should reduce queues on the SR 89 approaches. Shorter queue lengths would likely lead to a reduction in rear-end crashes during the summer peak, which is the most predominate crash type in the study area. Thus, because many design features would improve traffic and pedestrian safety, implementation of Alternative 2 would result in **beneficial** impacts.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Alternative 3 would reduce vehicular traffic on the segment of SR 89 south of the bridge. The new SR 89/28 intersection would be constructed as a single-lane, hybrid roundabout. Roundabouts tend to reduce the severity of traffic crashes because the geometric design of the entry points eliminates right angle crashes and high entry speeds as well as reduces conflict points. The low-speed, sideswipe collisions that can occur in roundabouts generally result in a less severe outcome. Revised pavement markings on the northbound and eastbound approaches and the elimination of free-flowing right turn lanes at the existing wye intersection will eliminate conflicting maneuvers and reduce the potential for rear-end collisions to occur (the most common crash type in the study area). Furthermore, the existing wye with Alternative 3 improvements is projected to operate at a higher LOS during summer peak hours in 2018 than the existing signalized wye intersection, which should reduce queues on the SR 89 approaches. Shorter queue lengths may lead to a reduction in rear-end crashes. Also, pedestrian and bicyclist exposure to vehicular traffic would be reduced because project features associated with Alternative 3 would provide a grade-separated crossing for the pedestrian/bike paths under the bridge. Reduced exposure due to crossing the roadway lowers the potential for pedestrian/bicyclist collisions with motor vehicles. The potential for rear-end crashes to occur on SR 89 as motorists stop for the pedestrian signal is eliminated with a grade-separated crossing. Thus, because many design features would improve traffic and pedestrian safety, implementation of Alternative 3 would result in **beneficial** impacts.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Alternative 4 would reduce vehicular traffic on the segment of SR 89 south of the bridge. Revised pavement markings on the northbound and eastbound approaches and the elimination of free-flowing right turn lanes at the existing wye intersection will eliminate conflicting maneuvers and reduce the potential for rear-end collisions to occur (the most common crash type in the study area). Furthermore, the existing wye with Alternative 4 improvements is projected to operate at a higher LOS in 2018 than the existing signalized wye intersection, which should reduce queues on the SR 89 approaches. Shorter queue lengths may lead to a reduction in rear-end crashes. Also, pedestrian and bicyclist exposure to vehicular traffic would be reduced

because project features associated with Alternative 4 would provide a grade-separated crossing for the pedestrian/bike paths under the bridge. The exposure due to crossing the roadway is eliminated, which reduces the potential for pedestrian/bicyclist collisions with motor vehicles. The potential for rear-end crashes (the most predominate crash type in the study area) to occur on SR 89 as motorists stop for the pedestrian signal is eliminated with a grade-separated crossing. Thus, because many design features would improve traffic and pedestrian safety, implementation of Alternative 4 would result in **beneficial** impacts.

ALTERNATIVE 5: NO ACTION

Because no modifications to the existing conditions would occur, implementation of Alternative 5 would result in **no impact**.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Alternative 6 would include major modifications to the existing wye intersection and would provide for a five-lane section on Fanny Bridge at the existing location. Elimination of the required merge from two lanes to one lane prior to the bridge on the southbound intersection departure would reduce the potential for conflict between vehicles. Also, the conversion of the free-flowing right turn lanes to traditional right turn lanes will reduce some of the existing conflicts and the potential for rear-end collisions to occur (the most common crash type in the study area). The barrier-separation between the sidewalks and vehicle lanes on the bridge would reduce the pedestrian/bicyclist exposure to vehicles. Thus, because many design features would improve traffic and pedestrian safety, implementation of Alternative 6 would result in **beneficial** impacts.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Alternative 6a replaces the existing signalized intersection with a roundabout. Roundabouts tend to reduce the severity of traffic crashes because the geometric design of the entry points eliminates right angle crashes and high entry speeds as well as reduces conflict points. The low-speed, sideswipe collisions that can occur in roundabouts generally result in a less severe outcome. The roundabout is likely to reduce delay as compared to the existing wye intersection in 2018, which will reduce the potential for queuing and rear-end collisions to occur. Thus, because many design features would improve traffic and pedestrian safety, implementation of Alternative 6a would result in **beneficial** impacts.

Impact 4.15-6. Mobility and operations-related impacts.

A second bridge across the Truckee River would improve travel flow and efficiency for all transportation modes in the study area. Two river crossings that would spread the vehicular, pedestrian, and bicycle volumes across multiple locations would reduce congestion and the potential for conflict among travel modes. Implementation of Alternatives 1, 2, 3, and 4 would result in a **beneficial** impact. Because a second river crossing is not provided under Alternatives 5, 6, and 6a, there would be **no impacts** with these alternatives.

ALTERNATIVE 1: NEW ALIGNMENT – EXISTING SR 89 OPEN TO LOCAL TRAFFIC

With the second crossing of the Truckee River under Alternative 1, an additional route would improve flow and efficiency for all transportation modes in the study area. Two routes would reduce congestion and travel times through the study area as compared to the No Action and Alternatives 6 and 6a. Emergency services response times would improve with reduced congestion and a second river crossing option (TTD has received letters from emergency services providers that express support for a second bridge and river crossing). Likewise, the local business community would also benefit from Alternative 1 because delivery times could be more accurately predicted and, hence, customers better served. Throughout this study process, business owners have expressed concern about the congestion-related impacts to just-in-time delivery of goods and services. Relocating the SR 89 through movements would reduce volumes and queue lengths currently experienced on the existing segment of SR 89 near Granlibakken Road. This improved operational efficiency would likely eliminate the cut-through traffic traveling through neighborhoods adjacent to SR 89 between Sequoia Avenue and Granlibakken Road; local residents have expressed concern about

this issue to Placer County. The grade-separated crossings under Alternative 1 would result in more efficient travel for both motorists and pedestrians/bicyclists. Furthermore, Alternative 1 would provide the best access to the transit center of all the action alternatives. The relocated SR 89 and existing SR 89 roadways provide two routes to the transit center from SR 89 and 28. Based on these qualitative improvements, implementation of Alternative 1 would result in a **beneficial** impact.

ALTERNATIVE 2: NEW ALIGNMENT – CLOSE EXISTING SR 89 TO VEHICLE TRAFFIC

Alternative 2 closes Fanny Bridge to vehicle travel other than emergency services. Emergency services response times would improve with a second river crossing option (TTD has received letters from emergency services providers that express support for a second bridge and river crossing). Even though the existing condition of one river crossing remains and requires all vehicle traffic (other than emergency services) to use the same bridge, operations at the new bridge would improve as compared to Fanny Bridge for several reasons: removal of the at-grade pedestrian/bicyclist crossing; reduction or elimination of the pedestrian activity for fish viewing; separation of the pedestrians/bicyclists and vehicular traffic; and reduction in intersection queuing onto the bridge due to the improved operations of the new SR 89/28 intersection as compared to the existing wye. This new crossing of the Truckee River and the separation of local and through traffic on existing SR 89 under Alternative 2 would improve flow and efficiency for all transportation modes in the study area. The local business community would also benefit from Alternative 2 because delivery times could be more accurately predicted and, hence, customers better served. Throughout this study process, business owners have expressed concern about the congestion-related impacts to just-in-time delivery of goods and services. Eliminating vehicle access to Fanny Bridge would reduce volumes and eliminate queues currently experienced on the existing segment of SR 89 near Granlibakken Road. This would likely lead to the elimination of cut-through traffic through neighborhoods adjacent to SR 89 between Sequoia Avenue and Granlibakken Road; local residents have expressed concern about this issue to Placer County. Based on these qualitative improvements, implementation of Alternative 2 would result in a **beneficial** impact.

ALTERNATIVE 3: NEW ALIGNMENT – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Alternative 3 maintains vehicular access across the bridge, but this demand would be reduced because SR 89 does not provide access to the same intersections south of Fanny Bridge as the No Action Alternative. Thus, the new Truckee River bridge would likely carry most of the vehicle demand. However, operations at the new bridge would improve as compared to Fanny Bridge for several reasons: removal of the at-grade pedestrian/bicyclist crossing; reduction or elimination of the pedestrian activity for fish viewing; separation of the pedestrians/bicyclists and vehicular traffic; and reduction in intersection queuing onto the bridge due to the improved operations of the new SR 89/28 intersection as compared to the existing wye. Emergency services response times would improve with reduced congestion and a second river crossing option (TTD has received letters from emergency services providers that express support for a second bridge and river crossing). This new crossing of the Truckee River under Alternative 3 would improve flow and efficiency for all transportation modes in the study area. Likewise, the local business community would also benefit from Alternative 3 because delivery times could be more accurately predicted and, hence, customers better served. Throughout this study process, business owners have expressed concern about the congestion-related impacts to just-in-time delivery of goods and services. Eliminating vehicle access south of Fanny Bridge would reduce volumes and eliminate queues currently experienced on the existing segment of SR 89 near Granlibakken Road. This would likely lead to the elimination of cut-through traffic traveling through neighborhoods adjacent to SR 89 between Sequoia Avenue and Granlibakken Road; local residents have expressed concern about this issue to Placer County. Based on these qualitative improvements, implementation of Alternative 3 would result in a **beneficial** impact.

ALTERNATIVE 4: NEW ALIGNMENT, NO ROUNDABOUTS – EXISTING SR 89 BECOMES A CUL-DE-SAC ON THE SOUTH SIDE OF THE BRIDGE

Alternative 4 maintains vehicular access across the bridge, but this demand would be reduced because SR 89 does not provide access to the same intersections south of Fanny Bridge as the No Action Alternative. Thus, the new Truckee River bridge would likely carry most of the vehicle demand. However, operations at the new bridge would improve as compared to Fanny Bridge for several reasons: removal of the at-grade

pedestrian/bicyclist crossing; reduction or elimination of the pedestrian activity for fish viewing; separation of the pedestrians/bicyclists and vehicular traffic; and reduction in intersection queuing onto the bridge due to the improved operations of the new SR 89/28 intersection as compared to the existing wye. Emergency services response times would improve with reduced congestion and a second river crossing option (TTD has received letters from emergency services providers that express support for a second bridge and river crossing). This new crossing of the Truckee River under Alternative 4 would improve flow and efficiency for all transportation modes in the study area. Likewise, the local business community would also benefit from Alternative 4 because delivery times could be more accurately predicted and, hence, customers better served. Throughout this study process, business owners have expressed concern about the congestion-related impacts to just-in-time delivery of goods and services. Eliminating vehicle access south of Fanny Bridge would reduce volumes and eliminate queues currently experienced on the existing segment of SR 89 near Granlibakken Road. This would likely lead to the elimination of cut-through traffic traveling through neighborhoods adjacent to SR 89 between Sequoia Avenue and Granlibakken Road; local residents have expressed concern about this issue to Placer County. Based on these qualitative improvements, implementation of Alternative 4 would result in a **beneficial** impact.

ALTERNATIVE 5: NO ACTION

Because no modifications to the existing conditions would occur, implementation of Alternative 5 would result in **no impact**.

ALTERNATIVE 6: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, MODIFY LANE GEOMETRICS AT EXISTING WYE INTERSECTION

Alternative 6 would not provide a second river crossing nor a second route to spread the vehicle demand for SR 89. However, the reconstructed Fanny Bridge and associated geometric/access improvements at the wye intersection would increase the capacity of SR 89 and improve operational efficiency. The removal of the at-grade pedestrian/bicyclist crossing and the physical separation of the pedestrians/bicyclists and vehicular traffic would also contribute to reducing the congestion that currently occurs at the bridge. This improved efficiency would reduce or eliminate the queues currently experienced on the existing segment of SR 89 near Granlibakken Road. This would likely lead to the elimination of cut-through traffic traveling through neighborhoods adjacent to SR 89 between Sequoia Avenue and Granlibakken Road; local residents have expressed concern about this issue to Placer County. Based on these qualitative improvements, implementation of Alternative 6 would result in a **beneficial** impact.

ALTERNATIVE 6A: REHABILITATE OR REPLACE AND WIDEN EXISTING BRIDGE, INSTALL ROUNDABOUT AT EXISTING WYE INTERSECTION

Alternative 6a would not provide a second river crossing nor a second route to spread the vehicle demand for SR 89. However, the reconstructed Fanny Bridge along with the new roundabout and associated geometric/access improvements at the wye intersection would increase the capacity of SR 89 and improve operational efficiency. The removal of the at-grade pedestrian/bicyclist crossing and the physical separation of the pedestrians/bicyclists and vehicular traffic would also contribute to reducing the congestion that currently occurs at the bridge. This improved efficiency would reduce or eliminate the queues currently experienced on the existing segment of SR 89 near Granlibakken Road. This would likely lead to the elimination of cut-through traffic traveling through neighborhoods adjacent to SR 89 between Sequoia Avenue and Granlibakken Road; local residents have expressed concern about this issue to Placer County. Based on these qualitative improvements, implementation of Alternative 6 would result in a **beneficial** impact.

4.15.4 Avoidance, Minimization, and/or Mitigation Measures

Mitigation Measure 4.15-1: Increase the capacity of the western roundabout at the new SR 89/28 intersection to provide two traffic lanes in 2038.

Mitigation Measure 4.15-1 applies to Alternatives 2 and 3.

The single-lane, hybrid roundabout configuration at the western roundabout, proposed for opening year, is projected to provide acceptable LOS on the adjacent roadway segments during both peak hours in 2018 and the annual average peak hour in 2038. This configuration is projected to result in LOS F on the segment between the western roundabout and the existing wye intersection in 2038 summer peak conditions under Alternatives 2 and 3. This roadway segment could be improved to acceptable LOS standards through conversion of the western roundabout from a single-lane, hybrid to a two-lane design (Exhibit 4.14-16 and 4.14-17). Preliminary modeling has indicated that acceptable LOS would be provided, given projected traffic counts in 2038 (Table 4.15-11). Detailed design and modeling will be required upon the identified need to improve traffic flows in this segment. This design is not under consideration for opening day due to anticipated safety issues given current and 2018 traffic volumes, as this design relies upon larger flow volumes to function as intended.

Table 4.15-11 Year 2038 Roadway Segment Traffic Operations Analysis for Alternatives 2 and 3 with Two-Lane Roundabout

Arterial Segment	Direction	Alternative 2		Alternative 3	
		Speed	LOS	Speed	LOS
Annual Average Peak Hour					
SR 89 – between Twin Crags Way and New SR 89/28 intersection (Western Roundabout for Alts 1,2,3 or signal for Alt 4)	EB	22.2	C	22.2	C
	WB	21.3	C	21.3	C
New SR 28 – between New SR 89/28 intersection (Western Roundabout for Alts 1,2,3 or signal for Alt 4) & existing wye intersection	EB	22.5	C	20.8	C
	WB	21.8	C	20.5	C
New SR 89 – between New SR 89/28 intersection (Western Roundabout for Alts 1,2,3 or signal for Alt 4) & New SR 89/existing SR 89 intersection (Eastern Roundabout for Alts 1,2,3 or Granlibakken Rd for Alts 4)	NB	21.7	C	21.8	C
	SB	20.7	C	20.8	C
Summer Peak Hour					
SR 89 – between Twin Crags Way and New SR 89/28 intersection (Western Roundabout for Alts 1,2,3 or signal for Alt 4)	EB	21.0	C	21.0	C
	WB	21.3	C	21.3	C
New SR 28 – between New SR 89/28 intersection (Western Roundabout for Alts 1,2,3 or signal for Alt 4) & existing wye intersection	EB	22.3	C	20.5	C
	WB	20.8	C	19.0	C
New SR 89 – between New SR 89/28 intersection (Western Roundabout for Alts 1,2,3 or signal for Alt 4) & New SR 89/existing SR 89 intersection (Eastern Roundabout for Alts 1,2,3 or Granlibakken Rd for Alts 4)	NB	21.5	C	21.5	C
	SB	17.8	D	17.8	D

Notes: 1. Speed = Average Travel Speed in miles per hour, EB = Eastbound, WB = Westbound, NB = Northbound, LOS = Level of Service

2. Study arterial segments are Class III Arterials based on 2010 Highway Capacity Manual, Two-Lane Highways.

3. Free flow speeds of 35-37 mph were calculated based on HCM 2010.

4. Speed is represented in miles per hour.

Source: Appendix G

Significance after Mitigation

At this time, a funding source for this roundabout expansion to a full two-lane roundabout has not been identified nor has a proponent committed to planning and programming the project. Furthermore, given that the anticipated effect would occur 20 years in the future, it is unknown precisely when unacceptable LOS levels would occur. Therefore, this mitigation measure is not considered to be feasible and this impact would be **significant and unavoidable** under Alternatives 2 and 3.

