

Truckee River Corridor Access Plan



Prepared For



Placer County
Planning Department

Prepared By

EDAW

With Assistance From



Truckee River
Watershed Council

Truckee River Corridor Access Plan

Prepared For



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1, Introduction

INTRODUCTION

The Truckee River is a critically important natural resource that serves many functions. The river is the outlet of Lake Tahoe, providing water supply for Reno and Nevada users. The river is a significant natural resource that provides a recreational trout fishery, habitat for the endangered Lahontan cutthroat trout, and riparian habitat for wildlife.

The Truckee River is also an essential transportation corridor. State Route (SR) 89 parallels the river, serving as a regional gateway to the North Shore of the Tahoe Basin. SR 98 also provides essential circulation for local residents living along the river and in both Placer and Nevada Counties, and is a key route for visitors to access major ski areas and the lake.

The Truckee River Corridor is also an outstanding recreation resource; providing a popular destination for paddlers, hikers, anglers, cross-country skiers, and bicyclists. The existing Class I trail along the southernmost river reach is popular with both families and more serious athletes.

While river corridor property is mostly in public ownership, long-established private parcels along the river contain many residences that are both seasonal and permanent homes.

PURPOSE OF THE TRUCKEE RIVER CORRIDOR ACCESS PLAN

From Tahoe City to Truckee, historical railroad, past logging, and current transportation issues have combined with recent growth in local population, development, and recreational use to put substantial pressure on the Truckee River corridor.

Pressures include habitat impacts, such as eroded streambanks and degraded riverside meadows. Safety hazards occur at intersections and where drivers park along SR 89 to walk to the river. Visitors and locals are inappropriately crossing private property to reach or cross the river.

Public interest in and use of the Truckee River is increasing among local and visiting recreationists, such as fly fishers, paddlers, bicyclists, and hikers. The Truckee River is an increasing attraction to tourists from outside the area.

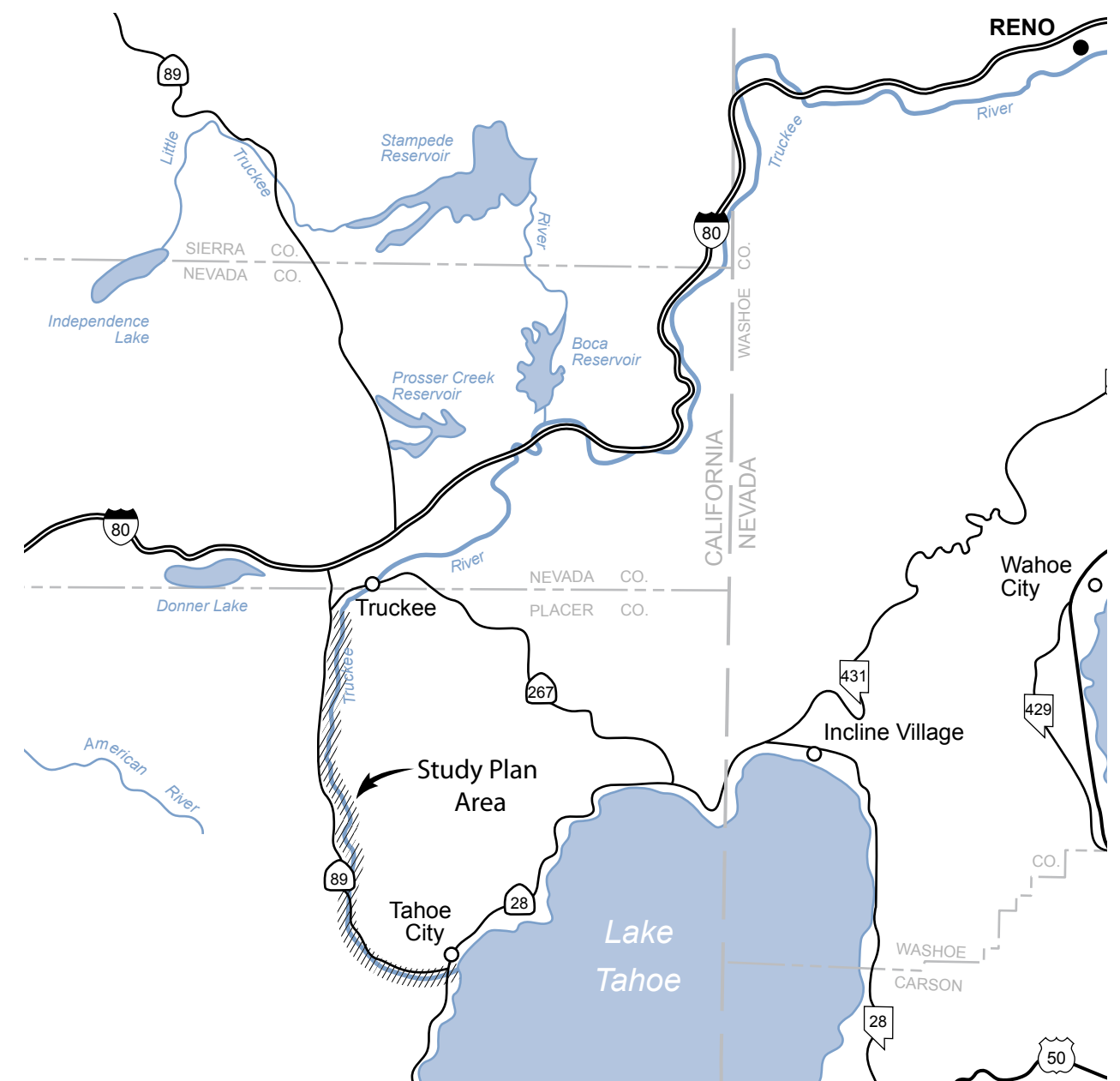
No single agency, organization, or stakeholder has jurisdiction over all the land in the river corridor or control of all these issues; however, leadership in the form of coordination of plans and projects can go a long way toward creating solutions.

The Placer County Planning Department has taken the first steps toward this coordination by funding the preparation of a corridor access plan to identify environmental and access-related river corridor issues and projects. This study plan is intended to serve as the guiding vision to help agencies and organizations 1) direct land management activities; 2) enhance, restore and protect natural resources; and 3) develop trails, staging areas, and other potential low-intensity recreational facilities.

VISION STATEMENT

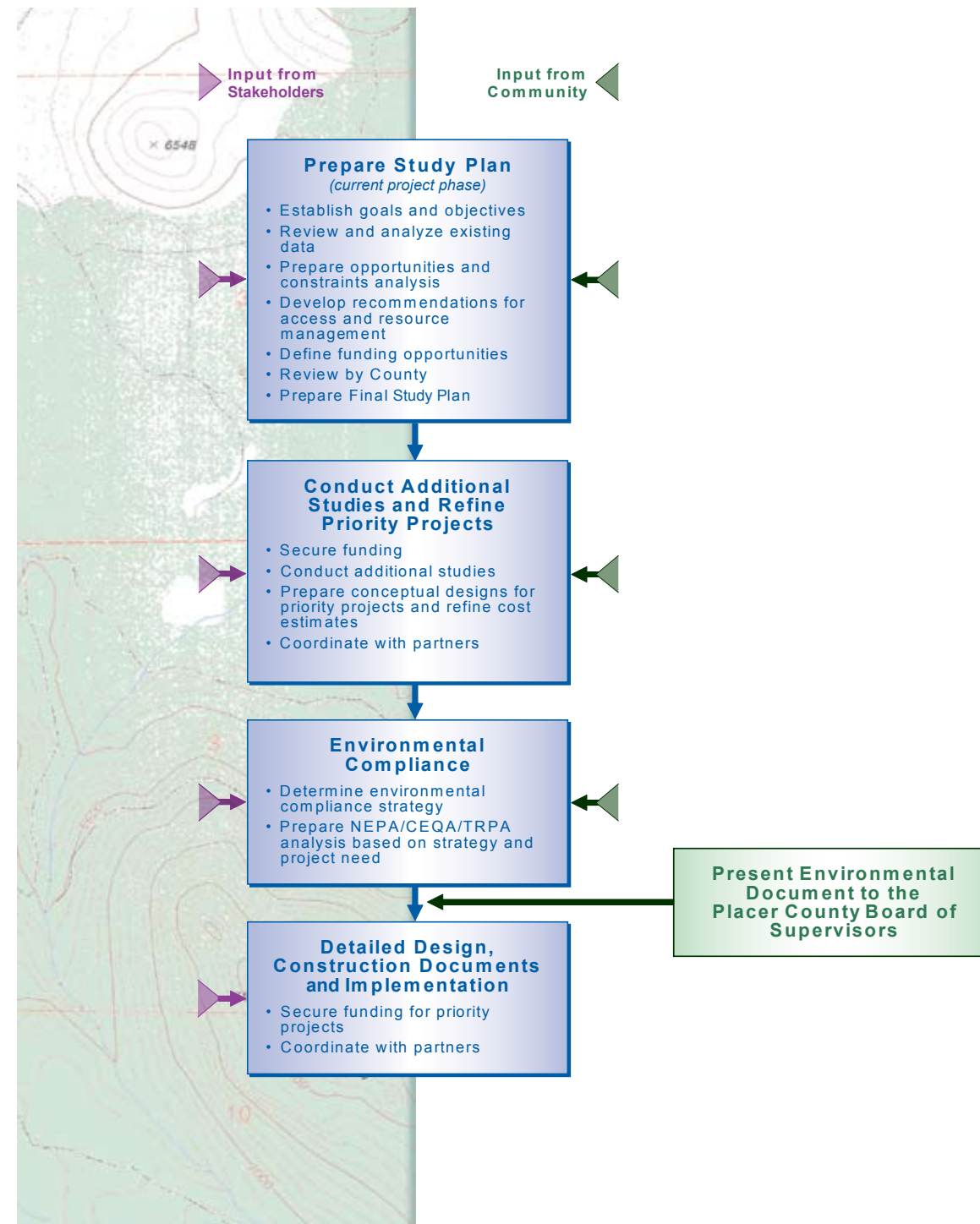
The vision of the *Truckee River Corridor Access Plan* is to restore and enhance the river corridor's ecological, water quality, recreational, and nonmotorized-transportation values for the benefit of residents and visitors, while protecting private-property rights of corridor landowners.

EXHIBIT I-1 Plan Area Map



Truckee River Corridor Access Plan

EXHIBIT I-2 Truckee River Corridor Access Plan Processing Diagram



PROJECT BACKGROUND

PLAN AREA

The study plan area begins at the SR 89 Truckee River bridge, known locally as "Fanny Bridge," and extends downstream approximately 15 miles to the Placer County line just outside of the Truckee town limits (Exhibit I-1). The width of the corridor varies, but it generally extends approximately one-eighth mile on either side of the river.

Private, noncommercial properties were not examined and are not included in any study plan actions.

The plan was initiated by participants in the Truckee River Watershed Council's Projects and Assessments Committee and funded by Placer County.

PLAN DEVELOPMENT AND IMPLEMENTATION PROCESS

The study plan synthesizes current natural resource, recreation, and land use planning information and provides general guidance on future resources management and access-related projects in the corridor. Projects identified in this plan will generally require additional site-specific study, detailed planning and design, environmental compliance, and permitting before implementation. Each of these steps will engage the public through outreach and public review processes based on resource sensitivity, project complexity, and legal requirements. Exhibit I-2 illustrates the overall process required to implement a project and the role of the study plan.

Truckee River Corridor Access Plan

GOALS, DESIRED OUTCOMES, AND DESIRED SECONDARY BENEFITS

GOALS

The goals of this plan are as follows:

- Coordinate the multiple jurisdictions with authority in the corridor through a single management strategy to address trails and public access, habitat conservation and restoration, and water quality.
- Identify restoration projects that will improve wildlife and aquatic habitat, restore a contiguous riparian plant community along the river, and enhance water quality.
- Identify a recreation and transportation route and/or trail for walking, in-line skating, and bicycle use from Squaw Valley to the Town of Truckee.
- Identify access improvements for angling and boating from the SR 89 bridge to the Town of Truckee.
- Identify local and regional connections to multiuse trails and recreation access points.
- Coordinate with the Placer Legacy Open Space Conservation Program, watershed planning efforts, and other city planning and development initiatives.
- Develop a base map and related spatial information appropriate for future project-planning efforts along the Truckee River from Tahoe City to the Placer County line.
- Respect and protect private-property rights.

DESIRED OUTCOMES

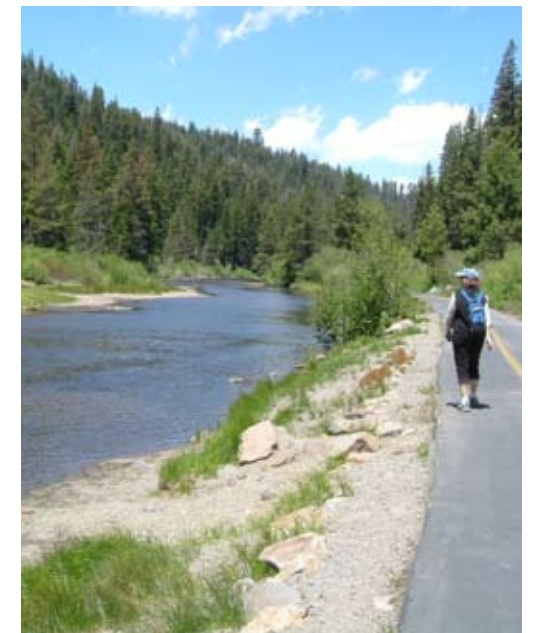
The desired outcomes from implementation of this plan include:

- Improve places for people of all ages and abilities to access the Truckee River and redirect existing public access, where needed, to protect natural resources. Discourage and/or restrict access to sensitive habitat areas.
- Provide a more even distribution of recreation experiences along the Truckee River.
- Respect and protect private-property rights. Discourage trespassing and direct access away from private parcels along the river.
- Increase natural-heritage and wildlife values along the corridor.
- Maintain or improve water quality of the river.
- Increase the educational and interpretive elements to highlight ecological, historic, cultural, and scenic qualities of the corridor.

DESIRED SECONDARY BENEFITS

The desired secondary benefits from implementation of this plan include:

- Encourage economic development by attracting new visitors and businesses and enhancing property values and local tax revenues.
- Promote compatible and mutually supportive land use patterns for developers, residents, the state and federal agencies, and local governments.



Truckee River and Class I bike path, 2005

Truckee River Corridor Access Plan

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2, Description of Existing and Historical Conditions

The *Truckee River Corridor Access Plan* is grounded in a strong understanding of the physical, biological, cultural, and socio-economic characteristics of the Truckee River, as well as the existing planning context. This section summarizes relevant existing and past conditions of the corridor.

2.1 PHYSICAL CONDITIONS

HYDROLOGY AND HYDRAULICS

The Truckee River originates high in the Sierra Nevada above Lake Tahoe, drains initially into Lake Tahoe, flows out of Lake Tahoe through the plan area, and terminates in Pyramid Lake, Nevada. Unlike most rivers that join other rivers and empty into the ocean, the Truckee River watershed is a terminal (i.e., closed) system. In addition to releases from Lake Tahoe, a number of tributaries including Bear Creek, Squaw Creek, Sliver Creek, Deer Creek, Pole Creek, Deep Creek, Rocky Wash, Brush Creek, and Cabin Creek feed the Truckee River and affect flows in the plan area.

The natural hydrology of the Truckee River is dominated by spring-snowmelt-runoff peaks of low to moderate magnitude that typically occur from April to July as the snowpack in the Sierra Nevada melts (U.S. Department of the Interior and State of California 2004). Intense rain and rain-on-snow events can also produce occasional high-magnitude, short-duration peaks at various times throughout the year. Truckee River runoff is normally highest during April, May, and June and lowest during August, September, and October (U.S. Fish and Wildlife Service 2003). It is reported that the Tahoe City–Squaw Creek reach is a gaining stream (i.e., adding source water) by virtue of spring flow (McKenna 1990).

Flows in the Truckee River have differed dramatically over time, including both extreme lows and highs. The average volume between 1905 and 1995 was 161,450 acre-feet. The highest-volume year on record was 1983 when 832,570 acre-feet were released into the Middle Truckee. The volume dropped to 110 acre-feet in 1994; the lowest-volume year on record. (Truckee River Watershed Council 2004).

GEOMORPHOLOGY

The present Truckee River was formed concordantly with the uplift of the Sierra Nevada during the Quaternary period (i.e., past 5 million years). The upstream boundary of the Truckee River is Lake Tahoe, which lies in a deep “graben” basin formed by subsidence along faults separating the Carson Range to the east and the Sierra Nevada crest to the west. Granitic rocks underlie most of the Tahoe Basin, but younger volcanic rocks top the surrounding peaks and line the canyon through which the Truckee River flows out of the Tahoe Basin from Tahoe City.

The river flows within a narrow canyon between Tahoe City and the confluence with Squaw Creek, 7 miles north; streamflows are well contained between the highway road fill and hill slopes on the opposite bank. Within the section from Tahoe City to Squaw Creek, the river changes abruptly from a low-gradient, marshy channel with long gentle runs to a steep cascading whitewater river just above its confluence with Bear Creek (River Ranch). Below Squaw Creek, the canyon broadens slightly to a narrow valley with small floodplains and alluvial terraces that are elevated above the floodplains. As it moves downstream the river gradually flattens, but cascading shallow whitewater riffles are common.

At Granite Flat Campground, the channel gradient decreases and the floodplain widens to more than 120 feet. The channel morphology consists of pools and riffles. The floodplain is more susceptible to flooding during larger rain-flood events that occur approximately once every 10 years on average. The channel appears to have remained in its present position for some time.

A unique feature of the Truckee River is its natural separation from its upper watershed via Lake Tahoe. With the exception of flow releases from the lake, the river is essentially disconnected from specific upstream watershed-related processes such as source sediment supply, transport, and deposition. These processes are relatively limited until the river is joined by the first major tributaries - Bear Creek and Squaw Creek.

TRUCKEE RIVER FLOWS

The first facility to affect Truckee River flows in the study area was the timber crib dam that was constructed at the mouth of Lake Tahoe. This dam, which was constructed in 1870, was used to regulate flows of the Truckee for lumbering, mining, and power production. In the early 1900s this dam was rebuilt as a concrete structure; it is now called the Lake Tahoe Dam. Water was exported from the Truckee Basin for use in the Comstock mines. The river was also used to float logs down to lumber mills and to generate power for those mills. Dominant water uses later shifted toward agricultural and urban uses. Present uses of Truckee River water include agriculture, municipal, power production, recreation, and fish and wildlife uses (California Department of Water Resources 1991).



Timber crib dam, (early 1900's) — *Special Collections Department, University of Nevada, Reno Library*

Truckee River Corridor Access Plan

The flow of the Truckee River currently and historically has been regulated by decrees, agreements, and operating requirements. The most pertinent requirements to current operations are the 1908 Floriston rates, the 1915 Truckee River General Electric Decree, the 1935 Truckee River Agreement, and the 1944 Orr Ditch Decree (Horton 1997, cited in Truckee River Watershed Council 2004).

The Floriston rates are established flow rates for the Truckee River that were negotiated as part of Truckee River General Electric Company's purchase agreement of the Lake Tahoe Dam. The agreement states that the flow rates at the state line must be maintained between 300 and 500 cubic feet per second (cfs) for hydropower generation.

The Truckee River General Electric Decree, which was entered into by the U.S. Bureau of Reclamation (Reclamation) and the Truckee River General Electric Company (predecessor to Sierra Pacific Power Company), granted Reclamation an easement to operate Lake Tahoe Dam and to use surrounding property owned by the power company. It also required Reclamation to operate the dam to maintain the Floriston rates.



Truckee River near Tahoe City, 2005

The Truckee River Agreement confirmed the Floriston rates; provided for releases of water from Lake Tahoe to prevent high-water damage along the shoreline; defined the interrelationship among "privately owned stored water," natural flow, and diverted water; and established the conditions under which Lake Tahoe could be pumped to serve agricultural needs of the Newlands Project.

The Orr Ditch Decree established individual water rights—amounts, place and type of use, and priority—and provided a framework for operating the river to meet those rights (California Department of Water Resources 1991).

Consumptive use of all surface waters and some groundwater of the Truckee River watershed is currently regulated by an interstate compact that has been approved by Congress as Public Law 101-618 (Pyramid Lake/Truckee-Carson Water Rights Settlement), and flows are managed by a federal watermaster under a court decree. Revisions in operating criteria for the river/reservoir system are currently being proposed. The draft environmental impact statement/environmental impact report for the *Truckee River Operating Agreement* (TROA) has identified instream flow for fisheries and water quality of the Truckee River as the key concerns for flow management. Regulated flows from Donner, Martis, and Prosser Creeks, the Little Truckee River (Stampede/Boca Reservoirs), and the dam at Lake Tahoe all influence base flows and the water quality of the main stem of the Truckee River (U.S. Department of the Interior and State of California 2004).

CLIMATE

Climate along the Truckee River is characterized by mild summers and cold winters. The average annual temperature (recorded at the Truckee Ranger Station) from 1948 to 2005 was 43.4 degrees Fahrenheit (°F). Highs averaged 78.6°F during summer and 41.0°F during winter months (Desert Research Institute 2005).

Other climatic characteristics along the Truckee River are prevailing westerly winds, large temperature fluctuations, and infrequent but severe storms (Garcia and Carman 1986, cited in Desert Research Institute 2001). Precipitation measured at the Truckee Ranger Station averaged 31.43 inches (79.8 centimeters [cm]) annually, ranging from 16.04 inches to 54.62 inches (40.7–138.7 cm)

for the period of record. Precipitation occurs predominantly as snowfall during winter months, generally increasing with elevation. Snowpacks in the Sierra Nevada have been observed year-round, and snowfall has occurred as late as July. Snowfall averages 205.1 inches (521 cm), but has been recorded as high as 401.4 inches (1,019.5 cm) at the Ranger Station (Desert Research Institute 2001, 2005).

GEOLOGY

The crest of the Sierra Nevada forms the western boundary of the Truckee River watershed. A significant portion of the watershed is above 6,000 feet. Elevations of the Middle Truckee River range from 6,200 feet at Tahoe City to approximately 5,840 feet at the Placer County line. Tributary streams to the Truckee River are characterized by steep gradients in narrow, steep-walled canyons, except where the region was glaciated; in these areas, stream channels are broad and flat (Conway et al. 1996, cited in Desert Research Institute 2001).

LANDFORMS AND SOILS

Fluvial terraces are common along the larger tributary watersheds and along the length of the Truckee River. They are typically coarse-grained alluvium that may be relatively stable depending on their landscape position relative to the Truckee River or incised streams that may cross the terraces. Older terraces have well-developed soils and may be sensitive to surface disturbance along edges of the terraces where relief is greatest (Desert Research Institute 2001).

Soils found within the plan area have been mapped and classified by the Soil Conservation Service (1974, 1994) of the U.S. Department of Agriculture. The soils in the Truckee River Basin include nearly level soils of valley floors to very steep soils of high-elevation mountainsides. The soils are generally excessively drained to moderately well drained. Soils at elevations ranging from approximately 4,800 to 6,500 feet (1,463–1981 meters) are formed primarily from weathered volcanic, rhyolitic and granitic rock, and alluvial deposits (Soil Conservation Service 1994, cited in Desert Research Institute 2001).

Truckee River Corridor Access Plan

Principal soil orders found in the region are Alfisols and Inceptisols (Soil Survey Staff 1999, cited in Desert Research Institute 2001). Common suborders are Umbrepts and Xeralfs. Many of the soils are of great groups indicating aridic, ultic, and xeric climatic regimes. Some of the soil series and types reflect minimal soil development (entic soils).

Aridic soils are dry, alkaline mineral soils containing small amounts of organic materials and light-colored surface layers formed mostly in semiarid to arid environments. Ultic soils in the Truckee River Basin region have developed primarily under forest vegetation. These are weakly developed soils typically formed from alluvial material and occur with intermixed gravel and boulders (Conway et al. 1996, cited in Desert Research Institute 2001).

WATER QUALITY

Water quality of the Truckee River is heavily influenced by water quality in Lake Tahoe and the immediate watershed and has been affected by a variety of sources.

PRIMARY POINT AND NONPOINT SOURCE IMPACTS

Point and nonpoint sources of pollutants affect the Truckee River system. Nonpoint sources in the plan area are primarily sediment runoff from development, erosion of the surrounding watershed (including that caused by recreational activities and development), and urban stormwater runoff (Lebo et al. 1994). A major point source downstream of the plan area is treated wastewater effluent.

The Truckee River is on the federal Clean Water Act (CWA) Section 303(d) list for sediment. Several tributaries in the study area (including Squaw Creek and Bear Creek) are also on the Section 303(d) list for sediment. Due to this listing, the Truckee River and Squaw Creek are among the Lahontan Regional Water Quality Control Board's (RWQCB's) highest priority water bodies for the development of Total Maximum Daily Loads (TMDLs).

In September 2002, the Truckee River Watershed Council, the Lahontan RWQCB, and the Center for Collaborative Policy convened an open and collaborative effort to develop a sediment-control plan for the Truckee River. Currently, this project is awaiting the results of a Lahontan RWQCB bioassessment study that is evaluating the conditions of aquatic life and sediment in

the Truckee River between Lake Tahoe and the California-Nevada border. (See "Aquatic Ecosystem Monitoring and Bioassessment" on page 12 for additional information on bioassessment activities in the Truckee River.) The implementation plans of these two TMDLs may provide opportunities for coordinating recommended actions provided in this study plan.

EROSION AND SEDIMENTATION

Portions of the watershed are highly erosive and contribute to turbidity and sedimentation of the Truckee River in the plan area. More than half of the Truckee River watershed has "moderate" to "very high" erosion potential based on slope. More than 23% of the watershed is in the "high to very high" category, which is defined as slope greater than 15% (California Watershed Assessment 1997, cited in Truckee River Watershed Council 2002).

Turbidity increases after intense storms. Storm events have increased suspended sediment to the extent that downstream Nevada water purveyors have been unable to filter municipal supplies, and water rationing has been necessary. Concern about erosion in the larger watershed has increased as a result of extensive damage by several catastrophic forest fires in 1994.

The tributary subbasins of the plan area with the highest annual suspended sediment load include the Bear and Squaw Creek watersheds. These tributary watersheds are believed to show high rates of suspended sediment load because of rapid urbanization and ski area development (i.e., Alpine Meadows and Squaw Valley) (U.S. Department of the Interior and State of California 2004). Other land uses that may contribute to erosion and sedimentation in the plan area are access points, roads, and trails associated with transportation and recreation as well as dispersed forest recreation (Lahontan Regional Water Quality Control Board 2002). Controlling sedimentation may provide opportunities to coordinate recommended actions from this study plan.



The Sierra Nevada Crest provides the western boundary of the Truckee River corridor, 2000

Truckee River Corridor Access Plan

2.2 BIOLOGICAL CONDITIONS

VEGETATION AND WILDLIFE HABITATS

Plant community types that occur within the Truckee River corridor include montane riparian scrub, montane black cottonwood forest, montane wet meadow, montane freshwater marsh, lodgepole pine forest, Jeffrey pine-white fir forest, and Great Basin sagebrush scrub. Lodgepole pine forest, Jeffrey pine-white fir forest, and Great Basin sagebrush scrub are considered common vegetation communities. The riparian, meadow, and freshwater marsh communities are considered sensitive by the California Department of Fish and Game (DFG) and are tracked in the California Natural Diversity Database (CNDDDB). In addition, these are wetland communities that may be subject to U.S. Army Corps of Engineers (USACE) jurisdiction under the CWA. Collectively they provide important ecosystem functions including groundwater recharge, moderation of peak flows, forage production for wildlife, and habitat functions for many vertebrate and invertebrate species. These communities also provide social values associated with cultural resources and recreation.

Riparian habitat along the Truckee River corridor is generally very narrow and patchy. The montane riparian scrub community is composed of montane wetland shrubs such as mountain alder (*Alnus incana* ssp. *tenuifolia*), Lemmon's willow (*Salix lemmonii*), and shining willow (*Salix lucida* ssp. *lasiandra*). Other riparian species include quaking aspen (*Populus tremuloides*), creek dogwood (*Cornus sericea*), and thimbleberry (*Rubus parviflorus*) with an understory of sedges and grasses. Riparian vegetation along the Truckee River corridor is dominated by mountain alder in the first several miles downstream of Lake Tahoe, but transitions to black cottonwood (*Populus balsamifera*) dominated forest downstream of Squaw Creek.

Riparian vegetation provides habitat for aquatic and terrestrial organisms such as aquatic insects, insectivorous birds, aquatic reptiles, amphibians, and mammals. Riparian habitats are among the most productive and species-rich areas in the Sierra Nevada bioregion, and support a high proportion of neotropical migrant landbird species (i.e., birds that breed in North America and winter in the neotropics). These areas function as breeding habitat, as well as important stopover areas during spring and fall migration. However, much of the riparian vegetation in the plan area is narrow and sparse, limiting its present habitat value in most locations.

Wildlife species associated with montane riparian habitats are generally similar to those described below for conifer forest. Additionally, MacGillivray's warbler (*Oporornis tolmiei*), Wilson's warbler (*Wilsonia pusilla*), yellow warbler (*Dendroica petechia brewsteri*), western wood-pewee (*Contopus sordidulus*), house wren (*Troglodytes aedon*), warbling vireo (*Vireo gilvus*), song sparrow (*Melospiza melodia*), western toad (*Bufo boreas*), Pacific chorus frog (*Pseudacris regilla*), and raccoon are associated with montane riparian habitats.

Channel margins of the Truckee River include large patches of sedge-dominated, seasonally flooded, montane freshwater marsh habitat. These areas are found along the shallow, low-velocity segment of the river from the SR 89 bridge in Tahoe City to River Ranch. Common plant species include slender-beak sedge (*Carex athrostachya*), water sedge (*Carex aquatilis*), and beaked sedge (*Carex utriculata*) (U.S. Department of the Interior and State of California 2004). These riverine wetlands provide habitat for aquatic insects, amphibians, and waterfowl.

Upland habitats within the Truckee River corridor are characterized by coniferous forest communities. High floodplain terraces are dominated by lodgepole pine (*Pinus contorta* ssp. *murrayana*) forest while Jeffrey pine (*Pinus jeffreyi*) and white fir (*Abies concolor*) become dominant further upland. Several rodent species, including deer mouse (*Peromyscus maniculatus*), golden-mantled ground squirrel (*Spermophilus lateralis*), and chipmunk (*Tamias* spp.), live on the forest floor in conifer forest. Western gray squirrel (*Sciurus griseus*) and Douglas' squirrel (*Tamiasciurus douglasii*) occur on the forest floor and in the

forest canopy. Resident and neotropical migrant Passerine birds such as yellow-rumped warbler (*Dendroica coronata*), dark-eyed junco (*Junco hyemalis*), Steller's jay (*Cyanocitta stelleri*), Clark's nutcracker (*Nucifraga columbiana*), and western tanager (*Piranga ludoviciana*) occur throughout the forest canopy. Hairy woodpecker (*Picoides villosus*), northern flicker (*Colaptes auratus*), mountain chickadee (*Poecile gambeli*), and red-breasted nuthatch (*Sitta canadensis*) nest in cavities in trees and snags. Red-tailed hawk (*Buteo jamaicensis*), great horned owl (*Bubo virginianus*), and coyote (*Canis latrans*) are species that typically prey on small mammals and birds in conifer forests. Black bears (*Ursus americanus*) also occur in conifer forest in the plan area. Large snags associated with conifer forest along the river channel provide important wildlife habitat. Snags provide nesting, perching, hunting, and feeding locations for predatory bird species and other wildlife, and roost sites for bats.

Portions of the Truckee River corridor close to Truckee support Great Basin sage scrub habitat. This vegetation community is dominated by shrubby vegetation such as sagebrush (*Artemisia tridentata*), bitterbrush (*Purshia tridentata*), and rabbitbrush (*Chrysothamnus* sp.), with occasional Jeffrey pine trees interspersed throughout.



Snowshoe Hare — © 2005 Jupiterimages Corporation



American Marten — © 2005 Jupiterimages Corporation

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SPECIAL-STATUS PLANT AND ANIMAL SPECIES

Special-status species are defined as plant and animal taxa that are legally protected or are otherwise considered sensitive by federal, state, or local resource conservation agencies and organizations. Special-status species addressed in this section include:

- species listed or proposed for listing as threatened, endangered, or rare under the federal Endangered Species Act (ESA) or the California Endangered Species Act (CESA);
- species considered as candidates for listing as threatened or endangered under ESA or CESA;
- species designated as sensitive by the U.S. Forest Service (USFS) Regional Forester;
- species designated as special interest species by the Tahoe Regional Planning Agency (TRPA);
- wildlife species identified by the DFG as California species of special concern and by the U.S. Fish and Wildlife Service (USFWS) as federal species of concern;
- animals fully protected under the California Fish and Game Code;
- species that meet the criteria for listing, even if not currently included on any list, as described in Section 15380 of the California Environmental Quality Act (CEQA) Guidelines;
- species designated as a special-status, sensitive, or declining species by other state or federal agencies or nongovernmental organizations; and
- plants considered by the California Native Plant Society (CNPS) to be “rare, threatened, or endangered in California” (Lists 1B and 2).

Special-status plant species with potential to occur in the Truckee River corridor are presented in Table 2-1. Montane wet meadow habitat within the corridor could potentially support Bolander’s bruchia (*Bruchia bolanderi*), English sundew (*Drosera anglica*), Oregon fireweed (*Epilobium oregonum*), Plumas ivesia (*Ivesia sericoleuca*), Stebbin’s phacelia (*Phacelia stebbinsii*), and Robbin’s pondweed (*Potamogeton robbinsii*). American manna

TABLE 2-1 Special-Status Plant Species with Potential to Occur within Truckee River Corridor

Species	Listing Status			Habitat	Distribution
	Fed	State	CNPS		
Bolander’s bruchia <i>Bruchia bolanderi</i>	--	--	2	Lower montane coniferous forest, meadows and seeps, upper montane coniferous forest; damp soil	Fresno, Mariposa, Nevada, Plumas, Tehama, Tulare, and Tuolumne Counties; Oregon
English sundew <i>Drosera anglica</i>	--	--	2	Bogs and fens, meadows and seeps; mesic sites	Lassen, Nevada, Plumas, Shasta, Sierra, and Siskiyou Counties; Idaho, Oregon, and Washington
Oregon fireweed <i>Epilobium oregonum</i>	--	--	1B	Bogs and fens, lower montane coniferous forest, upper montane coniferous forest; mesic sites	Del Norte, El Dorado, Glenn, Humboldt, Mendocino, Nevada, Shasta, Tehama, and Trinity Counties; Oregon
Starved daisy <i>Erigeron miser</i>	--	--	1B	Upper montane coniferous forest; rocky substrates	Nevada and Placer Counties
Nevada daisy <i>Erigeron nevadincola</i>	--	--	2	Great Basin scrub, lower montane coniferous forest, pinyon and juniper woodland; rocky substrates	Lassen, Placer, Plumas, and Sierra Counties; Nevada
Donner Pass buckwheat <i>Eriogonum umbellatum</i> var. <i>torreyanum</i>	FSC	--	1B	Meadows and seeps, upper montane coniferous forest; volcanic and rocky substrates	Nevada, Placer, and Sierra Counties
American manna grass <i>Glyceria grandis</i>	--	--	2	Bogs and fens, meadows and seeps, marshes and swamps; streambanks and lake margins	Humboldt, Mendocino, Mono, and Placer Counties
Plumas ivesia <i>Ivesia sericoleuca</i>	FSC	--	1B	Great basin scrub, lower montane coniferous forest, meadows and seeps, vernal pools; vernal mesic sites on usually volcanic substrates	Lassen, Nevada, Placer, Plumas, and Sierra Counties
Stebbin’s phacelia <i>Phacelia stebbinsii</i>	--	--	1B	Cismontane woodland, lower montane coniferous forest, meadows and seeps	El Dorado, Nevada, and Placer Counties
Robbin’s pondweed <i>Potamogeton robbinsii</i>	--	--	2	Cismontane woodland, lower montane coniferous forest, meadows and seeps	Alpine, Inyo, Lassen, Madera, Nevada, Sierra, Siskiyou, and Tuolumne Counties; Idaho, Oregon, Utah, and Washington
Marsh scullcap <i>Scutellaria galericulata</i>	--	--	2	Lower montane coniferous forest, meadow and seeps; mesic sites; marshes and swamps	El Dorado, Lassen, Modoc, Nevada, Placer, Plumas, Shasta, San Joaquin, and Siskiyou Counties; Oregon
Munroe’s desert mallow <i>Sphaeralcea munroana</i>	--	--	2	Great basin scrub	Placer County; Idaho, Nevada, Oregon, Utah, Washington, and Wyoming

U.S. Fish and Wildlife Service (USFWS) Federal Listing Categories:

- FC** Federal Candidate
- FSC** Federal Species of Concern

California Department of Fish and Game (DFG) State Listing Categories:

- CE** California Endangered

California Native Plant Society (CNPS) Listing Categories:

- 1B** Plants rare, threatened, or endangered in California and elsewhere
- 2** Plants rare, threatened, or endangered in California, but more common elsewhere

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TABLE 2-2 Special-Status Wildlife Species with Potential to Occur in the Plan Area

Species	Regulatory Status ¹				Habitat	Likelihood of Occurrence
	USFWS	DFG	USFS	TRPA		
BIRDS						
Bald eagle <i>Haliaeetus leucocephalus</i>	FT (FPD)	FP			In western North America, nests and roosts in coniferous forests within 1 mile of lake, reservoir, stream, or ocean	High; Known to occur (non-nesting); Truckee River provides suitable foraging habitat, and adjacent trees provide suitable roosting and perching habitat; also known to regularly occur nearby along Lake Tahoe shoreline
Osprey <i>Pandion haliaeetus</i>		CSC		SI	Nests in snags or cliffs or other high, protected sites near ocean, large lakes, or rivers with abundant fish populations	High; Truckee River provides suitable foraging habitat, and adjacent trees provide suitable roosting and perching habitat; known to occur nearby along Lake Tahoe shoreline
Waterfowl species				SI	Wetlands such as lakes, creeks, drainages, marshes and wet meadows	High; Known to occur in plan area in and along Truckee River
California spotted owl <i>Strix occidentalis occidentalis</i>		CSC	S2		Mature forests with suitable nesting trees and snags	Moderate; limited foraging habitat present in conifer forest in plan area; known to occur and nest near plan area
Northern goshawk <i>Accipiter gentilis</i>		CSC	S	SI	Nests and roosts in older stands of red fir, Jeffrey pine, and lodgepole pine forests; hunts in forests, forest clearings, and meadows	Moderate; limited foraging habitat present in conifer forest in plan area; known to occur and nest near plan area
Cooper's hawk <i>Accipiter cooperii</i>		CSC			Nests in a wide variety of habitat types, from riparian woodlands and gray pine-oak woodlands through mixed conifer forests	Moderate; known to nest near plan area; suitable habitat present in plan area
Sharp-shinned Hawk <i>Accipiter striatus</i>		CSC			Nests in coniferous or mixed forests, usually selecting a conifer for the nest tree. Forages in a wide variety of coniferous, mixed, or deciduous woodlands.	Moderate; known to nest in region and occur near plan area; suitable habitat present in plan area
Yellow warbler <i>Dendroica petechia</i>		CSC			Nests in riparian areas dominated by willows, cottonwoods, sycamores, or alders or in mature chaparral; may also use oaks, conifers, and urban areas near streamcourses	Moderate; suitable habitat present in plan area; reported to occur near plan area
Willow flycatcher <i>Empidonax traillii adastus</i>		CE	S		Riparian areas and large wet meadows with abundant willows for breeding; usually found in riparian habitats during migration	Moderate (migration); suitable migratory habitat present in plan area; reported to occur near but not known to breed in plan area; a small patch of habitat with riparian vegetation and hydrology potentially suitable for breeding occurs in the upper reach of the plan area.
American peregrine falcon <i>Falco peregrinus anatum</i>		FP	S	SI	Cliffs or rocky outcrops for nesting. Forages over a variety of habitats but mostly prefers aquatic associated areas where abundant aerial prey is present	Low; species not known to occur near Plan area; suitable nesting habitat occurs near but not within plan area; limited foraging habitat present in plan area
Golden eagle <i>Aquila chrysaetos</i>		CSC		SI	Rolling foothills and mountain areas. Nests on cliffs and in large trees.	Low; species not known to occur near Plan area; suitable nesting habitat occurs near but not within plan area; limited foraging habitat present in plan area
AMPHIBIANS						
Mountain yellow-legged frog <i>Rana muscosa</i>	FC	CSC	S		Associated with streams, lakes, and ponds in montane riparian, lodgepole pine, subalpine conifer, and wet meadow habitats	Low; aquatic habitat is considered low-quality due to presence of nonnative fish populations; no known extant populations near plan area
MAMMALS						
Mule deer <i>Odocoileus hemionus</i>				SI	Riparian areas, meadows, and early- to mid-successional stages of most vegetation types	High; suitable habitat present in plan area; plan area is within summer range of the Truckee-Loyalton herd
American marten <i>Martes americana</i>			S		Dense canopy mixed evergreen forests with many large snags and downed logs, small openings with good ground cover for foraging, riparian corridors	Moderate; suitable habitat present in plan area; detected south of plan area at Page Meadows
Sierra Nevada mountain beaver <i>Aplodontia rufa californica</i>		CSC			Dense montane riparian-deciduous habitat, and brushy stages of forest habitats near abundant water; requires dense understory vegetation for food and cover, and soft soil for burrowing; burrows are typically near streams or springs	Moderate; reported to occur near plan area
Sierra Nevada snowshoe hare <i>Lepus americanus tahoensis</i>		CSC			Conifer forest and dense thickets	Moderate; some suitable habitat present in plan area



American Bald Eagles winter at Lake Tahoe — © 2005 Jupiterimages Corporation

STATUS EXPLANATIONS

U.S. Fish and Wildlife Service (USFWS) Federal Listing Categories:

- FT** Federal Threatened
- FC** Candidate for listing as threatened or endangered under ESA
- FPD** Federally proposed for delisting

California Department of Fish and Game (DFG) State Listing Categories:

- CE** California Endangered
- CSC** California Species of Special Concern
- FP** Fully Protected

U.S. Forest Service (USFS):

- S** USFS Lake Tahoe Basin Management Unit sensitive species, Region 5 Forester's Species List, Fall 2001

Tahoe Regional Planning Agency (TRPA):

- SI** TRPA special interest species, Regional Plan for the Lake Tahoe Basin: Code of Ordinances 1987
- 2** A petition to list California spotted owl as threatened or endangered under ESA was filed in April 2000. On February 10, 2003, after completing its 12-month review of the petition, USFWS determined that listing is not warranted and the species will not be proposed for listing at this time. On September 1, 2004, an updated petition to list California spotted owl was filed; USFWS has not completed its review of this petition and issued a determination.

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grass (*Glyceria grandis*) and marsh skullcap (*Scutellaria galericulata*) have potential to occur in both wet meadow and freshwater marsh habitats. Starved daisy (*Erigeron miser*), Nevada daisy (*Erigeron nevadincola*), and Donner Pass buckwheat (*Eriogonum umbellatum* var. *torreyanum*) could occur in the coniferous forest habitats that are present in upland areas. Munroe's desert mallow (*Sphaeralcea munroana*) has potential to occur in Great Basin sagebrush scrub habitat.

All of the plant species discussed above are included on CNPS Lists 1B or 2 (plants that are rare, threatened, or endangered in California). Donner Pass buckwheat and Plumas ivesia are also listed as Federal Species of Concern.

An initial data review preliminarily identified 22 special-status wildlife species (including "waterfowl" collectively) that could occur in the plan area region. It was determined that the plan area is known to or could support 16 of those species. This determination was based primarily on (1) the extent and quality of habitat in the plan area and (2) the proximity of the plan area to known extant occurrences of the species and the regional distribution and abundance of the species. Species occurrence sources included the California Natural Diversity Database (2005), mapped occurrences provided by the U.S. Forest Service, and personal observations by an EDAW biologist. These 16 species, the likelihood of their occurrence, and regulatory status are summarized in Table 2-2. Several of the database and mapped occurrence records were either non-specific or did not reliably reflect habitat use or distribution patterns in the plan area, based on the species' life history and type of observation (e.g., incidental observations of highly mobile species at one point in time). Therefore, a species occurrence map that implies wildlife distributions in the plan area was not prepared for this report.

INVASIVE PLANTS

The California Invasive Plant Council (Cal-IPC) maintains a list of species that have been designated as invasive in California. The term noxious weed is used by government agencies to apply to exotic plants that have been defined as pests by law or regulation (California Department of Food and Agriculture 2000).

Several plant species classified as invasive by Cal-IPC or as noxious weeds by CDFA have potential to occur in the plan area including cheatgrass (*Bromus tectorum*), white-top (*Cardaria pubescens*), bull thistle (*Cirsium vulgare*), Klamath weed (*Hypericum perforatum*), perennial pepperweed (*Lepidium latifolium*), water milfoil (*Myriophyllum aquaticum*), ox-eye daisy (*Leucanthemum vulgare*), and woolly mullein (*Verbascum thapsus*). Resource agencies including DFG and USFS have become increasingly concerned about the spread of invasive plant species and may require that measures be taken to reduce the potential spread of these species during ground-disturbing activities.

FISH OF THE TRUCKEE RIVER

A total of seven native fish species occur or have the potential to occur in the Truckee River within the plan area (Table 2-3). The general abundance of the native fish community has declined considerably since the arrival of Euroamericans to the region. It is believed that several factors have contributed to the decline or extinction of native fish and the degradation of fish habitat in the Truckee River. Extensive logging, water diversions, intense grazing, commercial harvest, road building, and the introduction of nonnative fish are believed to have cumulatively contributed to the change in the fisheries composition and degradation of fish habitat (Sierra Nevada Ecosystem Project 1996, Murphy and Knopp 2000). Beginning in the late 1800s, many nonnative fish species were introduced into the Truckee River basin (Sigler and Sigler 1987, U.S. Fish and Wildlife Service 2003). The introduction of nonnative fish has greatly influenced the native fish community. Summarized species accounts are provided for all native and selected important nonnative fish species that occur or have the potential to occur in the watershed plan area.

NATIVE FISH SPECIES

Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*) is the only salmonid native to the Truckee River. Of all of the native fish species, Lahontan cutthroat trout were especially revered by Native Americans because they provided ample food for their people. In the late 1800s and early 1900s the Lahontan cutthroat trout supported a commercial fishery that supplied markets as far away as San Francisco. The fishery was in decline during the 1920s and finally collapsed in the early 1930s (Cordone and Frantz 1966). By 1939, the Lahontan cutthroat trout was extirpated from

the Tahoe Basin. The failure of this fishery and its extirpation were the result of overharvesting, habitat degradation, and the introduction of nonnative fishes (Moyle 2002). Numerous attempts have been made to reintroduce this native trout into the Tahoe Basin. Between 1956 and 1964, Lahontan cutthroat trout from the Independence Lake strain reared in Heenan Lake in Alpine County, California, were planted annually in Taylor Creek and in headwater streams of the Upper Truckee River (Cordone and Frantz 1966). In 1970, the Lahontan cutthroat trout was federally listed as endangered, but in 1975 it was reclassified as threatened (40 Federal Register [FR] 29864, July 17, 1975) to facilitate its management and allow angling (Benke 1992).

Mountain whitefish (*Prosopium williamsoni*) is native to lakes and streams of western North America, including the Truckee River. Adults are typically 10–16 inches in length and spawn in the fall or early winter. Lake-dwelling individuals may spawn in the shallow littoral zone in lakes or among gravel, cobble, and boulders in riffles of tributary streams. Mountain whitefish spend much of their time near the bottom of streams and feed mainly on aquatic insect larvae. These fish were an important food fish for Native



Lahontan Cutthroat Trout — Photo Courtesy US Forest Service

TABLE 2-3 Fish Species in the Truckee River

Common Name	Species Name
Native Fish Species	
Lahontan cutthroat trout	<i>Oncorhynchus clarki henshawi</i>
Mountain whitefish	<i>Prosopium williamsoni</i>
Paiute sculpin	<i>Cottus beldingi</i>
Lahontan redband	<i>Richardsonius egregius</i>
Lahontan speckled dace	<i>Rhinichthys osculus robustus</i>
Tahoe sucker	<i>Catostomus tahoensis</i>
Mountain sucker	<i>Catostomus platyrhynchus</i>
Important Nonnative Fish Species	
Rainbow trout	<i>Oncorhynchus mykiss</i>
German brown trout	<i>Salmo trutta</i>

Sources: Dill and Cordone 1997, Schlesinger and Romsos 2000, Moyle 2002

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Americans (Moyle 2002). Their current distribution in the region is poorly documented and they are generally believed to be less abundant and less widely distributed relative to historic levels. The reasons for decline are unclear; however, construction of dams and predation on whitefish fry by nonnative trout species are believed to be possible causes (Moyle 2002).

Paiute sculpin (*Cottus beldingi*) is the only sculpin native to the Lahontan Basin, including the Truckee, Carson, Walker, Quinn, and Humboldt River watersheds. This species inhabits streams with slight to moderate current and is found in riffle areas among rubble or large gravel. It also occurs in lakes, including Lake Tahoe. The Paiute sculpin's food consists of a variety of aquatic invertebrates. This sculpin is an important prey item for some species of trout (Moyle 2002).

Lahontan redbreast (*Richardsonius egregius*) is native to streams and lakes in the Lahontan Basin, including the Truckee, Walker, and Carson River watersheds. Spawning occurs among gravel and cobble substrate in streams. In small streams, adults associate with high-velocity water along the stream margin or in backwater areas (Moyle 2002).

Speckled dace (*Rhinichthys osculus*) is the most widely distributed fish in western North America. Lahontan speckled dace (*R. o. robustus*) occurs throughout streams and lakes in the Lahontan Basin and is the only subspecies native to the Truckee River. Speckled dace may spawn among gravel areas in stream riffles. Fry concentrate in warm shallows, particularly between large rocks or among emergent vegetation. Adults prefer large substrates with interstitial spaces, shallow rocky riffles and runs, and submerged vegetation or tree roots (Moyle 2002).

Tahoe sucker (*Catostomus tahoensis*) is native to lakes and streams in the Lahontan Basin, including the Truckee River. Suckers can spawn in Lake Tahoe or streams. In streams, spawning generally occurs in runs or areas of small gravel in pools. Juveniles prefer pools and deep runs with abundant cover (Moyle 2002).

Mountain sucker (*Catostomus platyrhynchus*) is native to lakes and streams in the Lahontan Basin, including the Truckee River. Spawning usually takes place between June and July on gravel riffles. Mountain suckers feed mostly on algae and diatoms as well as small quantities of aquatic insects and other invertebrates (Moyle 2002).

NONNATIVE FISH SPECIES

Rainbow trout (*Oncorhynchus mykiss*) was first introduced into the Truckee River in the late 1800s. Until recently, large numbers of domestic hatchery-raised rainbow trout have been planted annually into the Truckee River between Tahoe City and Truckee. Rainbow trout have the potential to affect Lahontan cutthroat trout through competition, predation, and hybridization.

Brown trout (*Salmo trutta*) was introduced into eastern North America from Europe and from there into California in 1893 (Dill and Cordone 1997). It is likely that this fish was introduced into the Truckee River shortly after its first planting in other parts of California. Brown trout are fall spawners and have the potential to affect Lahontan cutthroat trout through predation and competition.

AQUATIC MACROINVERTEBRATES

Aquatic macroinvertebrates are common and important inhabitants of the Truckee River. Insects are the main types typically present and commonly include mayflies (*Ephemeroptera*), stoneflies (*Plecoptera*), caddisflies (*Trichoptera*), and true flies (*Diptera*). Common noninsect invertebrates include snails, leeches, worms, and scuds (Herbst 2001). Most aquatic invertebrates can move over land or through the air during part of their life cycle, so they are not restricted by barriers to specific zones or reaches. Instead, they are found wherever the habitat is suitable, with feeding behavior playing an important role in habitat requirements. In general, one finds relative increased densities of stoneflies, mayflies, caddisflies, and blackflies in colder, swifter habitats, and more dragonflies, damselflies, beetles, bugs, midges, and mollusks in the warmer, lower-gradient habitats.

Aquatic macroinvertebrates are essential to the proper ecological function of all types of aquatic systems. Many aquatic macroinvertebrates exploit the physical characteristics of aquatic ecosystems to obtain their foods. As consumers at intermediate trophic levels, aquatic invertebrates are influenced by both bottom-up and top-down forces in streams and serve as the conduits by which these effects are propagated. Aquatic macroinvertebrates can have an important influence on nutrient cycles, primary productivity, decomposition, and translocation of materials. Aquatic macroinvertebrates constitute an important source of food for numerous fish, and unless outside energy subsidies are greater

than instream food resources for fish, effective fisheries management must account for fish-macroinvertebrate linkages and macroinvertebrate linkages with resources and habitats.

Interactions among aquatic invertebrates and their food resources vary among functional groups. Five functional groups are frequently identified based on feeding behavior: scrapers, shredders, collectors, filterers, and predators.

- Scrapers are animals that graze or scrape materials (periphyton, or attached algae, and its associated microbiota) from mineral and organic substrates.
- Shredders are organisms that comminute primarily large pieces of decomposing vascular plant tissue (greater than 1 millimeter in diameter) along with the associated microflora and fauna, feed directly on living vascular macrophytes, or gouge decomposing wood.
- Collectors are animals that feed primarily on fine particulate organic matter (less than 1 millimeter in diameter) deposited in streams.
- Filterers are animals with specialized anatomical structures (e.g., setae, mouth brushes, fans) or silk and silk-like secretions that act as sieves to remove particulate matter from suspension.
- Predators are organisms that feed primarily on animal tissue either by engulfing their prey or by piercing prey and sucking body contents.

AQUATIC ECOSYSTEM MONITORING AND BIOASSESSMENT

Aquatic invertebrates serve as valuable indicators of stream health. Each aquatic invertebrate species has a different level of tolerance of degradation. Some species have narrow and specific habitat requirements and are therefore restricted to certain habitat conditions, while others can survive in a wide variety of habitat conditions (Erman 1996). It is possible to use different invertebrate species and assemblages as indicators of water quality and habitat conditions (Herbst 2001).



Water Nymph



Rainbow Trout — Photo Courtesy US Forest Service

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Aquatic invertebrates have been shown to be sensitive and informative indicators of stream ecosystem health and water quality and have been used for many decades to monitor impacts on aquatic and terrestrial habitats (bioassessment). The principle behind bioassessment is to determine the biological integrity of an affected site by comparing its biotic community to that of a known unaffected or reference site. Aquatic invertebrates are becoming a critical component of bioassessment because they are more diverse, ubiquitous, and abundant than fish and because these organisms are in contact with both the water and bottom substrate in streams. Studies of aquatic invertebrates have contributed to an understanding and assessment of stream ecosystem health as related to land-use activities. Surveys of aquatic macroinvertebrates in the Truckee River and tributaries are ongoing as part of a bioassessment monitoring program used in the development of the sediment TMDL explained above (Herbst and Kane 2004). Data generated during these surveys are analyzed using biological metrics that are commonly used in bioassessment procedures. Biological metrics used in bioassessment procedures include taxa richness measures, species composition measures, tolerance/intolerance measures, and functional feeding groups.

FACTORS AFFECTING ABUNDANCE AND DISTRIBUTION OF AQUATIC ORGANISMS

The characteristics of fish and aquatic invertebrate communities in aquatic ecosystems are determined by several factors. The size and composition of a community is governed by habitat type, quantity, and quality; historical events of geomorphic change and evolution; natural invasion; geographic isolation and breakdown; and human introductions and manipulations. The number and kinds of species can be attributed to several ecological mechanisms: dispersal, physiological tolerances, biological interactions among species, and environmental disturbances. Typically biological interactions (e.g., predation and competition) are important community-structuring agents in physically stable and complex aquatic systems, whereas the ability to disperse and colonize may be more important in aquatic environments subject to harsh recurrent disturbances (Schlosser 1987). Species distribution across varying habitat types is typically attributed to specific habitat requirements and morphological characteristics.

HABITAT ALTERATIONS

Streamflow patterns in particular play a significant role in determining the characteristics of all other stream habitat factors. Streamflow patterns are important in driving geomorphic processes that in turn create, maintain, and/or change aquatic habitats. Pool, riffle, and run habitat types and substrate composition are directly influenced by fluvial geomorphic processes and associated streamflow patterns. Streamflow patterns also dictate the abundance and types of organisms present in a system. Both the flow needs for sustaining fisheries and other aquatic life, and the amount, timing, and variability of flow are important in relation to overall ecosystem function. Salmonids such as Lahontan cutthroat trout, rainbow trout, and brown trout require sufficient flows (and associated temperature) to queue spawning and to allow passage and provide spawning habitat. Eggs require sufficient flows during the incubation period to prevent egg exposure to desiccation, and to provide necessary water quality and temperature conditions. Rearing juveniles and resident adults both require flows necessary to maintain suitable water temperatures and dissolved-oxygen concentrations.

STREAMFLOW PATTERNS

Native aquatic organisms and riparian plant species have been exposed to flow regimes that varied with seasonal and across-year weather fluctuations. In the Truckee River, this natural variation ranged across thousands of cfs on a relatively regular basis between heavy snowmelt events and drought cycles. Native biota such as fish, invertebrates, amphibians, and riparian plants have therefore presumably adapted to such variation in flow regimes. In fact, important processes responsible for sustaining native species may even depend on the river's natural variability in flows, such as the process of recruiting riparian vegetation (U.S. Fish and Wildlife Service 2003).

Streamflow patterns in the plan area are highly altered and are generally dictated by water releases to meet scheduled downstream demands. Finalization and implementation of the TROA should assist in improving managed streamflows for the benefit of aquatic and riparian organisms that inhabit the river.

STREAM TEMPERATURE LIMITATIONS

Water quality in the Truckee River influences ecosystem processes. Temperature, dissolved oxygen, total dissolved solids, alkalinity, and nutrient supply are important parameters that affect aquatic biota and ecosystem function. Summer low flows and resulting warm-water temperatures in the Truckee River can become limiting for cold-water salmonid species such as Lahontan cutthroat trout, rainbow trout, and brown trout. Relatively high temperatures, often accompanied by low dissolved-oxygen concentrations, limit their ability to tolerate other stresses such as disturbances by rafters and swimmers. Additionally, loss of riparian vegetation (and associated cover and shade), and erosion and sediment inputs resulting from recreational activities and urbanization of the watershed have resulted in reduced habitat, increased scouring, and likely increased water temperatures.

PHYSICAL HABITAT

Physical-habitat components may include habitat types (e.g., pools, riffles, and runs formed through geomorphic processes), instream cover (e.g., boulders and large woody debris [LWD]), and riparian elements (e.g., vegetation and instream tree and shrub debris). All of these habitat components provide structure and complexity that benefit the diversity and abundance of aquatic species. Shade decreases water temperatures, while low overhanging branches can provide sources of food by attracting terrestrial insects. As riparian areas mature, the vegetation sloughs off into the rivers, creating structurally complex habitat consisting of LWD that furnishes refugia from predators, creates water-velocity gradients, and provides habitat for aquatic invertebrates.

With the exception of the uppermost reach (i.e., Lake Tahoe Dam to River Run), the structure and complexity of physical habitat is generally good throughout the Truckee River. The uppermost section is generally lacking in all categories. The primary habitat types are gentle runs with infrequent breaks provided by slight riffles and deep extended pools. Very little instream-cover habitat exists in this section and riparian habitat is often degraded. Degraded riparian habitat appears to be caused by recreation-related access and trampling, road fill, and erosion and hydrologic disconnect resulting from failing culverts.



Brown Trout — Photo Courtesy US Forest Service

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Goose Meadows, 2005



Public access to Truckee River has caused bank erosion and diminished riparian vegetation. This site is near the Tahoe City trailhead parking area on the south side of the river, 2005.

NATIVE/NONNATIVE FISH SPECIES INTERACTIONS

Nonnative salmonid species including rainbow trout and brown trout have historically been maintained by release of hatchery-reared fish to provide additional recreational fishing opportunities in the Truckee River. Introductions of nonnative fish species into the Truckee River system, from both private and public entities, began in the 1870s (Leitritz 1970). The addition of nonnative salmonid species has contributed to the decline of most if not all cutthroat trout subspecies, including Lahontan cutthroat trout. In aquatic ecosystems modified by human disturbance, nonnative fish species often become dominant and outcompete native fish species (Deacon and Minckley 1974, Shepard et al. 1997, Brandenburg and Gido 1999, Schindler 2000, Knapp et al. 2001, Zanden et al. 2003). Nonnative salmonids have adverse effects on the distribution and abundance of native species in Sierra Nevada streams (Moyle and Vondracek 1985, Moyle and Williams 1990). The most prevalent nonnative salmonids in the Truckee River are rainbow and brown trout. Kokanee salmon (*Oncorhynchus nerka*) and lake trout (*Salvelinus namaycush*) are prevalent in Lake Tahoe, Donner Lake, and Fallen Leaf Lake. Brook trout, typically present in small tributaries, and brown trout compete with cutthroat trout for space and resources (Gerstung 1988, Gresswell 1988, Griffith 1988, Fausch 1989, Hildebrand 1998, Schroeter 1998, Dunham et al. 1999). Rainbow trout, a closely related species, spawns at the same time (i.e., spring) and uses the same spawning habitat as Lahontan cutthroat trout, with which it interbreeds, creating theoretically hybrid individuals.

LIMITING FACTORS FOR AND RESTORATION OF LAHONTAN CUTTHROAT TROUT

Lahontan cutthroat trout was listed as an endangered species in 1970 (35 FR 16047, October 13, 1970). In 1975, under the Endangered Species Act of 1973 as amended (ESA), Lahontan cutthroat trout was reclassified as threatened to facilitate management and to allow for regulated angling (40 FR 29864 July 16, 1975). USFWS is responsible for restoration efforts for these species through the *Recovery and Restoration Implementation Plan for the Truckee River Basin*.

The 1970 *Federal Register* notice identified two primary listing factors that related directly to Lahontan cutthroat trout:

- present or threatened destruction, modification, or curtailment of habitat or range; and
- natural or human-caused factors affecting the species continued existence.

Three additional ESA listing factors that were considered in the reclassification of Lahontan cutthroat trout and not addressed as having a direct impact were:

- overutilization of the species for commercial, scientific, or education purposes;
- disease or predation; and
- inadequacy of existing regulations.

In 1995, USFWS released its recovery plan for Lahontan cutthroat trout, encompassing six river basins within the species' historic range, including the Truckee River basin. The *Lahontan Cutthroat Trout Recovery Plan* (U.S. Fish and Wildlife Service 1995) identified the need to develop ecosystem plans for the Truckee and Walker River Basins. The Recovery Plan (U.S. Fish and Wildlife Service 1995) specified five additional conditions contributing to decline and affecting the potential for recovery of Lahontan cutthroat trout in the Truckee River basin:

- reduction and alteration of streamflow and discharge,
- alteration of stream channels and morphology,
- degradation of water quality,
- reduction of Pyramid Lake elevation and concentration of chemical components, and
- introductions of nonnative fish species.

Truckee River Corridor Access Plan

To address the complexity of issues related to recovery of Lahontan cutthroat trout, USFWS determined that basin-specific interagency and interdisciplinary teams, as well as public stakeholder participation, would be beneficial for developing Lahontan cutthroat trout recovery efforts. In 1998, USFWS organized a Management Oversight Group to address rangewide Lahontan cutthroat trout recovery. In 1998, the Truckee River Basin Recovery Implementation Team was organized to develop a strategy for Lahontan cutthroat trout restoration and recovery efforts in the Truckee River basin. Public stakeholder involvement began in 1998. As a result, the Truckee River Basin Recovery Implementation Team developed the *Short-Term Action Plan for Lahontan Cutthroat Trout in the Truckee River Basin* (U.S. Fish and Wildlife Service 2003) to provide primary guidance on recovery of the species in the Truckee River Basin.

Numerous efforts outlined in the short-term action plan are under way to restore Lahontan cutthroat trout populations in the Truckee River (U.S. Fish and Wildlife Service 2003), including stocking Lahontan cutthroat trout, performing a creel census, and conducting fish-population surveys.

With the endorsement of DFG, USFWS is conducting an experiment in reestablishing Lahontan cutthroat trout on the reach of the Truckee River between Lake Tahoe Dam and Donner Creek. As part of the endorsement, DFG withdrew future stocking allocations of nonnative rainbow and brown trout in this reach of the river. The reestablishment experiment included stocking approximately 30,000 Lahontan cutthroat trout throughout the reach during both 2002 and 2003 (U.S. Fish and Wildlife Service 2005).

To evaluate and monitor the fish stocking, USFWS performed a creel census and conducted ongoing population surveys using electrofishing gear between 2001 and 2004. A total of 10 species were sampled in 2004, including eight native and two nonnative species. The most abundant native species were the Paiute sculpin and mountain whitefish; the most abundant game species was the nonnative rainbow trout. A single, approximately 4-inch-long individual Lahontan cutthroat trout was sampled during the effort. 2005 activities included fish stocking, the creel census, and population monitoring, including additional efforts in different portions of the river and tributaries (U.S. Fish and Wildlife Service 2005).

RECREATIONAL FISHERY VALUES

The Truckee River system is internationally renowned for its recreational trout fishery. During summer months the Tahoe City to Alpine Meadows section of the river is heavily stocked with nice-sized rainbow trout throughout the fishing season, which lasts from the fourth Saturday in April through November 15. During the summer, the section of the river from Lake Tahoe Dam to River Ranch is extremely crowded with river rafters, making daytime fishing difficult. However, the Truckee River below Lake Tahoe also has some of the best public access for large trophy brown and rainbow trout in California. Stream survey results show that the river is rich with insects and forage fish, which is a perfect combination that is highly conducive to growth of large brown and rainbow trout. Hatchery trout are stocked from Lake Tahoe downstream to Donner Creek.



Recreational fishing along the Truckee River, 2005

2.3 SOCIOECONOMIC CONDITIONS

LAND USE AND OWNERSHIP

Urban development within the Truckee River corridor is not extensive. Most development is limited to the urbanized area of Tahoe City, as well as light-industrial and commercial development along the river to River Ranch and again across the Placer-Nevada County line in Truckee. Private residential development, consisting of a mixture of seasonal and permanent residences, is patchy along the middle section of the corridor with the most developed residential tracts near Squaw Valley Road.

Most of the land within the corridor is managed by the USFS. Management of federal land is split between the Lake Tahoe Basin Management Unit and the Tahoe National Forest. Private parcels are concentrated along the river, although the Sierra Pacific Power company owns the bed and banks of the Truckee River. Many of the private subdivision holdings date back to the 1940's, when lands held by the Lake Tahoe Railway and Transportation Company were transferred to Sierra Pacific Power and subsequently subdivided and sold through the LANFAR agreement. Accurate property lines and easements will need to be researched and surveyed for any proposed project near private parcels.

There are easements along the corridor for Sierra Pacific Power utilities and the Tahoe-Truckee Sanitation Agency force main sewer export line, which carries sewage from communities along the north shore of Lake Tahoe to a wastewater treatment plant on the east side of the Town of Truckee, operated by the Tahoe-Truckee Sanitation Agency.

USFS lands provide an important part of recreational land use in the corridor, which includes campgrounds, portions of ski areas (not in the plan area), river access, and hiking, mountain biking, and equestrian trails. Aside from federal land, dominant land uses include limited municipal and commercial with some light industrial, open space and developed parks, and recreation (e.g., ski resorts along the Truckee River tributaries of Squaw and Alpine Creeks). Logging has greatly declined from its historical role as a major employer in the area, and today tourism and recreation are the region's chief industry.

Truckee River Corridor Access Plan

RECREATION AND PUBLIC ACCESS

The Truckee River corridor provides year-round recreation opportunities. Summer recreation occurs both in the river corridor and on the surrounding public lands. Winter recreation occurs primarily at the two nearby ski resorts and in the backcountry adjoining the corridor.

SUMMER RECREATION

Camping

There are three USFS campgrounds in the Truckee River corridor: Silver Creek, Goose Meadow, and Granite Flat. The campgrounds are open May 15 to September 15 and offer a variety of amenities. All are located along the south bank of the Truckee River. Granite Flat Campground has 74 tent or recreational-vehicle sites, seven walk-in sites, picnic tables, fire rings, vault toilets, and pumped water. Goose Meadows Campground has 25 campsites, picnic tables, fire rings, vault toilets, and pumped water. Silver Creek has 19 tent or small trailer sites, no large recreational-vehicle spaces, seven walk-in tent sites, vault toilets, and pumped water.

Trails

Hiking, biking, and equestrian trails lace the mountainsides that surround the Truckee River corridor. Most accessible backcountry trails are found to the south of the corridor, across SR 89. Trails along the ridgetops to the east are generally accessed from Tahoe City and the Town of Truckee. Several trails cross the corridor, including the Western States Trail (part of a possible, future Cap-to-Cap Trail from Sacramento to Carson City). This trail is open for hiking and horseback riding. The Truckee River Trail is a paved, Class 1 bicycle and pedestrian trail from Tahoe City to Squaw Valley. Well-developed trailheads are located at either end with parking, restrooms, and water. There are several small trails along the river adjoining the campgrounds. These are primarily used for fishing and river access.

Rafting

Commercial and private rafting is available in the upstream reach of the river. Rafters begin in Tahoe City and pull out at River Ranch, approximately 5 miles downstream.

Commercial operators have been active on this stretch of the Truckee River for more than 30 years. Placer County regulations limit the two commercial operators on the river to a maximum of 100 boats each per day. Per their permits, commercial operators provide portable toilets and trash bins during the summer; they also pick up trash along the river and have posted signs indicating where rafters should not land.

Private rafters who bring their own boats typically enter the Truckee River on public land under jurisdiction of the USFS Lake Tahoe Basin Management Unit (LTBMU). The private rafters are not regulated or managed by the LTBMU.

On the most popular weekends, like the Fourth of July, there are problems with public intoxication and underage drinking. The Placer County Penal Code permits open containers, but outlaws public drunkenness. Commercial operators do not permit glass and kegs on the river, but this is not enforceable once rafters leave the raft rental docks (Tahoe World 2004). Nonetheless, littering and trespassing are problems generally associated with rafters along the Tahoe City to River Ranch stretch of the Truckee River. Rafting and kayaking also occur on segments of the river downstream of River Ranch, but on a much more limited basis.

Several streambank sites on each side of the river and several mid-river sand bars are eroding and losing vegetation due to heavy use. Some of the streambank sites were hardened in 2002 and 2003 (LTBMU) but further erosion and degradation continues.

Angling

Fishing is very popular along the entire river corridor. Twenty-eight fishing spots are called out on the locally available Stream Time Fishing Access Map. Most of these spots are difficult to find and anglers park on wide shoulders and other pull-outs for river access. There are no signs and mile markers are inconsistent. Some of these fishing areas abut private land. Because properties are not fenced, it may be difficult for many to know when they are trespassing.

WINTER RECREATION

Ski Resorts

Winter recreation within the plan area is generally limited to USFS-managed land west of SR 89. Two ski areas, Squaw Valley and Alpine Meadows, are accessed from SR 89 in the plan area. Northstar-at-Tahoe is adjacent to the plan area to the east and accessed from SR 237.

Backcountry Skiing

Two major winter backcountry trailheads lie within the corridor: Pole Creek and Cabin Creek trailheads. The Pole Creek trailhead is on SR 89, 2.3 miles north of Squaw Valley and 6.2 miles south of Interstate 80, one-quarter mile south of the "Elevation 6000" sign, on the west side of the road. Parking is free and the California Department of Transportation (Caltrans) plows the extra-wide paved shoulder. The Pole Creek trailhead provides access for skiers and snowshoers. The Sierra Club's Bradley Hut is located 4 miles west of this trailhead in the upper Pole Creek drainage.