LEGEND

EXISTING FEATURES

- EXISTING BIKE PATH TO REMAIN
- EXISTING TRANSIT CENTER
- 64-ACRE TRACT BOUNDARY

PROPOSED FEATURES

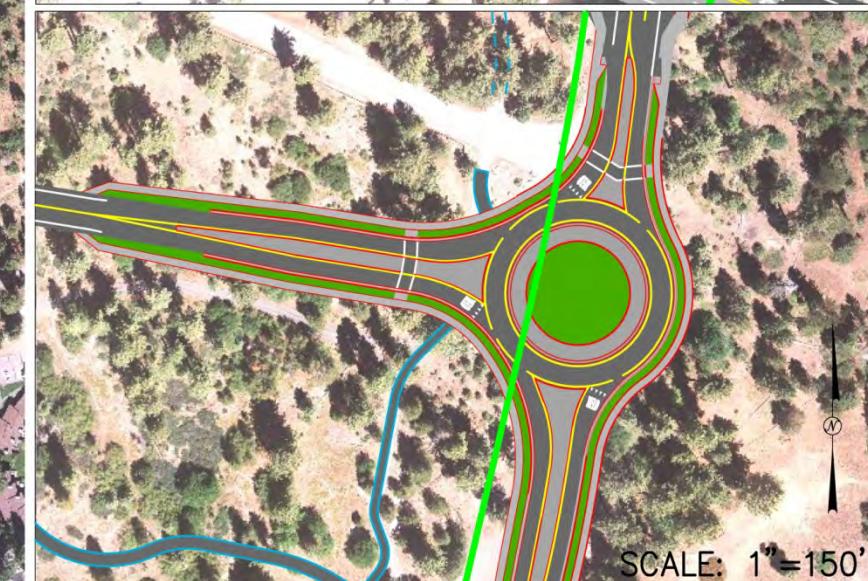
- CURB, GUTTER, AND MEDIAN
- BRIDGE STRUCTURE
- RETAINING WALL AND/OR BARRIER
- RECONSTRUCTED BIKE PATH
- CUT/FILL LIMITS
- & WHITE
- STRIPING
- LANDSCAPED MEDIAN
- MODIFY EXISTING SIGNAL
- REMOVE FREE RIGHT TURNS
- BOLLARDS



BOLLARDS WILL BE PLACED NORTH AND SOUTH OF FANNY BRIDGE TO PROHIBIT VEHICULAR TRAFFIC BUT ALLOW FOR EMERGENCY ACCESS



WESTERN
ROUNDABOUT



EASTERN
ROUNDABOUT

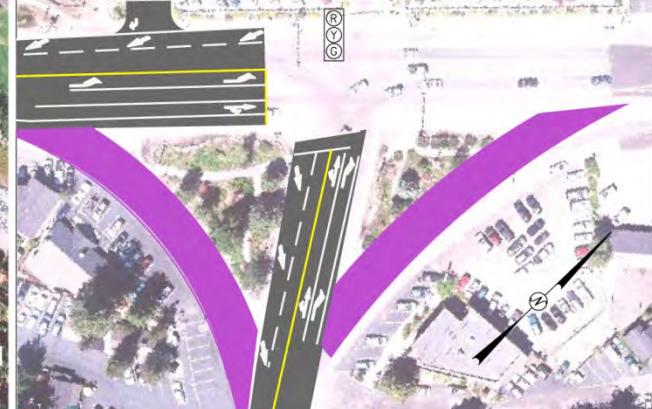
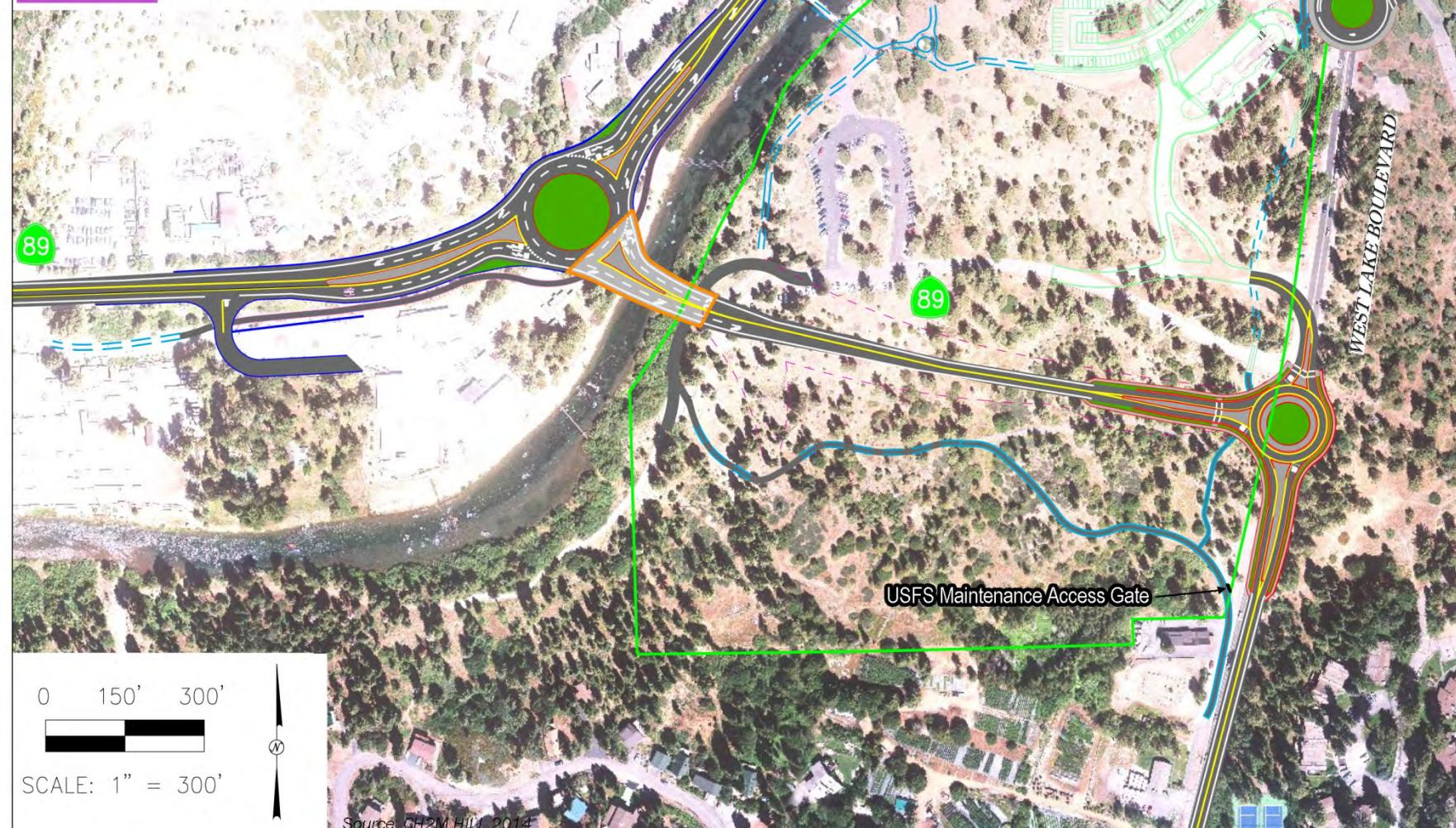
LEGEND

EXISTING FEATURES

- EXISTING BIKE PATH TO REMAIN
- EXISTING TRANSIT CENTER
- 64-ACRE TRACT BOUNDARY

PROPOSED FEATURES

- CURB, GUTTER, AND MEDIAN
- BRIDGE STRUCTURE
- RETAINING WALL AND/OR BARRIER
- RECONSTRUCTED BIKE PATH
- CUT/FILL LIMITS
- &
 STRIPING
- LANDSCAPED MEDIAN
- MODIFY EXISTING SIGNAL
- REMOVE FREE RIGHT TURNS

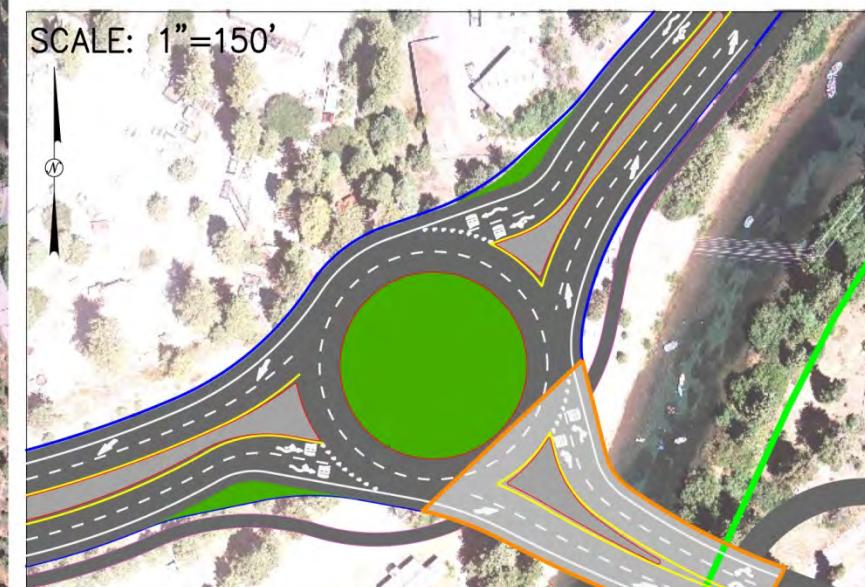


OPTION 1

"WYE"
INTERSECTION



OPTION 2



WESTERN
ROUNDABOUT



EASTERN
ROUNDABOUT

CH2MHILL.
Toho Transportation District
X11010010 01 043

Mitigation Measure 4.15-2a: Implement improvements for the side-street movements at the Granlibakken Road intersection with SR 89.

Mitigation Measure 4.15-2a applies to Alternatives 1, 2, 3 and 4.

Four of the proposed build alternatives would create a site-specific impact on the local transportation system when analyzed against the projected operations for the No Action condition. Article 15.28.010 of the Placer County Code establishes a road network Capital Improvement Program. The payment of traffic impact fees funds the Capital Improvement Program for area roadway improvements. Placer County has already identified the SR 89 and Granlibakken Road intersection as a future Capital Improvement Program project. The project is not defined at this time; however, the improvements will modify the type of control at this location to reduce the delay for the side street movements on Granlibakken Road. Placer County is the agency responsible for this mitigation measure.

Before initiating construction of the improvements to the SR 89/Granlibakken Road intersection, an Encroachment Permit from Caltrans will need to be approved. In addition, implementation of this mitigation measure will include sufficient design improvements to achieve acceptable delay and LOS levels to the satisfaction of Placer County, Caltrans, TRPA, and TTD.

Significance after Mitigation

Implementation of mitigation measure 4.15-2a will reduce delay and maintain the LOS at the SR 89/Granlibakken Road intersection at acceptable levels. Because implementation of this mitigation measure will contribute to improvements to this intersection and will include acceptance by Placer County, TRPA, and TTD, impacts will be reduced to a **less-than-significant** level under Alternatives 1, 2, 3, and 4.

Mitigation Measure 4.15-2b: Increase the capacity of the western roundabout at the new SR 89/28 intersection to provide two traffic lanes in 2038.

Mitigation Measure 4.15-2b applies to Alternatives 2 and 3.

Implement Mitigation Measure 4.15-1.

Preliminary modeling has indicated that acceptable LOS would be provided, given projected traffic counts in 2038 (Table 4.15-12). Detailed design and modeling will be required upon the identified need to improve traffic flows at this intersection. This design is not under consideration for opening day due to anticipated safety issues given current and 2018 traffic volumes, as this design relies upon larger flow volumes to function as intended.

Significance after Mitigation

At this time, a funding source for this roundabout expansion to a full two-lane roundabout has not been identified nor has a proponent committed to planning and programming the project. Furthermore, given that the anticipated effect would occur 20 years in the future, it is unknown precisely when unacceptable LOS levels would occur. Therefore, this mitigation measure is not considered to be feasible and this impact would be **significant and unavoidable** under Alternatives 2 and 3.

Table 4.15-12 Year 2038 Intersection Traffic Operations Analysis for Alternatives 2 and 3 with Mitigation Measure

Alternative	Peak Hour	Analysis Method	Calibration	By Approach							
				Southbound		Westbound		Northbound		Eastbound	
				LOS	Average Delay	LOS	Average Delay	LOS	Average Delay	LOS	Average Delay
2	Summer	Synchro	HCM 2010			B	10.6	B	13.6	C	18.4
3						B	10.1	B	13.0	C	17.8

2014 FHWA Capacity Adjustment for Two-lane Roundabout
Delay in seconds per vehicle

Source: Appendix G

Mitigation Measure 4.15-4: Maintain efficient traffic flow and provide safe work zones during each construction season.

Mitigation Measure 4.15-4 applies to Alternatives 1, 2, 3, 4, 6 and 6a.

Prior to construction, the contractor will be required to submit a Traffic Control Plan to FHWA-CFLHD. FHWA-CFHLD will coordinate review and approval of the plan with TRPA, Placer County, Caltrans, and other agencies as appropriate. The Traffic Control Plan will regulate maintenance of traffic during each construction season and comply with agency standards and regulations to promote safe and efficient travel for the public and construction workers through the work zones. The plan will include provisions for regular inspections to assess contractor compliance with the plan, signage to direct traffic, and public noticing, as appropriate.

Significance after Mitigation

Alternatives 1, 2, 3, and 4

Implementation of Mitigation Measure 4.15-4 will minimize traffic flow disruption to the extent possible through the construction work zones and enhance the safety of the work zones for the traveling public and workers. Because implementation of this mitigation measure will minimize to the extent possible transportation disruptions during the construction seasons, impacts will be reduced to a **less-than-significant** level under Alternatives 1, 2, 3, and 4.

Alternatives 6 and 6A

While implementation of Mitigation Measure 4.15-4 would minimize traffic flow disruption to the extent feasible, as the only river crossing in the local area, the requirement to keep Fanny Bridge open during construction necessitates closure of one lane at all times and full closure occasionally. Fanny Bridge currently reduces the capacity of SR 89 during the summer peak visitation period and creates lengthy vehicular queues. Decreasing the existing two lanes to one lane for traffic flow will exacerbate this existing condition. In addition, weather conditions and noise requirements constrain the timing of construction to hours that would generally be subject to reduced traffic flow rates. Therefore, there is no feasible mitigation to reduce significant construction-related traffic impacts under Alternatives 6 and 6a. Thus, construction-related traffic impacts would be **significant and unavoidable** under Alternatives 6 and 6a.

5 CUMULATIVE IMPACTS

5.1 CUMULATIVE IMPACT ANALYSIS METHODOLOGY

This section provides information on the cumulative impact analysis methodology common to the evaluation of cumulative impacts for all environmental resource areas in this chapter. Because the proposed SR 89/Fanny Bridge Community Revitalization Project is a later activity consistent with the Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS), which was evaluated in its program EIR and TRPA EIS and adopted in December 2012, cumulative impacts are addressed in light of the information in the program EIR. Where cumulative impacts have been previously addressed in the RTP/SCS EIR/EIS and are still applicable at this time, analysis of them need not be repeated. Rather, reference is made to the analysis in the RTP/SCS. This approach is in accordance with Section 15168(d) of the State CEQA Guidelines.

5.1.1 Definition of Cumulative Impacts

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. 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.

NEPA implementing regulations require consideration of cumulative effects (40 Code of Federal Regulations [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 does pose 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.