The Cabin Creek trailhead is accessed via a separate road 1 mile off SR 89. It provides access for cross-country skiers, snowshoers, and snowmobiles. Like Pole Creek, this is a backcountry area and there are no groomed trails or other services.

The east side of the river is generally not accessible to the public for winter recreation. The Tahoe Nordic Search and Rescue Team sponsors an annual cross-country ski race, "The Great Race," in March. The route for the race begins in Truckee and climbs up and over the ridgeline to Lake Tahoe. It does not access the Truckee River canyon. It is plausible that casual winter recreation would occur on the east side of the river on public lands, if public access across the river were feasible. Currently, all bridges are privately owned and generally gated.



Summer rafting on the Truckee River near Tahoe City, 2005

2.4 CULTURAL AND HISTORIC RESOURCES

The cultural resources documented within the plan area are the result of human behaviors within, and adaptations to, the natural environment. To better understand how these sites, features, and artifacts relate to the social and economic foundations of the present day, a cultural context must be established. The following section briefly discusses and summarizes cultural developments through the prehistoric, ethnographic, and historic past. More detailed information is provided for several elements of local history—transportation, logging, and Basque sheep herding—because of the prominent role these developments played in the local economy and the evidence of these practices within and in the vicinity of the Truckee River area.

PREHISTORY

Archaeological research in the Sierra Nevada since the 1950s has resulted in the accumulation of a substantial body of knowledge regarding early Native American habitation in the Sierra Nevada. Investigations begun in the 1950s focused on the examination of prehistoric sites throughout the Lake Tahoe vicinity, including the lake shoreline, and the high Sierran crest east of the lake (see Heizer and Elsasser 1953, Arnold 1957, Elsasser 1960). This research led to the designation of two chronologically and spatially distinct archaeological manifestations. The Martis Complex, archaeologically defined by the characteristic heavy use of basalt for tools, was believed to date to the period from 2,000 to 4,000 years ago. The subsequent Kings Beach Complex was associated with bow-and-arrow technology, as well as a greater use of obsidian and silicate materials. Technological developments oriented toward the extensive use of local fisheries and piñon nuts were also apparent (Heizer and Elsasser 1953).

Work in the region since the 1970s has led to important modifications to the earlier sequence of archaeological developments. Excavations and analyses presented in Elston and Davis (1972), Elston et al. (1977), and Keesling and Johnson (1978) revealed the presence of several pre-Martis manifestations termed the Tahoe Reach and Spooner phases, and the division of the Martis and Kings Beach complexes into five more refined phases (see Elston et al. 1977). The overview of California archaeology by Moratto (1984) provides a thorough summary of the above studies relevant to the Sierra Nevada and the Lake Tahoe region.

ETHNOHISTORY

The Truckee River falls within territory commonly attributed to the ethnographic Washoe (Kroeber 1925). The Washoe occupied the area surrounding the upper reaches of the Truckee and Carson Rivers, with Lake Tahoe constituting the center of their traditional territory (Kroeber 1925). The Washoe were the westernmost of the Great Basin hunting and gathering societies, although their use of Lake Tahoe and the high Sierra led to a number of important distinctions in their way of life. Linguistic evidence suggests that "...the Washoe people have had a long tenure in their known area of historic occupation and that their presence predates the arrival of the Numic-speaking neighbors" (Kroeber 1925, D'Azevedo 1986).

Euroamerican influence on the Washoe may have begun indirectly by the early 1800s, when Spanish missionaries exploring California's Central Valley established relationships with groups that likely had some contact with the Washoe. Also, early trappers and explorers traversing the Lake Tahoe region undoubtedly had an impact on the native populations. After the discovery of gold in the foothills in 1848, the natural and cultural environment of the Sierra Nevada was irrevocably changed. As would-be miners and settlers streamed into California along the trails and passes through the mountains, the Washoe were quickly displaced and their lifeways significantly altered. The Washoe lived relatively peacefully alongside Euroamerican immigrants who settled in their territory, but "were often blamed for depredations instigated by both Northern Paiute and White brigands" (D'Azevedo 1986).

Gradually, the Washoe saw their traditional territory claimed by European and American settlers. Political appeals and requests for government protections went largely unanswered, and by the early 20th century the Washoe were heavily marginalized. Most people lived "...a precarious existence in scattered camps on the outskirts of towns or in more isolated sections" (D'Azevedo 1986). Today, the federally recognized Washoe Tribe of Nevada and California is reinvesting in its community and constitutes an active, independent, and thriving culture. The Washoe are ensuring their future as a distinct people through a renewed pursuit of traditional practices and beliefs, and participation in educational, economic, and political activities.



Dat-So-Lat-Lee with examples of her basketry
— Photo Courtesy *The Saga of Lake Tahoe*, E.B. Scott

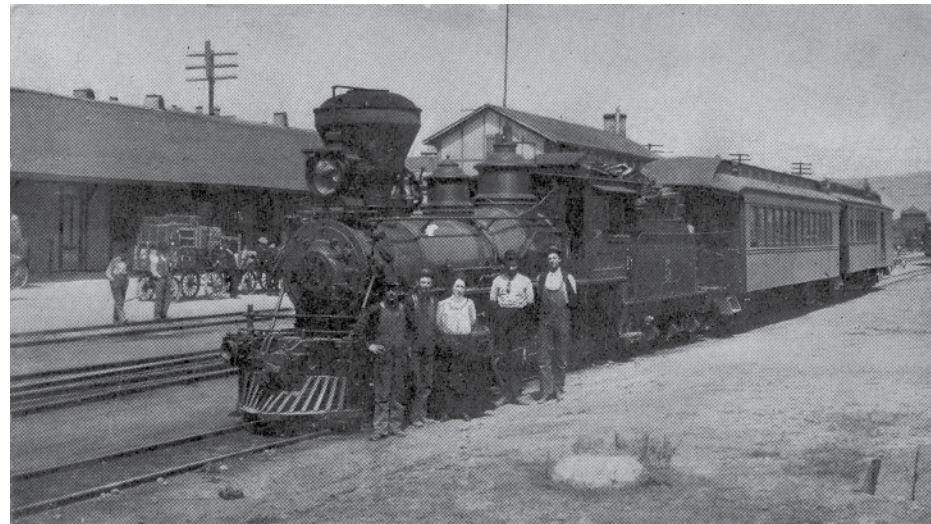


Typical Washoe summer lodge — Photo Courtesy *Lake Tahoe Historical Society*

Truckee River Corridor Access Plan

HISTORY

Historic-era developments in the Truckee River area have been dominated by three major endeavors since the middle of the 19th century: transportation, timber harvesting, and ranching and sheep herding. Specifically, the establishment of trails, roadways, and railroads had the most significant impact on the landscape, providing easy access to the region and providing for the rise of



Lake Tahoe Railway and Transportation Company brought passengers from Truckee to Tahoe City along the Truckee River corridor from 1899 to 1943 — *Special Collections Department, University of Nevada, Reno Library*



Town of Truckee, winter 1936-1940 — *Special Collections Department, University of Nevada, Reno Library*

industry and towns. Although some mining occurred in the area during the 1800s, local operations were short-lived and had little lasting impact on the social, cultural, and economic foundations of the region. The timber industry, on the other hand, was the real financial and industrial power in the Lake Tahoe and Truckee River basins and greatly influenced economic developments throughout much of the 20th century. Finally, ranching, and most notably sheep herding carried out by people of Basque descent, also played a major role in forming the overall cultural character of the region.

EARLY TRANSPORTATION

Emigrant trails such as the California Trail or the Truckee Pass Emigrant Road (see Hoover et al. 1990) and the more established roadways that eventually followed them were important elements in the historical development of transportation infrastructure along the Truckee River. However, it was rail travel that proved to be the most influential in shaping the physical and cultural landscape of the Truckee and its surroundings. Although not the first rail line established in the Tahoe region, the Lake Tahoe Railway and Transportation (LTR&T) Company line from the Southern Pacific junction in Truckee to the north shore of Lake Tahoe commenced operations in 1899. The company had only been incorporated a year before, but the establishment of the rail service was expedited by an 1879 survey and the reuse of lake vessels, wharves, and a machine shop formerly belonging to the Truckee Lumber Company.

Unlike previously established railroads in the region, the LTR&T was built solely as a passenger and tourist line, although some freight (usually timber and milled lumber) was carried as well. At Lake Tahoe, the narrow-gauge LTR&T line extended onto a long wharf where passengers could board the steamer *Tahoe* for trips to the various resorts that lined the Lake Tahoe shoreline. During the ensuing years, various spurs and branch lines were constructed to service Tahoe City and the Truckee Lumber Company, which began cutting timber in the area in 1903 and then in Squaw Valley in 1909.

Passenger business on the LTR&T was brisk, and by 1915 four round trips per day were scheduled between Truckee and Lake Tahoe. However, with the advent of improved motor highways in the region, rail passenger travel soon began to diminish. In 1925 the Southern Pacific leased the LTR&T lines and quickly widened them to accommodate standard-gauge trains. Despite an aggressive marketing campaign and the construction of new facilities and support lines, passenger traffic continued to decrease and the entire line was abandoned in November 1943 (Myrick 1992). The original LTR&T line itself was dismantled for scrap during World War II, but the grade remains today, serving as a hiking and bicycle path along the Truckee River

LOGGING

Large-scale logging was first initiated in the Tahoe area after the discovery of silver at the Comstock Lode in 1859. When production began to decline in the mines in 1867, the local lumbering business also began to suffer. However, a new market for lumber was found in association with the construction of the Transcontinental Railroad. As the rails reached Donner Summit in 1866–1867, a number of mills established operations in the Tahoe area to supply the railroad with cordwood for fuel, lumber for construction, and ties for rail beds.

By the turn of the 19th century, timber tracts in the Tahoe area were largely stripped of pine, but fir and other species remained; fir had been largely ignored during the earlier harvesting, as it was considered unsuitable for the production of ties and timbers. With the introduction of paper mills, stands were reentered to harvest fir for use as pulpwood for the production of paper. The greater “digestibility” of fir species (over pine) now made them the targets of harvest. Also, growing communities in the region created a demand that was supported by localized sawmills and shingle mills, sawing pine and cedar, respectively. In many cases, once-temporary camps centered around timber stands or mills became more established and grew into many of the towns existing in the Tahoe and Truckee River basins today.

BASQUE SHEEP HERDING

A history of Basque culture has been summarized by Douglass and Bilbao (1975), Mallea-Olaetxe (1992, 2000), and Rucks (n.d.). The following overview draws from the work of these authors.

The Basque country or *Euskal Herria*, “the land of the speakers of Basque,” is a region in the Pyrenees Mountains on the Spanish-French border. Although some people of Basque descent arrived in what would become Mexico, New Mexico, and California as early as 1598, the first large group of Basque immigrants arrived in America in 1848–1849, lured by the hopes of striking it rich in the California gold fields. Like many other would-be miners, the Basques soon became disillusioned with mining and returned to more traditional pursuits. The historic Basque influence can still be seen in the Sierra Nevada today, and one of the most tangible reminders of their presence can be found in the prolific intricate tree carvings found in aspen groves found in the Truckee River basin and throughout the region.

CULTURAL RESOURCES DOCUMENTED WITHIN THE PLAN AREA

The plan area is situated entirely within two U.S. Geological Survey topographic maps: the Truckee and Tahoe City quadrangles. According to records on file at the Northwest Information Center at California State University, Sacramento, a total of 55 cultural resource inventories and evaluations and other studies have been conducted within the study area that have resulted in the identification and documentation of 75 prehistoric and historic-era sites, features, and artifacts. A list of the cultural resource studies conducted in the plan area is provided in Appendix A.

Major study categories include cultural-resource investigations conducted in response to proposed timber harvests, electrical transmission lines, gas and water pipelines, roadway and bridge construction and maintenance, landfills, and residential and commercial development. No single study or group of studies stands out in terms of the number and significance of resources recorded within and in the vicinity of the plan area, and each investigation has contributed to the body of knowledge regarding prehistoric and historic-era resources present in the area. Most of these documented resources occur in discreetly defined areas, although one—the remains of the LTR&T, the former rail grade in particular—can be found throughout the entire expanse of the plan area.

2.5 RELEVANT PLANS AND POLICIES

Several existing public plans, agreements, and policies are relevant to implementation of the *Truckee River Corridor Access Plan*. They are summarized below.

Truckee River Operating Agreement: The TROA is the primary source of regulation for Truckee River flows along the entire Truckee River including the Truckee River corridor plan area. Parties involved in preparation of this agreement are the States of California and Nevada, Pyramid Lake Paiute Tribe, Sierra Pacific Power Company, Truckee Meadows Water Authority and others. The TROA will do all of the following (California Department of Water Resources 2005):

- allocate the waters of the Truckee River, Carson River, and Lake Tahoe basins between California and Nevada;
- enhance conditions for threatened and endangered fishes throughout the Truckee River basin;
- increase drought protection for Truckee Meadows (Reno-Sparks metropolitan area);
- improve river water quality downstream of Sparks, Nevada; and
- enhance instream flows and recreational opportunities in California and Nevada.

A draft of the TROA was released in October 2003.

Lahontan Cutthroat Trout Recovery Plan: In 1995, USFWS released its recovery plan for Lahontan cutthroat trout, encompassing six river basins within the species’ historical range, including the Truckee River corridor plan area. The Lahontan cutthroat trout Recovery Plan identified the need to develop ecosystem plans for the Truckee and Walker River Basins. In 1998, the Truckee River Basin Recovery Implementation Team was organized to develop a strategy for Lahontan cutthroat trout restoration and recovery efforts in the Truckee River basin. Public stakeholder involvement began in 1998.

Short-Term Action Plan for Lahontan Cutthroat Trout in the Truckee River Basin:

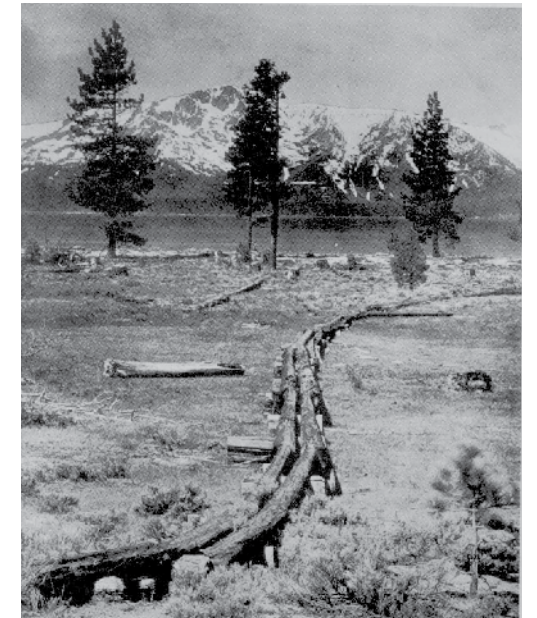
This plan identifies tasks that are intended to eliminate or minimize threats that adversely affected Lahontan cutthroat trout and, through continued implementation of this process, ensure the long-term persistence of the species in the Truckee River basin, including the Truckee River corridor. Several of the tasks have been implemented to date including the stocking and monitoring of Lahontan cutthroat trout in the Truckee River in the plan area. This plan was developed by the Truckee River Basin Recovery Implementation Team for USFWS in August 2003.

Water Quality Control Plan for the Lahontan

Region: This Basin Plan provides a set of goals and policies and is the basis for the Lahontan RWQCB’s regulatory program. It sets forth water quality standards for the surface and ground waters of the region, which include both designated beneficial uses of water (including the Truckee River corridor) and the narrative and numerical objectives that must be maintained or attained to protect those uses. It identifies general types of water quality problems that can threaten beneficial uses in the region. It then identifies required or recommended control measures for these problems. This water quality control plan was developed by the Lahontan RWQCB in October 1994. The Basin Plan is being updated as part of the Pathway 2007 process for the Tahoe Basin.

Placer County General Plan: The general plan regulates land use in the plan area. The Truckee River corridor is designated as timberland and low-density residential in the general plan. This plan was prepared by Placer County and was last updated in August 1994.

Town of Truckee Bicycle Master Plan: This master plan provides direction for implementation of goals and policies in the Placer County General Plan. The planning area includes all lands within the Town of Truckee, and focuses on bike and trail connections to local and regional public lands and trails and bikeway systems. This master plan was prepared by the Town of Truckee Community Development Department with assistance from the National Park Service; Alta Planning; Western Botanical Services; Wildlife Resource Consultants; Susan Lindstrom; Leigh, Scott & Cleary Consulting; and Ward-Young Architects. This master plan was adopted in April 2002.



Flumes were used to move raw timber from logging stations to mills — Photo Courtesy *The Saga of Lake Tahoe*, E.B. Scott

Truckee River Corridor Access Plan

TRPA Regional Plan: This regional plan includes Goals and Policies, a Water Quality Management Plan, Plan Area Statements and a Scenic Quality Improvements Plan. The TRPA Regional Plan is designed to bring the region into conformance with the threshold standards established for water quality, air quality, soil conservation, wildlife habitat, fish habitat, vegetation, noise, recreation, and scenic resources. The Truckee River corridor plan area falls within this regional-plan area. This plan was originally written by TRPA in 1987 and is continually updated (Tahoe Regional Planning Agency 2005). It is currently undergoing a comprehensive update as part of the Pathway 2007 process.

U.S. Forest Service LTBMU Forest Plan: This plan provides guidance for management of forested areas within the plan area. This plan was prepared by USFS and is currently being revised through the Pathway 2007 process. The Pathway 2007 process is a collaborative effort by the Tahoe public agencies to create a comprehensive plan for the Tahoe area through the next 20 years.

U.S. Forest Service Tahoe National Forest Plan: This plan provides guidance for the management of the Tahoe National Forest and was formulated to address public issues and management concerns related to the Tahoe National Forest. This plan was written by USFS and was last updated in 1990.

North Lake Tahoe Resorts Association Master Plan: This master plan defines a long-term vision and provides an investment plan for the community and tourism industry in the Tahoe area, including the Truckee River corridor plan area. This plan finds that the limited transit services, poor signage, and sporadic pedestrian and bicycle facilities in the area “substantially degrade” the visitor experience to North Lake Tahoe. This plan was prepared by the North Lake Tahoe Resorts Association and was first completed and approved in 1995. It was most recently updated in September 2004 (Design Workshop, Inc. 2004).

Truckee River Watershed Baseline Assessment: This assessment was prepared by Peregrine Environmental for the Truckee River Watershed Council in March 2002. The assessment identifies and evaluates existing sociopolitical, physical, biological, and other data on the Truckee River watershed, including the Truckee River corridor. The next step for the watershed council is to use the data from the baseline assessment to evaluate sub-watersheds within the middle Truckee River and begin identifying opportunities for action.

California Best Management Practices handbooks: The California Stormwater Best Management Practices handbooks provide guidance on best management practices (BMPs) for stormwater management and erosion control for commercial, industrial, residential, and municipal development. They were published by the Stormwater Quality Task Force (SWQTF) in 1993. The SWQTF became the California Stormwater Quality Association (CASQA) in 2002, and in 2003 CASQA published an updated and expanded set of four BMP handbooks. These handbooks reflect the current practices, standards, and significant amount of knowledge gained since the early 1990s about the effectiveness of BMPs. Projects implemented along the Truckee River corridor should follow these basic standards.

The Construction Site Best Management Practices Manual and the Storm Water Pollution Prevention Plan and Water Pollution Control Program Preparation Manual: These manuals incorporate the requirements of the State Water Resources Control Board (SWRCB) National Pollutant Discharge Elimination System (NPDES) Permit, Statewide Storm Water Permit and Waste Discharge Requirements for the State of California, Department of Transportation (Order No. 99-06-DWQ, NPDES No. CAS000003) and the NPDES General Permit, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction Activity (Order No.99-08-DWQ, NPDES No. CAS000002). These permits will be required with virtually any construction activities along the Truckee River. The most recent manuals are available on the Caltrans website (<http://www.dot.ca.gov/hq/construc/stormwater/manuals.htm>).

TMDL studies for Squaw and Bear Creeks (Lahontan RWQCB): Squaw Creek and Bear Creek are both tributaries to the middle reach of the Truckee River and therefore influence the water quality in the Truckee River corridor plan area. Both of these creeks are listed on the Section 303(d) list of waters that do not meet applicable water quality standards. Because of this listing, a TMDL study is currently being prepared by the Lahontan RWQCB for Squaw Creek. The Squaw Creek TMDL focuses on controlling sources of sediment from land use categories identified as major contributors to excessive instream sediment loading. A draft of this TMDL was released in December 2005. Bear Creek is currently being considered for delisting from the Section 303(d) list of impaired waters and; if delisted, a TMDL study would not be needed for this creek. (Truckee River Watershed Council 2005.)

Lake Tahoe Regional Bicycle and Pedestrian Master Plan: This master plan expands the goals of TRPA's Bikeway 2000 project—a project to create a bikeway facility that circles Lake Tahoe—to make the Lake Tahoe Basin a more bicycle and pedestrian friendly area. The plan's plan area is the 501-square-mile Lake Tahoe Basin, encompassing land within the states of California and Nevada and the 200-square-mile Lake Tahoe. The plan lists specific proposed bikeway and pedestrian facilities and provides cost estimates for these improvements. The plan includes Tahoe City and several miles of SR 89 included in the Truckee River corridor plan area. Fehr & Peers Transportation Consultants prepared this Master Plan for TRPA in May 2003.

Truckee River Corridor Access Plan

Lake Tahoe Basin Regional Transportation Plan: 2004–2027: This document updates the Transportation Element of TRPA's 1987 Regional Plan, the 2000 Tahoe Metropolitan Planning Organization Federal Transportation Plan, and California Regional Transportation Plan. The Lake Tahoe Basin Regional Transportation Plan: 2004–2027 (2004 RTP) combines these documents into a single, unified plan. The plan identifies improvements for the movement of goods and people to, from and throughout the Lake Tahoe Basin for the next 23 years. A specific objective of the 2004 RTP is to increase public mobility by improving public-transportation and nonmotorized-transportation facilities to create an intermodal transportation system, which is a topic also considered in this Plan. The Bicycle and Pedestrian Element of the 2004 RTP is based on the Tahoe Metropolitan Planning Organization's Bicycle and Pedestrian Master Plan outlined above. This plan was prepared in October 27, 2004, for TRPA, Tahoe Metropolitan Transportation Planning Organization, and Tahoe Regional Transportation Planning Agency.

Placer County Transportation Planning Agency Short Range Transportation Plans (Draft): In 2004, Placer County Transportation Planning Agency (PCTPA) worked with the public and the six transit providers who serve the western part of the county to develop updated short-range transit plans. The transit operators include Placer County Transit, Auburn Transit, Lincoln Transit, Roseville Transit, and Consolidated Transportation Service Agency. These plans outline detailed changes to existing service as well as provide recommendations for additional service between 2005 and 2012. This draft plan was prepared in December 2004 by LSC Transportation Consultants, Inc., for PCTPA.

Tahoe Area Regional Transit Systems Plan Study (Second Revised Draft Report): This document was developed in conjunction with PCTPA and briefly outlines existing transit service in western Placer County and provides specific service improvements that Tahoe Area Regional Transit (TART) will implement within the 7-year window of the plan. The plan identifies that well-maintained and high quality pedestrian and bikeway facilities are integral to a successful transit system, and recommends that TART be involved in design of bicycle and pedestrian facilities and review major developments along the transit routes. The second

revised draft of this plan was released in March 2005 and was prepared by LSC Transportation Consultants, Inc., for PCTPA.

Nevada County Transportation Commission Proposed Gold Country Stage Service Modifications: This report provides staff recommendations for service modifications to the Gold Country Stage Service to ensure that the transit service level can be sustained over the long term. The report was prepared by Nevada County Transportation Commission staff, and responds to the June 2001 *Triennial Performance Audit of Western Nevada County Transit Operators*, which determined that "the current service levels for both the fixed route and demand response programs may be too high given existing funding levels." The report provides recommendations for route streamlining, zone-based fares, and pass price increases. This report was prepared in April 2003 by Nevada County and the Department of Transportation Services and Sanitation.

Town of Truckee Transit: The Town of Truckee contracts with Aztec Corporation to provide two public transit services: Dial-a-Ride and the Truckee Trolley. Truckee Transit runs between the Truckee-Tahoe Airport to downtown Truckee Monday through Saturday between the hours of 9 and 5. The Truckee Trolley runs between Squaw Valley and Incline Village during the summer months.

Town of Truckee Trails and Bikeways Master Plan: This master plan was prepared by the Town of Truckee Community Planning Department and finalized in April 2002. The master plan provides guidance on the development of trails and bikeways throughout the town with the primary goals of creating a bicycle- and pedestrian-friendly community, promoting alternative transportation, and providing recreation access. The plan is a component of the Town General Plan and specifically addresses providing linkages outside of town limits.



Undercut banks and existing vegetation along the Truckee River, 2005.

Truckee River Corridor Access Plan

2.6 AGENCIES WITH JURISDICTIONAL RESPONSIBILITIES

TAHOE REGIONAL PLANNING AGENCY AND FEDERAL AGENCIES

Tahoe Regional Planning Agency — TRPA oversees land surrounding Lake Tahoe, which includes the Truckee River corridor plan area up to River Ranch. TRPA would need to approve a development permit for projects within its jurisdiction.

U.S. Forest Service — USFS has jurisdiction over federal lands in the Truckee River corridor. The USFS Lake Tahoe Basin Management Unit manages federal lands from Tahoe City to approximately River Ranch. The USFS Tahoe National Forest manages federal lands from River Ranch north, continuing beyond the Town of Truckee. USFS approval would be needed for any projects located on federal property.

U.S. Army Corps of Engineers — The Truckee River corridor falls within the Sacramento District of USACE. If a project requires fill of waters of the United States or adjacent wetlands, USACE would need to approve a permit under Section 404 of the CWA.

U.S. Bureau of Reclamation — The entire Truckee River corridor is within the Mid-Pacific Region of Reclamation. Reclamation is responsible for operation of the dam at Lake Tahoe and the release of water into the Truckee River. Projects are not anticipated to involve changes to water releases, so Reclamation would not have approval authority, unless federal funds were used to implement the project.

STATE AGENCIES

Lahontan Regional Water Quality Control Board — The entire Truckee River corridor is within the jurisdictional boundaries of the Lahontan RWQCB, which is a regional board operating under the SWRCB. The Lahontan RWQCB may have permit authority under the federal CWA for projects with a potential discharge of pollutants or for water quality certification if a wetland fill permit from USACE is needed.

California State Lands Commission — The California State Lands Commission is responsible for submerged lands held in trust for the state. The commission would need to approve a project if the project involves changes to the river.

California Department of Fish and Game — DFG has jurisdiction by law over fish and wildlife of the state. DFG would need to approve a Streambed Alteration permit, under Section 1602 of the Fish and Game Code, if a project altered the river or its riparian corridor.

California Department of Transportation — Caltrans has jurisdiction over SR 89. Caltrans would need to approve any project that involves or encroaches into the highway's right-of-way.

LOCAL AGENCIES

Placer County — The entire Truckee River corridor plan area falls within Placer County. The County would approve projects that involve County funding or that are located on nonstate or nonfederal property.



User created trail along the Truckee River, 2005

3. Opportunities and Constraints Analysis

Opportunities and constraints were identified for meeting the goals and objectives of the *Truckee River Corridor Access Plan*. Specifically, opportunities were identified for

- improving fish and wildlife habitat,
- water quality,
- recreational access to and along the river, and
- environmental education.

Constraints to potential improvements were also identified including

- protection of private property along the river,
- protection of the SR 89 right-of-way,
- steep slopes,
- protection of existing high-quality habitat, and
- restricted easements or rights-of-way.

Issues, opportunities, and constraints, and potential approaches to resolving them are summarized in Table 3-1 and represented graphically in Exhibits 3-1 through 3-5. The table and exhibits are intended to document a step in the planning process and complement each other; however, neither are intended to provide an exhaustive list.

TABLE 3-1 Summary Opportunities and Constraints Analysis

REACH 1 — PLACER COUNTY LINETO SQUAWVALLEY (SEE EXHIBITS 3-1, 3-2 AND 3-3)			
ISSUES	OPPORTUNITIES	CONSTRAINTS	POTENTIAL APPROACHES / LOCATIONS
<p>Water Quality</p> <ul style="list-style-type: none"> • Erosion and sedimentation • Heavy sediment accumulation along highway from winter road sanding • Collapsed or damaged drain outlets from highway to river • Many culverts drain directly into river <p>Wildlife and Aquatic Habitat</p> <ul style="list-style-type: none"> • LCT recovery coordination with resource agencies (i.e., USFWS and DFG) • Existing high quality meadow habitat (Goose Meadow and Silver Meadow) <p>Recreation and Public Access</p> <ul style="list-style-type: none"> • Unofficial camping areas and river access areas (including boating access) • Numerous over-wide shoulders and road pullouts 	<p>Water Quality</p> <ul style="list-style-type: none"> • Current Caltrans plan to improve roadside runoff, improve existing culverts, and install sediment basins along SR 89 • Opportunities to work with Caltrans to improve some pull-outs as official access points and eliminate others <p>Wildlife and Aquatic Habitat</p> <ul style="list-style-type: none"> • Relatively high ecological values • Potential LCT recovery/reintroduction sites at tributary confluences (Squaw, Pole, etc.) <p>Recreation and Public Access</p> <ul style="list-style-type: none"> • Easy access with high recreational values (i.e., boating, swimming, angling, camping, winter access across highway) • Recreation related industries and economic benefits • High aesthetic values from highway and existing public-access sites • Potential to improve summer access to river and winter access to backcountry areas west of highway • Town of Truckee Legacy Trail proposals along river corridor in Truckee • Potential to improve existing USFS campgrounds (well-used on key weekends during peak summer months) to provide greater day-use opportunities and clearer ingress-egress to highway • Scenic area and easy construction base for potential multiuse trail along existing sewer line alignment on public lands if Tahoe-Truckee Sanitation Agency is amenable to easement agreement 	<p>Water Quality</p> <ul style="list-style-type: none"> • Frequent correspondence of locations with poor drain outlets from highway with steep riverbanks and limited floodplain • Section 303(d) listing and TMDL development of tributary streams, including Squaw Creek <p>Wildlife and Aquatic Habitat</p> <ul style="list-style-type: none"> • Potential for presence of nonnative salmonids to impede LCT recovery efforts <p>Recreation and Public Access</p> <ul style="list-style-type: none"> • Steep river banks correspond with constricted SR 89 right-of-way and may impeded potential for multi-use trail • Patchy public/private land ownership <ul style="list-style-type: none"> - Opportunity for multiuse contiguous trail restricted - Silver Creek area significantly restricted • Restricted potential for use of existing sewer line easement for public access, as it crosses river and many private parcels 	<ul style="list-style-type: none"> • Identify public parking and access areas (angling, picnicking, river access) with signage and trails • Coordinate with Caltrans to improve or remove pull-outs along highway through revegetation (for eliminating pull-outs) or by developing trailheads with formalized access to bike trail and river • Develop educational signage outlining angling regulations and LCT recovery efforts • Coordinate efforts to expand public access with water quality and riverbank improvements <ul style="list-style-type: none"> - Water quality swales and wetland catch basins along highway - Riparian planting combined with boulder placement for bank protection • Prioritize key destinations and linkages for trail and access connections <ul style="list-style-type: none"> - Develop flexible trail system that could provide continuous access for (at minimum) pedestrians/hikers • Coordinate with USFWS and DFG in LCT recovery efforts <ul style="list-style-type: none"> - Habitat restoration and enhancement - Installation of artificial barrier to migration (i.e., isolate tributary streams to aid in recovery efforts)

NOTES:

- Caltrans** California Department of Transportation
- CWA** Clean Water Act
- DFG** California Department of Fish and Game
- LCT** Lahontan cutthroat trout
- SR** State Route
- TMDL** Total Maximum Daily Load
- TROA** Truckee River Operating Agreement
- USFS** U.S. Forest Service
- USFWS** U.S. Fish and Wildlife Service

Truckee River Corridor Access Plan

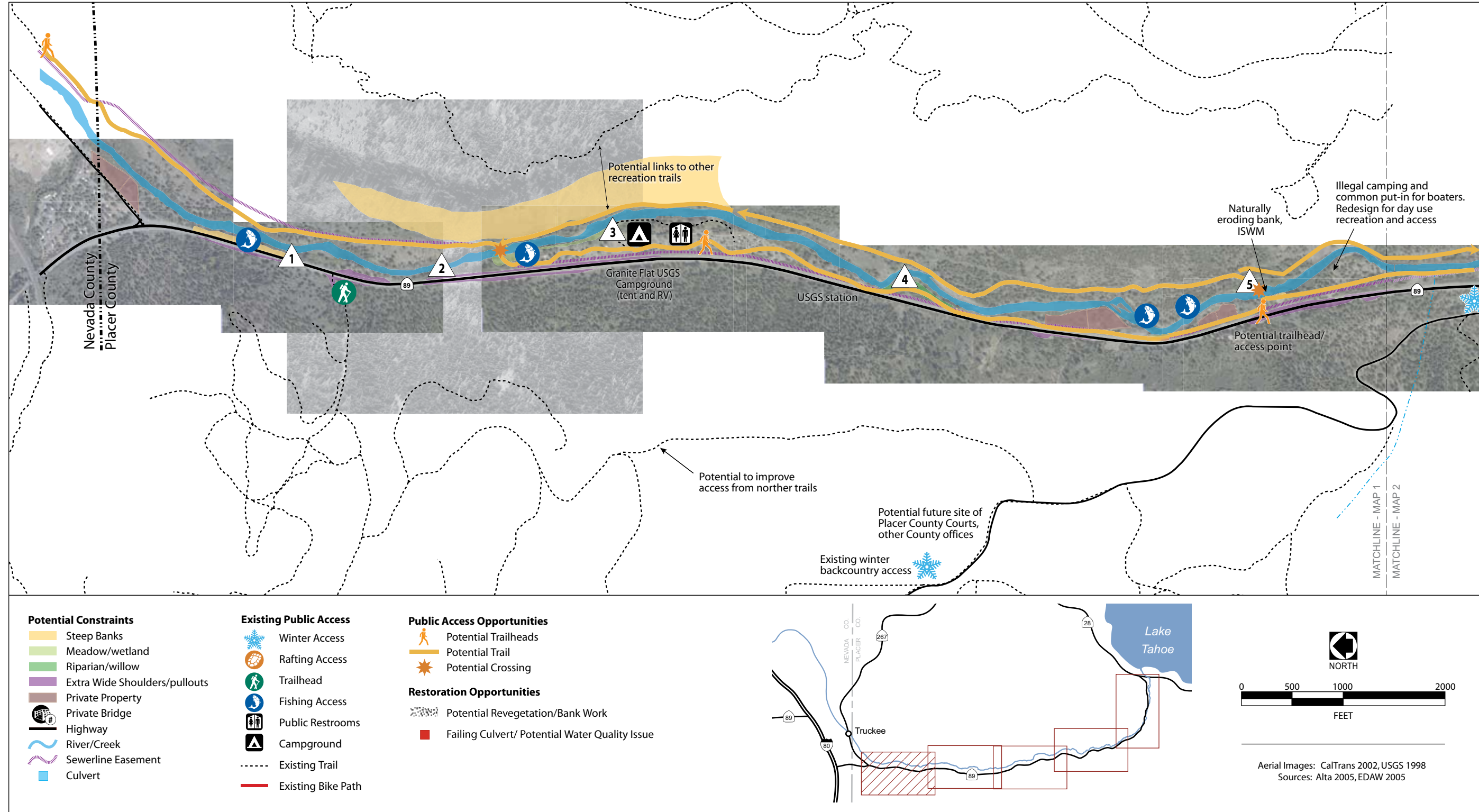
REACH 2 — SQUAW VALLEY TO RIVER RANCH (SEE EXHIBIT 3-4)			
ISSUES	OPPORTUNITIES	CONSTRAINTS	POTENTIAL APPROACHES / LOCATIONS
<p>Water Quality</p> <ul style="list-style-type: none"> • Erosion and sedimentation • Some collapsed or damaged drain outlets from highway to river • Many culverts drain directly into river <p>Wildlife and Aquatic Habitat</p> <ul style="list-style-type: none"> • Bare banks or riprap with limited riparian vegetation in some areas • General separation of river from trail by steep riprapped embankments <p>Recreation and Public Access</p> <ul style="list-style-type: none"> • Angling access more limited • Numerous over-wide shoulders and road pullouts • Intersection at Squaw Valley does not clearly delineate Class I trail access, signaling, and pedestrian/bicycle crossings could be improved 	<p>Water Quality</p> <ul style="list-style-type: none"> • Current Caltrans plan to improve roadside runoff, improve existing culverts, and install sediment basins along SR 89 • Opportunities to work with Caltrans to improve some pull-outs as official access points and eliminate others <p>Wildlife and Aquatic Habitat</p> <ul style="list-style-type: none"> • Steep river gradient, narrow channel, and significant riffle-pool morphology, which provide good quality fish habitat • Relatively high ecological values because river is generally separated from bike trail with steep banks and boating use is greatly reduced <p>Recreation and Public Access</p> <ul style="list-style-type: none"> • Existing connections to official Western States Trail • Existing developed trailhead at Squaw Valley Road • Limited adjacent land uses—some private property • High aesthetic values 	<p>Water Quality</p> <ul style="list-style-type: none"> • Section 303(d) listing and TMDL development of tributary streams, including Bear Creek • Frequent correspondence of locations with poor drain outlets from highway with steep riverbanks and limited floodplain <p>Wildlife and Aquatic Habitat</p> <ul style="list-style-type: none"> • Confined floodplain • Altered water releases • Potential restriction of floodwater conveyance • Potential for presence of nonnative salmonids to impede LCT recovery efforts <p>Recreation and Public Access</p> <ul style="list-style-type: none"> • Steep river banks correspond with constricted SR 89 right-of-way and may impede potential for multi-use trail • Patchy public/private land ownership <ul style="list-style-type: none"> - Opportunity for multiuse contiguous trail restricted - Squaw Creek area significantly restricted • Restricted potential for use of existing sewer line easement for public access, as it crosses river and many private parcels 	<ul style="list-style-type: none"> • Plant willow cuttings along riverbank in areas where riparian cover is limited or nonexistent, consistent with channel flood capacity • Improve signage for river access along highway, including parking, fishing, rafting, etc. • Coordinate with Caltrans to improve or remove pull-outs along highway through revegetation (for eliminating pull-outs) or by developing trailheads with formalized access to bike trail and river • Identify public parking and access areas (angling, picnicking, river access) with signage and trails • Develop educational signage outlining angling regulations and LCT recovery efforts