5.1.2 Cumulative Impact Approach

The 2012 RTP/SCS was approved based on the environmental analysis in a CEQA EIR and TRPA EIS that was prepared as a program environmental document for the entire plan of transportation projects, including the SR 89/Fanny Bridge Community Revitalization Project. The RTP/SCS EIR/EIS is incorporated by reference into this document for the purpose of relying on cumulative and region-wide impact analysis that has already been prepared and presented in the certified program EIR, in accordance with CEQA Guidelines Section 15168, and in the certified TRPA EIS. Section 15168(d) of the State CEQA Guidelines states:

- (d) Use with Subsequent EIRs and Negative Declarations. A program EIR can be used to simplify the task of preparing environmental documents on later parts of the program. The program EIR can:

- (1) Provide the basis in an Initial Study for determining whether the later activity may have any significant effects.
- (2) Be incorporated by reference to deal with regional influences, secondary effects, cumulative impacts, broad alternatives, and other factors that apply to the program as a whole.
- (3) Focus an EIR on a subsequent project to permit discussion solely of new effects which had not been considered before.

To the extent that cumulative impacts and region-wide influences are covered in the RTP/SCS EIR/EIS and are still applicable, this EIR/EIS/EA relies on that prior analysis and does not conduct a redundant evaluation.

To examine the contributions of other related projects that are not included in the RTP/SCS EIR/EIS, cumulative impact analysis is conducted in accordance with State CEQA Guidelines Section 15130. It identifies two basic methods for establishing the cumulative context within which a project is considered: (1) the use of a list of past, present, and probable future projects; or (2) the use of adopted projections from a general plan, other regional planning document, or a certified EIR for such a planning document. A combination of these approaches may also be used. NEPA and TRPA do not provide similarly detailed guidance on methods for cumulative impact analysis.

This cumulative analysis uses the “list” approach to supplement, where needed, the analysis, modeling of projections, and impact evaluation from the previously certified EIR/EIS for the RTP/SCS. Sections 5.1.4 and 5.1.5 discuss cumulative impacts using these approaches. The effects of past and present projects on the environment are reflected by the existing conditions in the project area.

5.1.3 CUMULATIVE SETTING

The geographic area that could be affected by the project varies depending on the type of environmental resource being considered. When the effects of the project are considered in combination with those other past, present, and probable future projects to identify cumulative impacts, the other projects that are considered may also vary depending on the type of environmental effects being assessed. Table 5-1 presents the general geographic areas associated with the different resources addressed in this analysis.

Table 5-1 Geographic Scope of Cumulative Impacts

Resource Topic	Geographic Area
Land Use	Limited to project site and adjacent land uses
Agricultural and Forest Resources	Tahoe Region
Scenic Resources	Project site and surrounding public viewpoints
Geology, Soils, Land Capability and Coverage	Tahoe Region for land capability and coverage; for geology and soils activities in the immediate vicinity
Hydrology and Water Quality	Local and regional watersheds
Biological Resources	Defined differently for each species, based on species distribution, habitat requirements, and scope of impact from proposed activities
Recreation	Tahoe Region (overall accessibility of recreational opportunities) and local (interactions with individual recreational activities)
Heritage, Cultural, and Paleontological Resources	Limited to project site
Hazards and Hazardous Materials	Immediate project vicinity

Table 5-1 Geographic Scope of Cumulative Impacts

Resource Topic	Geographic Area
Public Services and Utilities	North and West Shore communities of Lake Tahoe (water, wastewater, electricity, natural gas, and solid waste) and project vicinity (police and fire)
Traffic and Transportation	Tahoe Region and local roadways where the project could alter traffic conditions
Air Quality, Greenhouse Gas Emissions and Climate Change	Tahoe Region (pollutant emissions that affect the air basins), immediate project vicinity (pollutant emissions that are highly localized), and global/statewide for greenhouse gasses
Noise	Immediate project vicinity where project-generated noise could be heard concurrently with noise from other sources

5.1.4 Cumulative Impacts Analyzed in the RTP/SCS EIR/EIS

The SR 89/Fanny Bridge Community Revitalization Project is included in the list of projects to be undertaken to implement the Lake Tahoe RTP/SCS. The RTP is a long-range plan to develop a transportation system in the Tahoe Region that supports a healthy and prosperous community, economy, and environment and mitigates existing adverse mobility and environmental conditions. The SCS is a combined land use and transportation plan to meet adopted goals for the reduction in greenhouse gas (GHG) emissions, in compliance with California's Senate Bill (SB) 375, Statutes of 2008. The Lake Tahoe RTP/SCS was last updated and adopted in December 2012. Many of the contemporary concepts necessary to achieve the Region's transportation vision were incorporated into the RTP at that time, in conjunction with the SCS for the California side of the Region. These concepts include integration between land use planning and transportation; bringing work, shopping, recreation, housing and lodging closer together; linking development better to a multi-modal transportation system; closing gaps in the existing bicycle and pedestrian network; enhancing transit service; and revitalizing communities through corridor enhancement projects that improve mobility for all travel modes.

In December 2012, prior to adoption of the plan, a program EIR/EIS was certified for the RTP/SCS. In accordance with Section 15168 of the State CEQA Guidelines, a Program EIR may be prepared on a series of actions that can be characterized as one large project and are related to, among other things, the issuance of general criteria to govern the conduct of a continuing program or individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects that can be mitigated in similar ways. The proposed RTP/SCS met these criteria for use of a Program EIR.

A Program EIR provides a regional consideration of cumulative effects and includes broad policy alternatives and program mitigation measures that are equally broad in scope. The Program EIR prepared for the RTP/SCS provides a regional-scale analysis and a framework of mitigation measures for subsequent, site-specific environmental review documents prepared by lead agencies in the Region as individual planning, development and transportation projects are identified, designed and move through the planning, review, and decision-making process.

Because the RTP/SCS EIR/EIS serves as the program environmental document for the SR 89/Fanny Bridge Community Revitalization Project and the project is included in the RTP/SCS project description, the SR 89/Fanny Bridge Project is a "later part of the" RTP/SCS and is consistent with the Program EIR/EIS. As noted in Section 15168(d) of the State CEQA Guidelines, the Program EIR can be used to "simplify the task of preparing environmental documents on later parts of the program." The Program EIR can be incorporated by reference into a later project's EIR to "deal with regional influences, secondary effects, cumulative impacts, broad alternatives and other factors that apply to the later project." As such, the following discussion summarizes cumulative impacts that have been addressed adequately in the RTP/SCS EIR/EIS. Please refer to the RTP/SCS EIR/EIS for more detailed information. The Draft and Final EIR/EIS can be found and downloaded at <http://tahoempo.org/Mobility2035/>.

CUMULATIVE VEHICLE MILES OF TRAVEL (VMT) PER CAPITA IN THE REGION

VMT per capita is a measure of the efficiency of the transportation system and the degree to which the land use pattern would reduce personal motor vehicle travel. For the Tahoe Region, VMT per capita may be influenced by a number of variables, including land use pattern, emphasis on personal motor vehicle travel compared to other travel modes, and implementation of vehicle trip reduction strategies. When VMT per capita increases, it results in indirect environmental impacts (such as air pollutant emissions). Under RTP/SCS VMT per capita would increase. This increase may be caused by a number of factors such as additional external workers associated with new commercial space; lack of substantial bicycle, pedestrian, and transit enhancements; and limited number of new dwelling units added to the Region (i.e., less ability to use new dwelling unit placement to decreased average VMT). Improved non-motor vehicle mobility, such as the multi-use trail and pedestrian features of the Fanny Bridge/SR 89 Community Revitalization Project, would contribute lower VMT per capita. Under the adopted RTP/SCS, VMT per capita would decrease. Thus, the project's contribution to any change in VMT per capita **would not result in a considerable contribution to a significant cumulative impact.**

CONSISTENCY WITH AIR QUALITY PLANS AND TRANSPORTATION CONFORMITY

The Lake Tahoe Air Basin (LTAB) is in attainment or designated unclassified for all National Ambient Air Quality Standards (National AAQS) and is designated nonattainment for ozone and PM₁₀ per California AAQS. The intent of the RTP/SCS is to accommodate the expected growth in the Region in a way that improves traffic flow and mobility of residents and visitors to the Region, and reduces regional and localized traffic congestion. The SR 89/Fanny Bridge Project helps achieve the traffic flow and mobility goals of the RTP/SCS.

For the California portion of the LTAB, the only applicable federal air quality plan for Lake Tahoe is the Carbon Monoxide Maintenance Plan (CO Maintenance Plan) originally adopted in 1996 and revised in 2004 (because other pollutants were already in attainment with respect to their respective national air quality standards when the CO Maintenance Plan was prepared, no other maintenance plans were developed). Part of the CO maintenance strategy involves allocation of transportation emissions budgets to the maintenance areas. The RTP must has been determined to conform to the transportation emissions budget allocated to the Region, or the Region would face penalties for impairing the Region's ability to maintain the federal CO standards. The emissions budgets only apply to VMT in the applicable California jurisdiction. If the RTP conforms to the emissions budget allocated to the Region, then the RTP would be consistent with the CO maintenance strategy for the CO National AAQS. The RTP/SCS was found to result in mobile-source CO emissions well within the emissions budgets allocated for transportation conformity. The transportation emissions budget is the basis for air quality planning efforts in the Lake Tahoe CO Maintenance Plan. If the transportation emissions budget is met, then the Basin is considered to be on track for continued maintaining attainment of the national CO standards. The RTP/SCS would not conflict with or obstruct regional CO maintenance efforts; in fact, its mobility improvements are consistent with the RTP and its goal to help maintain the national CO standard. Because the SR 89/Fanny Bridge Community Revitalization Project is included within the RTP/SCS list of projects that would improve traffic flow and mobility, the project also conforms to the CO Maintenance Plan. Therefore, the project's consistency with the CO Maintenance Plan and impact on continued attainment of the national CO standard would be **beneficial** and **would not contribute to a cumulatively significant impact.**

CUMULATIVE LONG-TERM OPERATIONAL REGIONAL AIR QUALITY IMPACTS

Basin-wide VMT for the RTP/SCS were obtained from the TRPA travel demand model and were estimated using the origin-destination method recommended by the SB 375 Regional Targets Advisory Committee. Total Basin-wide, mobile-source emissions associated with VMT the RTP/SCS were modeled using EMFAC 2011. It was assumed that the vehicle fleet information contained in the EMFAC model for eastern Placer and El Dorado Counties would be representative of vehicles throughout the Region because the factors that

determine vehicle choice (e.g., lifestyle, mobility, environmental, and local economic factors) do not differ dramatically throughout the Basin.

Mobile-source emissions associated with the RTP/SCS were found to decrease over the plan implementation period, because of increasingly stringent vehicle emission standards. These emissions estimates were based on outputs from the regional transportation model for plan buildout and represent the cumulative (2035) condition. Because long-term regional emissions would decrease over the plan period, RTP/SCS implementation would not conflict with attainment maintenance efforts and would contribute to TRPA's attainment and maintenance of air quality standards and thresholds. Because the SR 89/Fanny Bridge Project is included within the RTP/SCS list of projects and was contemplated in the RTP/SCS EIR/EIS, implementation of the project **would not contribute to a cumulatively significant long-term operational regional air quality impact**.

GREENHOUSE GAS EMISSIONS – CUMULATIVE CLIMATE CHANGE CONTRIBUTION

Implementation of the RTP/SCS would occur in conjunction with land use development and population growth anticipated during the plan horizon. Although the RTP strategies would improve the efficiency of transportation-related GHG emissions by increasing transit and non-motorized vehicle travel, the combined influence of land use development and population growth occurring during the RTP/SCS plan horizon would be greater than the GHG efficiency gains, resulting in a cumulatively considerable increase in GHG emissions. Therefore, the regional GHG emissions increase would contribute to the significant cumulative impact to global climate, despite implementing all feasible measures to reduce GHG emissions. The adopted RTP/SCS alternative's strategy package of land use and transportation actions provides the maximum feasible extent of GHG emission reduction for the Region's transportation sector. Because the SR 89/Fanny Bridge Community Revitalization Project is included within the RTP/SCS list of projects, it would be a part of a **considerable contribution to the cumulative impact of climate change**. This significant cumulative impact was acknowledged in the RTP/SCS EIR/EIS, so it need not be re-evaluated here.

CUMULATIVE LONG-TERM TRAFFIC NOISE LEVELS ALONG EXISTING ROADWAY ALIGNMENTS

Long-term traffic noise levels under the RTP/SCS could exceed threshold standards established by TRPA for different land use categories and highway corridors; result in a perceptible long-term increase to the ambient noise level (i.e., 3 dBA CNEL or greater) in areas where the applicable TRPA threshold standard is not exceeded; and/or result in a long-term noise level increase in an area where the applicable TRPA threshold standard is already exceeded. It is unknown at this time whether all individual projects included in the alternatives would be able to incorporate design and operational measures that would prevent an increase in traffic noise levels that exceed applicable TRPA-designated CNEL standards and/or that would fully offset traffic noise increases in areas where TRPA-designated CNEL standards are already exceeded. However, the RTP/SCS EIR/EIS provided mitigation that will reduce potential impacts to a less-than-significant level and project implementation, which is also applicable to the Fanny Bridge/SR 89 Community Revitalization Project. As a result, the project **would not contribute to a cumulatively significant impact** on long-term traffic noise levels along existing roadway alignments.

CUMULATIVE LONG-TERM TRAFFIC NOISE LEVELS ALONG REALIGNED ROADWAYS

Two projects involving roadway realignments are included in the approved RTP/SCS, the U.S. 50/South Shore Community Revitalization Project and the SR 89/Fanny Bridge Community Revitalization Project. A project involving the realignment of existing roadways would relocate traffic and attendant noise to locations that were previously quieter and where future traffic noise levels could exceed the CNEL standards established by the applicable Community Plan and/or PASs and/or local jurisdictions. It is unknown at this time whether all individual projects included in the RTP/SCS would be able to incorporate design and operational measures that would prevent traffic noise levels that exceed applicable TRPA-designated CNEL standards and/or that would fully offset noise increases, of any magnitude, in areas where TRPA-designated CNEL standards are already exceeded. However, adopted mitigation will reduce potential impacts to a less-

than-significant level. Because the SR 89/Fanny Bridge Community Revitalization Project is included within the RTP/SCS and its EIR/EIS, and all mitigation measures in the RTP/SCS EIR/EIS also apply to this project, it would conform to CNEL standards and **would not contribute to a cumulatively significant impact**.

CUMULATIVE LAND COVERAGE

According to the 2011 Threshold Evaluation for soils, LCDs 1a, 1c, and 2 through 7 are meeting the threshold standard based on hard impervious cover. LCD 1b is not meeting the standard as existing hard impervious cover is estimated to be exceeding the allowable land coverage by 657 acres or 681 percent.

Coverage is considered a major environmental issue in the Region and various programs and projects are purposed to reduce coverage and the associated indirect impacts (e.g., water quality). Many cumulative projects throughout the Region involve reductions in coverage on sensitive lands, including: EIP projects, CTC and NDSL land acquisition/restoration projects, USFS restoration projects, the excess coverage mitigation program, coverage transfer requirements, as well as certain development projects (such as Beach Club on Lake Tahoe, Boulder Bay CEP, Kings Beach Housing Now, and Kings Beach Town Center).

In combination with existing programs (e.g., EIP, CEP), all future development projects would be limited such that the allowable coverage limits are not exceeded at the project scale. In addition, through reducing coverage in SEZs and focusing development into community centers on high capability lands, the RTP/SCS would move the Region toward attainment and maintenance of the soil conservation threshold standards. Limitations on coverage, and concentration of development into the community centers would contribute to beneficial effects on indirect impacts of coverage, including effects to water quality, air quality, and biological resources, as discussed in this chapter. Therefore, the RTP/SCS, including the SR 89/Fanny Bridge Community Revitalization Project would **not result in a considerable contribution to a cumulatively significant land coverage impact in the Region**.

BASIN-WIDE VMT THRESHOLD STANDARD UNDER THE REGIONAL PLAN UPDATE

In addition to certification of the RTP/SCS, TRPA concurrently certified the Regional Plan Update. Under Article V of the Tahoe Regional Planning Compact (Public Law 96-551) both a land use plan and a transportation plan are required to be prepared for the Tahoe Region. As stated in the Compact, the Regional Plan must include a “transportation plan for the integrated development of a regional system of transportation,” including, but not limited to, parkways, highways, transit, waterways, public transportation, and bicycle facilities. As a result, the transportation analysis of the Regional Plan Update EIR included transportation policies proposed as part of the Transportation Element of the Goals and Policies and the package of capital projects and transportation strategies, which included the SR 89/Fanny Bridge Community Revitalization Project. One impact included in the Regional Plan Update EIS applies to this cumulative analysis: VMT Threshold Standard under the Regional Plan Update. Please refer to the Regional Plan Update Program EIS for more detailed information, available at <http://trpa.org/>.

VMT is a measure of automobile travel within the transportation system, and an indicator of the degree of integration between the transportation system and planned land uses (i.e., a lower VMT indicates greater beneficial integration of transportation systems and land uses to reduce personal vehicle travel). The 2011 Threshold Evaluation also recognized VMT as a proxy for regional traffic congestion, as well as for air quality (i.e., for nitrates, particulates, and visibility). For the Tahoe Region, VMT may be influenced by a number of variables including land use pattern, emphasis on facilities for certain travel modes over others, and implementation of vehicle trip reduction strategies. TRPA has adopted a VMT Threshold Standard for air quality purposes

The RTP/SCS includes new bicycle and pedestrian facilities, capital improvement projects, transit service and capital enhancements, and waterborne transit. These projects are estimated to result in a 2035 VMT that is 7.2 percent less than the 1981 VMT of the Tahoe Region. Because the VMT Threshold Standard calls for a 10 percent reduction from 1981, falling short of the reduction goal would be a significant impact.

Because the SR 89/Fanny Bridge Community Revitalization Project is included within the traffic analysis in the Regional Plan Update and this analysis, the project would contribute to a cumulatively significant impact, before consideration of mitigation.

TRPA adopted Mitigation Measure 3.3-3: Implement Additional VMT Reduction, in response to the shortfall in reaching the VMT reduction goal. Under this mitigation measure, TRPA developed a program for the phased release of land use allocations, followed by monitoring and forecasting of actual roadway traffic counts and VMT. New development allocations will be authorized for release by the TRPA Governing Board every four years, beginning with the approval of the Regional Plan in 2012. Approval of the release of allocations is contingent upon demonstrating, through modeling and the use of actual traffic counts, that the VMT Threshold Standard will be maintained over the subsequent four-year period. This mitigation measure was established as TRPA Code Section 50.4.3. As a result of this requirement, the project **would not contribute to a cumulatively significant impact**.

5.1.5 Related Project-list Analysis of Cumulative Impacts

RELATED PROJECT LIST

A list of reasonably foreseeable, probable future projects has been developed to supplement the transportation projects included in the RTP/SCS, because these projects were not explicitly identified in the RTP/SCS EIR/EIS. The list of related projects is provided in Table 5-2. Probable future projects are those in the project vicinity that have a reasonable potential to interact with the SR 89/Fanny Bridge Project to generate a cumulative impact (based on proximity, type of impacts, and construction schedule) and either:

- ▲ are partially occupied or under construction,
- ▲ have received final discretionary approvals,
- ▲ have applications accepted as complete by local agencies and are currently undergoing environmental review, or
- ▲ are proposed projects that have been discussed publicly by an applicant or that otherwise become known to a local agency and have provided sufficient information about the project to allow at least a general analysis of environmental impacts.

Projects located within the vicinity of the project site have the possibility of interacting with the project alternatives to generate a cumulative impact. This list of projects in Table 5-2 was used in establishing the cumulative settings and impacts. Exhibit 5-1 shows the corresponding location of the projects listed in Table 5-2.

CUMULATIVE IMPACTS ADDITIONAL TO THOSE CONSIDERED IN RTP/SCS EIR/EIS

The following discussion addresses the cumulative impacts associated with implementation of the project alternatives in combination with other past, present, and reasonably foreseeable related projects. The cumulative impacts described below are limited to those significant environmental impacts that would occur related to implementation of one or more of the alternatives evaluated in this EIR/EIS and that were not otherwise previously analyzed in the RTP/SCS EIR/EIS (see Section 5.1.4). Impacts determined to result in less-than-significant or beneficial impacts were determined to not have the potential to result in an incremental contribution to a significant cumulative impact. Thus, resources sections that are not discussed below consist of: air quality; geology, soils, land capability, and coverage; greenhouse gas and climate change; hydrology and water quality; land use; and public services and utilities.

Table 5-2 Related Project List for Cumulative Impact Analysis				
Project Name	Location	Description	Residential Units and/or Non-Residential Area	Project Status
1. Tahoe Basin Community Plan Update (Placer County)	Placer County portion of the Tahoe Region	Placer County has initiated a planning effort that would update and replace the existing land use plans (e.g., general plans, community plans, and plan area statements) that apply to the entire portion of Placer County within the Tahoe Basin. This planning effort will result in the development of four Area Plans, as defined in Chapter 13 of the TRPA Code.	-	CEQA and TRPA environmental review initiated in May 2014.
2. Martis Valley Trail	Town of Truckee to Brockway Summit	The Martis Valley Trail is a paved, multi-use recreational trail extending from the southern limits of the Town of Truckee at the Nevada/Placer County line eastward to the ridgeline defining the Tahoe Basin. A 5.4-mile section will run parallel to SR 267 between Truckee and Northstar.	-	CEQA environmental review completed in 2012; project approved. Construction will be a multi-year effort. The initial phases of construction will begin in 2014.
3. Northstar Mountain Master Plan	5001 Northstar Drive, Truckee	Mountain Master Plan for the existing ski resort area. Various additions and changes to ski lifts, snowmaking, trails, bridges, access, ropes course, bike trails, and campsites.	-	The scoping process was completed in December 2012. EIR preparation is underway. Phased construction anticipated to occur between 2024 and 2029.
4. Northstar Highlands Phase II	Northstar Drive, Truckee	Modifications to the original subdivision approval, reducing the development area and number of housing units (from 576 units to 446 units).	50 townhomes, 10 single family lots, 386 condominiums, up to 147 commercial condominiums, and 4,000 square feet of commercial space	CEQA Initial Study checklist has been prepared.
5. Truckee River Corridor Access Plan	Truckee River Watershed, Placer and Nevada counties	Continuous and coordinated system of preserved lands and habitat, with a connecting corridor of walking, in-line skating, equestrian, bicycle trails, and angling and boating access from Lake Tahoe to the Martis Valley.	-	Application submitted; design and environmental review underway.
6. Village at Squaw Valley Specific Plan	Western end of Squaw Valley	Establishes the guiding principles for comprehensive development of approximately 100 acres of the previously developed Squaw Valley Olympic Village.	Up to 1,295 resort residential units and 454,000 square feet of commercial	The scoping process was completed in November 2012. EIR preparation is underway.
7. Alpine Sierra Subdivision	Terminus of Alpine Meadows Road near Alpine Meadows Ski Resort	44-acre planned development to include single-family lots and commonly held parcels.	47 units	Environmental review complete. Construction schedule unknown.

Table 5-2 Related Project List for Cumulative Impact Analysis				
Project Name	Location	Description	Residential Units and/or Non-Residential Area	Project Status
8. Alpine Meadows Hot Wheels Lift Replacement	Alpine Meadows Ski Resort, Alpine Meadows	Project includes replacing the existing triple chairlift with a high speed detachable quad chairlift.	-	Environmental review complete; project approved in December 2012.
9. Homewood Mountain Resort Master Plan	5145 Westlake Boulevard, Homewood	Redevelop mixed-uses at the North Base area, residential uses at the South Base area, a lodge at the Mid-Mountain Base area, and ski area.	North Base: 36 residential condos; 20 whole ownership units; 75 traditional hotel rooms; 40 two-bedroom for sale condo/hotel units; 30 penthouse condos; 25,000 square feet of commercial floor area; 13 employee/ workforce housing units; 30,000 square feet of skier services Mid Mountain: 15,000 square foot day-use lodge	EIR/EIS certified and project approved in December 2011. In January 2013, a US District Court ruled that the EIR was inadequate. In January 2014 a settlement agreement was reached. Project construction is anticipated to begin in 2015.
10. Tahoe City Vision Plan	Tahoe City (within the limits of the Tahoe City Community Plan)	Visioning effort to guide Area Plan development.	-	Visioning effort completed in 2013.
11. Dollar Creek Shared-Use Trail	Between the existing trail at Dollar Hill and the Cedar Flats neighborhood on the North Shore	2.5 mile long shared-use trail.	-	Environmental review complete; project approved. Construction expected to occur between 2014 and 2015.
12. Cornelian Fuels Reduction and Healthy Forest Restoration Project	Adjacent to Cedar Flat, Cornelian Bay, Tahoe Vista, and Kings Beach	Mechanical, hand, and prescribed burning treatments to reduce surface fuels and conifer density.	-	Decision notice signed on August 20, 2012. Implementation is to begin in 2014 and be completed within 7-10 years, depending on funding and contractor availability.
13. Rainbow Parking	8334 Rainbow Avenue, Kings Beach	18-space public parking lot off of Rainbow Drive. Pervious concrete proposed for 16 spaces, with asphalt handicapped parking space, adjacent space, and drive aisle. Landscaping and wooden fencing proposed as a visual screen.	-	CEQA Initial study in progress.

Table 5-2 Related Project List for Cumulative Impact Analysis				
Project Name	Location	Description	Residential Units and/or Non-Residential Area	Project Status
14. Kings Beach Commercial Core Improvement Project	Kings Beach	Project involves reducing SR 28 in Kings Beach from a 4-lane highway to a 3-lane highway with a roundabout. Project is a SR 28 beautification project, and includes off-highway and water quality improvement components.	-	Environmental review complete; project approved. Construction underway. Construction will be a multi-year effort.
15. Boulder Bay Project	Crystal Bay, Nevada	Redevelopment of Tahoe Biltmore on North Shore. Project includes a four-story, 275-room hotel with a 10,000 square-foot casino. Implementation of the project would reduce the total commercial floor area at the site from approximately 56,000 to 21,000 square feet.	275 tourist accommodation units; 59 whole ownership residential condos; 14 onsite affordable employee housing and 10 infill affordable housing units; 18,715 square feet of commercial floor area; 67,338 square feet hotel and accessory floor area; 10,000 square feet casino; 5.7 acres of open space and/parks	Environmental review complete; project was approved on April 27, 2010. Construction was planned for 2012, but applicant is still securing financing. Construction start date unknown at the time of writing of this document.
16. Incline Fuels Reduction and Healthy Forest Restoration Project	Adjacent to Incline Village, Nevada	Mechanical, hand, and prescribed burning treatments. Tree thinning, biomass removal, prescribed burning, chipping, and mastication.	-	Decision notice signed on February 15, 2013. Implementation is expected to begin in 2014 and be completed within 10 years, depending on funding and contractor availability.
17. Martis Valley Opportunity at Northstar	Northstar	Mixed residential uses (including single family, town homes, cabins, condos) and commercial development (including resort services, fitness center, family entertainment, and community center).	760 residential units; approximately 7 acres of commercial development	Application submitted to Placer County .

¹ Numbers in this column correspond to those shown in Exhibit 5-1.

Sources: Adapted by Ascent Environmental 2014.

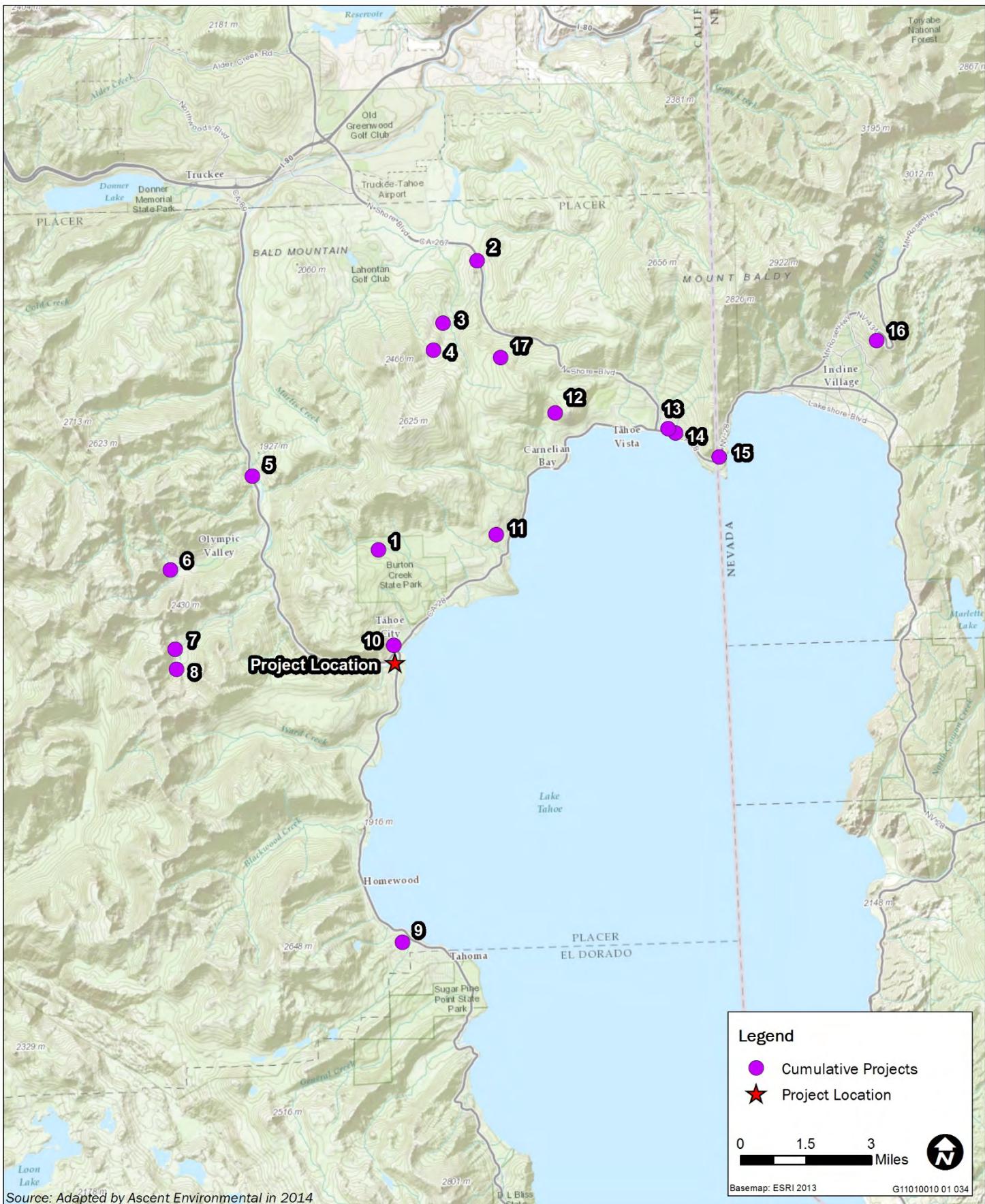


Exhibit 5-1

Cumulative Projects



AGRICULTURAL AND FOREST RESOURCES

Tree Removal

The geographic scope for analyzing the cumulative effects on forest land consists of the Tahoe Region. Tree removal in the Tahoe region began in the late 1800s as logging to support silver mining in Nevada, and since the early 1900s has been primarily related to reduce fire fuels or to enhance forest health. In addition, conversion of forest land to non-forest uses has occurred in the project region as a result of habitat conversions, residential and commercial development, and utility and infrastructure development.