Truckee River Corridor Access Plan

REACH 3 — RIVER RANCH TO TAHOE CITY (SEE EXHIBITS 3-4 AND 3-5)			
ISSUES	OPPORTUNITIES	CONSTRAINTS	POTENTIAL APPROACHES / LOCATIONS
<p>Water Quality</p> <ul style="list-style-type: none"> Erosion and sedimentation Warm summer water temperature Channel-widening and water temperature issues near Caltrans maintenance yard and Tahoe City Lumber Heavy sediment accumulation along highway from winter road sanding Collapsed or damaged drain outlets from highway to river Drainage of many outlets directly into river Erosion on embankment between highway and bike trail <p>Wildlife and Aquatic Habitat</p> <ul style="list-style-type: none"> Homogenous aquatic and riparian habitat in most upstream portion of reach Little to no riparian buffer between channel and bike trail Lahontan cutthroat trout (LCT) recovery efforts Non Native Vegetation <p>Recreation and Public Access</p> <ul style="list-style-type: none"> Heavy recreation use and related disturbances throughout reach <ul style="list-style-type: none"> Numerous highway pullouts and user-defined access trails from highway to bike trail Encroachment on bike trail from channel widening in lower portion of reach Heavy rafting and trail use Multiple user-defined access trails from highway and bike trail to river Bank erosion and vegetation damage from raft rest stops, swimming, and wading Heavy and conflicting recreational uses at River Ranch between trail users, boaters, and business patrons Connecting to existing Class I bike trail 	<p>Water Quality</p> <ul style="list-style-type: none"> Current Caltrans plan to improve roadside runoff, improve existing culverts, and install sediment basins along SR 89 Opportunities to work with Caltrans to improve some pull-outs as official access points and eliminate others <p>Wildlife and Aquatic Habitat</p> <ul style="list-style-type: none"> Relatively high ecological values in some areas where river bends away from SR 89, creating a wider floodplain terrace Restoration and enhancement potential in areas with sparse instream habitat and riparian vegetation along heavily affected upstream portion of reach <p>Recreation and Public Access</p> <ul style="list-style-type: none"> Good access with high recreational values <ul style="list-style-type: none"> Boating Biking Swimming Angling Support of multiple beneficial uses through appropriate management and development of access features that also protect the riverine environment High aesthetic values because river is visible from highway and bike trail 	<p>General</p> <ul style="list-style-type: none"> Multiple and often conflicting uses <ul style="list-style-type: none"> Transportation corridor Heavy recreational uses Ecologically sensitive area Multiple jurisdictions and public/private land ownership Adjacent developed land uses <ul style="list-style-type: none"> Tahoe City Caltrans Lumber yard Private residences Parking lots <p>Water Quality</p> <ul style="list-style-type: none"> Truckee River CWA Section 303(d) listed as impaired for sediment SR 89 proximity reduces floodplain <ul style="list-style-type: none"> Continual inputs of road sand Shoulder and road fill erosion Poor culvert conditions with limited area for natural treatment of runoff <p>Wildlife and Aquatic Habitat</p> <ul style="list-style-type: none"> Floodwater conveyance requirements may restrict restoration activities Altered water releases and geomorphology <ul style="list-style-type: none"> Water rights TROA <p>Recreation and Public Access</p> <ul style="list-style-type: none"> Conflicting pedestrian, bicycle, boating, and automobile circulation at River Ranch 	<ul style="list-style-type: none"> Identify multipurpose enhancement projects <ul style="list-style-type: none"> Recreation, water quality, and aquatic habitat benefits Identify and repair failing culverts to reduce erosion potential and improve hydrologic connectivity to riparian areas <ul style="list-style-type: none"> Related water quality and riparian benefits Coordinate with Caltrans and Lahontan RQWCB Use appropriate materials to improve instream habitat without conflicting with rafting or generating flood-related hazards <ul style="list-style-type: none"> Use appropriately anchored rootwads in banks, away from higher velocity areas Place large river rock boulders within channel without interrupting navigation (raft passage) Locate restoration efforts in a fashion to direct recreational use areas Improve/formalize access from SR 89 <ul style="list-style-type: none"> Improve/formalize appropriate areas (e.g. public safety, shoulder parking space, signage, erosion control) Decommission access that crosses sensitive areas (e.g. boulder placement, no parking signage, vegetation barriers) Revegetate and amend soils in potential riparian floodplain areas Improve instream habitat via installation of large boulder clusters in areas that allow clear raft navigation Work with Caltrans and local businesses to improve riparian areas by restoring low floodplain terrace into channel. Use boulders, bio-logs, and rootwads (configured as stream barbs and deflectors) at water interface to create stable bank and plant fill area with native riparian/wetland species. Repair culverts and direct drainage into restored areas to restore hydrologic connectivity and for water quality treatment/improvement Work with River Ranch, Caltrans, businesses, and other key landowners to redesign circulation of bicycle trail, boating access, and parking Improve signage for river access along highway, including parking, fishing, rafting, etc. Coordinate with Caltrans to improve or remove pull-outs along highway through revegetation (for eliminating pull-outs) or developing trailheads with formalized access to bike trail and river Develop improved environmental outreach (river etiquette) for boaters Enforce existing rules and regulations for boaters Develop environmental education program or interpretive water trail for rafters to increase stewardship and self-enforcement of rules

Truckee River Corridor Access Plan

EXHIBIT 3-1 Opportunities and Constraints Map 1, Reach 1



Truckee River Corridor Access Plan



1. Steep bank along SR 89



2. Typical river channel with limited riparian



3. Existing user-defined trail along sewerline



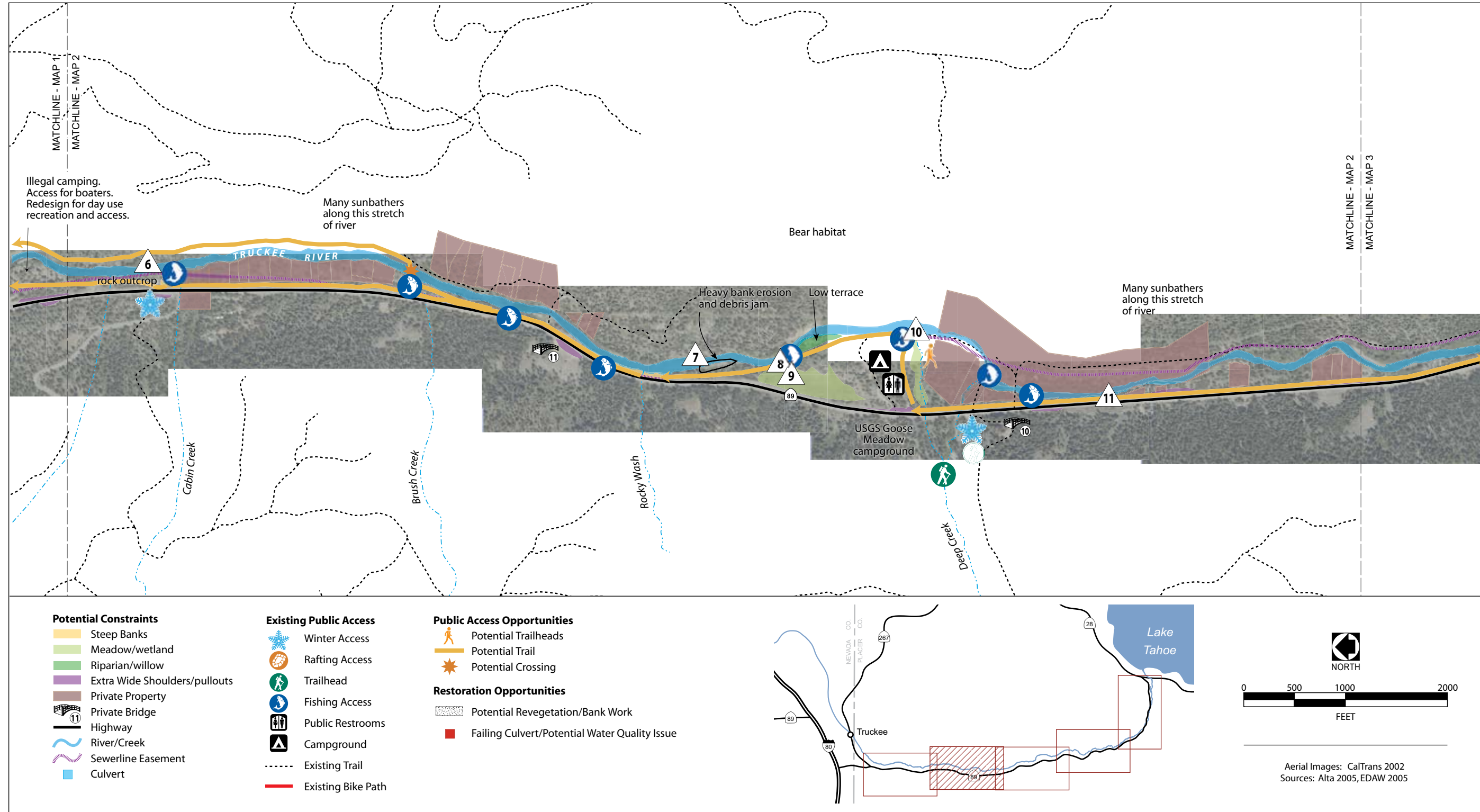
4. Potential trail alignment along sewer easement or on railroad grade



5. Eroding bank with downed trees and in-stream woody material

Truckee River Corridor Access Plan

EXHIBIT 3-2 Opportunities and Constraints Map 2, Reach 1



Truckee River Corridor Access Plan



6. Naturally occurring woody debris along river



7. Heavy bank erosion and woody debris



8. Seasonal wetland plants and a stream outflow from Goose Meadow to Truckee River



9. Goose Meadow is a significant natural resource along the Truckee River



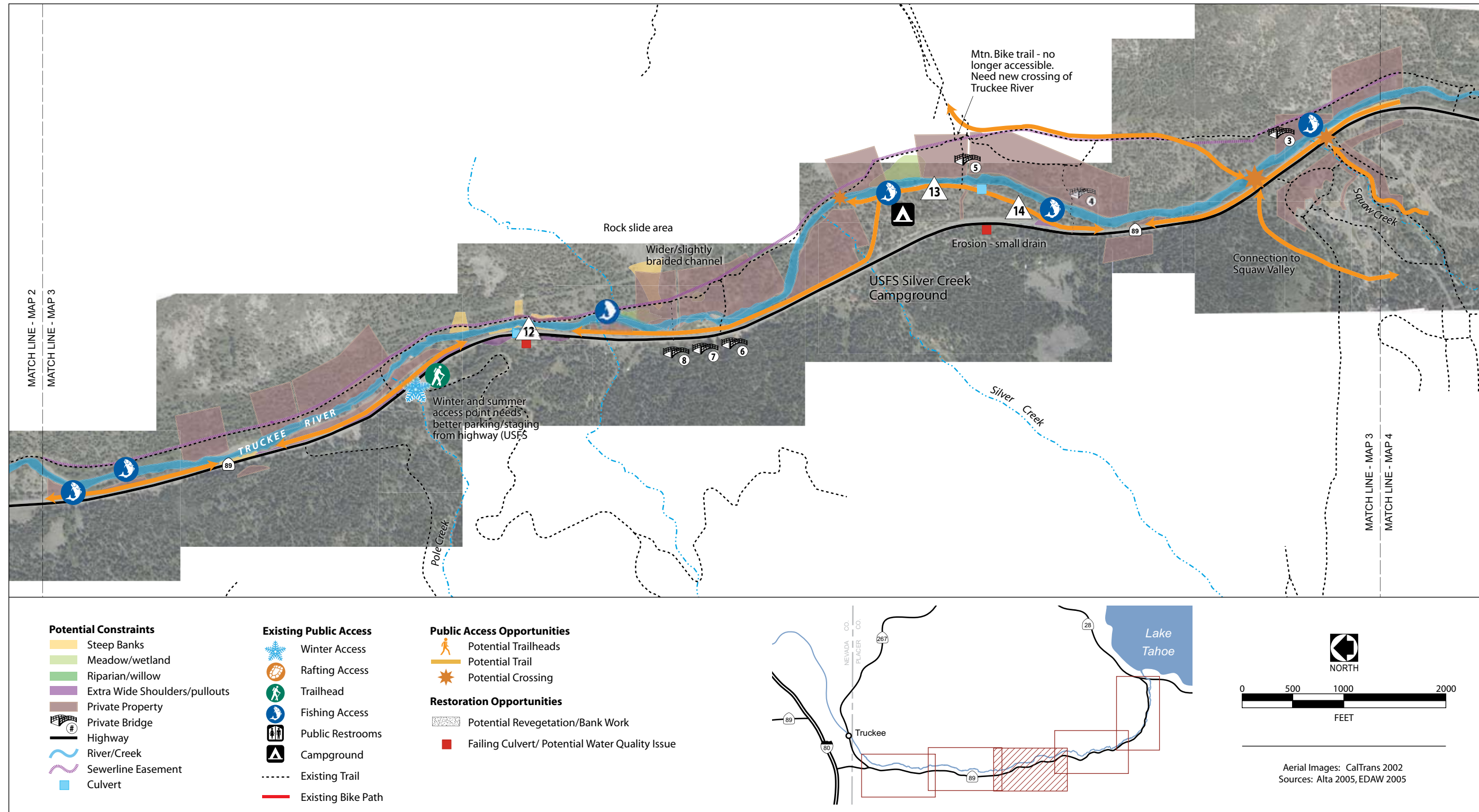
10. User-defined trail along existing sewerline easement could be converted to a Class I trail



11. Wide unvegetated shoulders could accommodate a Class I trail or should be revegetated to reduce sediment into Truckee River

Truckee River Corridor Access Plan

EXHIBIT 3-3 Opportunities and Constraints Map 3, Reach I



Truckee River Corridor Access Plan



12. Poorly designed culvert draining highway is eroding bank into Truckee River



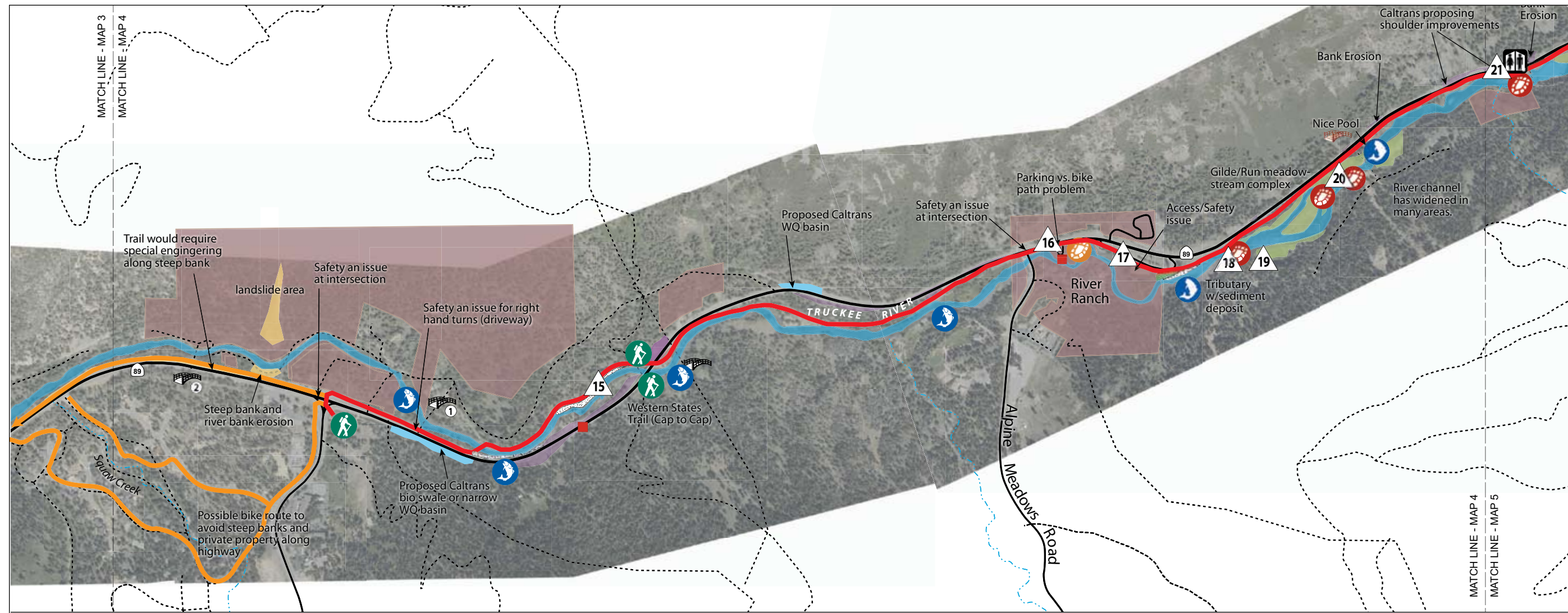
13. Existing sewerline easement could be converted to Class I trail



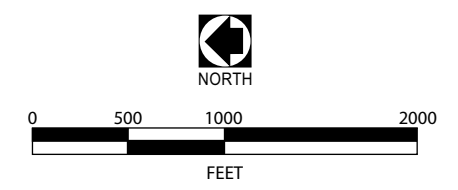
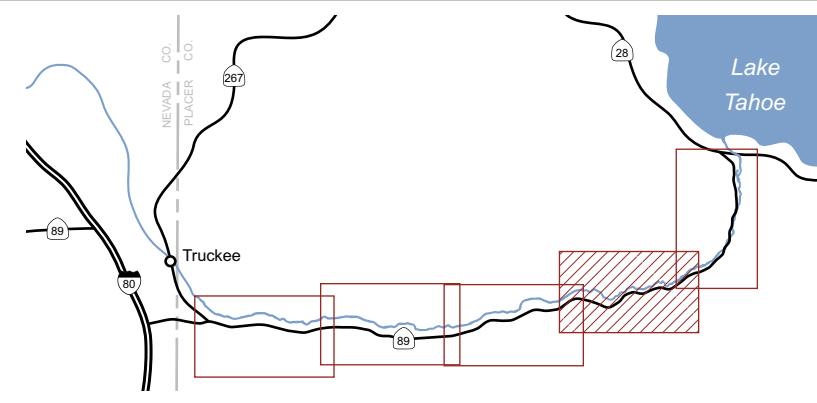
14. Existing sewerline or old railroad alignment could be converted to Class I Trail

Truckee River Corridor Access Plan

EXHIBIT 3-4 Opportunities and Constraints Map 4, Reaches 2 & 3



- | | | |
|---|---|---|
| <p>Potential Constraints</p> <ul style="list-style-type: none"> Steep Banks Meadow/wetland Riparian/willow Extra Wide Shoulders/pullouts Private Property Private Bridge Highway River/Creek Sewerline Easement Culvert | <p>Existing Public Access</p> <ul style="list-style-type: none"> Winter Access Rafting Access Trailhead Fishing Access Public Restrooms Campground Existing Trail Existing Bike Path | <p>Public Access Opportunities</p> <ul style="list-style-type: none"> Potential Trailheads Potential Trail Potential Crossing <p>Restoration Opportunities</p> <ul style="list-style-type: none"> Revegetation/Bank Work Failing Culvert/Potential Water Quality Issue Heavily Used Raft Pull-out |
|---|---|---|



Aerial Images: CalTrans 200?
Sources: Alta 2005, EDAW 2005

Truckee River Corridor Access Plan



15. Existing Class I trail



16. Recreation and traffic conflicts at River Ranch



17. Class I trail and private raft parking at River Ranch



18. Heavy use denudes vegetation



19. High quality meadow habitat along river



20. Rafters frequently pull-out on private property and heavy use denudes river bank of vegetation



21. Restroom available along river

Truckee River Corridor Access Plan



22. Heavy recreation access has limited riparian plant growth in some locations



23. Minor bank erosion along river channel



24. High use raft pull-outs can degrade wetland and riparian habitat



25. High quality riparian/wet meadow habitat



26. Very large shoulder along SR 89 could be converted to more formal recreation access trailhead



27. Bare steep river banks could be restored to provide habitat, water quality and aesthetic enhancements



28. Bare steep river banks could be restored to provide habitat, water quality and aesthetic enhancements



29. The Truckee River is wide, slow, and shallow in Reach 3



30. Formalized river access in Tahoe City



31. River banks along commercial area in Tahoe City could be enhanced with riparian plantings



32. Existing culvert at Fanny Bridge could be improved with best management practices

4, Conceptual Restoration and Access Projects

4.1 MEETING WATERSHED GOALS AND COMMUNITY OBJECTIVES

Each proposed project is described in conceptual terms in this chapter. In most cases, a project concept can be applied to multiple locations along the Truckee River corridor. These project concepts were developed to address the opportunities and constraints identified in Chapter 3. The plan includes three types of projects: restoration projects, access projects, and the multiuse trail. For each project, a brief description is provided, followed by a discussion of key issues, potential benefits, additional studies required for stronger understanding of project feasibility or precise location, potential partner agencies, and an order-of-magnitude cost estimate. Cost-estimate categories are as follows:

- \$ = 0 to \$100,000
- \$\$ = \$100,000 to \$500,000
- \$\$\$ = \$500,000 to \$1 million
- \$\$\$\$ = greater than \$1 million

Cost estimates take into consideration additional studies, environmental compliance and permitting, design and engineering, and construction and are based on the general information gathered for this master plan effort.

Table 4-1 summarizes the proposed projects and their goals.



Wetland/riparian floodplain restoration, 2003



Cottonwood seedling



Class I recreation trail along Truckee River, 2005

Truckee River Corridor Access Plan

TABLE 4-1 Project Goals and Proposed Projects Summary

	Respect and protect private- property rights	Coordinate multiple jurisdictions through a single management strategy	Identify restoration projects that will improve wildlife and aquatic habitat.	Restore riparian plant community	Enhance water quality	Identify a mixed-use recreation and transportation corridor from Squaw Valley to Truckee	Identify improvements for boating and angling access from the SR 89 bridge to the Town of Truckee	Identify local and regional connections to multiuse trails and recreation access points	Coordinate with other local and regional planning initiatives	Increase the educational and interpretive elements to highlight ecological, historic, cultural, and scenic qualities of the	Develop a base map for future planning efforts along the Truckee River from Tahoe City to the Placer County line
RESTORATION PROJECTS											
Restore Low Floodplain Terrace	Requires coordination with private entity	X	X	X	X				X		X
Protect and Restore River Bank and Improve River Access	X	X	X	X	X		X		X		X
Create Riparian/Wet Meadow Habitat	X	X	X	X	X				X		X
Improve Water Quality at Toe of Slope	X	X	X	X	X				X		X
Improve Water Quality within Trail Projects	X	X	X	X	X				X		X
PUBLIC ACCESS – TRAILHEAD PROJECTS											
Type "A" Trail Access – Trailhead / Parking Lot with amenities	X	X				X	X	X	X	X	X
Type "B" Trail Access – Limited amenities	X	X				X	X	X	X	X	X
EXISTING BIKE PATH ENHANCEMENT PROJECTS											
River Ranch Paved Parking Lot Improvement	Requires cooperation with private entity	X				Improves safety on existing corridor	X	Improves safety on existing corridor			X
River Ranch Unpaved Parking Area Improvement	Requires cooperation with private entity	X			X	Improves safety on existing corridor	X	Improves safety on existing corridor			X
Squaw Valley Road Crossing Improvements	X	X				X	X	X			X
ROADWAY SHOULDER IMPROVEMENT PROJECTS											
Silver Creek Campground Improvement	X	X					X	X	X		X
INFORMATIONAL AND EDUCATIONAL SIGNS AND MATERIALS											
Interpretive Signs	X	X							X	X	
Fishing, Boating, and Trail Access Signs	X	X				X	X	X	X	X	
River Access Brochure	X	X						X	X	X	
River Heritage Interpretive Trail	X	X							X	X	
MULTIPLE-USE TRAIL PROJECTS											
Class I Trail – Typical Cross-Section	X	X				X	X	X	X	X	X
Class I Trail on Steep Cross-Slope	X	X				X	X	X	X	X	X
Type "A" Cross-section – Bike Path with Adjacent Parking	X	X				X	X	X	X	X	X
Type "B" Cross-Section – Bike Path with Setback	X	X				X	X	X	X	X	X
Type "C" Cross-section – Bike Path on Steep Slope	X	X				X	X	X	X	X	X

Truckee River Corridor Access Plan

4.2 RESTORATION PROJECTS

A. RESTORE LOW FLOODPLAIN TERRACE

In several areas along the Truckee River, natural floodplain and riparian habitat have been lost with the development of commercial or industrial land uses. In at least two prominent locations, the Caltrans corporation yard and adjacent businesses, there appears to be adequate space to restore a portion of the floodplain. Moderate bank excavation and reshaping would be completed to create a floodplain terrace at a suitable elevation to sustain mountain alder, willow, and black cottonwood riparian species. Incorporation of root wads, logs, and boulders into the bank would restore instream woody material, reduce bank erosion, and provide fish cover. (see Exhibit 4-12)

KEY ISSUES

- Coordination with/approval of landowners
- Flood capacity
- Geomorphology and river hydraulics

POTENTIAL BENEFITS

- Restoration or expansion of riparian habitat
- Reduction in bank erosion
- Improved water quality
- Increase in fish habitat
- Improved scenic quality along river

ADDITIONAL STUDIES

- Property boundary survey
- River hydrology and hydraulics study
- Detailed design and construction documents
- Environmental compliance (National Environmental Policy Act [NEPA] and/or CEQA and/or TRPA)
- CWA Section 401 and Section 404 permits

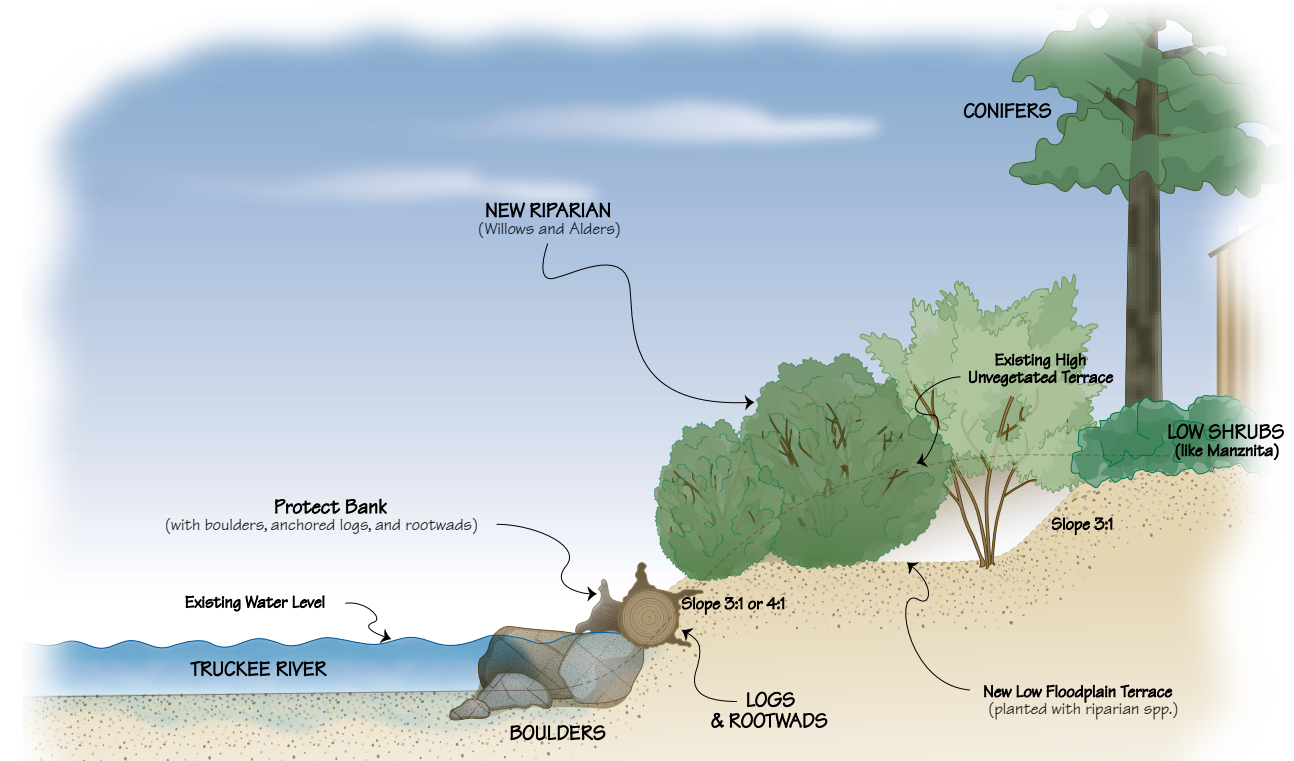
POTENTIAL PARTNER AGENCIES

Landowners, Placer County, USACE, USFS, USFWS, TRPA, Tahoe City Public Utility District (PUD), DFG, Placer County Resource Conservation District (RCD), Natural Resource Conservation Service, State Conservancies, Truckee River Watershed Council

COST ESTIMATE

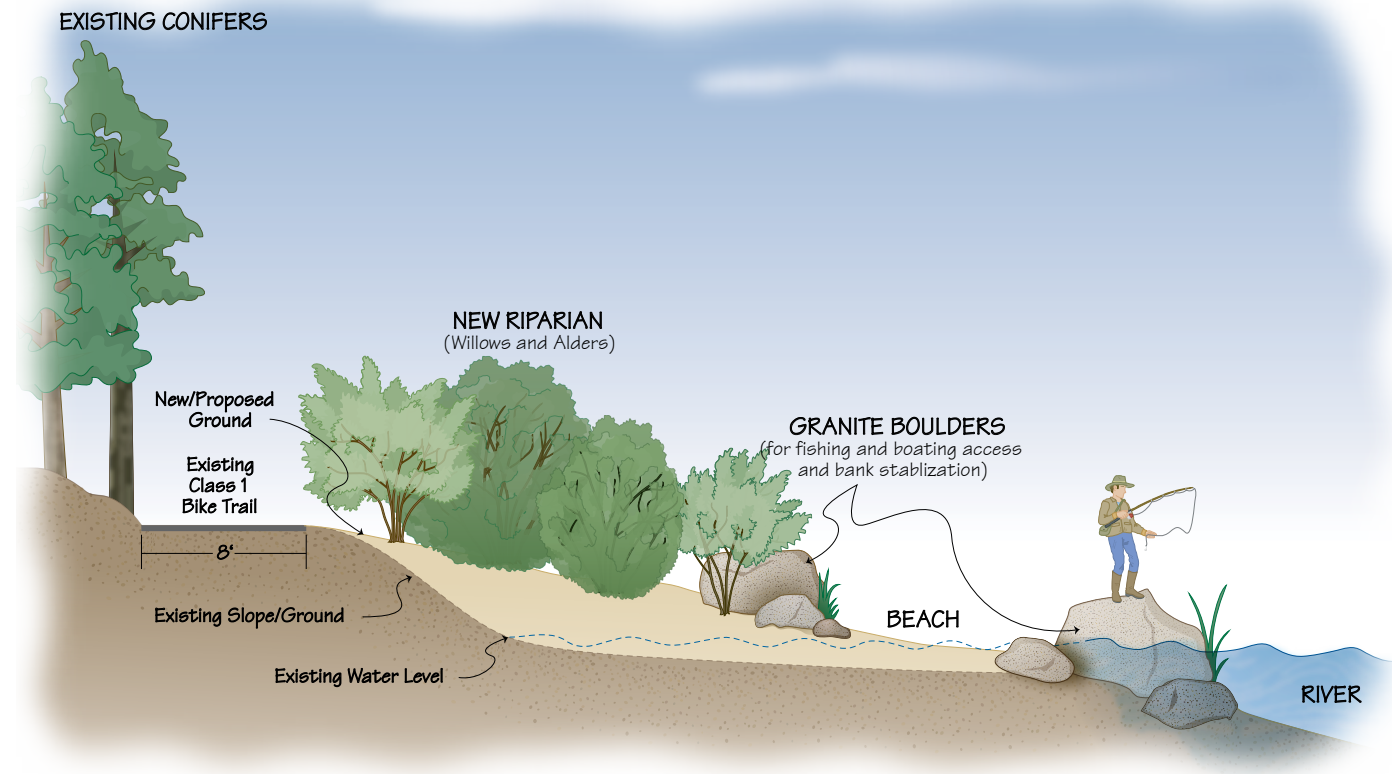
Total estimated cost: \$\$\$

EXHIBIT 4-1 Restore Low Floodplain Terrace - Typical Cross-Section



Truckee River Corridor Access Plan

EXHIBIT 4-2 Restore River Bank and Provide Access - Typical Cross-Section



B. PROTECT AND RESTORE RIVER BANK AND IMPROVE RIVER ACCESS

According to longtime river residents and early engineering plans, portions of the Truckee River have experienced channel widening through bank erosion. Erosion has reduced and degraded riparian habitat, reduced or eliminated the floodplain, undermined the existing bike trail, and degraded instream habitat. In areas with the greatest degradation, the river channel could be restored to a shape approximating its historic width through channel bank restoration, restoring a natural riparian floodplain, and careful placement of instream woody material. Boulders could also be carefully placed to provide recreational access to the river for fishing, sunbathing, and swimming. These boulders would also provide “hard” access points for rafters needing a rest stop. Based on observation, most people participating in recreation activities along the river will use a hard surface, like a boulder, to get to or from the river if one is available. If this type of use were encouraged, those using the river for recre-

ation would cause less damage to riparian vegetation and incur less bank erosion. (see Exhibits 4-9, 4-10, 4-12, and 4-13)

KEY ISSUES

- Flood capacity and river hydraulics
- Temporary impacts on recreation
- Public concerns over perceived loss of access
- Lack of appropriate source material for rebuilding river bank

POTENTIAL BENEFITS

- Restoration or expansion of riparian habitat
- Reduction in bank erosion
- Improved water quality
- Increase in fish habitat
- Improved river access
- Improved scenic quality along river

ADDITIONAL STUDIES

- Historical analysis of river geomorphology
- River hydrology and hydraulics study
- Property boundary survey
- Detailed design and construction documents
- Environmental compliance (NEPA and/or CEQA and/or TRPA)
- CWA Section 401 and Section 404 permits

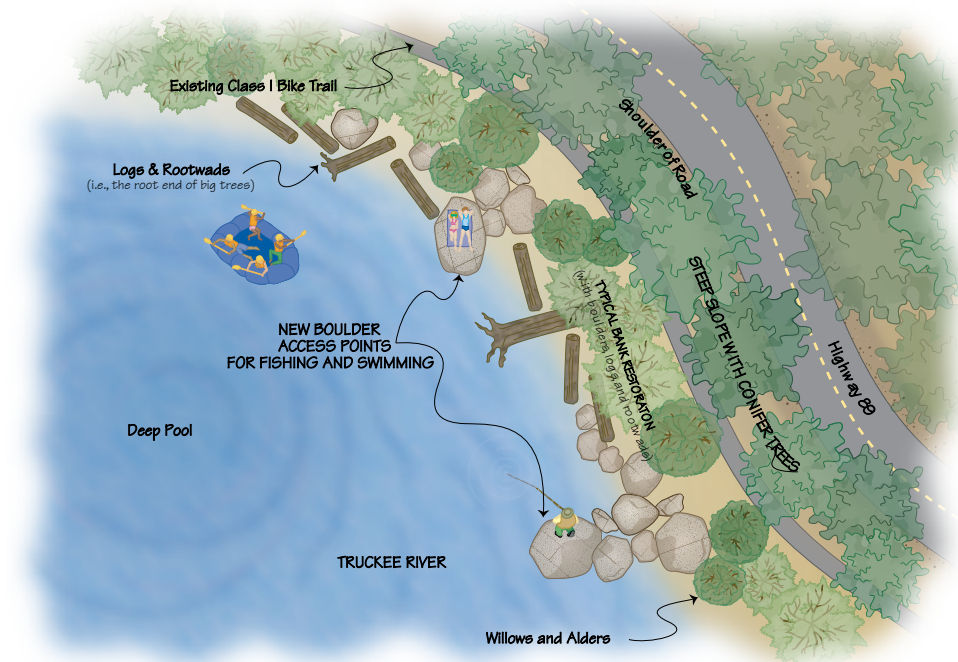
POTENTIAL PARTNER AGENCIES

Landowners, Placer County, USACE, USFS, USFWS, TRPA, Tahoe City PUD, DFG, State Conservancies, Placer County RCD, Truckee River Watershed Council

COST ESTIMATE

Total estimated cost: \$\$\$ to \$\$\$\$

EXHIBIT 4-3 Restore River Bank and Provide Access - Typical Plan View



Truckee River Corridor Access Plan

C. ENHANCE RIPARIAN/WET MEADOW HABITAT

There are several areas of montane wet meadow habitat along the Truckee River just upstream of River Ranch. These areas are affected by rafters pulling out of the river for a rest stop and by sunbathers and anglers seeking access to the river. Although these wet meadows provide habitat for waterfowl, invertebrates, and amphibians, they could provide greater diversity of habitat with the introduction of willow riparian plant species. The willow riparian–montane wet meadow complex immediately downstream of the Tahoe City Lumber yard provides an excellent example of what the downstream wet meadows could provide.

Inclusion of downed woody material and root wads to protect banks from eroding and discourage recreational use, creation of narrow backwater sloughs, and planting of willow riparian species would increase overall habitat complexity and discourage recreational use. (see Exhibits 4-12 and 4-13)

KEY ISSUES

- Manipulation of existing habitat
- Flood capacity and river hydraulics
- Public concerns over perceived loss of access
- Lack of appropriate source material for rebuilding river bank

POTENTIAL BENEFITS

- Restoration or expansion of riparian habitat
- Reduction in bank erosion and channel widening
- Improved water quality
- Increase in wildlife habitat

EXHIBIT 4-4 Enhance Riparian Wet Meadow Habitat - Typical Plan View



ADDITIONAL STUDIES

- Biological assessment of existing habitat quality and recreation impacts
- River hydrology and hydraulics study
- Property boundary survey
- Detailed design and construction documents
- Consultation and guidance from DFG, USACE, TRPA, USFWS, Placer County RCD
- Environmental compliance (NEPA and/or CEQA and/or TRPA)
- CWA Section 401 and Section 404 permits

PARTNER AGENCIES

USFS, DFG, State Conservancies, Tahoe City PUD, Placer County, TRPA, Truckee River Watershed Council

COST ESTIMATE

Total estimated cost: \$\$ to \$\$\$

Truckee River Corridor Access Plan

D. STABILIZE STEEP RIVER BANKS

In several locations between Squaw Valley Road and the Placer-Nevada County line the natural outside bend of the river is eroding toward SR 89. These active bends of the river have created steep river banks with limited vegetation. There is potential to protect the existing toe of slope, incorporate additional riparian and upland habitat, and limit bank erosion. This type of project should be combined with a potential trail project at the top of bank as depicted in the illustration (Exhibit 4-5). In addition, there are several highway drain outlets along these steep banks which could be modified and incorporated into a bank protection project (or trail project) to provide some basic level of water quality treatment prior to discharge into the river. (see Exhibits 4-11 and 4-12)

KEY ISSUES

- Cost and engineering
- Flood capacity and river hydraulics
- Lack of appropriate source material
- Erosion and water quality

POTENTIAL BENEFITS

- Improved water quality
- Restoration or expansion of riparian and upland habitat
- Reduction in bank erosion and potential channel widening
- Increase in fish habitat
- Protection of existing highway from erosion and undercutting by river
- Improved scenic quality along river

ADDITIONAL STUDIES

- Historical analysis of river morphology
- River hydrology and hydraulics study
- Property boundary survey
- Detailed design and construction documents
- Environmental compliance (NEPA and/or CEQA and/or TRPA)
- CWA Section 401 and Section 404 permits

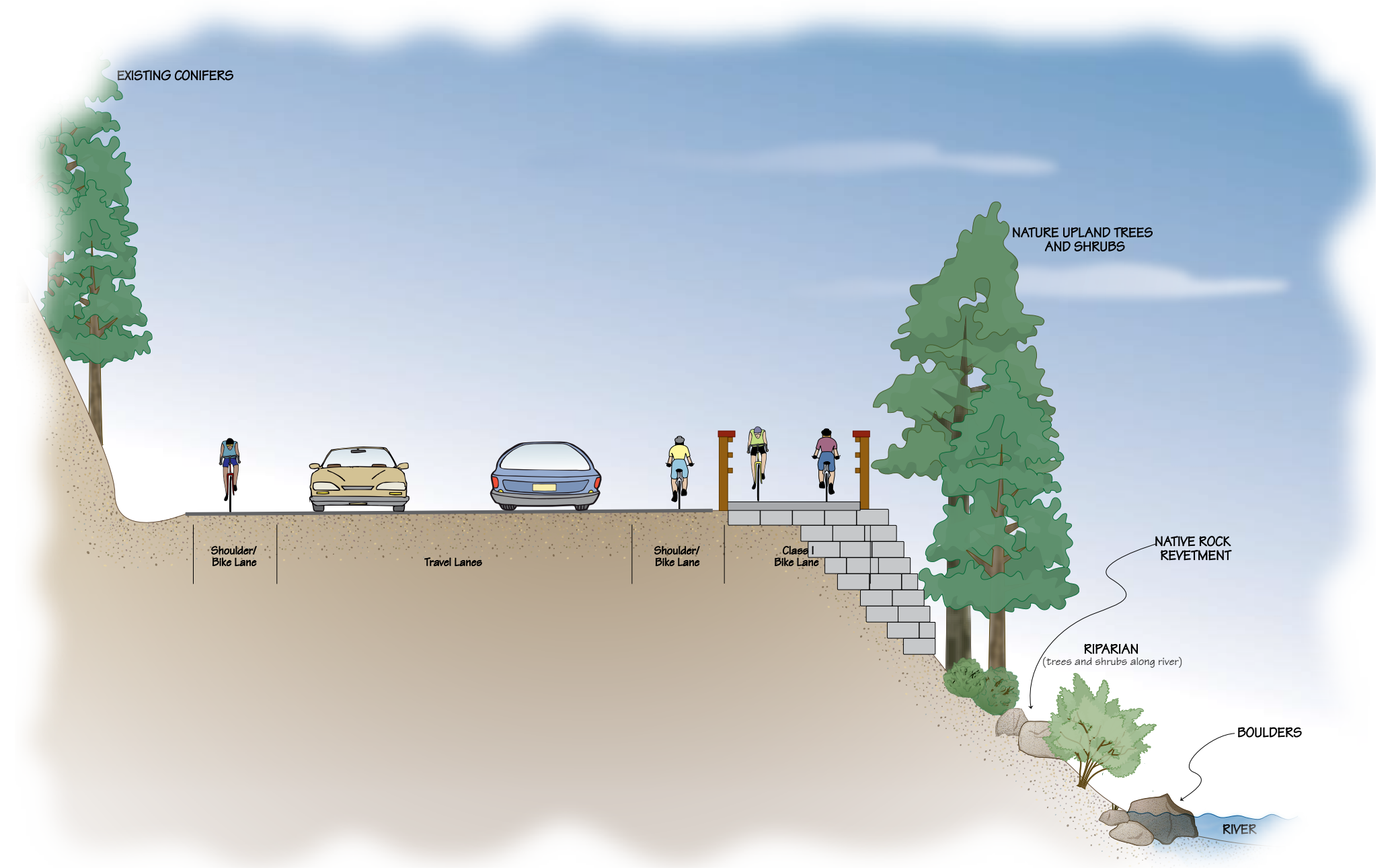
PARTNER AGENCIES

USFS, USACE, Caltrans, DFG, Lahontan RWQCB, Placer County, Truckee River Watershed Council

COST ESTIMATE

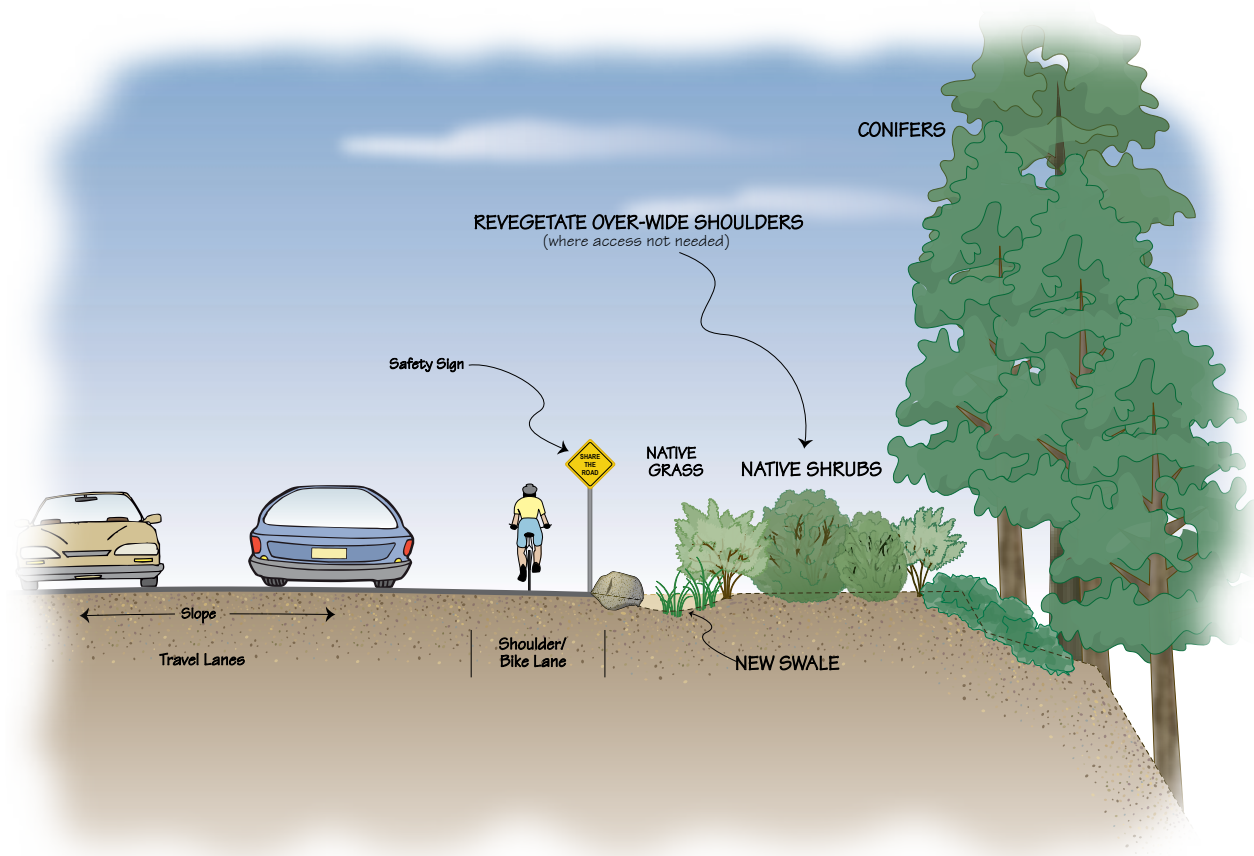
Total estimated cost: \$\$\$ to \$\$\$\$

EXHIBIT 4-5 Stabilize Steep River Banks - Typical Cross-Section



Truckee River Corridor Access Plan

EXHIBIT 4-6 Vegetate Over-Wide Highway Shoulders - Typical Cross-Section View



E. REVEGETATE OVER-WIDE HIGHWAY SHOULDERS

In many locations along SR 89 the highway shoulder has been widened through continued public use. Vegetation along the shoulders has been removed through continued use of pull-outs as parking for river access or for their original purpose of ensuring highway safety. Sediment from the shoulder is pulled onto the highway and is carried into the Truckee River through roadway runoff. In addition, shoulder sediment pulled onto the paved shoulder. The over-wide shoulders also reduce the overall scenic quality of the corridor by making the highway seem unusually wide and degraded.

These issues could be resolved by identifying appropriate places for people to pull off the highway to access the river (described elsewhere) and revegetating and restoring existing pull-outs in areas where they are not needed. A revegetation project should include installation of stormwater quality-related best management practices such as vegetated swales to collect runoff, sediment, and pollutants from the highway. Revegetation would also need to include installation of boulders, logs, or wood bollards to prevent drivers from continuing to use the pull-outs and protect plants during establishment. Any such barriers would need to be compatible with highway operation, including snow removal.

This type of project should be closely coordinated with the Type B Access Improvement Project and Fishing, Boating, and Trail Access Signs Project described later in this chapter to ensure that overall public access to the river is not lost, but appropriately redirected. (see Exhibit 4-12)

KEY ISSUES

- Soil compaction and lack of appropriate topsoil
- Coordination with existing river access points
- Coordination with Caltrans regarding highway operation, including snow removal

POTENTIAL BENEFITS

- Reduction of sediment source into Truckee River
- Improved water quality
- Restoration or expansion of upland forest habitat
- Increase in safety along existing Class II bike route
- Potential for coordination of appropriate recreation access to the river
- Improved scenic quality along highway

ADDITIONAL STUDIES

- Soil analysis
- Right-of-way or property boundary survey
- Detailed design and construction documents
- Environmental compliance (NEPA and/or CEQA and/or TRPA) not sure about this

PARTNER AGENCIES

Caltrans, USFS, Tahoe City PUD, Placer County, local angler and boating organizations, TRPA, California Conservancies, Truckee River Watershed Council

COST ESTIMATE

Total estimated cost: \$ to \$\$ depending on area

Truckee River Corridor Access Plan

F. IMPROVE WATER QUALITY/ STORMWATER MANAGEMENT AT TOE OF SLOPE

Winter highway safety treatments along SR 89, specifically road sanding, are a primary source of pollutants to the Truckee River. The narrow river corridor, steep slopes, unvegetated and eroding embankments, excessive or unpaved pull-outs, all contribute to water quality issues in the river. Caltrans has plans for new sediment basins in a few locations along the river corridor to address roadway sediment. In many locations there is not adequate space to create a sediment catch basin; however, in these narrow segments of the corridor there may be ample space to create water quality swales at the toe of the road embankment, adjacent to the existing Class I bike trail or the upper end of the floodplain terrace. In many cases the swales would be outside of the Caltrans right-of-way and thus would need to be coordinated with other jurisdictions.

These water quality swales may need regular maintenance to prevent road sand from filling them entirely, but they would provide some level of water quality treatment and sand collection when there is not adequate space at the top of slope. Existing drain outlets should be repaired or replaced, as many are crushed or obstructed, and outfalls should be lined with rock cobble to prevent additional bank erosion. In addition, poorly vegetated or eroding embankments should be replanted with appropriate native species. In the upstream segment of the river corridor, revegetation combined with shoulder treatments and clearly designated trailheads would reduce erosion caused by people. (see Exhibits 4-9, 4-10, 4-11, and 4-12)

KEY ISSUES

- Coordination between multiple jurisdictions
- Steep slopes with degraded soils
- Ongoing maintenance of swales

POTENTIAL BENEFITS

- Reduction of sediment source into Truckee River
- Improved water quality
- Improved scenic quality along highway

ADDITIONAL STUDIES

- Right-of-way or property boundary survey
- Detailed design and construction documents
- Environmental compliance (NEPA and/or CEQA and/or TRPA)

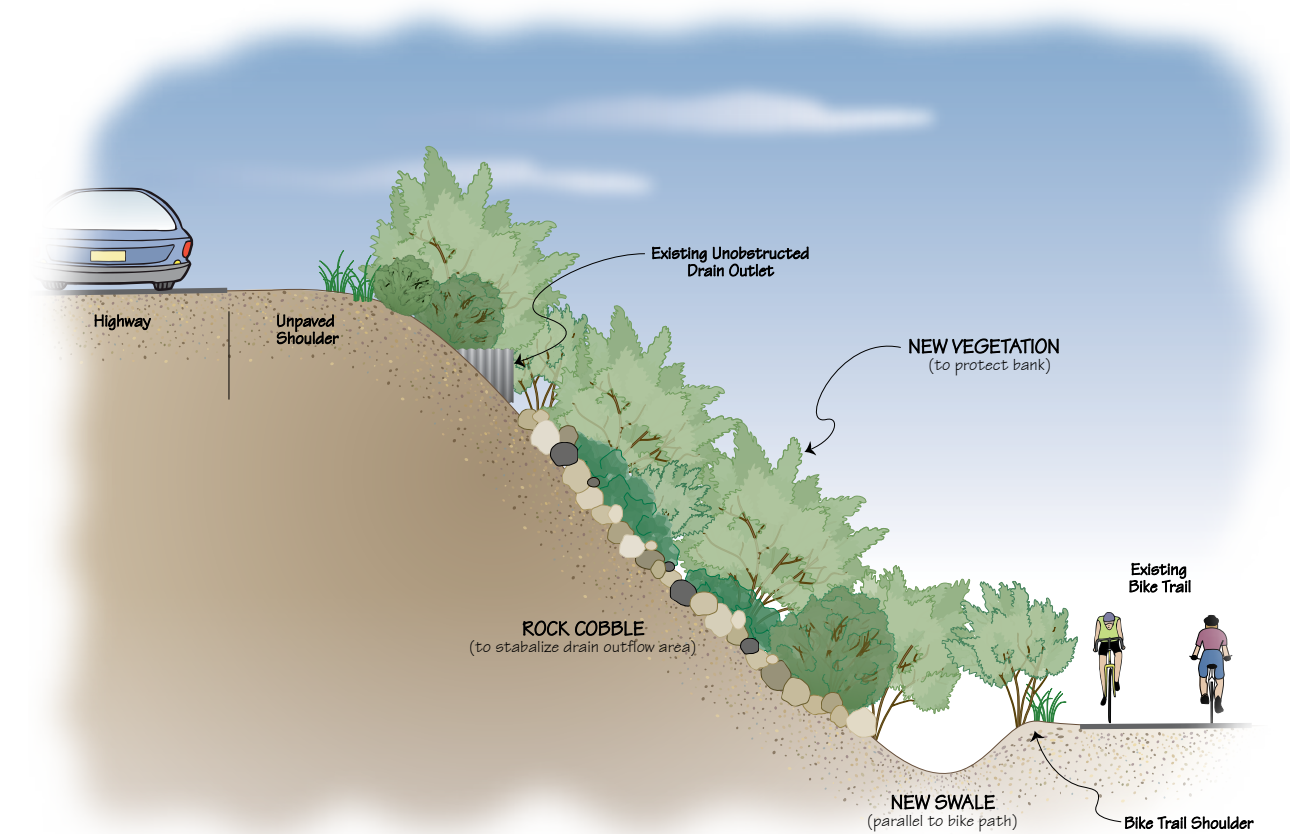
PARTNER AGENCIES

Caltrans, Placer County, USFS, Tahoe City PUD, Lahontan RWQCB, California Conservancies, RPA, Truckee River Watershed Council

COST ESTIMATE

Total estimated cost: \$ to \$\$ depending on area

EXHIBIT 4-7 Improve Water Quality at Toe of Slope - Typical Cross-Section



Truckee River Corridor Access Plan

G. IMPROVE WATER QUALITY WITHIN TRAIL PROJECTS

This project would only be implemented in coordination with creation of a Class I bikeway paralleling the highway (Type A and Type B bikeways described later in this chapter). With the creation of a Class I bikeway parallel to the existing Class II bike lane there is a need for a safety separation and opportunity for additional water quality benefits that do not currently exist. A water quality swale could be created between the existing bike lane and the proposed bikeway; this swale could catch road runoff and provide a safety separation at the same time. The swale would be vegetated with native grasses and shrubs suitable to the harsh conditions along the highway. Boulders, logs, or bollards could also be introduced to prevent cars from pulling into the area. Roadside barriers would need to be compatible with highway operation, including snow removal. (see Exhibits 4-9, 4-11, and 4-13)

KEY ISSUES

- Coordination with multiple jurisdictions
- Poor or degraded soils
- Maintenance
- Compatibility with highway operation, including snow removal

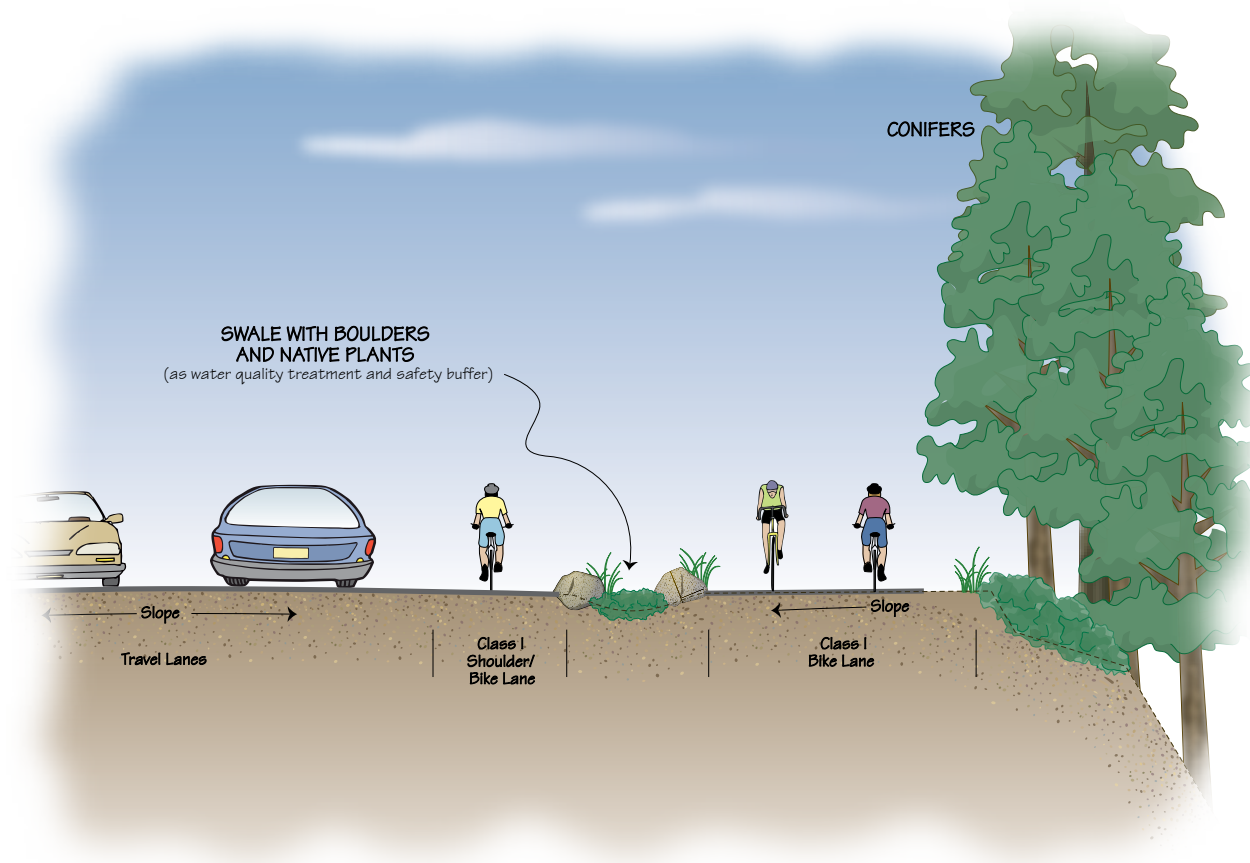
POTENTIAL BENEFITS

- Reduction of sediment source into Truckee River
- Improved water quality
- Improved safety along future bikeway
- Improved scenic quality along highway

ADDITIONAL STUDIES

- Right-of-way or property boundary survey
- Detailed design and construction documents

EXHIBIT 4-8 Improve Water Quality Within Trail Projects - Typical Cross-Section



PARTNER AGENCIES

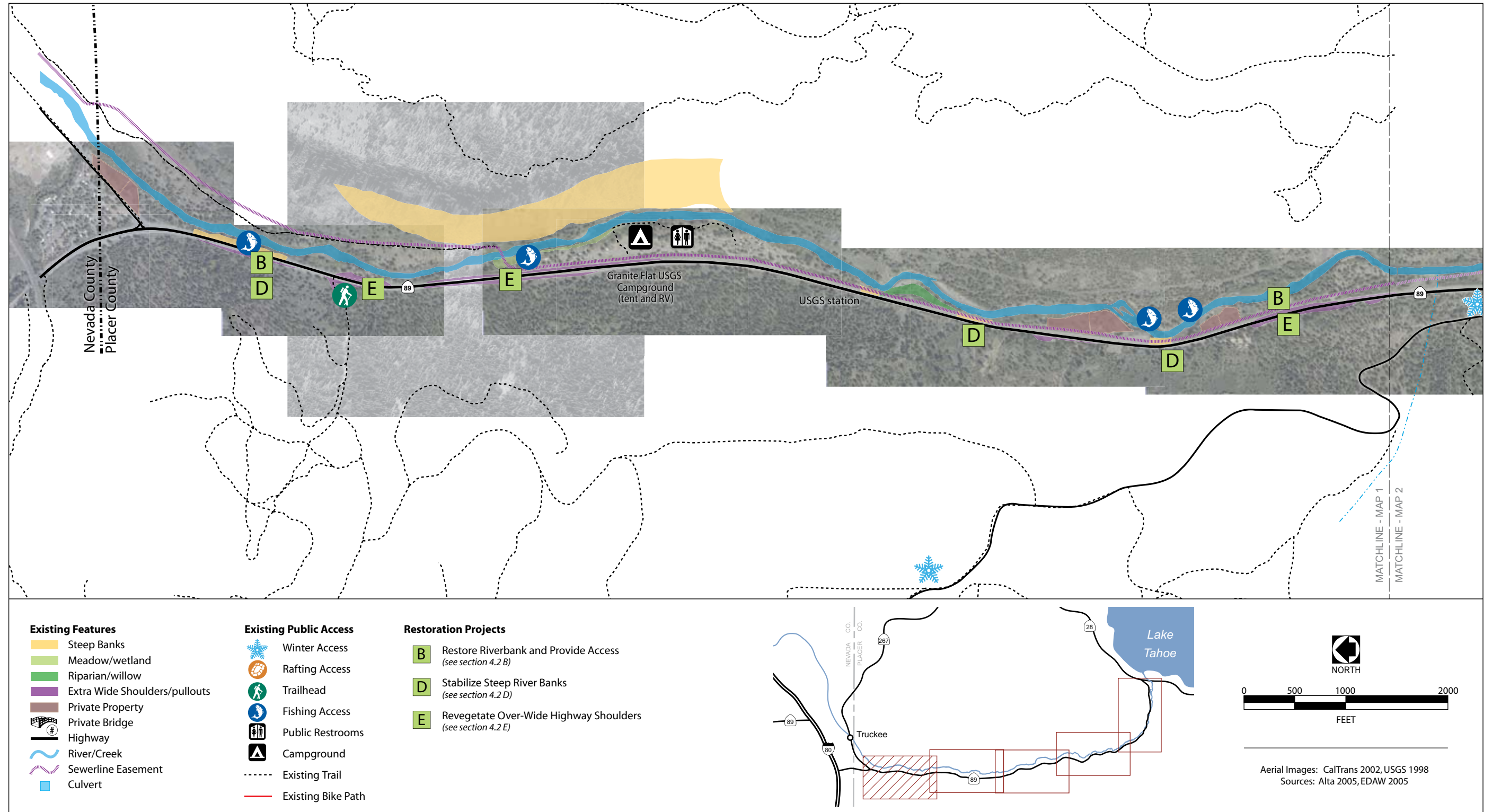
Caltrans, Placer County, Lahontan RWQCB, Placer County RCD, Truckee River Watershed Council

COST ESTIMATE

Total estimated cost: \$ to \$\$ for water quality swale (for trail costs see section 4.7)