As described in Impact 4.1-1, Alternatives 1, 2, 3, and 4 would result in substantial tree removal, as defined by TRPA Code Section 61.1.8. However, Mitigation Measure 4.1-1 would require that a tree removal, protection, and replanting plan is prepared, which would ensure that all necessary protection measures are implemented and thus ensuring that Code requirements are met. Alternatives 6 and 6a would not include substantial tree removal. In terms of the environmental effect of project alternatives, trees removed as part of the action alternatives are only a small proportion of the amount of trees located in the Tahoe Region (i.e., less than 0.1 percent) and tree replanting would compensate for the contribution of this project to cumulative tree removal. The project's effects would not result in substantial changes in stand structure or composition or in the distribution of forest land in the Region (see Impact 4.1-2). Therefore, implementation of any Alternatives 1, 2, 3, or 4 would not substantially reduce the size, continuity, or integrity of forest land in the project area or interrupt the natural processes that support forest land and **would not result in a cumulatively considerable incremental contribution to a significant cumulative impact.**

BIOLOGICAL RESOURCES

Disturbance or Loss of Sensitive Habitats

Roadway and bridge construction under any of the action alternatives would result in permanent loss or temporary disturbance of the following sensitive habitat types: riparian wetland, palustrine emergent, palustrine scrub-shrub, palustrine forested, palustrine forested scrub-shrub, riverine emergent, intermittent drainage, and perennial stream/water. Decades of growth and development, Comstock-era logging, hydrologic modification, livestock grazing, and fire suppression activities in the Tahoe-Truckee region have resulted in an overall significant cumulative effect on these sensitive habitat types. It is estimated that 75 percent of marsh habitat and 50 percent of meadow habitats in the Tahoe Basin have suffered some level of functional degradation (TRPA 2012a). Attainment status for meadow, wetland, and riparian hardwood habitats in the Tahoe Basin are somewhat worse than TRPA threshold targets.

As described in Impact 4.3-2, construction or expansion of roadway alignments, roadway features (e.g., curbs, gutters, retaining walls), bike path realignment, and other project elements could result in minor vegetation removal or trampling, fill of wetlands, hydrologic changes, deposition of dust or debris, soil compaction, or other disturbances that could temporarily affect the condition and function of sensitive habitats. Additionally, any project-related construction adjacent to wetlands or other sensitive habitat could similarly indirectly or directly affect those resources unless effective best management practices (BMPs) and other appropriate resource protection measures are implemented. Construction activities under any action alternative would be required to comply with existing federal, State, and local regulations and permitting requirements that protect wetland, riparian, and other sensitive habitats. Within the Tahoe Basin, project construction would be required to comply with TRPA policies regarding SEZs. Implementation of Mitigation Measures 4.3-2a, 4.3-2b, and 4.3-2c would require that sensitive habitat is avoided to the extent feasible and that sensitive habitats that cannot be avoided are restored following construction, or if the habitat cannot be restored, that the project proponent compensates for unavoidable losses in a manner that results in no net loss of sensitive habitats. Based on the no net loss standard, the project **would not contribute considerably to the overall significant cumulative effect on sensitive habitats in the Tahoe-Truckee Region.**

Introduction and Spread of Invasive Plants

Past projects and activities have resulted in the introduction and spread of various noxious weeds and invasive species in the project region, resulting in habitat degradation and other adverse effects on biological resources. Existing and foreseeable future projects have the potential to continue this trend, although current policies, regulations, and programs currently minimize the potential for the further spread of noxious weeds and invasive species and the introduction of new species. The current presence and spread of noxious weeds and invasive species in the project region is considered significant cumulative impact. Implementing any of the action alternatives has the potential to introduce and spread noxious weeds and invasive species during project construction and post-construction revegetation activities. Nearby source populations could passively colonize disturbed ground, or attach to personnel or equipment and be transported to the site from an infested area. Soil, vegetation, and other materials transported to the project site from off-site sources for BMP, revegetation, or fill for project construction could contain invasive plant seeds or plant material that could become established in the project area. Additionally, terrestrial and aquatic invasive species currently present in or near the project site have the potential to be spread by construction disturbances. However, through implementation of Mitigation Measures 4.3-3a and 4.3-3b, invasive plant and aquatic invasive species management practices would be implemented during project construction and the inadvertent introduction and spread of invasive plants or aquatic invasive species from project construction would be prevented. With these mitigation measures, the project would not contribute substantially to the establishment and spread of noxious weeds and invasive species in the project region, and therefore, would not contribute considerably to an overall significant cumulative impact.

Disturbance or Loss of Special-status Wildlife Species and Habitats

As described in Impact 4.3-4, under all action alternatives, constructing or expanding roadway alignments, roadway features (e.g., curbs, gutters, retaining walls), bike path realignment, and other project elements could disturb the foraging and movement patterns of individuals, affect breeding activities and reproductive success, cause direct mortality or injury, and disturb or remove suitable habitat for two special-status wildlife species – waterfowl and olive-sided flycatcher.

Present and probable future projects that would also affect habitat for special-status wildlife in the project vicinity include residential and commercial development, recreation facilities and resort development, and forest vegetation and fuels treatment projects. Development projects that overlap with native habitats would be expected to have some level of adverse effects on these resources; however, forest vegetation and fuels treatment projects are expected to result in long-term habitat enhancement that would benefit wildlife species. When combined with other past, present, and probable future projects with similar biological effects, implementation of the action alternatives could contribute to an adverse cumulative effect on special-status wildlife. However, none of the action alternatives are expected to substantially affect the distribution, breeding productivity, population viability, or the regional population of any special-status species; or cause a change in species diversity locally or regionally. Habitat loss would be minor relative to the total amount available in the area. Additionally, Mitigation Measure 4.3-4 requires conducting focused preconstruction surveys for special-status wildlife and, if needed, implementing construction limited operating periods during the sensitive nesting season. Implementation of this measure would avoid the potential loss of individuals, nests, or roost sites of these species during construction.

Because the common forest communities that would be affected (Jeffrey pine and white fir) are abundant and widely distributed locally and regionally, implementing any of the action alternatives, when combined with past, present, and reasonably foreseeable future projects, would not threaten, regionally eliminate, or contribute to a substantial reduction in the distribution or abundance of habitat for special-status wildlife species associated with these communities in the project region (e.g., olive-sided flycatcher). Additionally, implementation of Mitigation Measures 4.3-2a, 4.3-2b, and 4.3-2c would require that riparian and wetland habitats, which could support waterfowl, are avoided to the extent feasible and that sensitive habitats that cannot be avoided are restored following construction; or, if the habitat cannot be restored, that the project proponent compensates for unavoidable losses in a manner that results in no net loss of sensitive habitats. Disturbances to breeding activities, effects on reproductive success, and the potential for direct mortality or injury to special-status wildlife would be avoided or minimized through implementation of Mitigation

Measure 4.3-4. Therefore, implementation of any of the action alternatives would not make a considerable contribution to the cumulative impact on special-status wildlife species.

Because no special-status plant species were identified during focused botanical surveys, and no special-status plants evaluated for the project are expected to occur on the project site or be affected by project implementation, **no cumulative effect on special-status plant species would occur.**

Short-term Effects on Aquatic Resources Resulting from Construction

As described above in the discussion of sensitive habitats, several sensitive habitats that also function as aquatic habitat have been subject to significant adverse cumulative effects from past and current projects. Reasonably foreseeable future projects that encompass, or are near aquatic habitats, could further contribute to this cumulative effect, although various laws and regulations (e.g., CWA, TRPA Code, Fish and Game Code Section 1602) would minimize these effects.

As described in Impact 4.3-5, under all action alternatives, project construction and staging near aquatic habitats could temporarily result in adverse impacts to aquatic habitat, including removal of riparian vegetation, which provides shade, cover, and bank stability; accidental spill and contamination from construction chemicals, fuels, or other hazardous materials; increased erosion, downstream sedimentation, and turbidity; small amounts of fill placed in aquatic habitats; and direct mortality or injury of fish and other aquatic species caused by in-channel construction activities. Additionally, the project alternatives would require construction and/or rehabilitation of bridge foundations and footings below the ordinary high water mark and within the river channel, dewatering, and water diversion, which would directly affect aquatic habitats temporarily. Because TRPA, State and Regional WQCB, and Placer County regulations are in place to minimize erosion and transport of sediment and other pollutants during construction, and appropriate project-specific measures would be defined to secure necessary permits and approvals, construction-related impacts to aquatic resources would be minimized and would not result in substantial adverse effects on water quality or aquatic habitat quality and functions in the Truckee River. Additionally, implementation of Mitigation Measures 4.3-5a, 4.3-5b, and 4.3-c would minimize, avoid, and compensate for potential residual impacts to aquatic habitats. Specifically, these measures require that: 1) aquatic habitat is avoided to the extent feasible; 2) aquatic habitats that cannot be avoided are restored following construction; 3) any unavoidable losses would be compensated for in a manner that results in no net loss of aquatic habitats; and 4) project implementation is consistent with the aquatic and riparian habitat protection provisions of Fish and Game Code Section 1602.

Because any residual effects on aquatic habitats would be minor, temporary, and mitigated; the no net loss standard would be implemented; and there would be no permanent impacts to the quality or function of aquatic habitats, implementation of any of the action alternatives **would not make a considerable contribution to any cumulative impact related to aquatic habitat.**

CULTURAL RESOURCES

Historic Resources

The *Historical Resources Evaluation Report* prepared for the SR 89/Fanny Bridge Project identified two resources (the Lake Tahoe Dam and associated Outlet Gates) as being eligible for and listed in the NRHP and CRHR. The proposed SR 89/Fanny Bridge Project has the potential to affect these resources through the rehabilitation or replacement of the adjacent Fanny Bridge. The SR 89/Fanny Bridge Project would not cause the physical destruction, alteration, or removal of the dam or gates and would not change the character of the property or cause its neglect or transfer, lease or sale. However, with regard to criterion v of ACHP's Criteria of Adverse Effect 36 CFR 800.5 (a)(2), the SR 89/Fanny Bridge Project would introduce new visual elements (the construction of a new bridge or potential reconstruction of existing bridge elements) to the surrounding environment of the dam and gates.

Architectural treatments for the new bridge would likely include rock veneers, rock form liners, wood grained textures, and stained concrete. The new bridge would be in the same proximity to the dam and gates; however, these new elements would be of comparable visual relationship to that of the existing bridge. Overall, the proposed construction would be similar in size and scale to the existing bridge and the new bridge would be commensurate with the existing bridge and view shed.

The replacement of Fanny Bridge or the potential reconstruction of existing bridge elements would occur in close proximity to the Lake Tahoe Dam and associated Outlet Gates, including the stilling basin structure that extends downstream of the dam on the riverbed to the immediate vicinity of the existing bridge. The stilling basin is a part of the dam structure. Modifications to the pile supports of the bridge could crack or otherwise damage the stilling basin structure, based on their proximity. Fanny Bridge rehabilitation or reconstruction actions could cause damage to the historic property. However, implementation of Mitigation Measure 4.4-1 would reduce potentially significant impacts to historic resources, because it would ensure the historic integrity of the Lake Tahoe Dam and Gates will be protected and maintained throughout the construction period, thereby avoiding a significant impact on the historic property. By ensuring adherence to the Secretary of the Interior's Standards, implementation of the action alternatives **would not considerably contribute to, or result in a significant cumulative effect.**

Archaeological Resources

Archaeological resources, including sacred and religious sites, are unique and non-renewable. For this reason, all detrimental effects to these resources erode a dwindling resource base. Destruction of any single cultural site or resource affects all others in the Region because as a group they make up the context of the cultural setting. Cultural resources are represented by the total inventory of all sites and other cultural remains. Most of the documented heritage and cultural resources in the project vicinity are historic rather than prehistoric. Numerous laws and regulations, including NEPA; Section 106 of the NHPA; CEQA; and policies of TRPA, USFS, and USACE provide guidance on how heritage and cultural resources should be protected, managed, and mitigated in regard to projects on federal, state, county, city, or private land in California. Since these laws, regulations, and policies have been in effect (many for over 30 years), the protection and preservation of significant heritage and cultural resources is the typical outcome for most projects. However, instances do occur where full protection of a resource is not feasible, and there has been a net loss or degradation of heritage and cultural resources in the project region. In addition, prior to adoption of current laws, regulations, and policies to protect heritage and cultural resources, little protection was provided to these resources and loss or damage to prehistoric and historic resources was more common.

Project construction related to the action alternative could encounter previously undiscovered or unrecorded archaeological sites and materials during project-related preconstruction or construction-related ground disturbing activities. These activities could damage or destroy these archaeological resources. However, implementation of Mitigation Measures 4.4-2a and 4.4-2b would reduce potentially significant impacts to archaeological resources because mitigation would be developed in coordination with the appropriate federal, state, and/or local agency(ies) to avoid, move, record, or otherwise treat the resource appropriately, in accordance with pertinent laws and regulations. By providing an opportunity to avoid disturbance, disruption, or destruction of archaeological resources, implementation of the action alternatives **would not considerably contribute to, or result in a significant cumulative effect.**

Accidental Discovery of Human Remains

Based on documentary research, no evidence suggests that any prehistoric or historic-era marked or unmarked human interments are present within or in the immediate vicinity of the APE. However, there is a possibility that unmarked, previously unknown Native American or other graves could be present within the APE, and could be uncovered by project-related construction activities.

The location of grave sites and Native American remains are potentially not known in advance, and can occur outside of identified cemeteries or burial sites. As with archaeological resources, disturbance of human remains are more likely to occur in previously undisturbed and undeveloped areas, where excavation

and ground-disturbing activities have not already resulted in discovery. However, human remains may be discovered in developed and disturbed areas, as well, and may also be of recent origin.

Implementation of Mitigation Measures 4.4-2a and 4.4-2b would reduce potentially significant impacts to archaeological resources because mitigation would be developed in coordination with the appropriate federal, state, and/or local agency(ies) to avoid, move, record, or otherwise treat the resource appropriately, in accordance with pertinent laws and regulations. By providing an opportunity to avoid disturbance, disruption, or destruction of archaeological resources, implementation of the action alternatives **would not considerably contribute to, or result in a significant cumulative effect**.

Ethnic and Cultural Values

Because the project could result in physical changes to historic and prehistoric sites, unique ethnic cultural values could be affected, and historic or prehistoric religious or sacred uses within the APE could be restricted. Consultation with the Washoe tribe is required by federal, state and TRPA regulations, however, project activities could still uncover or destroy historic or archaeological resources as identified in Impacts 4.4-1 (historic) and 4.4-2 (archaeological). Additionally, as described in Impact 4.4-3 (human remains), project activities could result in accidental discovery of remains during grading and excavation. Accidentally discovered remains could be of Native American origin. However, Mitigation Measures 4.4-2a, 4.4-2b, and 4.4-3 would reduce these impacts under all action alternatives because they would require 1) consultation with the Native American Heritage Commission and the Washoe Tribe; 2) require avoidance, preservation in place, excavation, documentation, and/or data recovery of historical and archaeological resources, and 3) require assessment of and adherence to a formal recommendation for any discovered human remains. Thus, implementation of the action alternatives **would not considerably contribute to, or result in a significant cumulative effect**.

HAZARDS, HAZARDOUS MATERIALS, AND RISK OF UPSET

Hazardous Materials Sites

Release of hazardous materials into the environment or exposure of construction workers or nearby sensitive receptors to hazardous conditions is a site-specific issue, rather than regional in nature. Thus, past, present, and future hazardous materials sites would not interact in such a way to result in a cumulative impact. Thus, implementation of the action alternatives **would not result in, or considerably contribute to, a significant cumulative effect**.

NOISE

Short-term Construction-generated Noise

Cumulative impacts from construction-generated noise could result if other future planned construction activities were to take place in close proximity to the project and cumulatively combine with construction noise from the project. However, no other construction activity is planned to take place in close proximity to the SR 89/Fanny Bridge Project. No significant cumulative impacts currently exist. Further, construction-related noise is typically a site specific impact that affects those in close proximity to the construction activities. Project-generated construction noise is exempt from the Placer County and TRPA noise standards. Therefore, because no other construction activities would cumulatively combine with the project and project-generated construction noise is exempt from county noise standards the project's short-term construction-generated noise **would not result in a substantial contribution such that a significant cumulative short-term noise impact would result**.

Ground Vibration Impacts

Construction activities generate varying degrees of temporary ground vibration, depending on the specific construction equipment used and activities involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. Construction-related

ground vibration is normally associated with impact equipment such as pile drivers, jackhammers, and the operation of some heavy-duty construction equipment, such as dozers and trucks. The effects of ground vibration may be imperceptible at the lowest levels, result in low rumbling sounds and detectable vibrations at moderate levels, and high levels of vibration can cause sleep disturbance in places where people normally sleep or annoyance in buildings that are primarily used for daytime functions and sleeping. Because there is not on-going construction-related activities that are currently causing ground vibrations, there is no existing cumulative effect.