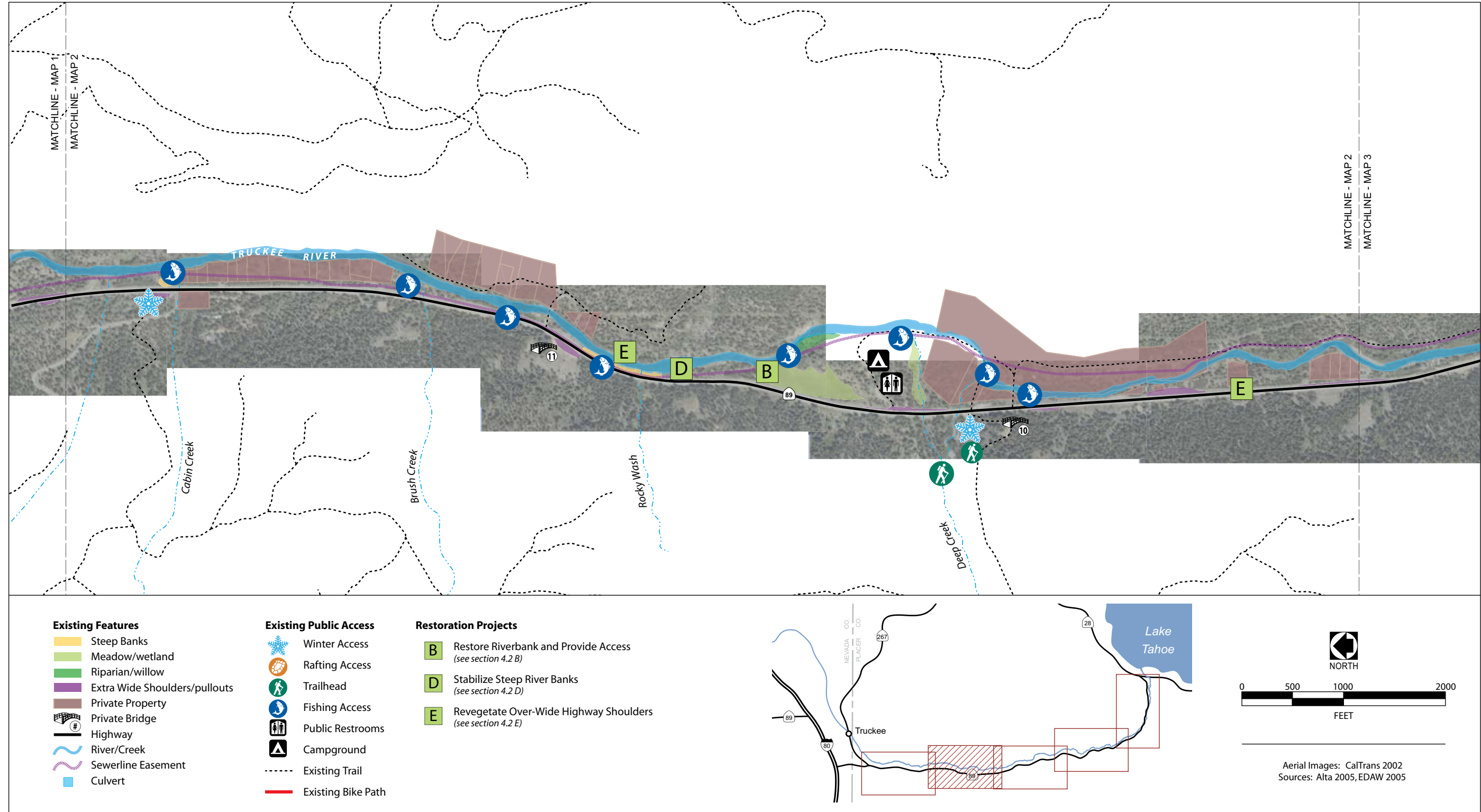
Truckee River Corridor Access Plan

EXHIBIT 4-9 Restoration Project Location Map I, Reach I



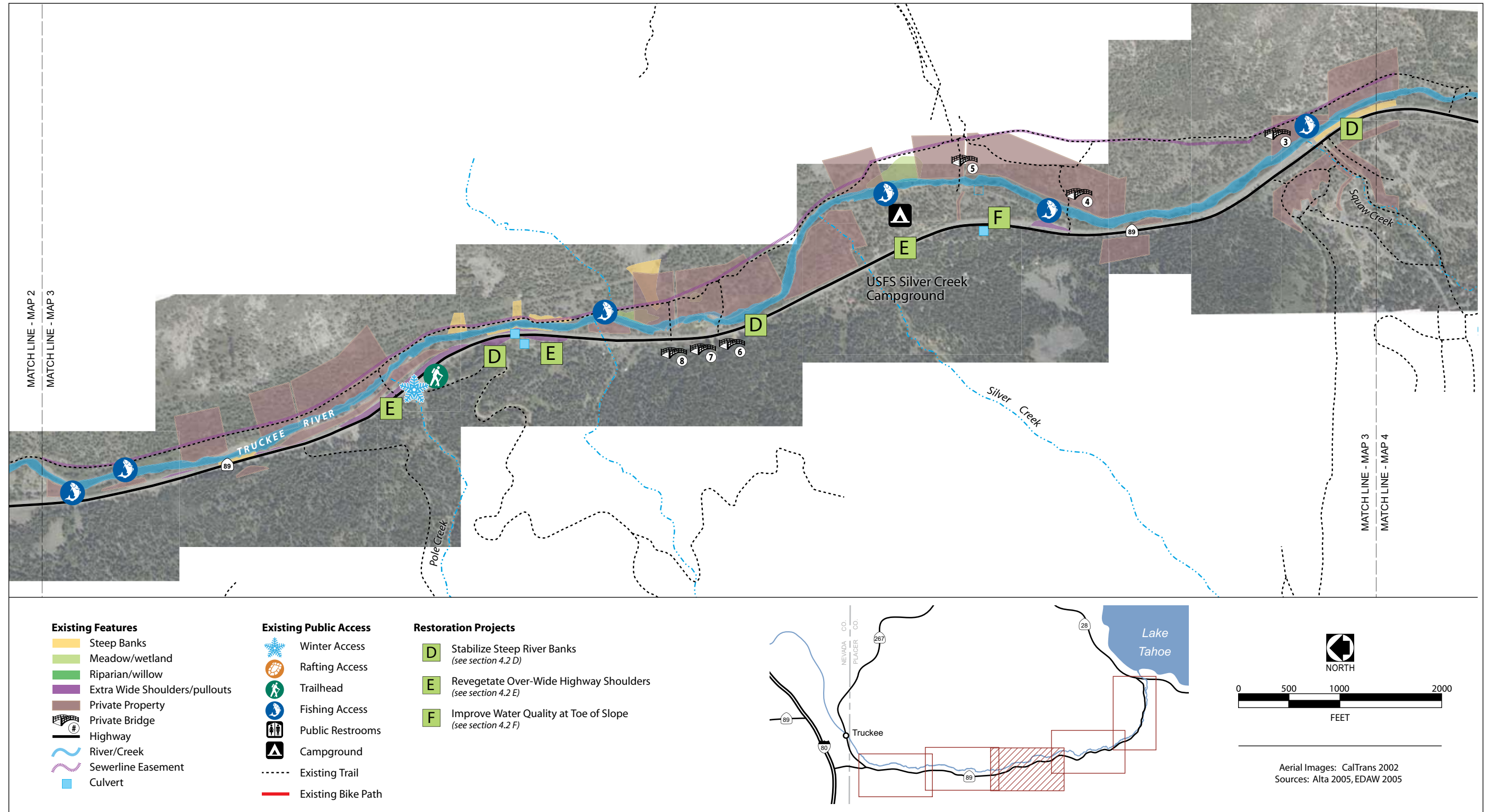
Truckee River Corridor Access Plan

EXHIBIT 4-10 Restoration Project Location Map 2, Reach 1



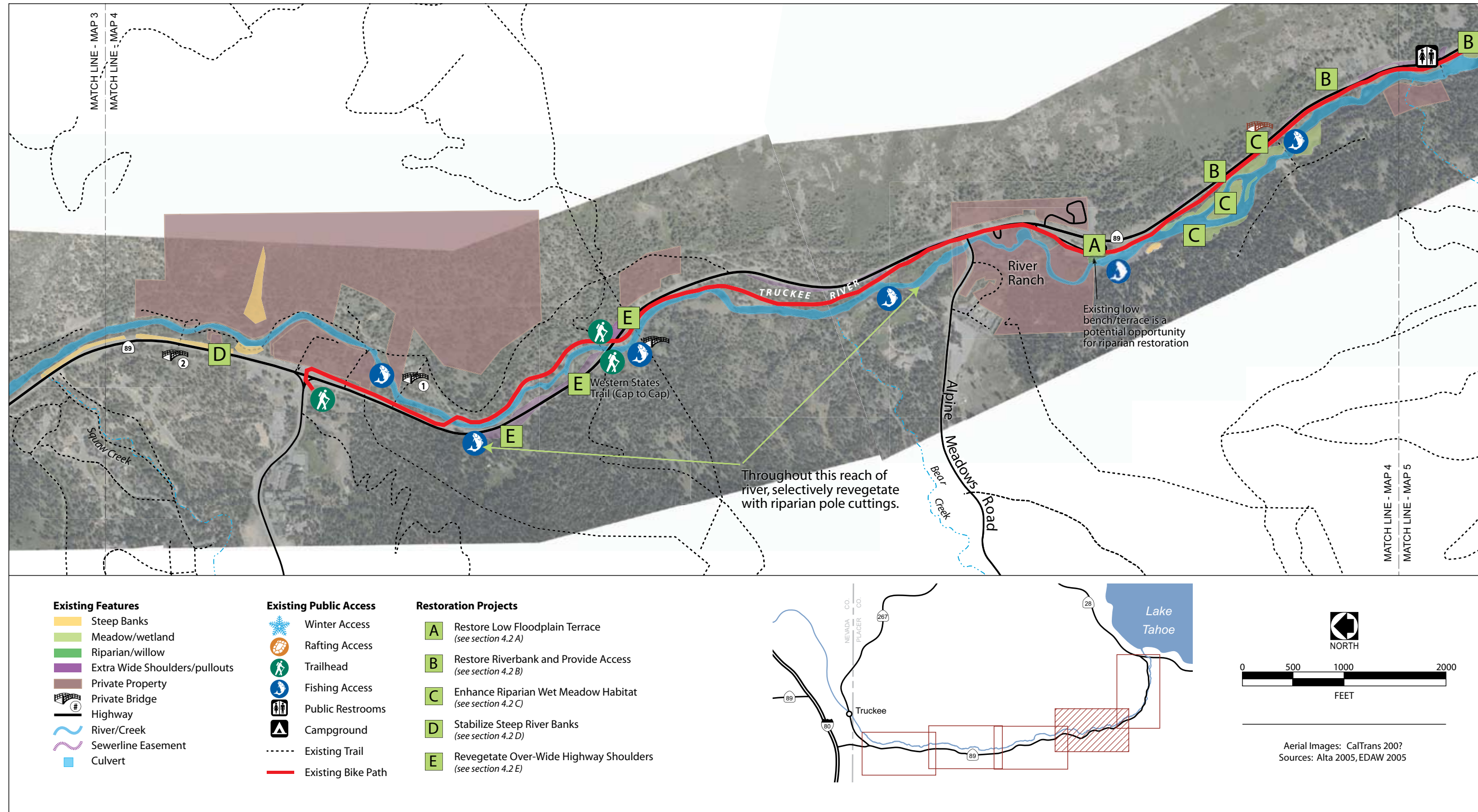
Truckee River Corridor Access Plan

EXHIBIT 4-11 Restoration Project Location Map 3, Reach 1



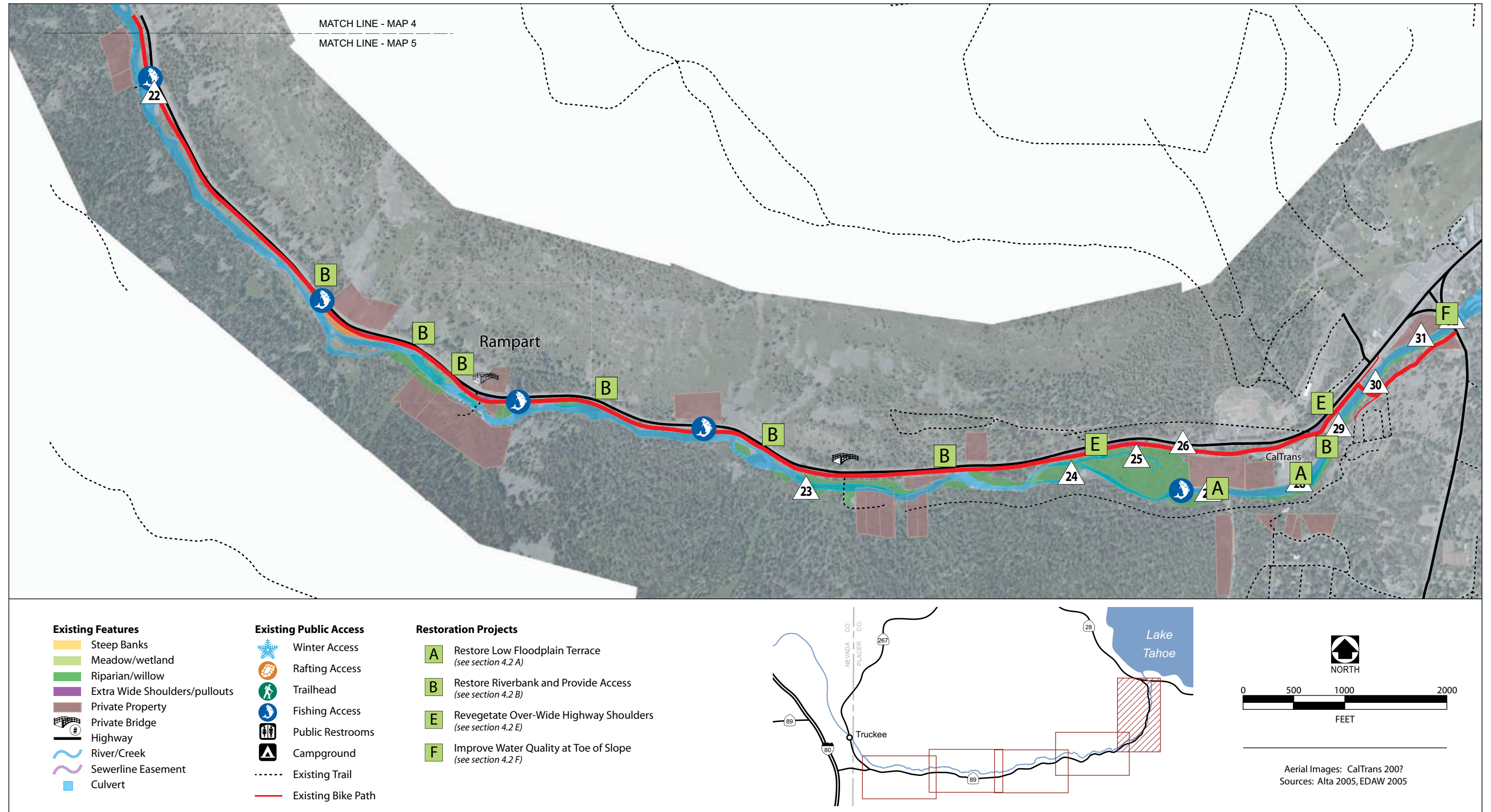
Truckee River Corridor Access Plan

EXHIBIT 4-12 Restoration Project Location Map 4, Reaches 2 & 3



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EXHIBIT 4-13 Restoration Project Location Map 5, Reach 3



Truckee River Corridor Access Plan

4.3 TRAILHEAD PROJECTS

TYPE A TRAIL ACCESS—TRAILHEAD/ PARKING LOT WITH AMENITIES

Type A trail access points are envisioned as formal trailhead and parking locations with amenities such as restrooms and information kiosks. Providing full-amenity trailheads/parking areas at selected locations along the Truckee River corridor would help to concentrate access to these appropriate locations and reduce the tendency for users to park in informal locations all along the river. Creation of these trailheads would also provide an opportunity to display informational signage that emphasizes access management rules, such as no trespassing on adjacent private property.

KEY ISSUES

- Size of facility—Require sufficient level area off the highway to provide a parking lot
- Environmental impacts:
 - Vegetation/tree clearing
 - Increase in impervious surface from parking lot unless low impact development techniques are employed
- Maintenance responsibility for restroom and trash facilities
- Cost.

ADDITIONAL STUDIES

- Detailed trail alignment planning (to determine best trailhead locations)
- Environmental review
- Design and engineering

PARTNER AGENCIES

USFS, Placer County, Caltrans, California Conservancies, TRPA, Town of Truckee, Truckee River Watershed Council

COST ESTIMATE

Total estimated cost: \$\$\$\$

EXHIBIT 4-14 Typical Type A Trailhead

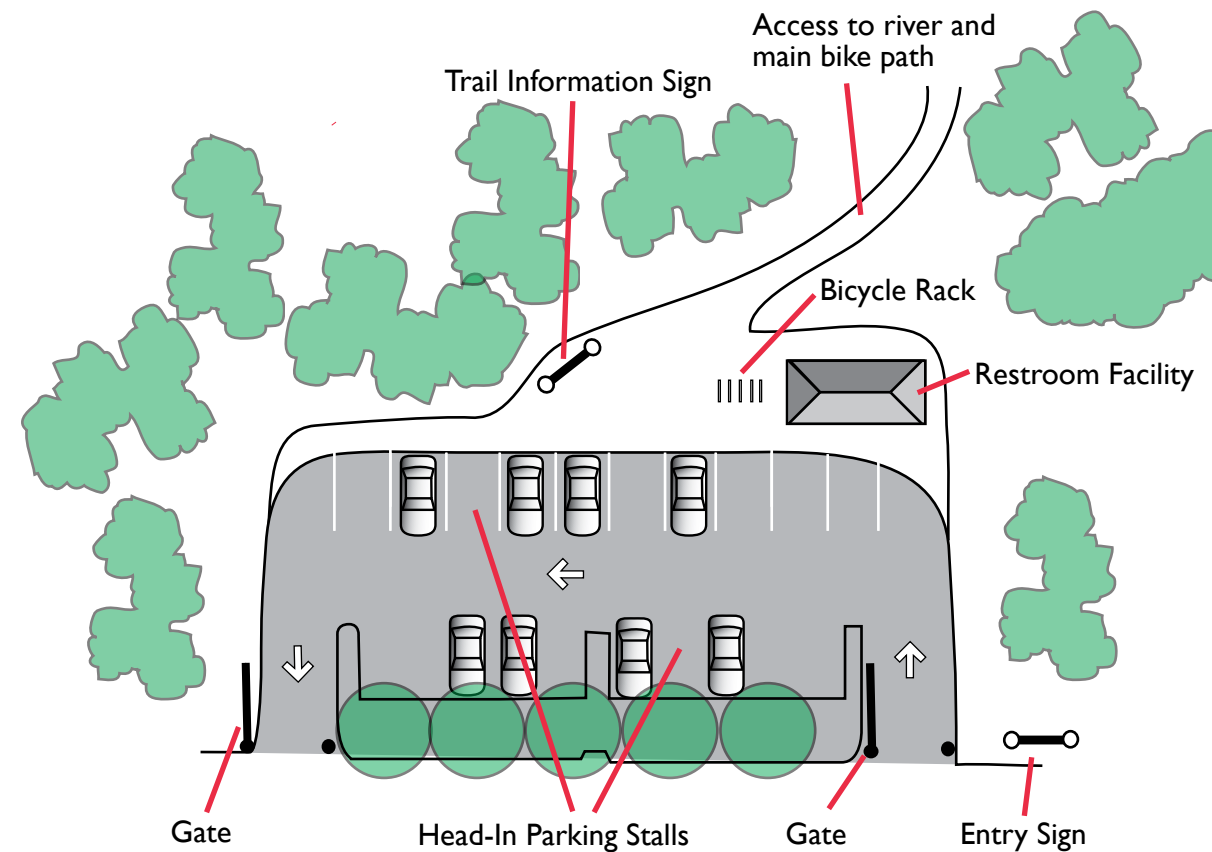
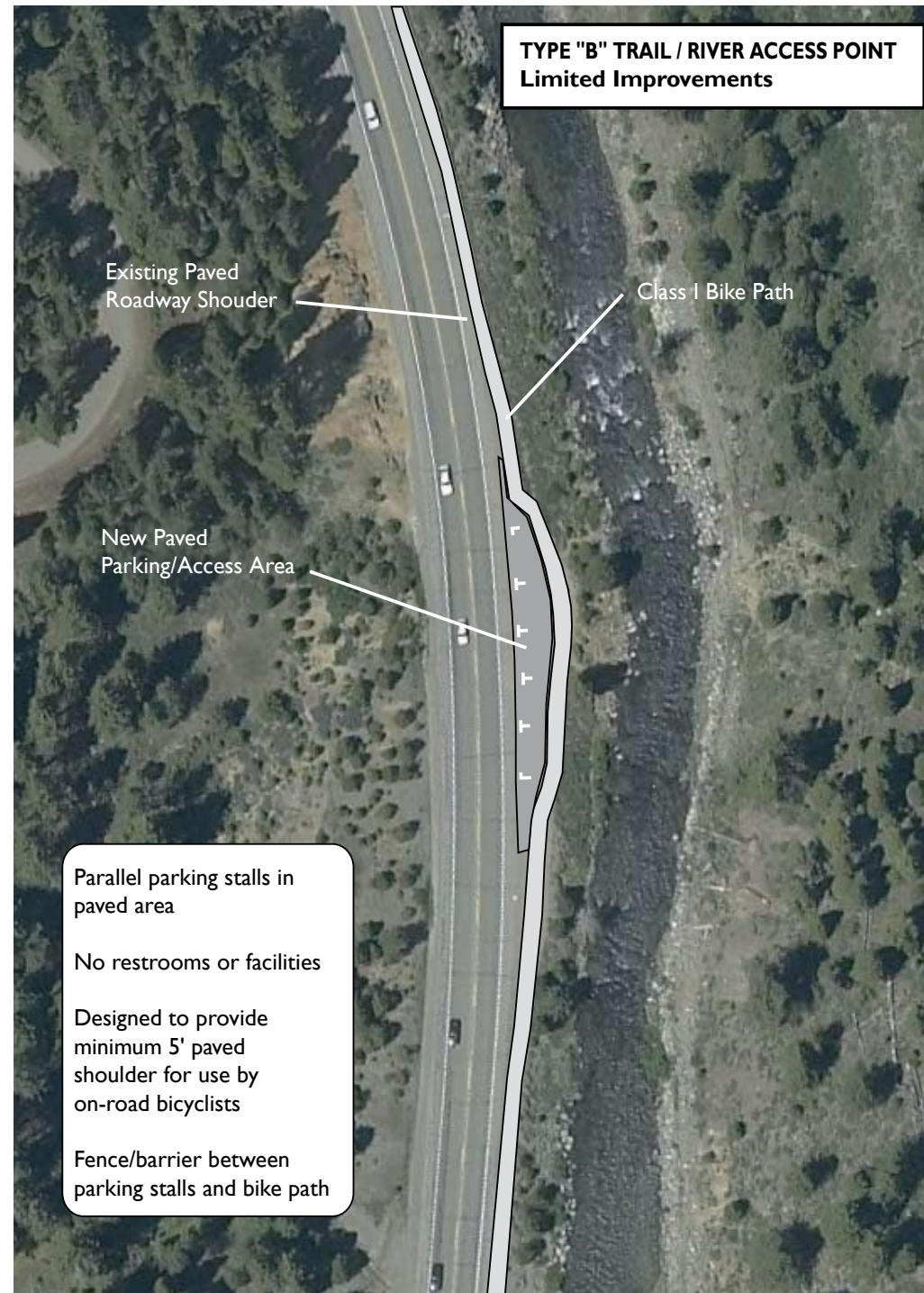


EXHIBIT 4-15 Typical Type B Trailhead



TYPE B TRAIL ACCESS—LIMITED AMENITIES

Type B trail access points are envisioned as pull-out locations along the highway suitable for parking and access to the trail or river, but with no formal amenities (e.g., no restrooms). These locations are intended to formalize existing roadside shoulder pull-outs that are currently used. The intent of identifying the best locations and formalizing the parking is to direct on-highway parking to the most appropriate locations. It is intended that as part of this program, those locations along the highway that are not appropriate pull-out parking locations should be modified so that they do not permit parking, e.g., with boulders and "NO PARKING" signage. Formalization of pull-out parking and closure of informal parking areas would need to be compatible with highway operation, including snow removal.

KEY ISSUES

- Availability of right-of-way along road to accommodate pull-out
- Adequacy of separation between pull-out and adjacent bike trail, in areas where bike trail is proposed to extend along highway
- Compatibility with highway operation, including snow removal.

ADDITIONAL STUDIES

- Detailed trail alignment planning
- Traffic study
- Environmental review
- Design and engineering

PARTNER AGENCIES

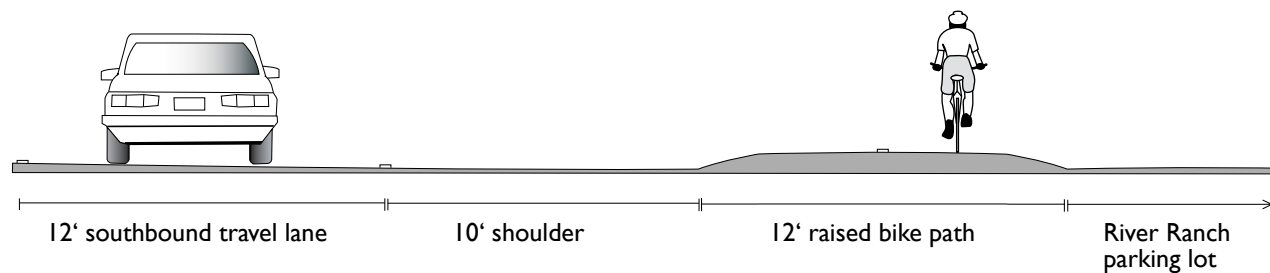
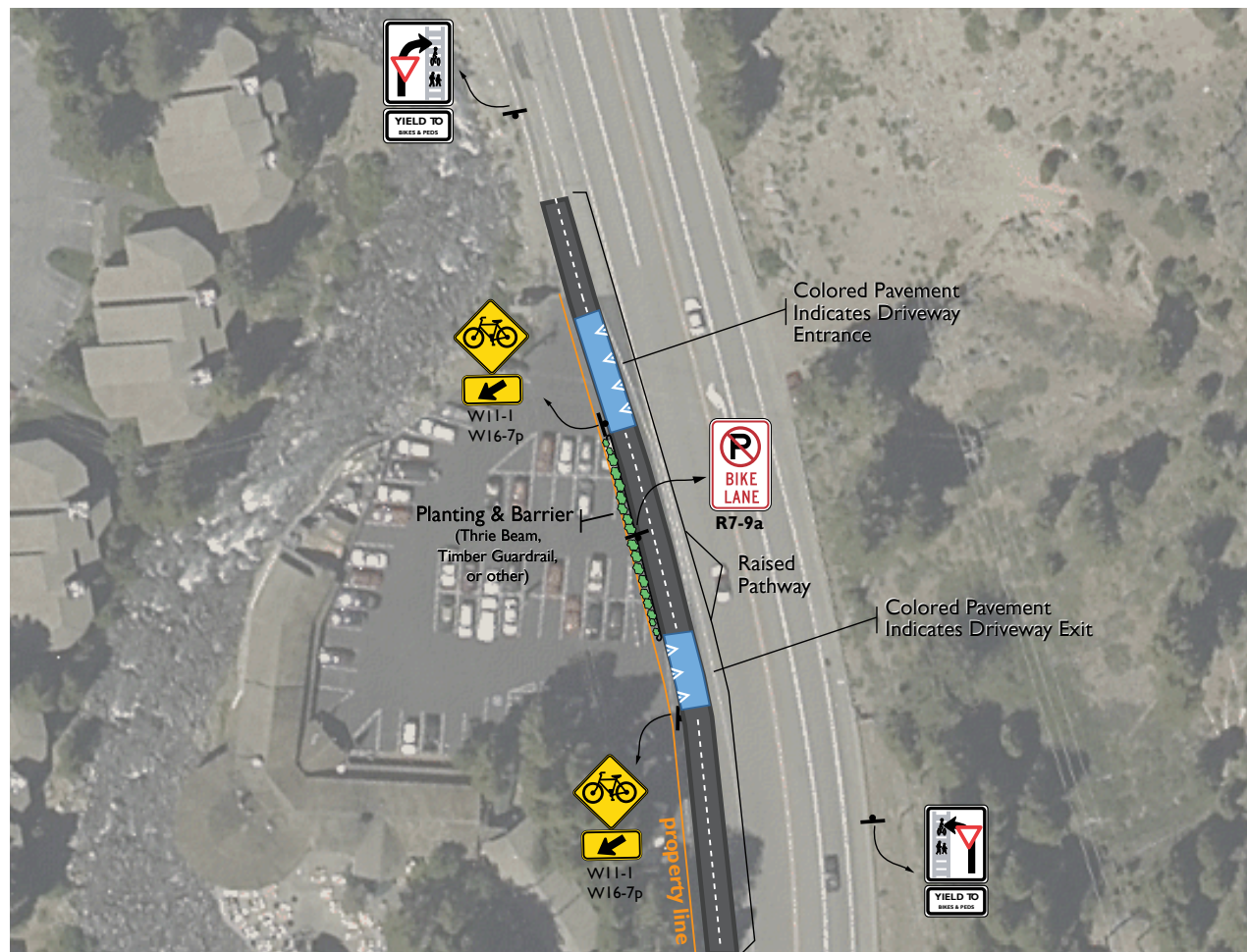
Caltrans, USFS, Placer County, Tahoe City PUD, California Conservancies, TRPA, Truckee River Watershed Council

COST ESTIMATE

Total estimated cost: \$\$\$

Truckee River Corridor Access Plan

EXHIBIT 4-17 River Ranch Paved Parking Lot Improvement



4.4 EXISTING BIKE PATH ENHANCEMENT PROJECT

RIVER RANCH PAVED PARKING LOT IMPROVEMENT

The existing Truckee River bike path extends past the River Ranch parking lot. The pathway is at the same grade as the parking area and the adjacent highway shoulder, and is delineated only by striping. During peak periods at River Ranch, there is substantial raft loading/unloading activity occurring on both sides of the bike path, with pedestrians walking across the path to unload rafting gear. These peak periods are also the times when the bike path facility is most likely to be heavily used by inexperienced cyclists.

It is recommended that the grade of the bike path be raised slightly as it extends past the parking area to provide a clear distinction to motorists between the pathway surface and the adjacent parking lot and road shoulder surface. This raised trail surface would serve as a speed table for motorists crossing the trail as they enter and exit the parking lot, forcing them to reduce their speeds. The design of the trail would need to be compatible with highway operation, including snow removal. Landscaping or another suitable barrier should be placed where the pathway runs adjacent to the River Ranch parking stalls, to ensure that parked vehicles do not encroach into the pathway. Finally, the driveway entrance and exit locations of the parking lot should be clearly marked with high-visibility crossing markings along the trail, and standard trail crossing signage.

KEY ISSUES

- Impacts on River Ranch parking and loading areas
- Compatibility with highway operation, including snow removal.
- Cost

ADDITIONAL STUDIES

- Detailed trail alignment planning
- Parking and traffic study
- Environmental review
- Design and engineering

PARTNER AGENCIES

River Ranch, Caltrans, Placer County, Truckee River Watershed Council

COST ESTIMATE

Total estimated cost: \$\$



Existing recreation user and auto conflicts, 2005

Truckee River Corridor Access Plan

RIVER RANCH UNPAVED PARKING AREA IMPROVEMENT

As it approaches River Ranch from the south, the existing Truckee River bike path extends between two heavily used parking/loading areas. On the west side of the path is a wide unpaved area used by raft companies to load and unload boats. Although this unpaved area is separated from the bike path by a row of boulders, vehicles must drive across the bike path to enter or exit the unpaved area. On the east side of the path is a narrow paved area with a row of unmarked 90-degree parking spaces used by people wanting to access the river. The parking spaces are separated from the bike path by only about 10 feet of width, and no vertical barrier. As a result, vehicles must drive immediately next to—and sometimes onto—the bike path to get into and out of the parking spaces. The result of the current configuration with the path in the middle is that vehicle crossings/encroachments come from both sides—from users of the unpaved area crossing the pathway, and from users of the 90-degree parking spaces driving along the pathway.

It is recommended that the bike path be relocated to the east side of this area and that the existing 90-degree parking spaces be shifted west. This would have the benefit of taking the path out of the middle of this area and minimizing the crossing conflicts. Under this configuration, path users would only have a single vehicle crossing point—at the south. This area would be striped with a high-visibility crosswalk, and the trail would be oriented to slow trail users to a stop before they cross the driveway. The trail would be separated from the parking spaces by a vertical barrier to ensure that vehicles would not encroach onto the trail as they pull into spaces. Although this is seen primarily as a reconfiguration, not requiring substantial new area, some areas of retaining wall may be required depending on how far the trail would be shifted to the east.

KEY ISSUES

- Ingress and egress for River Ranch and other river access parking
- Potential need for retaining walls along east side of trail

ADDITIONAL STUDIES

- Detailed trail alignment planning
- Parking study
- Environmental review
- Design and engineering

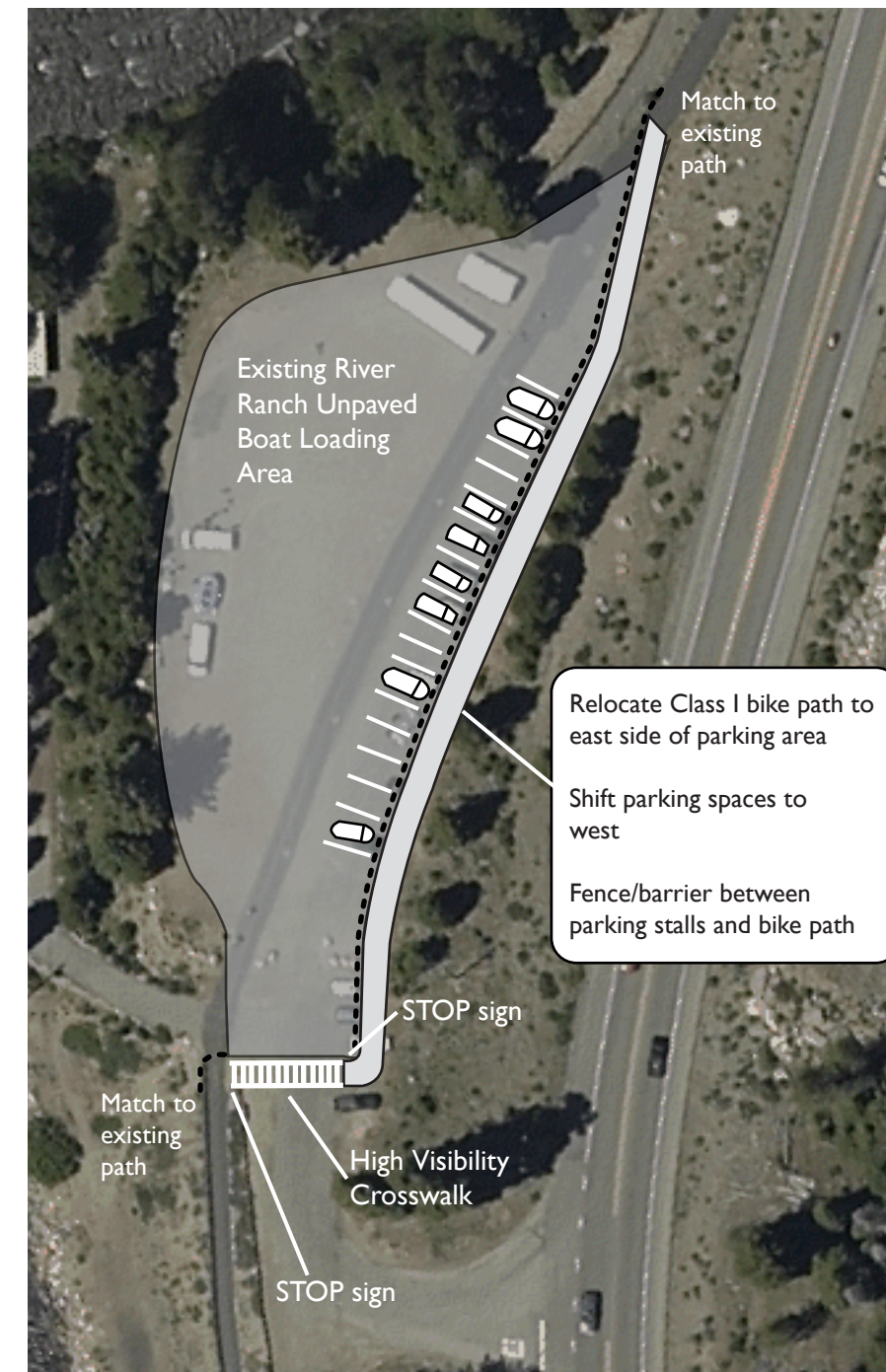
PARTNER AGENCIES

River Ranch, Placer County, other adjacent private landowners, California Conservancies, Truckee River Watershed Council, raft operators

COST ESTIMATE

Total estimated cost: \$\$

EXHIBIT 4-18 River Ranch Unpaved Parking Area Improvement



Truckee River Corridor Access Plan

SQUAW VALLEY ROAD CROSSING IMPROVEMENTS

The existing Truckee River bike path crosses SR 89 at Squaw Valley Road and continues west toward Squaw Valley. Currently, this T-intersection is configured with free right-turn lanes for traffic turning onto and off of Squaw Valley Road. These free right-turn lanes are demarcated only with paint, leaving a large triangular area between the turn lane and the other travel lanes. Pedestrians crossing these locations must cross a relatively wide area of asphalt to safely cross this intersection. It is recommended that improvements such as traffic islands and adjustments to signal timing be made at this intersection.

In addition, signage in this location is lacking. Because the trail crosses to the east side of SR 89 before turning south toward Tahoe City, this crossing may be counterintuitive for trail users who are not familiar with the area. Similarly, trail users coming from the south may be confused by crossing the highway at this point and want to continue riding north along the highway. Clear wayfinding signage that reads "To Squaw Valley" or "To Tahoe City" would help users navigate this intersection.

KEY ISSUES

- Snow removal considerations for concrete island
- Temporary conversion to double right-turn lane out of Squaw Valley Road during winter months when ski area is being exited
- Possibility of using removable flexible plastic bollards in place of concrete island; these bollards could be removed during winter for use as a double right-turn lane

ADDITIONAL STUDIES

- Traffic study

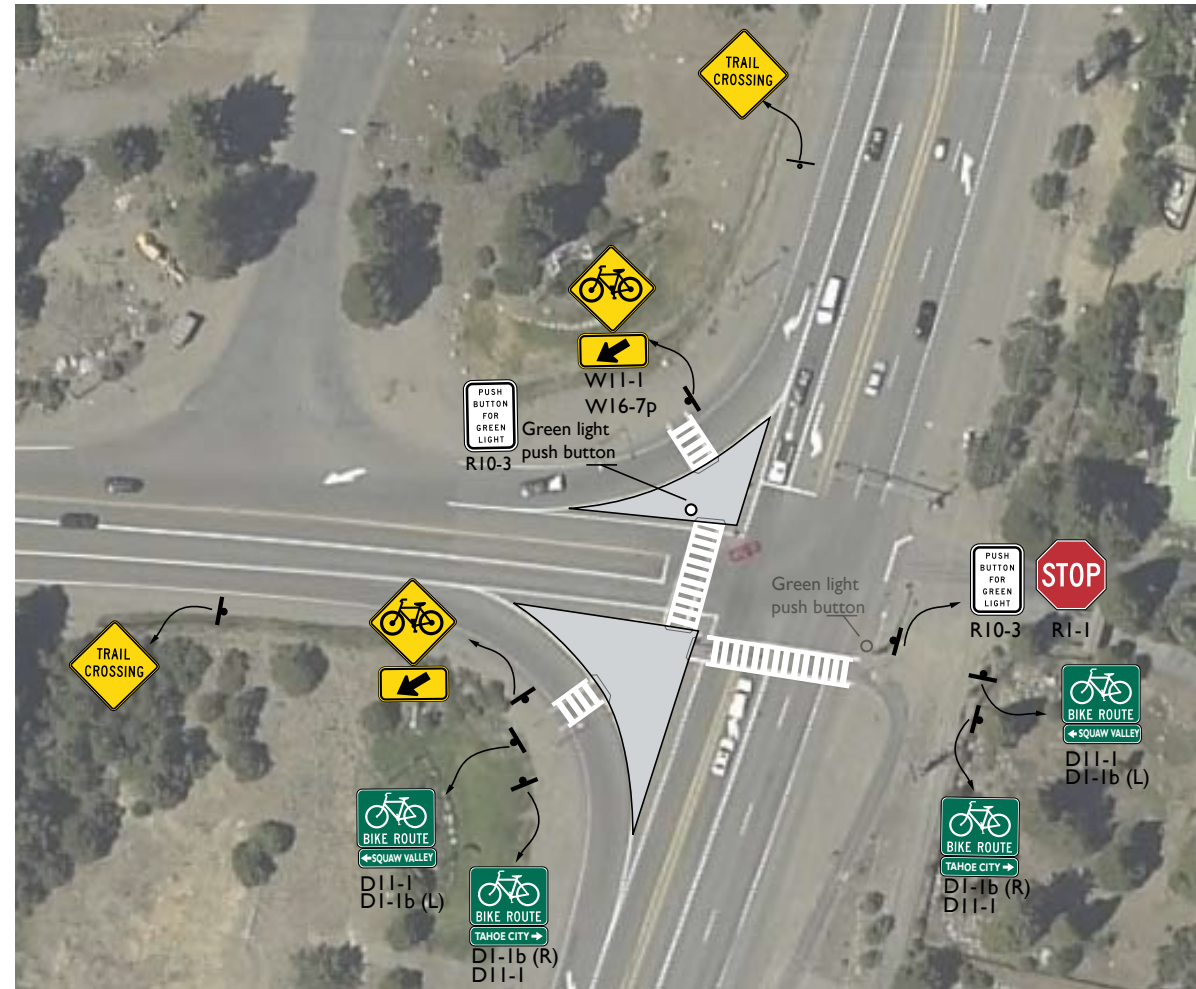
PARTNER AGENCIES

Caltrans, California Highway Patrol, USFS, Placer County, Squaw Valley PUD, Truckee River Watershed Council

COST ESTIMATE

Total estimated cost: \$\$

EXHIBIT 4-19 Squaw Valley Road Crossing Improvements



Existing Squaw Valley Road/SR 89 intersection, 2005

4.5 ROADWAY SHOULDER IMPROVEMENT PROJECTS

SILVER CREEK CAMPGROUND IMPROVEMENT

The Silver Creek Campground entry/exit is currently a wide, unpaved area off the main paved road shoulder. Vehicles exiting this location tend to track dirt from the unpaved road onto the road shoulder, creating debris for bicyclists who ride in the shoulder. It is recommended that this entry/exit be paved, then narrowed to provide single defined entry and exit lanes, and that "STOP" markings be painted on the roadway. The paved apron of the driveway should extend back to the campground loop road to minimize the amount of dirt that is tracked into the shoulder of SR 89.

KEY ISSUES

- Sight distance for vehicles turning out of driveway
- Narrowing neck of entrance driveway to minimum necessary to still allow turning by large vehicles pulling camping trailers

ADDITIONAL STUDIES

- Traffic study

PARTNER AGENCIES

USFS, Placer County, Caltrans, Truckee River Watershed Council

COST ESTIMATE

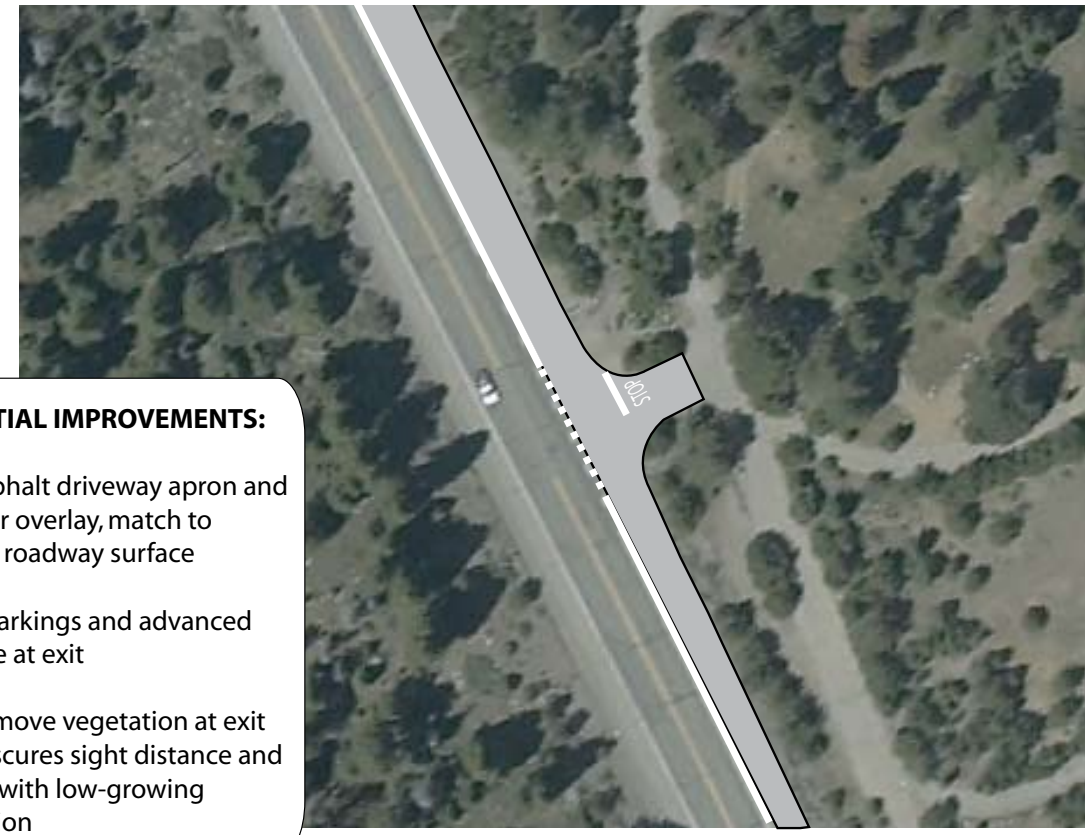
Total estimated cost: \$

EXHIBIT 4-20 Silver Creek Campground Exit Road Improvements



EXISTING CONDITIONS:

Gravel from campground road tracked onto roadway shoulder when vehicles exit, resulting in debris for bicyclists



POTENTIAL IMPROVEMENTS:

New asphalt driveway apron and shoulder overlay, match to existing roadway surface

STOP markings and advanced limit line at exit

Trim/remove vegetation at exit that obscures sight distance and replace with low-growing vegetation

4.6 INFORMATIONAL AND EDUCATIONAL SIGNS AND MATERIALS

INTERPRETIVE SIGNS

Wayside interpretive exhibits with biological, cultural, and stewardship information could be placed at key locations along the river corridor. Interpretive exhibits anywhere along the river corridor should be coordinated through development of a master plan to determine program goals and objectives, themes and storylines, and the appropriate locations and means to convey natural resource and history stories. More specific interpretive and access sign projects are described below.

KEY ISSUES

- Coordination among several agencies
- Potential for exhibits to be located within floodway

ADDITIONAL STUDIES

- Interpretive master plan (useful for coordinating exhibit location and themes throughout the corridor)

PARTNER AGENCIES

USFS, Tahoe City PUD, Placer County, State Conservancies, North Lake Tahoe Resort Association, Squaw Valley PUD

COST ESTIMATE

Total estimated cost: \$

FISHING, BOATING, AND TRAIL ACCESS SIGNS

As described in earlier project descriptions, people desiring access along the river pull off the highway at numerous locations looking for the perfect or favorite fishing spot or a nice place to access the river. Projects implemented to consolidate river access points to the most suitable locations should be complemented by a roadside sign or marker program. Access markers could be similar to the bollard mile markers that circle Lake Tahoe. Instead of a mile mark, posts would use international symbols to indicate access for fishing, picnicking, boating, hiking, etc.

KEY ISSUES

- Coordination among several agencies
- Signs should be placed outside of snow removal area

ADDITIONAL STUDIES

- Directional sign master plan (could be combined with interpretive master plan)

PARTNER AGENCIES

Caltrans, USFS, Tahoe City PUD, State Conservancies, North Lake Tahoe Resort Association, Squaw Valley PUD, Placer County, DFG, Town of Truckee

COST ESTIMATE

Total estimated cost: \$

RIVER ACCESS BROCHURE

A paper brochure should be developed and made available at recreation centers, hotels and inns, and local shops selling or renting recreation equipment. This brochure would provide information on where to access the river, activities along the river corridor, and interpretive information on natural resources, history, and river stewardship. Ongoing costs for printing the brochure could be paid for through discreet advertising on the brochure or by soliciting brochure sponsors. Complimentary information could also be provided on the Internet. This could be a site hosted by any of the most popular Tahoe vacation or recreation web sites (e.g., the North Lake Tahoe Resort Association); businesses could provide a link from their sites to the primary information site. Web sites are easily updated and although they need to be actively managed, there are no printing or environmental costs. The web site could also provide a virtual interpretive tour of the Truckee River, with a link at each of the raft company web sites, to provide greater visitor outreach and stewardship opportunities.

KEY ISSUES

- Ongoing seasonal printing costs
- Potential for increased litter along river

ADDITIONAL STUDIES

- Interpretive master plan (could be combined with directional/safety sign plan)

PARTNER AGENCIES

USFS, Tahoe City PUD, Placer County, North Lake Tahoe Resort Association, Squaw Valley PUD, Town of Truckee

COST ESTIMATE

Total estimated cost: \$

Truckee River Corridor Access Plan

RIVER CORRIDOR INTERPRETIVE TRAIL

There are several ways environmental stewardship could be enhanced in the upstream reach of the Truckee River where current recreation use is very heavy. River corridor users receive very little information on river etiquette, where and how to stop for picnics or water play along the river, the value and sensitivity of riparian habitat, or the history of the Truckee River.

Rafts rented from the various companies could be outfitted with a simple laminated self-guided brochure attached to the front or back of each raft on an adjustable lanyard for easy reading. A paper guide could be available at the parking area for private groups floating the river. Guides could be keyed to numbered posts along the river bank or anchored buoys/small floats placed seasonally.

To complement a river trail, wayside interpretive exhibits with similar biological, cultural, and stewardship information could be placed at key locations along the existing bicycle path. The river and land interpretive trails should be developed together to present a clear coordinated message and save overall research, design, and manufacturing costs.

Unfortunately, no educational outreach program is 100% effective; however, many visitors will scan information provided and share what they find interesting with their groups. Many river users will self-police, eventually promoting a stronger river stewardship ethic.

KEY ISSUES

- Potential increase in litter if paper guides are used
- Ongoing printing costs for paper guides

ADDITIONAL STUDIES

- Interpretive master plan for river corridor

PARTNER AGENCIES

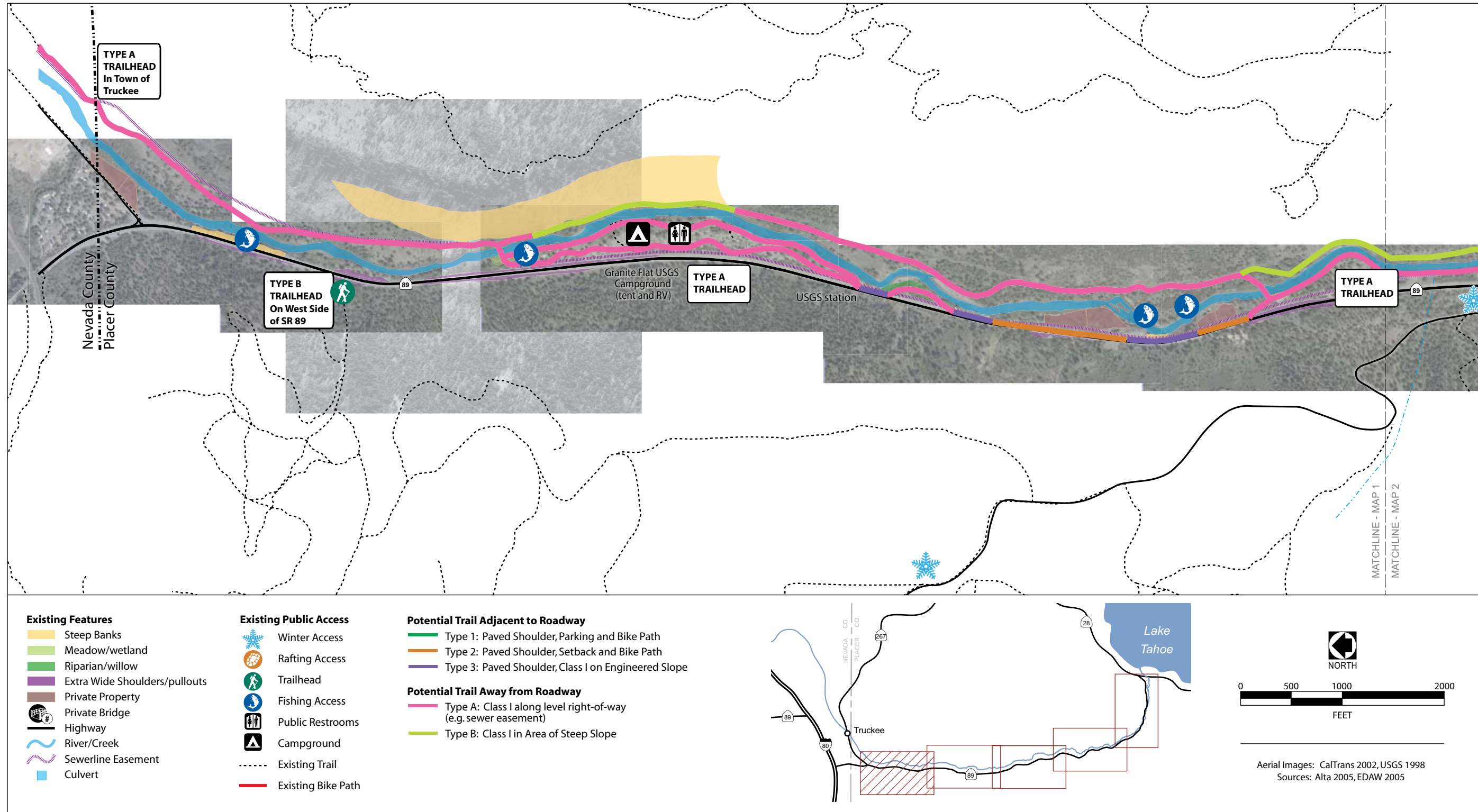
USFS, Tahoe City PUD, Placer County, State Conservancies

COST ESTIMATE

Total estimated cost: \$ to \$\$ (depending on media used for interpretation and number of exhibits)

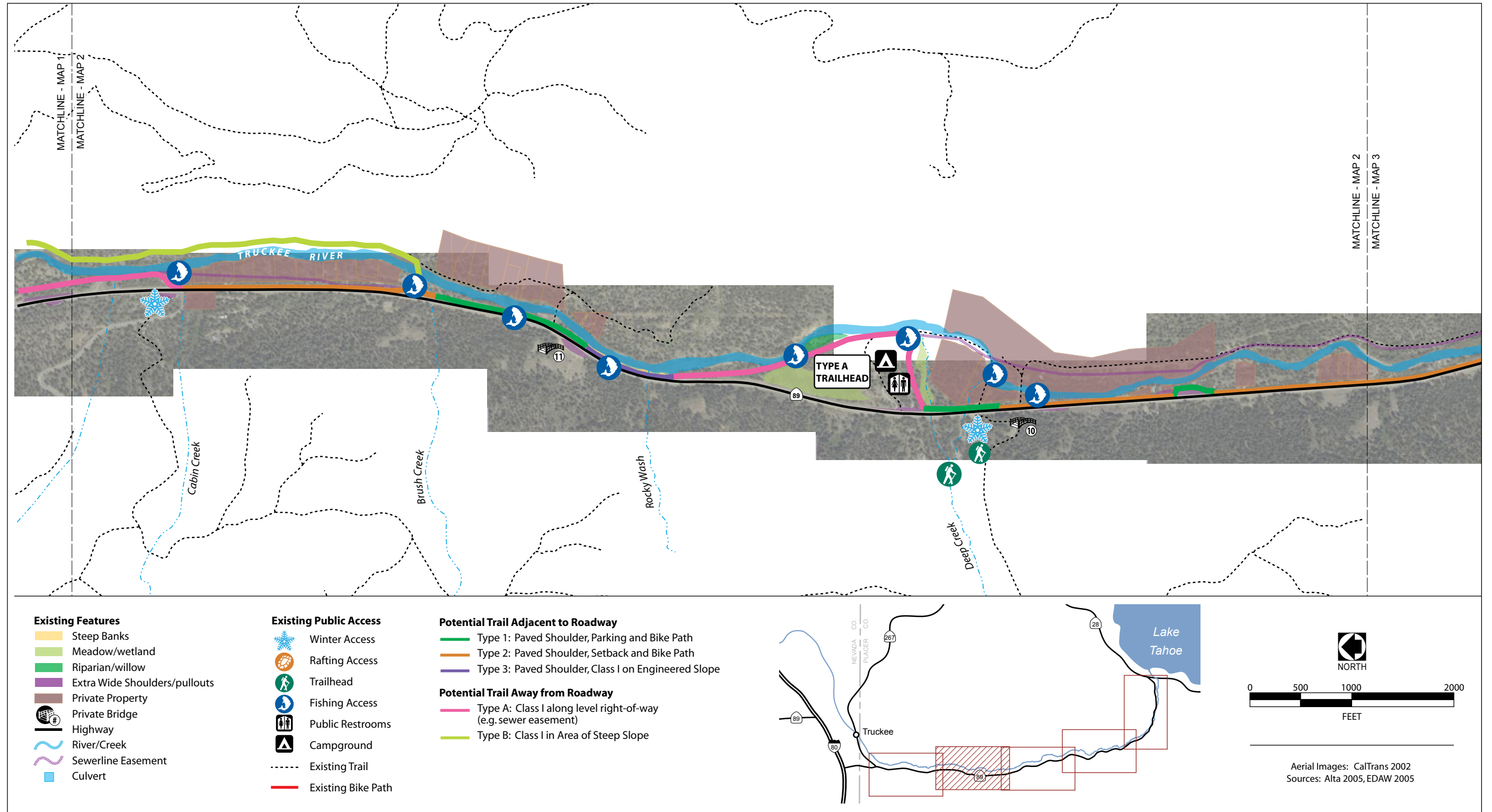
Truckee River Corridor Access Plan

EXHIBIT 4-20 Access Project Location Map I, Reach I



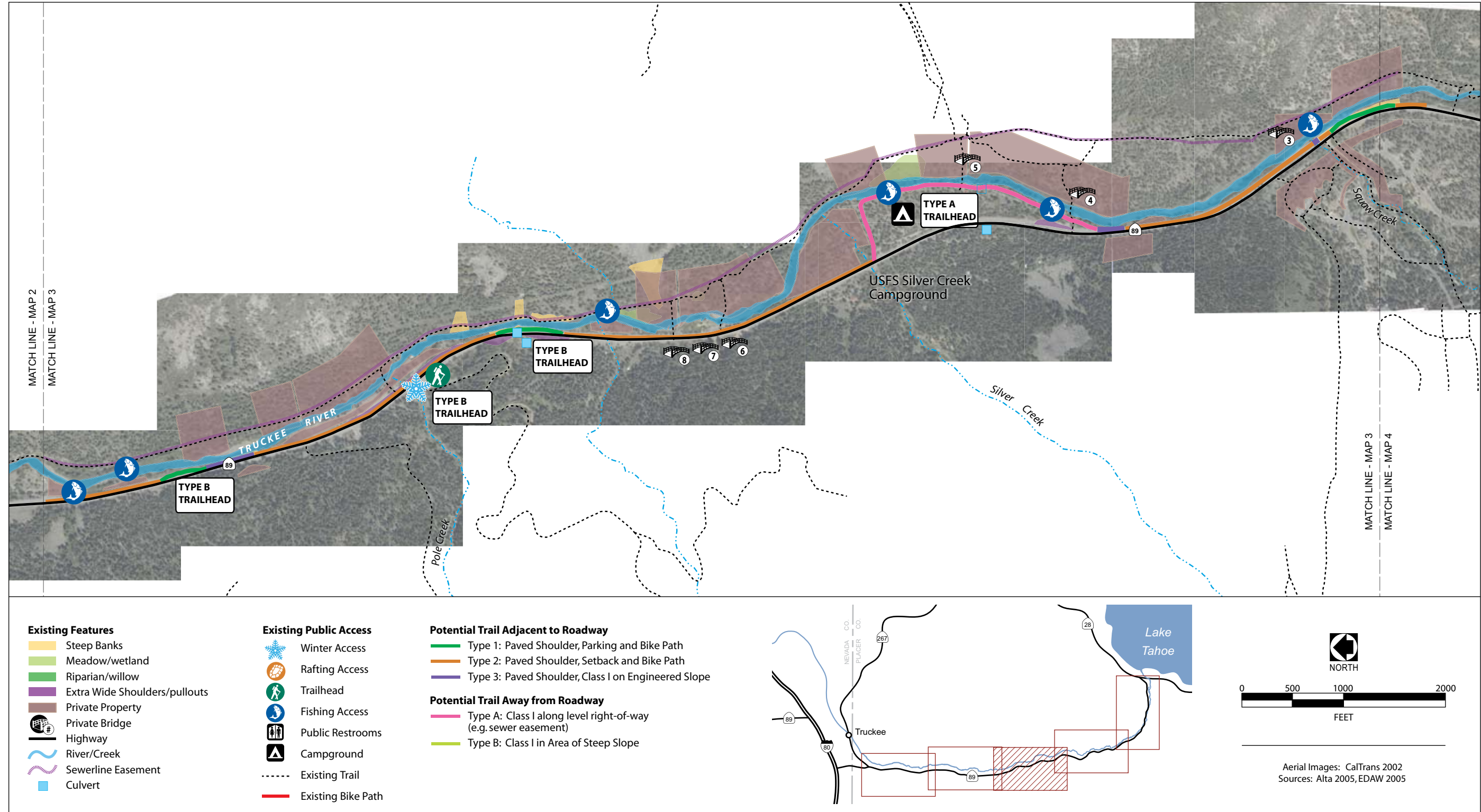
Truckee River Corridor Access Plan

EXHIBIT 4-21 Access Project Location Map 2, Reach 1



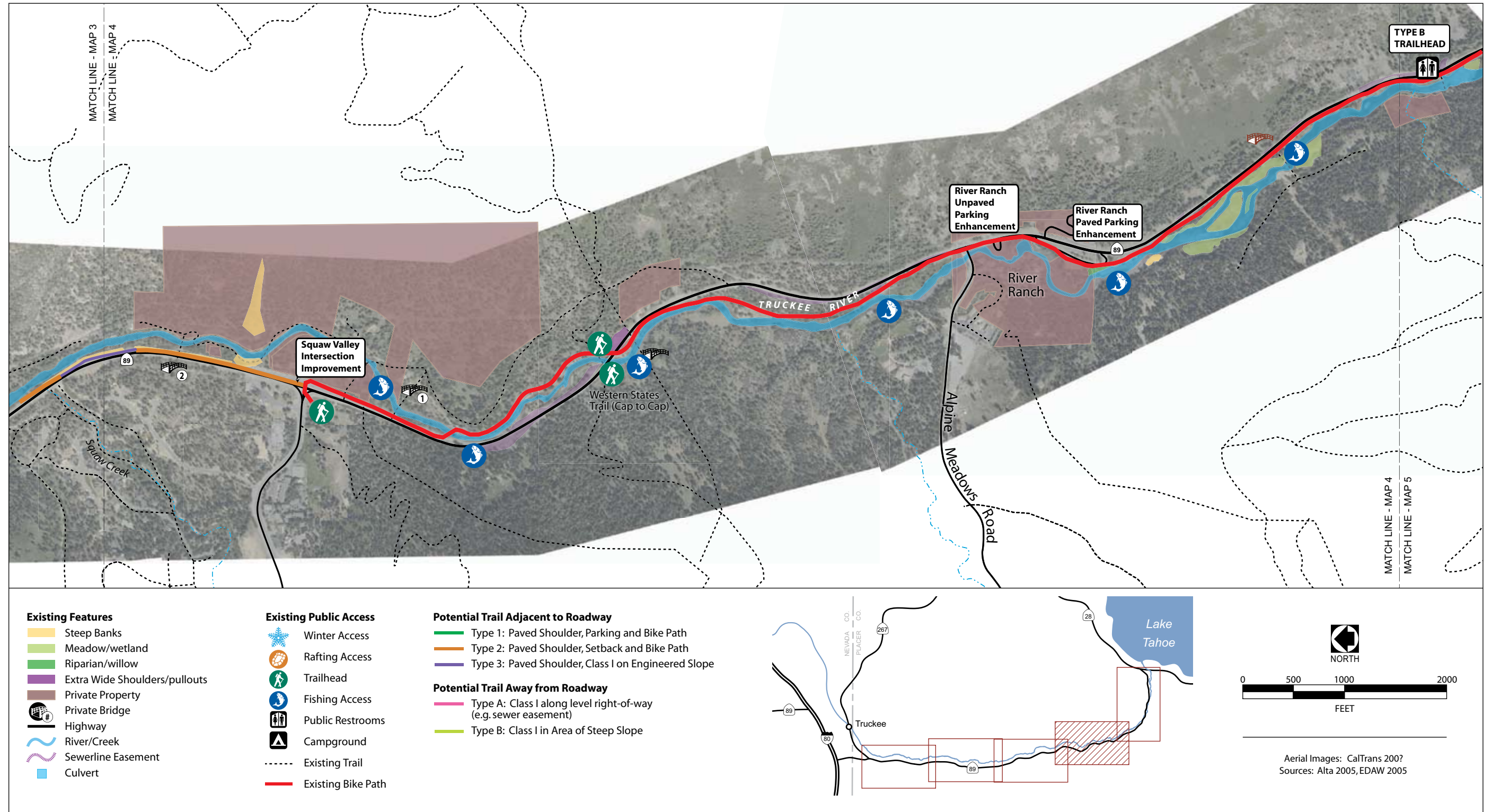
Truckee River Corridor Access Plan

EXHIBIT 4-22 Access Project Location Map 3, Reach I



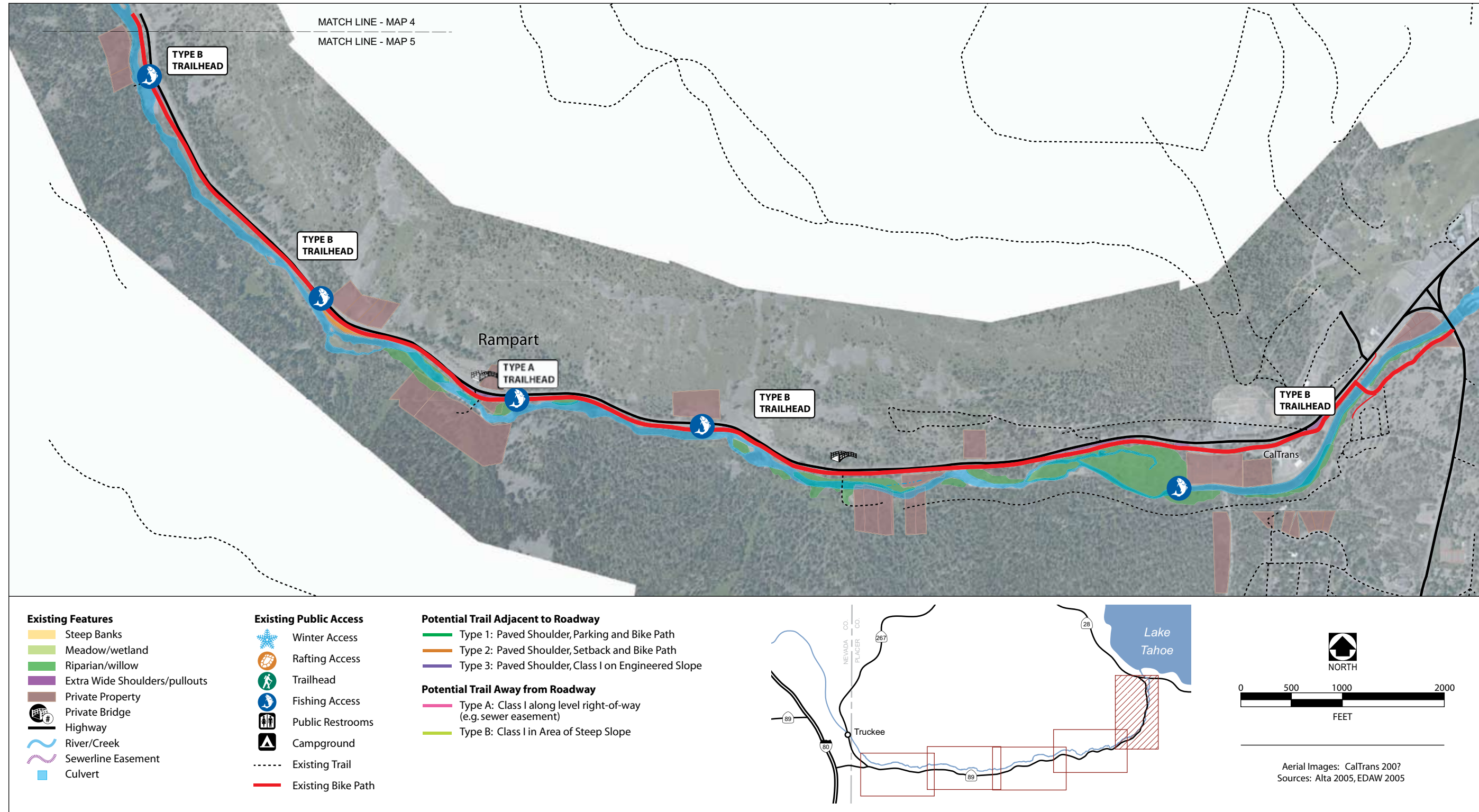
Truckee River Corridor Access Plan

EXHIBIT 4-23 Access Project Location Map 4, Reaches 2 & 3



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EXHIBIT 4-24 Access Project Location Map 5, Reach 3



4.7 MULTIUSE TRAIL

CLASS I TRAIL — TYPICAL CROSS SECTION

The preferred alignment for the Truckee River bike path would be to route it away from the highway, in an area that offers a scenic, shaded place for people to ride near the river. Based on Caltrans design standards, the minimum width for a Class I bike path is 8 feet of paved width, with 2-foot unpaved shoulders on either side. Where sufficient width is available, the paved trail width should be increased to 10 or 12 feet given the expected high usage of the trail in this area. Areas of the corridor that may be suitable to accommodate this trail cross section include areas above the sewer line easement on public lands, such as the USFS campground areas. (Establishment of a Class I path is not proposed on private land, unless willing property owners engage with Placer County to allow private property crossings on their parcels.)

KEY ISSUES

- Need for sufficiently level area between highway and river to provide Class I trail with appropriate setbacks from both highway and river
- Private property—level sewer easement runs through private property in many locations along the river
- Environmental impacts:
 - Vegetation/tree clearing for trail alignment
 - Increased public access to river if trail extends near river bank

ADDITIONAL STUDIES

- Detailed alignment planning
- Environmental review
- Design and engineering

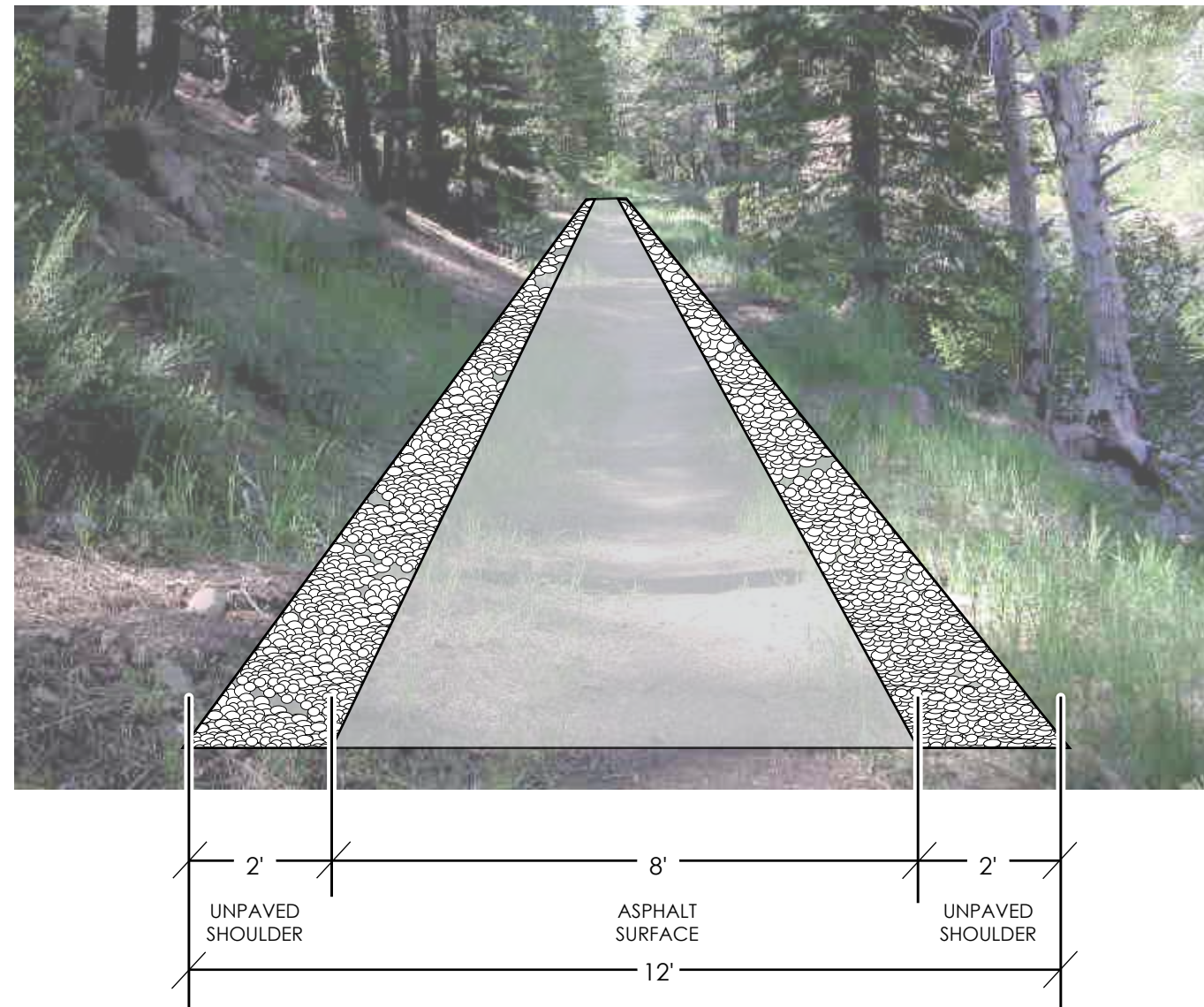
PARTNER AGENCIES

USFS, Placer County, Sacramento Area Coalition of Governments, Truckee River Watershed Council

COST ESTIMATE

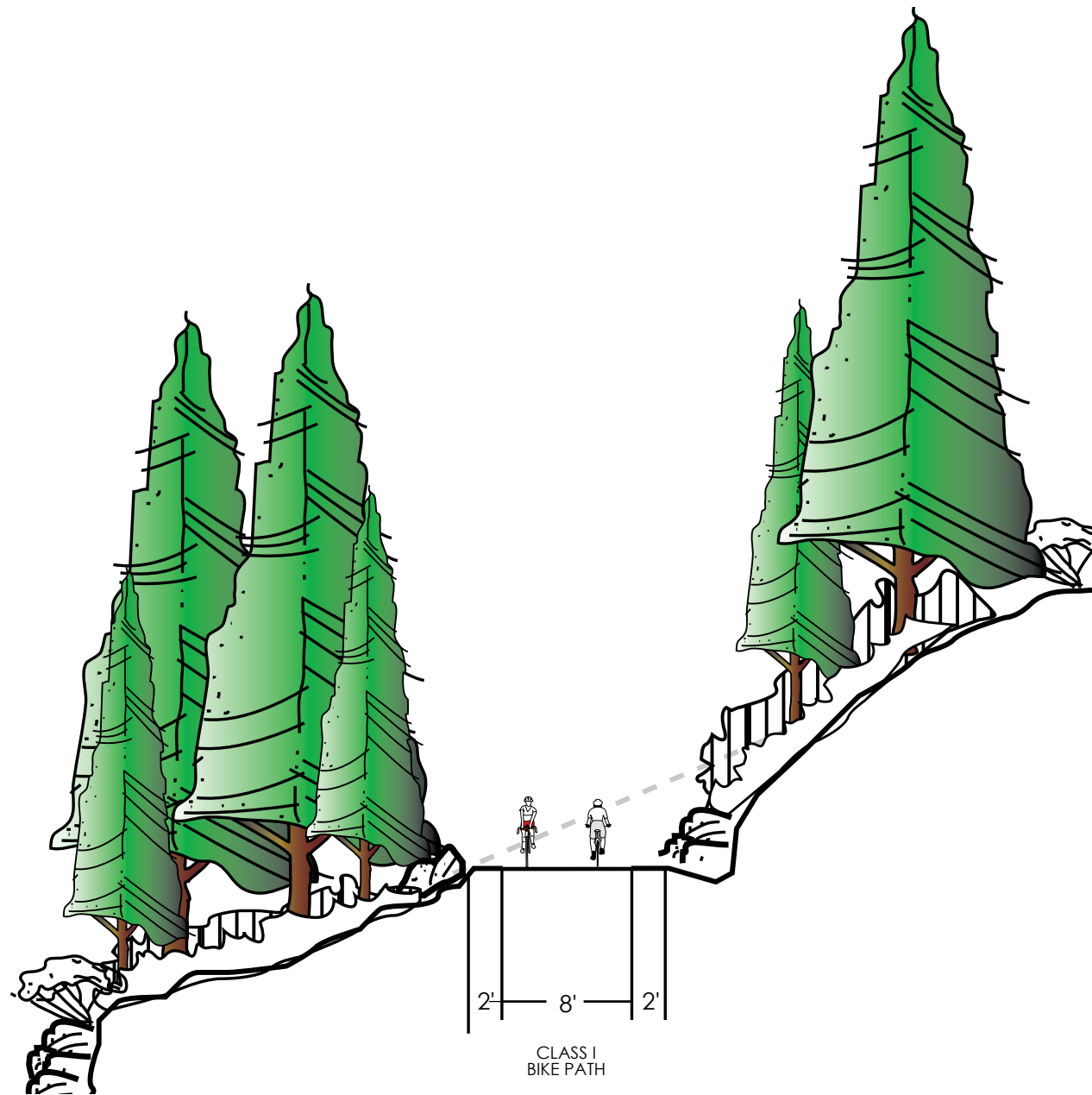
Total estimated cost: \$\$ (per mile)

EXHIBIT 4-26 Typical Class I Path



Truckee River Corridor Access Plan

EXHIBIT 4-27 Class I Path with Steep Slope Cut



CLASS I TRAIL ON STEEP CROSS-SLOPE

Along the east side of the Truckee River, the potential trail alignment is noted in several areas of steep cross-slope, where the hillside slopes down directly to the river with no level area to provide a trail. In these areas, a Class I bike path can still be accommodated, but may require extensive cut/fill and retaining structures to provide a level area to construct the trail. While it is possible to engineer a trail through these locations, there is an increased cost due to the engineering and a greater amount of environmental impact due to the earthwork and vegetation clearing.