As discussed in Impact 4.10-2, existing noise-sensitive receptors and structure are located within 50 feet of potential pile driving locations, and would be adversely affected under all action alternatives. However, Mitigation Measure 4.10-2 would substantially reduce vibration levels, in some cases by a factor of 2 or greater. These reductions would ensure that pile driving would not result in damage to any existing structure within 50 feet and reductions in ground vibration would also result in reduced levels of vibration noise at nearby sensitive receptors. Thus, with implementation of Mitigation Measure 4.10-2, the action alternatives **would not result in an adverse cumulative impact**.

CUMULATIVE LONG-TERM TRAFFIC NOISE LEVELS ALONG EXISTING AND REALIGNED ROADWAYS

Regional traffic volumes and attendant traffic noise levels would increase along all the highway segments affected by the action alternatives, regardless of the SR 89/Fanny Bridge Project, due to growth in population, tourism, and other economic activity in the Tahoe Region. The increase in traffic volumes associated with regional growth would cause the CNEL contours to extend further from the edge of all affected roadways, including SR 28 and the existing and realigned segments of SR 89. Noise along some highway segments already exceeds TRPA standards. The additional traffic noise would extend existing and future CNEL contours farther from the highway edge and exacerbate noise conditions in locations where TRPA's transportation corridor noise standard or underlying land use noise standard are exceeded or where the result is a perceptible, long-term increase in the ambient noise level (i.e., 3 dB CNEL or greater). This existing and future regional noise background is a significant cumulative condition with or without the SR 89/Fanny Bridge Project. None of the alternatives, however, would generate traffic or result in increased regional traffic volumes traveling through the study area or elsewhere in the Region, because traffic volumes are determined by regional travel demand, local and regional land uses, and residential and visitor populations. For this reason, the action alternatives **would not contribute to this cumulative condition, so no cumulative impact would occur**.

POPULATION, EMPLOYMENT, AND HOUSING

Displacement of Businesses

The Tahoe Region has been subject to land acquisitions through development commodity transfers and the Santini-Burton Act of 1980 (Public Law 96-568). While a substantial amount of land has been acquired through these programs, compensation to landowners was established before transactions took place. Thus, these acquisitions do not constitute displacement of residences and businesses. The type of potential acquisition described in Impact 4.11-2 is not typical in the Tahoe Region and is not considered to contribute to or create a cumulative effect. This impact would be a site-specific issue that does not accumulate to cause broader environmental consequences, so by its nature, **cumulative impacts would not occur**.

RECREATION

Temporary Disruption of Public Access to the Truckee River, Recreational Trails, 64-Acre Tract, or Fanny Bridge Area

The 64-Acre Tract, which is publicly owned and managed by the LTBMU, comprises the majority of the study area. The 64-Acre Tract originally consisted of multiple parcels both north and south of the Truckee River; however, parcels have been transferred to other agencies and the remainder of the tract under LTBMU

jurisdiction south of the river now consists of approximately 35 acres. It includes paved multi-use trails, Tahoe Rim Trail, a 66-space parking area, access roads, public raft launch site on the river, transit center, and the bicycle/pedestrian bridge across the river. Undeveloped forest recreation land generally consists of Jeffrey pine forest, with sparser density of trees on the north end and greater density on the south end of the property. Lake Tahoe may be seen from locations within the project site, such as from Fanny Bridge, and through tree-screened views from along SR 89 and within the 64-Acre Tract (see Section 4.14, Scenic Resources for more information) and can also be accessed within the site for lake-based recreation opportunities east of SR 89.

Existing recreation resources and facilities located in the study area include public forest land, publicly accessible river recreation, dispersed recreation facilities, developed facilities including public and commercial raft launching areas, and sightseeing opportunities related to Fanny Bridge, the Truckee River Outlet Dam, and the lake. In addition, William B. Layton State Park and Gatekeeper's Museum are located adjacent to the project site, within the study area. The study area does not provide urban recreation facilities, such as sports fields. None of the projects listed in Table 5-2 would affect access to these resources and facilities, thus there is no existing cumulative effect within the project site related to short-term access.

As described in Impact 4.13-1, the project would result in temporary impacts on access to recreation resources in the project area. However, implementation of Mitigation Measure 4.13-2 requires detours and trail access management for the Tahoe Rim Trail and Truckee River Trail. Thus, access to recreation resources within the 64-Acres Tract would not be substantially impeded and other cumulative projects would not affect the ability to enjoy the available activities. Thus, there **would be no cumulative effects** related to temporary disruption of public access to the Truckee River, recreational trails, 64-Acre Tract, or Fanny Bridge area.

Long-term Impacts on Public Access to the Truckee River, Recreational Trails, 64-Acre Tract, or Fanny Bridge Area

Outdoor recreation opportunities in the Lake Tahoe Region are abundant because of the scenic setting, presence of the Lake, diverse terrain, extensive public lands, and accessibility of natural areas. Activities are generally associated with the Lake's open water (e.g., swimming, boating, personal watercraft use, and fishing), the shoreline (e.g., sunbathing, camping, bicycling, and sightseeing), and the mountains surrounding the Lake (e.g., hiking, mountain biking, backpacking, snowboarding, and skiing). Tourism is a key component of the Region's economy and a high-quality recreation experience is key to maintaining tourism. Recreation visitors originate mostly from the metropolitan areas closest to the Region, including Reno/Carson City, Sacramento, and the San Francisco Bay Area, but also travel to the Basin from many other states and countries.

Recreational activities are heavily influenced by the seasons and local weather. The recreational challenge in the Region is the delicate balance between public access to recreation and environmental preservation. Recreational activities can have an impact on water, air, soils, wildlife, transportation, and the scenic quality of the Region. As population increases, there is an increased demand for access to Lake Tahoe shores and other public lands for recreational activities. There is also increased demand for urban recreational facilities, such as swimming pools and sports fields.

There are three general types of recreation within the Region: dispersed, developed, and urban recreation. Dispersed recreation activities typically do not require the use of facilities other than access points and include hiking, jogging, primitive camping, fishing, backcountry and cross country skiing, rafting/kayaking, mountain biking and swimming. Developed recreation involves recreation activities enhanced by the use of built facilities, such as campgrounds, marinas, and ski resorts. Developed recreation sites are located and operated on both public and private lands. Urban recreation includes indoor and outdoor recreation facilities such as athletic fields, ice skating rinks, swimming pools, and neighborhood parks and are primarily designed for use by the residents of the Region.

The Region is trending toward increased access to recreational opportunities. For instance, sidewalks, bike lanes, lighting, new/improved stormwater facilities, new bicycle and pedestrian trails, landscaping, and new or expanded parking facilities would result in improved circulation and the construction of Complete Streets projects that would improve bicycle and pedestrian facilities. In addition, projects listed in the cumulative projects list above, including the Martis Valley Trail, Northstar Mountain Master Plan, the Truckee River Corridor Access Plan, Village at Squaw Valley Specific Plan, and Alpine Meadows Hot Wheels Lift Replacement would contribute to a beneficial cumulative effect on recreation access.

As described in Impact 4.13-2, implementation of the action alternatives would result in primarily beneficial impacts to recreation access, a less-than-significant effect on recreation user experience, and a potentially significant adverse effect of removing 16 parking spaces associated with certain alternatives.

Implementation of Mitigation Measure 4.13-2 would require that the parking spaces are replaced, thereby fully mitigating the parking loss. In conclusion, there would be a **beneficial cumulative effect** regarding recreation access and the project **would not result in a substantial contribution regarding parking effects for recreation users or other recreation effects, such that a significant cumulative recreation impact would result.**

SCENIC RESOURCES

Changes to the Visual Character or Quality of the Project Site

The project site is surrounded by retail, commercial, light industrial, and residential development. The center of the project area contains approximately 35 acres of public open space with forest vegetation (USFS 64-Acre Tract). Recreation uses within the 64-Acre Tract include the Tahoe Rim Trail, TCPUD multi-use trails, public raft launch site on the river, and the south end of the bicycle/pedestrian bridge across the river. The land uses in the vicinity of the project site include single-family residential, visitor accommodations (hotel/motel), restaurants, public utilities, a transit center, commercial uses, and industrial uses. The Caltrans Maintenance Facility is located at the west end of the project site. The Truckee River Bike Trail is parallel to SR 89 and is located between SR 89 and the Truckee River on the west side of the Truckee River. Bike paths are managed by TCPUD and are closed during the winter months. The project site is nearly level but includes scattered depressions as well as the incised channel of the Truckee River. Much of the project site is on land that was, in part, previously developed (as a mobile home park), but that has been restored to forest vegetation. Vegetation within the project area consists primarily of open Jeffrey pine forest and montane riparian scrub. Non-vegetated areas include the channel of the Truckee River, parking lots, and developed areas. During the winter, the landscape is often covered in snow.

Cumulative impacts associated with the SR 89/Fanny Bridge project are limited to the project area, views of the project site and surrounding areas are available. Projects listed in the cumulative projects list would not combine to create a significant impact, because they are not located within a close enough proximity to have such an effect. Thus, while potentially significant impact related to a change in the existing visual character or quality of the project site would be mitigated to a less-than-significant level with implementation of Mitigation Measure 4.14-2, this effect **would not result in or combine to result in a cumulatively significant impact.**

TRAFFIC AND TRANSPORTATION

Regional traffic volumes would increase along all the highway segments affected by the action alternatives, regardless of the SR 89/Fanny Bridge Project, due to growth in population, tourism, and other economic activity in the Tahoe Region. Section 4.15, Traffic and Transportation, provides traffic analysis under two scenarios: the 2018 “opening day” condition, and 2038 “20-year planning horizon” condition. As discussed under the subheading, “Traffic Forecast Methods and Assumption” in that section, 2018 conditions consider a general background traffic growth rate of 0.5 percent per year compounded over 5 years along with traffic volumes associated with the approved Homewood Ski Resort. Conditions in 2038 were estimated based on projected 2018 volumes, adding an annual background traffic growth rate of 0.5 percent per year thereafter. Without implementation of the project (i.e., No Action Alternative), traffic operations would reach

unacceptable levels at the SR 28/Grove Street intersection (in 2018 and 2038), SR 89/64 Acres Recreational Access Road intersection (in 2038), and the SR 89/Granlibakken Road intersection (in 2018 and 2038). This indicates a significant cumulative condition with or without the SR 89/Fanny Bridge Project. None of the alternatives, however, would generate traffic or result in increased regional traffic volumes traveling through the study area or elsewhere in the Region, because traffic volumes are determined by regional travel demand, local and regional land uses, and residential and visitor populations. For this reason, the action alternatives **would not contribute to this cumulative condition, so no cumulative impact would occur.**

6 OTHER TRPA-, CEQA-, AND NEPA-MANDATED SECTIONS

6.1 EFFECTS FOUND NOT TO BE SIGNIFICANT

As discussed in Chapter 4, the action alternatives would result in no adverse impacts related to the following environmental issue areas and, therefore, they do not warrant further evaluation.

- ▲ **Agricultural resources.** According to the California Department of Conservation (DOC), there are no lands considered to be important farmland on the project site (DOC 2010) or lands subject to Williamson Act contracts (DOC 2013). Thus, the project alternatives would not convert important farmland, conflict with Williamson Act contracts, or otherwise affect agricultural land. There would be no impacts related to agricultural resources.
- ▲ **Long-term operational emissions of criteria air pollutants (CAPs) and precursors.** No new stationary sources of emissions or new trip-generating land uses would be constructed as part of the SR 89/Fanny Bridge Project. Long-term operation of any of the action alternatives would involve regular maintenance personnel traveling on access roads throughout the project site and occasional use of equipment for maintenance activities such as tree trimming and vegetation removal. However, the SR 89/Fanny Bridge Project would not require any additional personnel or maintenance activities in comparison to existing conditions. As a result, the number of vehicle trips and the level of maintenance activities would not increase as a result of the SR 89/Fanny Bridge Project and; thus, long-term operational emissions of CAPs and precursors from these sources would not increase above levels existing without the project.
- ▲ **Naturally occurring asbestos.** According to two reports by the California Department of Conservation, Division of Mines and Geology called *Relative Likelihood for the Presence of Naturally Occurring Asbestos in Placer County, California* and *A General Location Guide to Ultramafic Rocks in California—Areas More Likely to Contain Naturally Occurring Asbestos* (Higgins and Clinkenbeard 2006:54, California Department of Conservation 2000), the project site is not likely to contain naturally occurring asbestos. Therefore, ground disturbance activities performed during project construction (e.g., grading, dozing, excavation, vehicle travel on unpaged surfaces) would not generate fugitive dust emissions that contain naturally occurring asbestos.
- ▲ **Special-status species.** Tables 4.3-2 and 4.3-3 summarize the potential for each special-status plant and animal species to occur in the project site. Those plant and animal species not expected to occur, or with a low probability to occur (because of a lack of suitable habitat, or lack of other occurrence records) are not addressed further in this analysis. Implementation of this project is not expected to affect those species. Because no special-status plant species were identified during focused botanical surveys, and no special-status plants evaluated for the project are expected to occur in the project site or be affected by project implementation, the analysis does not further discuss any special-status plant species.
- ▲ **Habitat conservation plan.** None of the action alternatives would be constructed within an area covered under an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state conservation plan. As a result, project implementation would not conflict with the provisions of an adopted conservation plan and this issue is not evaluated further.
- ▲ **Conflicts with the Forest Service's land management practices.** As described in Section 4.3.2, Regulatory Setting, the consistency of the action alternatives with the LTBMU Forest Plan is considered in a separate matrix prepared by the Forest Service and referenced here. As described in the matrix, the action alternatives would be consistent with the LTBMU standards, guidelines, and management practices. Therefore, the potential for conflicts with the Forest Service's land management practices and requirements provided in the Forest Plan are not evaluated further.

- ▲ **Septic tanks or wastewater disposal systems.** The SR 89/Fanny Bridge Project would not construct septic tanks or wastewater disposal systems; therefore, the potential for impacts related to capability of soils to support use of septic tanks or alternative wastewater disposal systems is not addressed further.
- ▲ **Avalanche hazards.** The project site does not contain areas with a high risk of avalanche; therefore, avalanche hazard is not addressed further.
- ▲ **Mineral resources.** Impacts to mineral resources (loss of a known mineral resource or a locally important mineral resource recovery site) were dismissed from further evaluation, because there are no known mineral resources within the project site (USGS 2014) and because the current zoning of the area prohibits mining (TRPA 1994).
- ▲ **New stationary sources of greenhouse gas (GHG) emissions.** No new stationary sources of GHG emissions or new trip-generating land uses would be constructed as part of the action alternatives. Long-term operation of the action alternatives would involve regular maintenance personnel traveling on access roads throughout the project site and occasional use of equipment for maintenance activities such as tree trimming and vegetation removal. However, the action alternatives would not require any additional personnel or maintenance activities in comparison to existing conditions. Therefore, the number of vehicle trips and the level of maintenance activities would not increase as a result of the action alternatives; long-term operational emissions of GHGs from these sources would not increase above levels existing without the project.
- ▲ **Drinking water source and 100-year flood hazard area.** The SR 89/Fanny Bridge project site is not located within 600 feet of a drinking water source (EPA and TRPA 2000), and would not place housing within a 100-year flood hazard area. Thus, no impacts associated with these resources would occur and they do not warrant further detailed evaluation and discussion.
- ▲ **Vector-borne disease.** The SR 89/Fanny Bridge Project does not include treatment wetlands or detention basins that could influence vector-borne disease risks. Therefore, there would not be hazards associated with increased potential for vector-borne disease as a result of the project.
- ▲ **Airports.** The project site is not located within 2 miles of a public airport or public use airport and is not located near a private airstrip. As a result, there would be no hazards associated with proximity to airports as a result of the project or noise impacts related to the exposure of people residing or working in the project site to excessive aircraft-related noise levels.
- ▲ **Stationary noise sources.** The action alternatives would not result in any new or additional stationary noise sources. Thus, no new stationary noise sources would result from the SR 89/Fanny Bridge Project.
- ▲ **Population growth and additional housing.** The SR 89/Fanny Bridge Project would not result in an increase in population at or in the vicinity of the project site. Employment generation during project construction would be temporary and would not cause an increase in permanent residents in the project area. For these reasons, the project would not result in population growth that would result in the demand for additional housing.
- ▲ **Loss of housing for low-income populations.** While there are census tracts within the vicinity of the project site that have populations with incomes below the county average poverty level, there are no low-income populations in the project site. Therefore, the SR 89/Fanny Bridge Project would not result in the loss of housing for lower-income and very low-income households. No impacts would occur related to increased demand for housing or loss of housing for lower-income or very low-income households.
- ▲ **Existing utility systems.** The SR 89/Fanny Bridge Project would not result in an increase in population in the vicinity of the project site. In addition, the project would not generate wastewater nor consume water during operation. Consequently, no impacts would occur related to wastewater treatment capacity,

meeting wastewater treatment requirements, or construction of new water or wastewater treatment facilities or expansion of existing facilities.

- ▲ **Parks, recreational facilities, schools, and library facilities.** The SR 89/Fanny Bridge Project does not include new housing or other project elements that would increase the permanent resident population in the Region, resulting in an increased demand for parks, recreational facilities, school or library facilities. No impact would occur.
- ▲ **Law enforcement, fire, and emergency services facilities.** The SR 89/Fanny Bridge Project does not include new housing or other project elements that would increase the permanent population in the project area. Fluctuations in population related to tourism would not be altered by the SR 89/Fanny Bridge Project and would continue to occur on a temporary basis. Thus, the project would not result in an increased demand for police, fire, or emergency services, and there would be no impact.
- ▲ **Increases in long-term solid waste production.** The SR 89/Fanny Bridge Project would not increase long-term solid waste generation at the project site that would require disposal at a landfill, because it would not increase permanent population levels.
- ▲ **Scenic vista.** The area affected by the SR 89/Fanny Bridge Project does not contain any important scenic vistas. Therefore, the action alternatives would not affect any scenic vista and this topic is not addressed further in the EIR/EIS/EA.
- ▲ **Scenic highway.** Because the SR 89/Fanny Bridge Project would not be visible from an officially designated state scenic highway, this criteria is not applicable and is not discussed further.
- ▲ **New Daily Vehicle Trip Ends (DVTE).** The action alternatives propose options to meet the project purpose and need, including designs that would reduce congestion and improve the safety and operations of the SR 89/28 wye intersection. Because the project involves improvements to existing transportation infrastructure, no new daily trips would be generated as a result of implementation of the proposed project. Thus, the generation of new DVTE would not occur with project implementation and this topic is not discussed further in the EIR/EIS/EA.
- ▲ **Interfere with Waterborne, Rail Traffic, or Air Traffic.** No alternative would result in increasing, creating, or interfering with waterborne, rail traffic, or air traffic. The project alternatives would have no impact on waterborne or rail traffic and these issues are not discussed further in the EIR/EIS/EA. Recreational rafting is discussion in Section 4.13, “Recreation.” Construction-related and long-term emergency access effects are addressed in Section 4.12, “Public Services and Utilities.”
- ▲ **Hazards due to Roadway Design.** None of the action alternative would install sharp curves or dangerous intersections, or result in incompatible uses of roadways, such as by slow-moving farm equipment. Thus, impacts related to increased hazards due to a design feature are not discussed further in the EIR/EIS/EA.

6.2 SIGNIFICANT ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED

Code of Federal Regulations (CFR) Title 40 Section 1502.16 and Section 5.8.B (2) of the TRPA Code of Ordinances requires an EIS to include any significant adverse environmental effects which cannot be avoided should any of the alternatives be implemented. CEQA Section 21100(b)(2)(A) states that an EIR shall include a detailed statement setting forth “[i]n a separate section...[a]ny significant effect on the environment that cannot be avoided if the project is implemented.” State CEQA Guidelines Section 15126.2(b) requires that an EIR describe any significant impacts, including those that can be mitigated but not reduced to a less-than-significant level.

Chapter 4, "Affected Environment and Environmental Consequences" of this EIR/EIS/EA addresses the potential environmental effects of the project alternatives and recommends mitigation measures, as necessary, to mitigate project effects to the extent feasible. The analysis concludes that all potentially significant impacts would be mitigated to a less-than-significant level with mitigation for Alternatives 1 and 2. Under Alternatives 2 and 3 there would be significant and unavoidable impacts to roadway segment operations and intersection operations by 2038 that cannot be feasibly mitigated. Implementation of Alternatives 6 and 6a would result in significant and unavoidable, temporary construction-related traffic congestion impacts, but all long-term significant impacts would be mitigated to a less-than-significant level.

6.2.1 Irreversible and Irretrievable Commitments of Resources and Significant Irreversible Environmental Changes

The irreversible and irretrievable commitment of resources is the permanent loss of resources for future or alternative purposes. Irreversible and irretrievable resources are those that cannot be recovered or recycled or those that are consumed or reduced to unrecoverable forms. Section 1512.6 (c) of the State CEQA Guidelines states that significant irreversible environmental changes that would be involved with a project may include:

- ▲ consumption of non-renewable resources;
- ▲ changes to land use which would commit future generations to similar uses; and
- ▲ irreversible changes which may result from environmental accidents associated with the project.

6.2.2 Consumption of Non-Renewable Resources

Implementation of the SR 89/Fanny Bridge Project would result in the consumption of energy and materials. Fossil fuels would be required for construction of the project, as well as operation and maintenance. Construction associated with the new bridges and the realignment of SR 89 and bike trails would require the manufacture of new materials (e.g., asphalt, concrete, rebar, paint). The raw materials and energy required for the manufacture of the materials would result in an irretrievable commitment of natural resources.

6.2.3 Changes to Land Use Which Would Commit Future Generations

The SR 89/Fanny Bridge Project consists of realignment of SR 89, construction of a new bridge, repair or rehabilitation of Fanny Bridge, and modifications to the Caltrans maintenance yard, T-TSA sewer line and NSEF sewer export main, and the bike paths. Implementation would require the removal of woody vegetation within the disturbance area (see Section 4.3, "Biological Resources"). This loss of woody vegetation would be permanent as a result of paving and other necessary construction components. Uses of nonrenewable resources during construction of the project may be irreversible because a large commitment of such resources makes removal or reuse thereafter unlikely. Implementation of the project would result in permanent changes to the existing environment, which has been described throughout this EIR/EIS/EA. Construction activities associated with the project would result in the irreversible consumption of nonrenewable resources. The irreversible commitment of limited resources is inherent in any construction project. Resources anticipated to be irreversibly committed would include: sand, gravel, concrete, petrochemicals, construction materials, and water. The project would also require the consumption of fossil fuels to meet energy demands associated with construction vehicles.

6.2.4 Irreversible Changes That Would Result from Environmental Accidents

The SR 89/Fanny Bridge Project does not provide for an appreciable increase in use of hazardous materials relative to existing conditions and would transport, use, and generate only small volumes of hazardous materials associated with construction. The construction contractor would prepare relevant hazardous materials management plans, including a Spill Prevention, Control, and Countermeasure Plan, Hazardous Materials Business Plan, and Hazardous Materials Contingency Plan. With continued compliance with existing federal, state, and local laws and regulations related to hazardous materials, the SR 89/Fanny Bridge Project would not be expected to result in environmental accidents that have the potential to cause irreversible damage to the natural or human environment (See Section 4.8, “Hazards, Hazardous Materials, and Risk of Upset”).

6.3 RELATIONSHIP BETWEEN THE SHORT-TERM USES OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

NEPA (40 CFR 1502.16) and TRPA Code (Ordinance 3.7.2.F) requires a discussion of the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity of the environment. The following discussion addresses how the SR 89/Fanny Bridge Project would affect the short-term use and the long-term productivity of the environment. In general, “short-term” is used here to refer to the construction period, while “long-term” refers to the operational life of the project and beyond.

Implementation of the action alternatives would result in short-term construction related impacts within the project site (construction impacts are described in detail in Chapter 4, “Affected Environment and Environmental Consequences”). Potential short-term impacts include ground disturbance and vegetation removal for construction access and safety of operations, temporary limitations to vehicle and recreation access in some areas, potential disturbance of currently unrecorded cultural resources, transport and use of hazardous materials (e.g., fuels and lubricants), and increased ambient noise levels. Short-term impacts would be minimized through implementation of mitigation measures intended to reduce environmental effects. Over the long term, these resources are expected to recover from any adverse effects without a loss in productivity.

In the long term, the action alternatives would result in tree removal (see Section 4.1, “Agricultural and Forestry Resources”), increased coverage (see Section 4.5, “Geology, Soils, Land Capability, and Coverage”), and disturbance and loss of habitats, including sensitive habitats (see Section 4.3, “Biological Resources”). These impacts would be minimized through implementation of mitigation measures intended to reduce environmental effects. Implementation of the SR 89/Fanny Bridge Project would meet the need to reduce congestion and improve the safety and operations of the SR 89/SR 28 intersection in Tahoe City. This would address present and future automobile travel demand, pedestrian and bicycle mobility, public transit needs, the structural integrity of Fanny Bridge, and emergency access to the Lake Tahoe West Shore communities in the Fanny Bridge vicinity.

6.4 GROWTH-INDUCING IMPACTS

6.4.1 National Environmental Policy Act

The Council on Environmental Quality NEPA Regulations provide for discussion of growth-inducing impacts of an action (40 CFR 1508.8[b]): “Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air

and water and other natural systems, including ecosystems.” The discussion must additionally address how a proposed project may remove obstacles to growth, or encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively.

6.4.2 Tahoe Regional Planning Agency

Section 3.7.2(H) of the TRPA Code of Ordinances 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 and housing in the region.

6.4.3 California Environmental Quality Act

CEQA Section 21000(b)(5) specifies that growth-inducing impacts of a project must be addressed in an EIR. Section 15126(d) of the CEQA Guidelines states that a proposed project is growth-inducing if it could “foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment.” Included in the definition are projects that would remove obstacles to population growth. Examples of growth-inducing actions include developing water, wastewater, fire, or other types of services in previously unserved areas; extending transportation routes into previously undeveloped areas; and establishing major new employment opportunities.

Typically, the growth-inducing potential of a proposed project would be considered significant if it fosters growth or a concentration of population above what is assumed in local and regional land use plans, or in projections made by regional planning authorities. Significant growth impacts could also occur if the project provides infrastructure or service capacity to accommodate growth levels beyond those permitted by local or regional plans and policies.

6.4.4 Growth-Inducing Effects

A project is considered to be growth-inducing if it fosters economic or population growth, directly or indirectly, in the surrounding environment. These impacts could result from projects that include housing construction or the removal of an obstacle to growth, such as expansion of a wastewater treatment plant, extending transportation routes into previously undeveloped areas; and establishing major new employment opportunities.

Development in the Tahoe Region is guided by the Regional Plan, which allows new development and redevelopment through authorization of residential allocations, commercial floor area, tourist accommodation units, and residential bonus units. As a result, development is capped in the Region and implementation of capital improvement projects, such as the SR 89/Fanny Bridge Community Revitalization Project would not result in an increase in the planned development patterns in the Region.

The traffic study prepared for the SR 89/Fanny Bridge Project forecasts that traffic conditions would generally improve over no-build conditions; however, growth in the vicinity of the project site is expected to occur with or without the proposed improvements because the project would not affect variables such as economic opportunities, employment, or housing availability, which directly affect local and regional growth. Although growth is expected to occur in the vicinity of the project site with or without the SR 89/Fanny Bridge Project, the improvements are proposed in an area designated for commercial uses and small businesses. A few vacant parcels are available for development in the project site; however, it is essentially built out. Future development is expected to occur in the project vicinity, but this development would be in accordance with existing plans and would be limited by land use designations, water availability, sensitive resources, and infrastructure constraints. The SR 89/Fanny Bridge Project would not increase the capacity of the project

site to the extent that it would influence the amount, timing, or location of growth in the area. Because the project would not affect growth in the vicinity of the project site, it would not result in growth-related impacts on resources of concern, such as biological, visual, or cultural resources. Improvements to traffic conditions do not provide additional resources (e.g., water, wastewater treatment capacity) to an area; thus, the project would not remove an obstacle to growth. Based on the analysis above, the build alternatives would not result in project-related growth.

6.5 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

NEPA requires an evaluation of potential socioeconomic effects of a proposed action/proposed project, as well as potential environmental justice impacts. Socioeconomic resources that may be affected by construction of the proposed project include population, housing, economy, employment, income, and public services. Environmental justice considers activities that will have a disproportionately high and adverse effect on minority populations or low-income populations.

This section provides background information about socioeconomic conditions, including population, housing, employment, and income in the vicinity of the project site and an analysis of how the SR 89/Fanny Bridge Project may affect the socioeconomic environment. This section also addresses the potential for the action alternatives to have an effect on environmental justice populations. The following discussion is based on the *Community Impact Assessment* (TTD 2014) and the *Economic Analysis of the State Route 89/Fanny Bridge Community Revitalization Project* (TTD 2013).

Potential impacts regarding the distribution of population, employment, and housing and the displacement of residences or businesses is discussed in section 4.11, “Population, Employment, and Housing.” Potential impacts to public service resources are discussed in section 4.12, “Public Services and Utilities.”

6.5.1 Regulatory Setting

FEDERAL

Executive Order 12898

In 1994, President Bill Clinton signed Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.” This order requires that federal agencies identify and avoid “disproportionately high and adverse” effects on minority and low-income populations.

U.S. Department of Transportation Order 5610.2

In April 1997, the U.S. Department of Transportation (DOT) issued Order 5610.2, Order to Address Environmental Justice in Minority Populations and Low-Income Populations. This order states that the U.S. DOT will not carry out any programs, policies, or activities that will have a disproportionately high and adverse effect on minority populations or low-income populations unless there is no way to avoid or reduce these effects.

In May 2012, U.S. DOT issued the Final DOT Environmental Justice Order, which updated the 1997 Order. The Order establishes policies and procedures for the Federal Highway Administration (FHWA) to use in complying with Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.

6.5.2 Environmental Setting

DEMOGRAPHICS

In some cases, the U.S. Census Bureau aggregates data at the community level to provide information about a city or similar geographic area. These areas are known as census data places (CDPs). The Sunnyside–Tahoe City CDP, which includes the developed area in Tahoe City along SR 89 and SR 28 and the area to the south to Ward Creek Boulevard, represents the population group that would be most directly affected by the proposed project. The Sunnyside–Tahoe City CDP population has declined from 1,761 to 1,557 between 2000 and 2010.

Table 6-1 provides demographic information from the 2010 decennial census about the population in the project area (Sunnyside-Tahoe City CDP) and the project vicinity. The project vicinity consists of an aggregate of the census tracts farther east and south than the project area, which represent the population that would be most affected by the project alternative's indirect effects. For comparison, Table 6-1 also provides data for Placer County and the state of California.

Table 6-1 State, County, and Local Demographic Characteristics				
Population Characteristic	California	Placer County	Project Area Sunnyside–Tahoe City CDP	Project Vicinity (CTs 201.04, 201.05, 221, 222, and 223)
Total Population	37,253,956	348,432	1,557	5,219
Race				
White	57.6%	83.5%	95.1%	94.4%
African American	6.2%	1.4%	0.2%	0.6%
Hispanic	37.6%	12.8%	5.4%	5.8%
All Other Races	36.2%	15.1%	4.7%	5.0%
Age				
Median Age	35.2	40.3	40.7	44.5
Under 21	29.6%	28.0%	14.1%	16.1%
21–65	59.0%	56.6%	75.4%	70.1%
65 and older	11.4%	15.4%	10.5%	13.8%

Notes: CDP = census data place; CT = census tract
Source: TTD 2014

Both the project area and the project vicinity have a considerably higher percentage of Whites than either the state or greater Placer County. The percentage of persons of other races, including African Americans and persons of Hispanic origin, is considerably lower than the percentages for the state and Placer County. The median age of the project area's population is similar to that of the county and nearly 5.5 years higher than that of the state; the project vicinity has an even higher median age. A notable difference between the project area and the state and county is the percentage of people under the age of 21. Only 14.1 percent of the project area population is under the age of 21, while the percentages for the state and county are 29.6 percent and 28 percent, respectively.

ECONOMY AND EMPLOYMENT

The median household incomes for the project area and the project vicinity are somewhat higher than that for the state and slightly lower than the median household income for Placer County (Table 6-2). The median monthly mortgage cost in the project area is higher when compared to the state and Placer County,

indicating that the cost of living is higher in the project area. However, the median monthly mortgage cost in the project vicinity is lower than both the state and Placer County. Unemployment in the project area, as reported in the 2010 U.S. Census, was higher than statewide and countywide unemployment. The broader project vicinity had a slightly lower unemployment rate than the state, but a slightly higher rate than the county. A lower percentage of the population was below the poverty level in the project area than in the state and county. The project vicinity had a lower percentage below the poverty level than the state, but a higher percentage than the county. It should be noted that the project area and project vicinity have a relatively low total population, and a small change in the number of persons in a particular category can greatly influence the percentage of that category of the overall population.

Table 6-2 State, County, and Local Economic Characteristics.

Economic Characteristic	California	Placer County	Project Area Sunnyside-Tahoe City CDP	Project Vicinity (CTs 201.04, 201.05, 221, 222, and 223)
Median Household Income	\$60,883	\$74,447	\$70,761	\$66,591
Median Monthly Mortgage Cost	\$2,345	\$2,430	\$2,500	\$2,248
Below poverty level	10.2%	4.2%	2.8%	7.3%
Unemployed (civilian)	9.0%	6.9%	9.7%	8.0%

Notes: CDP = census data place; CT = census tract

Source: TTD 2014

Tahoe City is located at one of the major highway gateways to the Tahoe Basin and links the West Shore to other areas along the North Shore. Tahoe City is one of North Lake Tahoe's few commercial hubs, providing visitors with shopping, dining, and recreational amenities. A primary economic issue that has affected Tahoe City and the surrounding area for many years is the substantial loss of many full-time residents. The Tahoe City area lost more than 20 percent of its population in a 10-year span (3,997 full-time residents in 2000 to 3,161 full-time residents in 2010). This loss in the number of full-time residents has affected Tahoe City in many ways, including by changing the character of the commercial base of the town. As the number of local-serving businesses has declined, shops geared toward the visitor population have taken their place. As a result, the economic health of Tahoe City has become a function of the ebb and flow of tourists to the area (TTD 2013).

Tahoe City consists of approximately 450,000 square feet of nonresidential building space, which is apportioned among several business categories, including grocery (approximately 17 percent of total), office space (approximately 17 percent of total), lodging (approximately 13 percent of total), and restaurants (approximately 11 percent of total). A large portion of building space in Tahoe City is occupied by the "Miscellaneous Retail" and "Services" categories (approximately 33 percent among these two categories). Miscellaneous Retail generally comprises buildings and shopping centers containing various types of retail-oriented businesses, which could include anything from book stores, auto parts, tourist-oriented gift shops, antique stores, florists, and many more. The Services category includes businesses such as laundromats/dry cleaners, hair salons, etc. (TTD 2013).

6.5.3 Effects of the Proposed Project on Socioeconomic Conditions

Alternatives 1 through 4 would include a realignment of SR 89 from the existing wye to the new proposed bridge over the Truckee River. Rerouting traffic from the existing wye to a new intersection to the west near the Caltrans maintenance yard would provide several direct benefits, such as greater safety, reduction in traffic delays, improved connectivity, and facilitation of transit alternatives. However, the realignment could affect the local economy in the immediate vicinity of the existing wye. Of particular concern to local business owners is the potential of the SR 89/Fanny Bridge Project to change traffic patterns and reduce traffic

passing by their businesses. The businesses that have the greatest potential to be affected are those along SR 89 between the existing wye and the proposed new roundabout near the Caltrans maintenance yard, and the businesses located along the free right-turn lanes at the existing wye.

The improvements the project proposes to undertake are intended to relieve traffic congestion at the wye, thereby allowing vehicular traffic to travel more freely around the entire area and improve access for destination traffic. Current traffic congestion affects travel patterns and results in negative economic impacts to businesses because tourists in long queues are not spending discretionary money on goods and services while in traffic. Congestion relief and improved traffic flow are the primary vehicle circulation benefits that would influence economic effects.

“Traffic-related” businesses such as restaurants, retail stores, and other visitor-serving businesses are less likely than traffic-dependent businesses (gas stations, fast-food restaurants) to be negatively affected by a bypass (or realignment) and may even experience increased business as conditions improve in the downtown area because of the realignment. The most prominent change in traffic conditions would be a significant reduction in the number of total trips along existing SR 89, from the new realignment up to the existing wye (over Fanny Bridge), because a majority of this traffic is rerouted to the new alignment. There are a small number of businesses located on this roadway segment, and because these businesses are established and popular regional attractions, they are not likely to receive negative impacts from a decline in roadway traffic volumes. Existing research and case-study analysis demonstrates that businesses that are established and tourism-oriented are the most well positioned to experience benefit from infrastructure investments such as the SR 89/Fanny Bridge Project. To the extent the project can spur the evolution of the Fanny Bridge District to a more prominent regional attraction, these businesses stand to benefit through increased pedestrian and bicycle traffic, as well as the creation of a community gathering area and tourist destination (TTD 2013).

6.5.4 Effects of the Proposed Project on Environmental Justice Populations

According to the Council on Environmental Quality’s (CEQ) Environmental Justice Guidance Under the National Environmental Policy Act (1997) and the U.S. Environmental Protection Agency (USEPA 1998), agencies should consider the composition of the affected area, to determine whether minority populations, low-income populations, or Indian tribes are present in the area affected by the proposed action, and if so whether there may be disproportionately high and adverse environmental effects. Communities may be considered “minority” under the executive order if one of the following characteristics apply:

- ▲ the cumulative percentage of minorities within the affected community is greater than 50 percent (primary method of analysis), or
- ▲ the cumulative percentage of minorities within the affected community is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis (secondary method of analysis).

In most cases, the primary method will suffice to determine whether a low-income community exists. However, when income may be just over the poverty line or where a low-income pocket appears likely, the secondary method of analysis may be warranted.

Communities may be considered “low-income” under the executive order if one of the following characteristics applies:

- ▲ the median household income for a census tract is below the poverty line (primary method of analysis), or

- ▲ other indications are present that indicate a low-income community is present within the census tract (secondary method of analysis). Examples may include limited access to health care, over-burdened or aged infrastructure, and dependence on subsistence living.

According to the USEPA, either the county or state percentages can be used when considering the scope of the “general population.” A definition of “meaningfully greater” is not given by the CEQ or USEPA, although the USEPA notes that any affected area that has a percentage of minorities that is above the State’s percentage is potentially a minority community and any affected area with a minority percentage at least double that of the state is definitely a minority community under Executive Order 12898.

As discussed above, the percentage of persons of other races, including African Americans and persons of Hispanic origin in the project vicinity, is considerably lower than the percentages for the state and Placer County. While there are census tracts within the project vicinity that have populations with incomes below the county average poverty level, there are no low-income populations in the project area. Therefore, there are no minority or low-income populations have been identified that would be adversely impacted by the proposed project as determined above. Therefore, in accordance with the provisions of Executive Order 12898 and FHWA Order 6640.23, no further Environmental Justice analysis is required.

6.6 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 5 (No Action Alternative) would be the environmentally preferable/environmentally superior alternative. Under Alternative 5, no construction would take place and operations and maintenance would continue under existing programs, and there would not be substantial changes to the existing environment. However, Alternative 5 would not meet any of the basic project objectives described in Section 1.2, “Purpose and Need.” Implementing Alternative 5 would also preclude gaining the environmental and economic revitalization benefits of the action alternatives.

Table 6-3 identifies the number of significant, potentially significant, and beneficial impacts identified under each action alternative for each environmental issue area evaluated in this EIR/EIS/EA. The significance of impacts after mitigation is also identified. As shown in Table 6-3, based solely on impact significance conclusions after implementation of mitigation measures, Alternative 1 and 4 would not result in any significant and unavoidable impacts; Alternatives 2 and 3 would result in two long-term, significant and unavoidable traffic impacts, and Alternatives 6 and 6a would result one temporary significant and unavoidable impact related to construction traffic congestion. All action alternatives would provide beneficial effects.

The SR 89/Fanny Bridge Project is intended to be a community revitalization project. It is included in the 2035 Lake Tahoe 2035 RTP and TRPA’s Environmental Improvement Program (EIP). Consistent with the Regional Plan Goals and Policies, the EIP is designed to attain, maintain, or surpass multiple environmental thresholds through an integrated approach. Each action alternative was designed with these considerations in mind, and would contribute to various environmental improvements as described throughout this EIR/EIS/EA.

Table 6-3 Summary of Significant Impacts Before and After Mitigation

Environmental Topic	Alternative 1		Alternative 2		Alternative 3		Alternative 4		Alternative 6		Alternative 6a	
	Before	After										
Agricultural and Forest Resources	1 PS	0	0	0	0	0						
Air Quality	0	0	0	0	0	0	0	0	0	0	0	0
Biological Resources	1 S 3 PS	0										
Cultural Resources	4 PS	0										
Geology, Soils, Land Capability, and Coverage	1 B	0	1 B	0	1 B	0	1 B	0	1 B	0	1 B	0
Greenhouse Gas Emissions and Climate Change	0	0	0	0	0	0	0	0	0	0	0	0
Hydrology and Water Quality	0	0	0	0	0	0	0	0	1 B	0	1 B	0
Hazards, Hazardous Materials, and Risk of Upset	1 PS	0										
Land Use	0	0	0	0	0	0	0	0	0	0	0	0
Noise	3 PS	0										
Population, Employment, and Housing	1 B	0	0	0	0	0	0	0	1 PS	0	1 PS	0
Public Services and Utilities	1 B	0	1 B	0	1 B	0	1 B	0	0	0	0	0
Recreation	2 S	0	2 S	0	1 S	0	1 S	0	2 S	0	2 S	0
Scenic Resources	1 PS	0	0	0	0	0						
Traffic and Transportation	2 B 3PS	0	2 B 4 PS	2 SU	2 B 4 PS	2 SU	2 B 3 PS	0	1 B 1 PS	1 SU	3 B 1 PS	1 SU
Total	16 PS 3 S 5 B	0	17 PS 3 S 4 B	2 SU	17 PS 2 S 4 B	2 SU	16 PS 2 S 4 B	0	13 PS 3 S 3 B	1 SU	13 PS 3 S 5 B	1 SU

Note: PS = Potentially Significant Impact, S = Significant Impact, B = Beneficial Impact, 0 = No Significant Impacts; SU = Significant and Unavoidable Impact

As shown in Table 6-3, there would be no significant and unavoidable impacts related to implementation of Alternatives 1 and 4. Alternatives 2 and 3 would result in long-term, significant and unavoidable impacts to segment and intersection levels of service (LOS). While mitigation is available to reduce these LOS impacts, through construction of an expanded western roundabout, implementation of these additional traffic improvements is not feasible because of a lack of identified funding sources and project proponent. Significant and unavoidable impacts associated with Alternatives 6 and 6a would be temporary, construction-related traffic congestion impacts. Construction-period traffic impacts would be less than significant under Alternatives 1 through 4 (because of the ability to stagger the construction timing of a new bridge and the Fanny Bridge improvements). Alternatives 6 and 6a would not be able to avoid congested traffic flow in peak summer travel periods during construction of the Fanny Bridge improvements.

Alternatives 1, 4, 6, and 6a would meet all of the project objectives and not cause long-term significant and unavoidable impacts; and Alternatives 2 and 3 would not meet all of the project objectives in the long-term (i.e., 2038), as they relate to related to traffic operations, and would result in long-term, traffic-related significant and unavoidable impacts. Thus, for the purposes of this analysis, the discussion of environmentally superior alternatives focuses on Alternatives 1, 4, 6, and 6a.

The environmental differences between Alternatives 1, 4, 6, and 6a are related to project design. Each of these alternatives would provide benefits to the study area associated with traffic operations, mobility, and emergency services. The environmental effects of Alternatives 1 and 4 are similar, with some variations in amount of coverage and land disturbance, but not to the extent that significance conclusions are

substantially different. Alternatives 6 and 6a would maintain the current roadway alignment in the study area and provide beneficial effects related to groundwater, stormwater runoff, and drainage, in comparison to Alternatives 1 and 4. Alternatives 6 and 6a would result in no impacts to the 64-Acre Tract. However, the benefits related to realigned of SR 89 would not be realized, including those involving greater emergency access and improved traffic operations. Alternative 6a would result in construction of a roundabout at the wye, which would provide greater traffic benefits than the modifications to the existing T intersection proposed under Alternative 6. Otherwise, the environmental consequences of Alternatives 6 and 6a are similar.

In conclusion, the environmentally superior alternative would be one of Alternatives 1, 4, 6, and 6a, depending on decisions about the priority of types of environmental benefits and adverse effects by the lead agencies. Each of these four alternatives would not result in long-term, significant and unavoidable environmental impacts and would provide substantial benefits to the study area. The environmental impact differences between these four alternatives are not substantial enough that one is clearly superior over the others.

6.7 DEPARTMENT OF TRANSPORTATION ACT (SECTION 4(F))

Section 4(f) of the Department of Transportation Act of 1966 states that a transportation program or project requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance can be approved only if there is no prudent and feasible alternative to using that land and if the program or project includes all possible planning to minimize harm resulting from the use to the park, recreation area, wildlife and waterfowl refuge, or historic site.

As described in the Section 4(f) Report (Appendix F of this document), Federal Highway Administration (FHWA) finds that use of existing trails on the project site that are within the Tahoe City Public Utility District (TCPUD) multi-use trail system would be de minimis under Section 4(f) provisions.

Additionally, under the joint planning exception, Section 4(f) does not apply to property subject to joint planning for both transportation and recreational use, in accordance with 23 CFR. §774.11(i). The exception requires evidence that planning for the transportation use was prior to or concurrent with designation of the land as a Section 4(f) resource (FHWA 2012:57). As described in the Section 4(f) report, and summarized below, this exception would apply to the 64-Acre Tract.

In the 1980s, Reclamation proposed transfer of the ownership and management of the 64-Acre Tract to the U.S. Forest Service (USFS). The eventual construction of an SR 89 alignment across the 64-Acre Tract was envisioned prior to this proposed ownership transfer. Reclamation's 1983 EIS evaluated the effects of the proposed transfer and indicated that the preferred alternative would include a bypass/realignment of SR 89 (Reclamation 1983:IV-2). The USFS 1986 64-Acre Plan included text and graphics showing future plans for a bypass and/or realignment of SR 89 (USFS 1986). The Plan included a May 1974 graphic from the Tahoe Regional Planning Agency (TRPA) showing the long-range objectives as part of the Tahoe City Urban Design Plan, which included a new alignment for SR 89. The Plan showed the USFS intentions for the land as displayed in Reclamation's 1983 EIS. The Plan included a 1981 draft map from Placer County showing a new alignment of SR 89 across the 64-Acre Tract. These early plans indicate that the 64-Acre Tract was planned as a transportation corridor prior to its transfer from Reclamation to the USFS.

Further evidence of the joint planning of the 64-Acre Tract is found in the litigation of the 64-Acre Tract Tahoe City Transit Center project (Transit Center). Approval of the transit center project was challenged by neighboring property owners alleging violations of NEPA, CEQA, and Section 4(f) in *Tahoe Tavern Prop. Owners Association v. U.S. Forest Service* (2007) WL 1279496,1. The court noted that planning for transportation uses occurred prior to any recreational use of the land and that later plans envisioned a mix of transportation and recreational uses. Applicability of the joint planning exception was upheld on appeal in *Tahoe Tavern Prop. Owners Association v. U.S. Forest Service* (2008) 314 Fed. Appx. 919.

The Lake Tahoe Basin Management Unit of USFS provided concurrence on April 3, 2014, stating that ongoing planning for the 64-Acre Tract for both transportation and recreation uses indicates that the joint planning rule applies, and that Section 4(f) requirements do not apply (Gibson 2014).

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