KEY ISSUES

- Environmental impacts
- Cut and fill
- Drainage
- Vegetation/tree clearing
- Cost
- Bridge Construction

ADDITIONAL STUDIES

- Detailed alignment planning
- Environmental review
- Design and engineering

PARTNER AGENCIES

USFS, Placer County, Caltrans, Truckee River Watershed Council

COST ESTIMATE

Total estimated cost: \$\$\$\$ (per mile)

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TYPE A CROSS SECTION — BIKE PATH WITH ADJACENT PARKING

Type A bike path cross sections are locations where there may be sufficient width to accommodate both a bike path and a lane of parallel parking within the existing unpaved shoulder area, in addition to maintaining a paved shoulder area for on-street cyclists. The Type A cross section would require substantial width outside the edge of the paved shoulder—18 feet for parallel parking/access lanes, and 12 feet for the Class I bike path—for a total of about 30 feet of width. Given the few locations along SR 89 where this much width is available as unpaved shoulder, potential Type A bike path locations along the route would likely be very limited.

KEY ISSUES

- Need for sufficient unpaved shoulder width along road to accommodate both parallel parking and bike path
- Need for sufficient width in parallel parking area so that vehicles would not block roadway travel lanes or shoulder while maneuvering into spaces
- Need for sufficient setback or barrier between parallel parking and bike path to ensure that parking vehicles would not encroach on bike path, and to prevent “dooring” conflicts
- Maintenance of paved shoulder (or upgrading to bike lane, if feasible) on northbound side for use by cyclists who prefer to ride on the road

ADDITIONAL STUDIES

- Detailed trail alignment planning
- Traffic study
- Environmental review
- Design and engineering

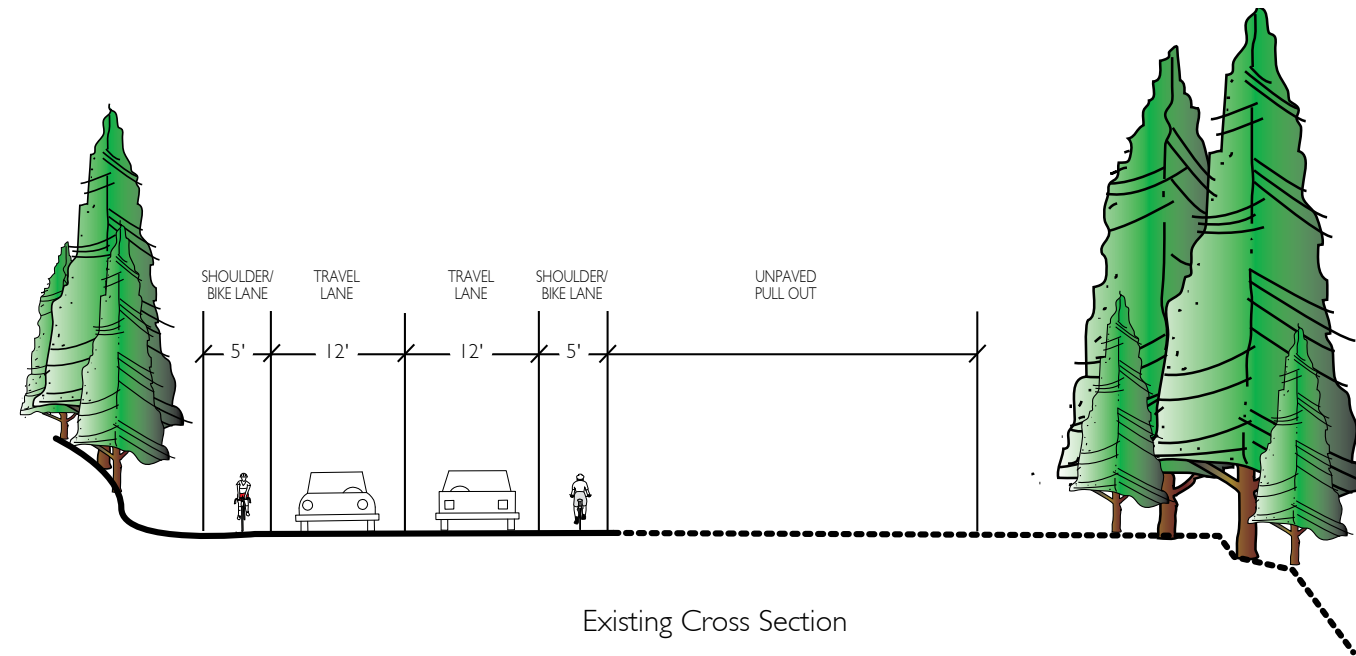
PARTNER AGENCIES

USFS, Placer County, Caltrans, Truckee River Watershed Council, Sacramento Area Coalition of Governments

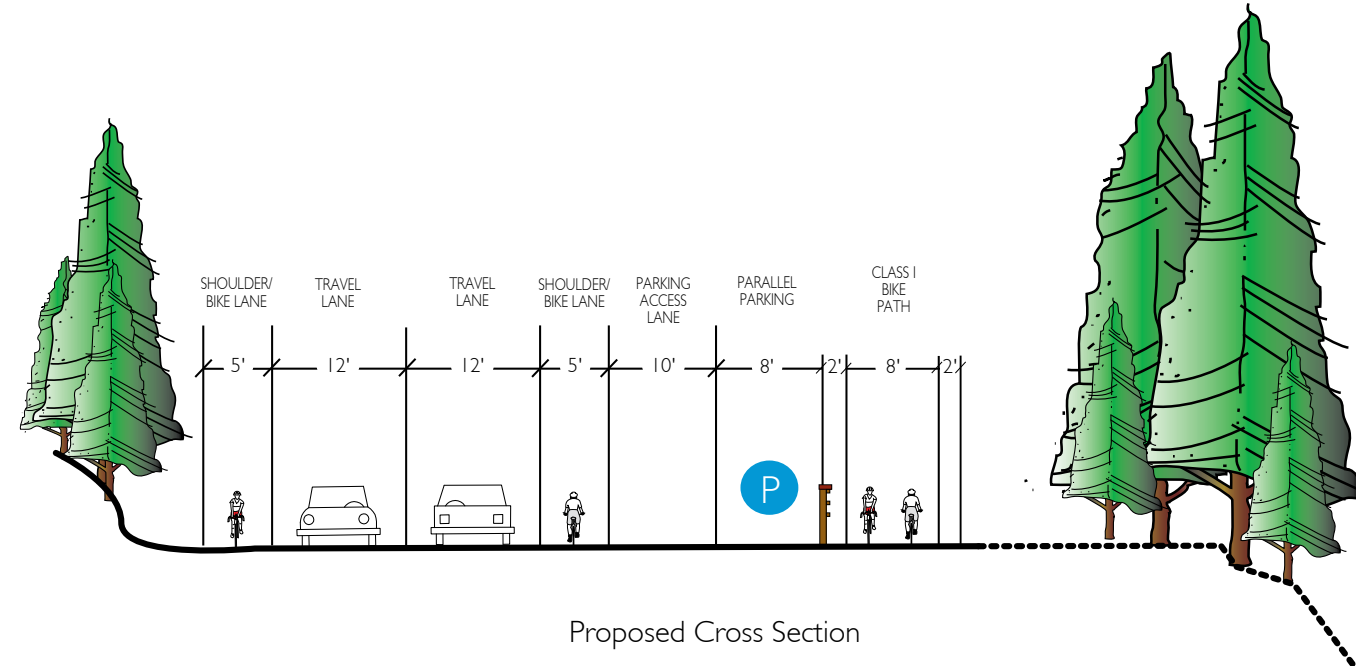
COST ESTIMATE

Total estimated cost: \$\$\$ (per location)

EXHIBIT 4-28 Paved Shoulder, River Access Parking and Class I Bike Path



Existing Cross Section



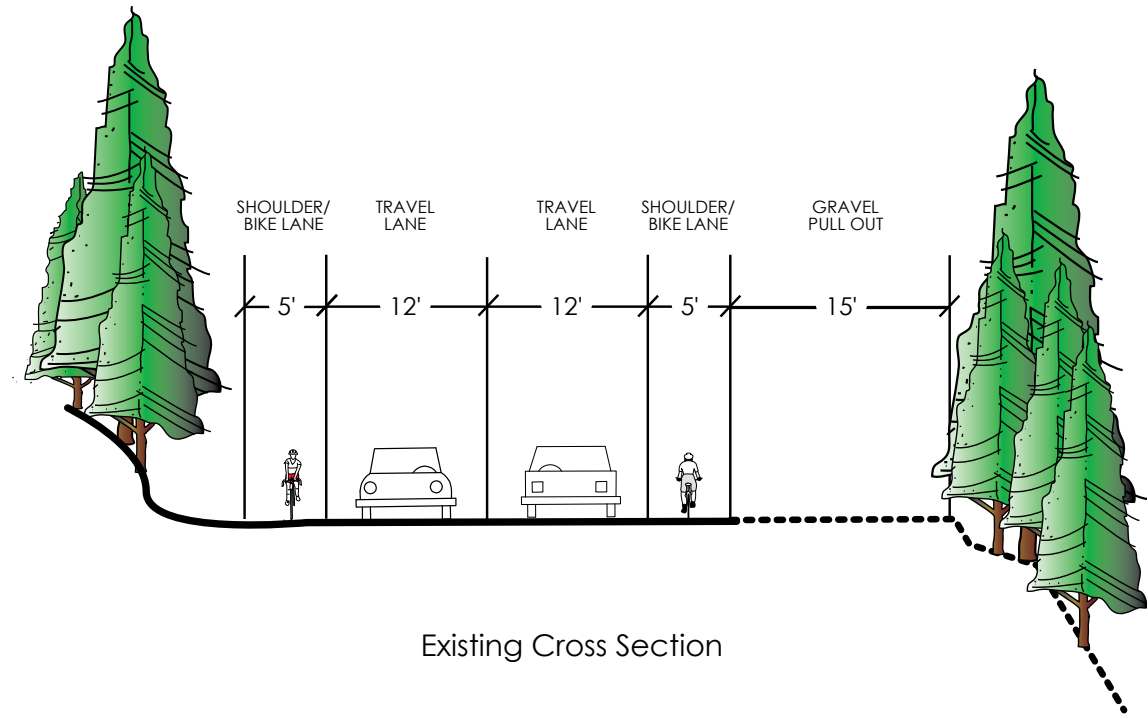
Proposed Cross Section



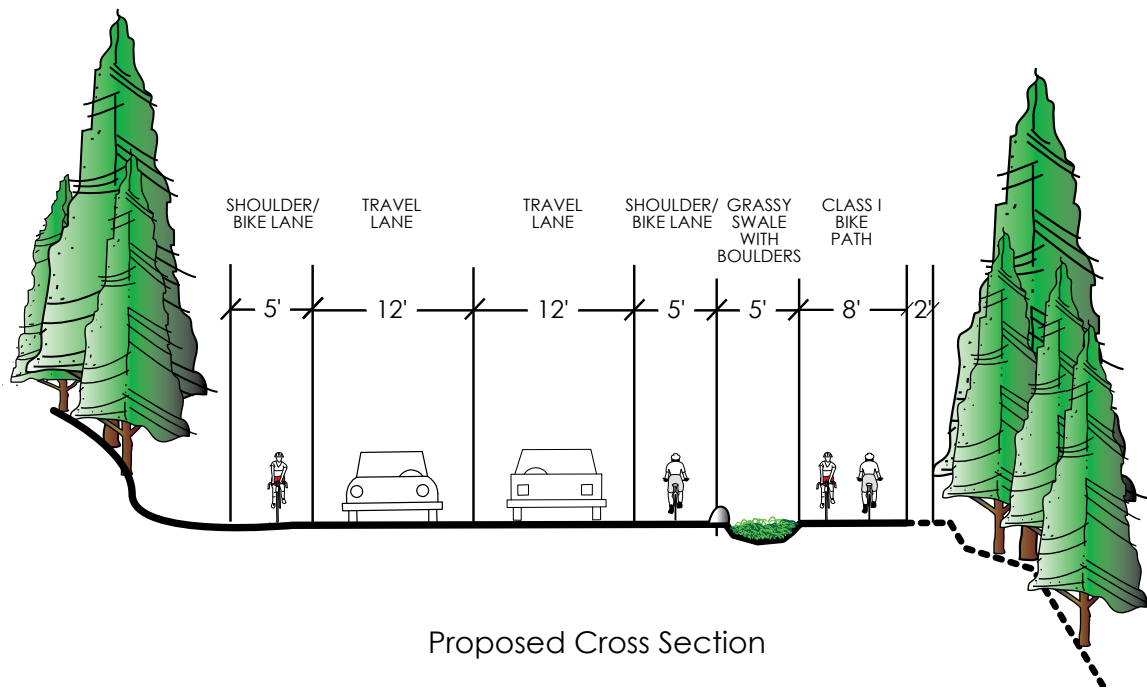
Existing shoulder bike lane adjacent to roadway, 2005

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EXHIBIT 4-29 Type B Bike Path with Setback



Existing Cross Section



Proposed Cross Section

TYPE B CROSS SECTION — BIKE PATH WITH SETBACK

Type B bike path locations are those where there is sufficient width to develop a Class I trail parallel to the roadway within the existing unpaved shoulder area, while still maintaining the on-highway Class II bike lane area. Under this configuration, there would not be enough width for parallel parking, so any existing parking in the unpaved shoulder would need to be restricted. The Type B cross section would require a minimum of 15 feet from the edge of the paved shoulder to provide a 5-foot landscaped setback and minimum Class I bike path width of 8 feet. No-parking restrictions would need to be strictly enforced to ensure that vehicles would not attempt to park in the bike lane area/landscape buffer.

KEY ISSUES

- Need for sufficient unpaved shoulder width to accommodate Class I bike path and buffer area
- Maintenance of paved shoulder (or upgrading to bike lane, if feasible) on northbound side for use by cyclists who prefer to ride on the road
- Enforcement of no-parking area; providing a barrier within the landscaped area so that vehicles do not use these areas for parking

ADDITIONAL STUDIES

- Detailed trail alignment planning
- Traffic study
- Environmental review
- Design and engineering

PARTNER AGENCIES

USFS, Placer County, Caltrans, Truckee River Watershed Council, Sacramento Area Coalition of Governments

COST ESTIMATE

Total estimated cost: \$\$\$ (per mile)



Existing shoulder bike lane with gravel pull-out adjacent to roadway, 2005

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TYPE C CROSS SECTION—BIKE PATH ON STEEP SLOPE

Type C bike paths are those in areas where the roadway extends immediately adjacent to the west bank of the river, and there is not sufficient roadway shoulder area available to construct a bike path and still maintain an on-highway paved shoulder (or bike lanes). Under this scenario, a bike path could be accommodated only by engineering the trail out over the slope of the river bank. This could be accomplished either by cantilevering a trail over the river, or by building up the riverbank with retaining structure such as gabions. Either approach would require substantial engineering and cost, and would alter vegetation and other features of the river bank.

KEY ISSUES

- Required engineering approach to build trail over slope of riverbank
- Environmental impacts:
 - Modification of stream bank features
 - Vegetation/tree clearing
 - Increase in impervious surface
- Maintenance of paved shoulder (or upgrading to bike lane, if feasible) on northbound side for use by cyclists who prefer to ride on the road
- Cost



Existing shoulder bike lane adjacent to roadway, 2005

ADDITIONAL STUDIES

- Detailed trail alignment planning
- Environmental review
- Design and engineering

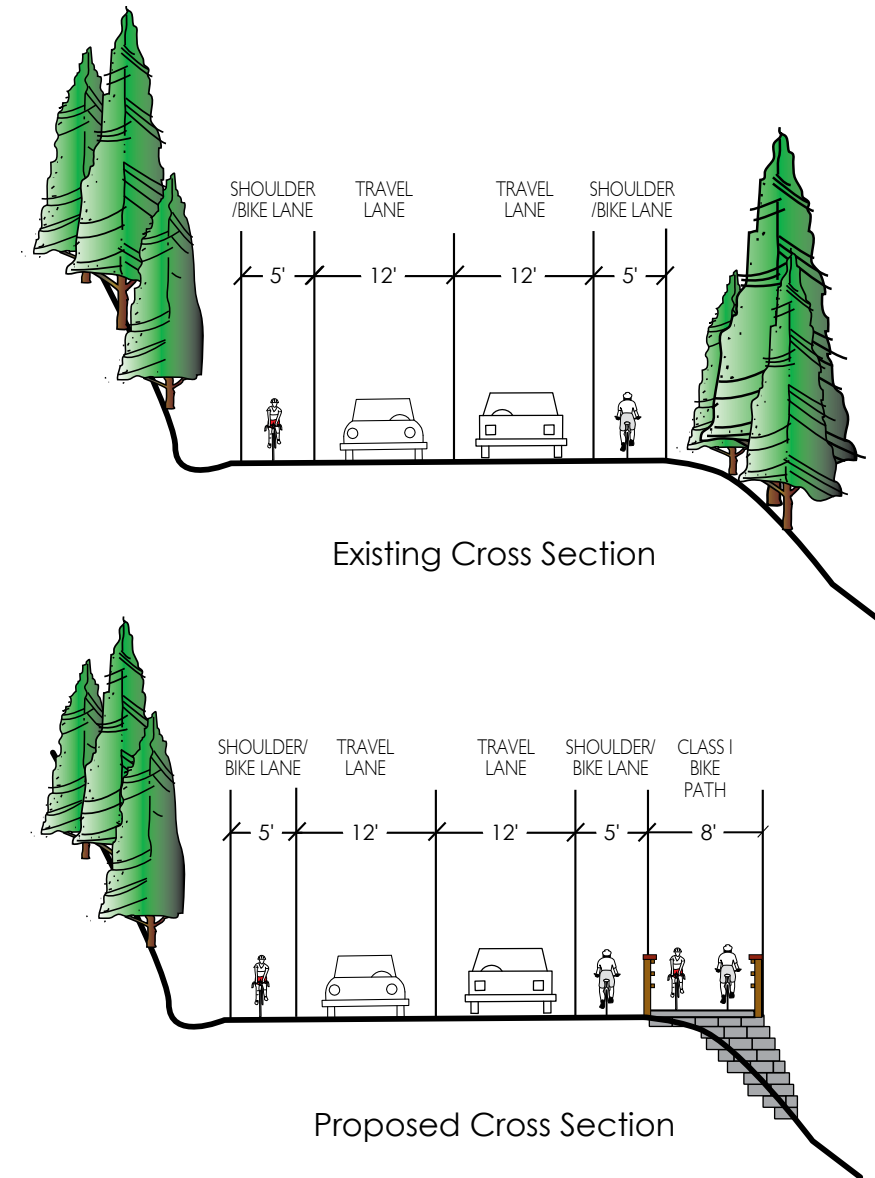
PARTNER AGENCIES

Caltrans, USFS, Placer County, USACE, Truckee River Watershed Council, Sacramento Area Coalition of Governments

COST ESTIMATE

Total estimated cost: \$\$\$\$\$ (per location)

EXHIBIT 4-30 Type C Bike Path on Steep Slope



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5. Recommendations and Funding Sources

5.1 RECOMMENDATIONS AND PUBLIC COMMENTS

The recommendations in this chapter are based on comments received at public meetings, written comment from stakeholders (including residents), comments from staff members of public agencies, and from data gaps identified by the report preparers.

Comments received at three public meetings are highlighted and summarized here to acknowledge both the support and concerns raised by the meeting participants.

General Comments From Public Meetings:

- Overall vision is good.
- Recreational demand will grow and it is best to plan for it now.
- A safe access path that connects Truckee to Squaw Valley is needed.
- Restoration projects seem to be appropriate, but they may not be effective with increased traffic and public use. Additional signage, fencing, and other protections will be needed.

Concerns From Public Meetings:

- The primary and frequently voiced concern of many homeowners on SR 89 is how to avoid impacts to private landowners from increased public access.
- A move of the proposed bike path to west side of Highway 89 was suggested for a portion of the path to avoid landowner/river impact.
- SR 89 safety: Can this corridor handle more bike/foot traffic? Is the current speed limit excessive?
- Can the plan focus improvements on current USFS sites (e.g., Goose Meadow) to reduce impact on the private landowners?
- Increased foot/bike traffic on the east side of the river may cause additional erosion.
- More is needed regarding detail where public trails and private driveways intersect on current plans.

- Parking areas, trash collection, and rest room locations should be focused on places where they already exist.
- Look for opportunities to increase public ownership of the river (e.g., Placer Legacy Program).

5.2 RESTORATION STRATEGIES AND NEXT STEPS

Many of the restoration projects identified have common needs for additional studies: river hydrology and hydraulic analysis, property boundary verification, aerial photographs, topographic surveys, traffic studies, biological surveys, cultural resource surveys, and environmental compliance. Recommendations and potential strategies for these additional studies are discussed below. Table 5-1 Summarizes proposed potential projects discussed in Chapter 4 and the level of difficulty, complexity, and cost for implementation. Table 5-2 describes potential funding sources for the projects identified.

MAPPING AND PROPERTY BOUNDARY VERIFICATION

All projects, restoration and access, will need high resolution rectified aerial photographs for use as base maps during detailed design. In addition, property boundaries will need to be verified and surveyed in the field by a registered surveyor. Once project locations are clearly identified, a registered surveyor will also need to prepare a topographic survey of the project site. For greatest efficiency the study area should have color aerial photographs taken of the entire corridor at one time. These aeriols should be both rectified and georeferenced.

RIVER HYDROLOGY/HYDRAULICS AND GEOMORPHOLOGY

The USGS has published hydrologic data for water years from 1933 – 1997 for use in river and reservoirs operations model for the Truckee River Basin (Berris et al 2001). The hydrologic data consists of time series of streamflow, lake/reservoir elevation and storage, precipitation, evaporation, evapotranspiration, M&I demand, and forecasts of streamflow and lake/reservoir levels. Although this information is useful for water management

TABLE 5-1 Proposed Projects and Ease of Implementation Summary

	Gross Estimated Cost	Complexity	Environmental Compliance
RESTORATION PROJECTS			
Restore Low Floodplain Terrace	\$\$\$	High	Yes
Protect and Restore River Bank and Improve River Access	\$\$\$ - \$\$\$\$	High	Yes
Create Riparian Wet Meadow Habitat	\$\$ - \$\$\$	Medium - High	Yes
Stabilize Steep River banks	\$\$\$ - \$\$\$\$	High	Yes
Revegetate Over-wide Highway Shoulders	\$ - \$\$	Low	Yes
Improve Water Quality at Toe of Slope	\$\$	Medium	Yes
Improve Water Quality within Trail Projects	\$\$	Medium	Yes
PUBLIC ACCESS - TRAILHEAD PROJECTS			
Type "A" Trail Access – Trailhead / Parking Lot with amenities	\$\$\$\$	Medium	Yes
Type "B" Trail Access – Limited amenities	\$\$\$	Medium	Yes
EXISTING BIKE PATH ENHANCEMENT PROJECTS			
River Ranch Paved Parking Lot Improvement	\$\$	Medium	Yes
River Ranch Unpaved Parking Area Improvement	\$\$	Medium	Yes
Squaw Valley Road Crossing Improvements	\$\$	Medium	Yes
ROADWAY SHOULDER IMPROVEMENT PROJECTS			
Silver Creek Campground Improvement	\$	Low	No
INFORMATIONAL AND EDUCATIONAL SIGNS AND MATERIALS			
Interpretive Signs	\$	Low	No
Fishing, Boating, and Trail Access Signs	\$	Low	No
River Access Brochure	\$	Low	No
River Heritage Interpretive Trail	\$	Low	No
MULTIPLE-USE TRAIL PROJECTS			
Class I Trail – Typical Cross-Section	\$\$ per mile	Medium	Yes
Class I Trail on Steep Cross-Slope	\$\$\$\$ per mile	High	Yes
Type "A" Cross-section – Bike Path with Adjacent Parking	\$\$\$ per location	Medium	Yes
Type "B" Cross-Section – Bike Path with Setback	\$\$\$ per location	Medium	Yes
Type "C" Cross-section – Bike Path on Steep Slope	\$\$\$\$ per location	High	Yes

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it does not provide the necessary hydraulic or geomorphic understanding required to plan for in-stream and floodplain habitat restoration projects.

Typically geomorphologists will prepare a background study of channel history – how it has moved and developed over time and how this may affect future movement and change. The geomorphic analysis is then correlated with hydraulic and hydrologic data. Frequently additional data essential to understanding the 1, 2, and 5-year flood events need to be collected and added to the existing river models, if one already exists. Typically flood models only study the 50, 100, and 200 year flood event to develop Federal Emergency Management Act mapping and flood management protocol. The frequent flood events (1, 2, and 5-year) are vital to riparian habitat development and recruitment. Understanding when and how these flows occur is essential to the design of in-stream and floodplain habitat restoration projects, therefore a hydrologic, hydraulic, and geomorphic analysis of the river corridor should be conducted to further refine the location and type of habitat restoration projects proposed.

TRAFFIC STUDY

New parking areas or trailheads and the recommendations to improve bicycle and pedestrian safety at River Ranch and the Squaw Valley intersection may require an analysis of traffic to prepare detail designs and environmental compliance. A traffic study looking at several projects at one time may be more cost effective than individual studies.

ENVIRONMENTAL COMPLIANCE

Projects approved by the County or another public agency that are constructed in response to the plan and that may cause adverse effects on the physical environment would need to be reviewed under the California Environmental Quality Act (CEQA). Projects receiving federal funding or proposed on federal land would also need to comply with the National Environmental Policy Act (NEPA). Projects within the jurisdiction of TRPA would need to comply with TRPA environmental regulatory guidelines.

Some recommended actions would be exempt from CEQA/NEPA/TRPA, based on qualification for a categorical or statutory exemption (e.g., outreach programs that do not involve physical

changes or very minor improvements, like signage). Smaller projects may be exempt from NEPA. Bike lanes and paths normally fall under a categorical exclusion from NEPA; however, in cases with high environmental values a greater level of environmental review may be necessary. This would need to be verified with the Federal funding agency by the project proponent.

Two approaches are available to achieve CEQA compliance for non-exempt projects in this situation. The first approach would be for the County to prepare a Program Environmental Impact Report (EIR) addressing the environmental effects of the plan as a whole and approve the Truckee River Corridor Access Plan for implementation following public review of the EIR. After certification of the Program EIR and approval of the plan, when subsequent construction projects are funded and ready for consideration, they would be reviewed in light of the Program EIR for their CEQA compliance. This subsequent review may or may not require preparation of another environmental document (i.e., another more focused EIR, a negative declaration [ND] or mitigated negative declaration [MND]), depending on whether the impacts of the construction projects were in the scope of and adequately addressed in the Program EIR. The advantage of this approach is the preparation of a comprehensive initial environmental document (the Program EIR) that addresses the potential impacts of the entire plan, including cumulative impacts. The disadvantage is that the EIR would take additional time to complete (12 or more months) before initial construction projects could be considered for implementation.

The second approach would involve the County or other public agencies identifying logically associated sets of construction projects from the recommendations in the plan, such as a set of signage improvements or a group of habitat restoration actions, and approve projects in stages as funding becomes available for them. In the case of very minor actions, like signage, the project may be exempt from CEQA. For other non-exempt projects, individual, project-level environmental documents (EIR, MND, or ND) would need to be prepared and circulated for public review. The advantage of this approach is that the first sets of physical projects could be implemented relatively quickly, subject to available funding, if they just require an exemption or ND

or MND. The disadvantage is that consideration of cumulative effects would need to be discussed within each environmental document, making the overall CEQA review process less efficient over time.

The County will need to consider these approaches based on expectations about the funding available for and priority of different construction projects.

REGULATORY PERMITTING

Certain construction projects may require approval of environmental permits by agencies responsible for sensitive resources, such as wetlands (U. S. Army Corps of Engineers), streambed alteration (California Department of Fish and Game), water quality (Lahontan Regional Water Quality Control Board), and SR 89 highway operation (Caltrans). Necessary permits would be secured by the County or other agencies implementing projects as part of the individual project design and approval review processes. Regulatory permits can require a lengthy time period, so the application processes should be initiated as soon as possible.

SPECIAL STATUS SPECIES AND CULTURAL SURVEYS

Special status species (plant and wildlife) and cultural resource surveys will need to be conducted for all sites as part of both environmental compliance and regulatory permitting. It is strongly recommended these surveys be conducted early in the site selection or conceptual design phase to avoid potential impacts or incorporate mitigation into the design. The earlier the design team is aware of potential site constraints, the more efficient the design, environmental compliance, and permitting process will be.

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5.3 RESTORATION FUNDING

TABLE 5-2 Restoration Funding Sources

Grant Source	Due Date	Agency	Annual Total	Matching Requirement	Eligible Applicants	Project Types	Comments
FEDERAL FUNDING							
Landowner Incentive Program	-	USFWS Division of Federal Assistance	\$22 million	25%	State fish and wildlife agencies	Designed to assist States by providing grants to establish or supplement landowner incentive programs that protect and restore habitats on private lands, to benefit Federally listed, proposed or candidate species or other species determined to be at-risk, and provide technical and financial assistance to private landowners for habitat protection and restoration.	From Land and Water Conservation Fund Contact The Division of Federal Assistance FederalAid@fws.gov
Targeted Watersheds Grants	-	EPA	\$15 million	25%	States, local governments and Indian tribal governments	Grants and cooperative agreements awarded to watershed organizations for watershed restoration and protection projects, such as implementing agricultural best practices, conducting streambank restoration, and implementing TMDLs.	Contact: Sam Ziegler, telephone 415-972-3399; e-mail iegler.sam@epa.gov
Rivers, Trails, And Conservation Assistance Program	N/A	NPS	N/A	N/A	Non-profit organizations, community groups, tribes or tribal governments, and local, State, or federal government agencies.	Rivers & Trails staff assistance includes help in building partnerships to achieve community-set goals, assessing resources, developing concept plans, engaging public participation, and identifying potential sources of funding.	This is a technical assistance program only.
STATE FUNDING							
Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Proposition 84)	TBD (new program)	State Parks	\$500 million for state projects \$400 million for local grants	TBD	State park projects for state funds and local and regional park projects for grants	Public access to rivers and streams and protection of those resources.	TBD
Sierra Nevada Conservancy	TBD (new program)	RESD	TBD	TBD	Local governments and non profit organizations	Environmental protection, resource conservation, recreational opportunities and economic growth.	TBD
California River Parkway Program (Proposition 50)	October	CA Resources Agency	\$40.5 million total	NO	Local, non-profit	Recreation, habitat, flood management, conversion to river parkways, conservation and interpretive enhancement. Must provide public access or be part of a larger Parkway Plan.	http://www.resources.ca.gov/bonds_prop50riverparkway.html
Sierra Nevada-Cascade Conservation Grant Program	-	CA Resources Agency	-	-	Local public agencies, local water districts, non-profits	Acquisition of land and water rights to protect water quality in lakes, reservoirs, rivers, streams and wetlands in the Sierra Nevada-Cascade Mountain Region. Working lands, water rights, adjacent lands, management practices.	http://www.resources.ca.gov/bonds_prop50sncgrantsprogram.html
Sierra Nevada Cascade Grant Bond Act – Park Bond Act of 2000	Feb 2002	CA Resources Agency	\$3.3 million total	-	Cities; counties; regional park or open-space districts, nonprofit organizations, Indian tribes	Rivers and Streams Projects; Trail Projects and educational or interpretive nature trails; Natural Resource-based Capital Improvements that provide park and recreational opportunities; and Acquisitions of parklands or recreational facilities.	http://resources.ca.gov/bond/CascadeGuideHighlights.pdf Probably expired
Urban Streams Restoration Program	January	Department of Water Resources	\$1 million per project; \$5 million total program funds	-	Local public agency and citizen's group (both required)	Reduce urban flooding/erosion, restore environmental values, and promote community stewardship of urban streams.	Proposition 40 Funds Sara Denzler (916) 651-9625 sdenzler@water.ca.gov
California Riparian Habitat Conservation Program	-	Wildlife Conservation Board	-	-	Nonprofit organizations, local government agencies, state departments and federal agencies	Bank stabilization and revegetation, restoration of riparian vegetation on flood-prone land, modification of the existing land form to allow a stream to regain its historic connection with its floodplain, removal of nonnative invasive plant species and restoration.	Wildlife Conservation Board Riparian Program Manager, Scott Clemons (916) 445-1072 or by email at sclemons@dfg.ca.gov.

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Grant Source	Due Date	Agency	Annual Total	Matching Requirement	Eligible Applicants	Project Types	Comments
Habitat Enhancement and Restoration Program	-	WCB	-	-	Nonprofit organizations, local government agencies, state departments and federal agencies	Restorations of fisheries, wetlands outside the Central Valley (Inland Wetlands), native grasslands and forests	Department of Fish and Game – Region 2 1701 Nimbus Road Rancho Cordova, CA 95670 Public Information: (916) 358-2900 Fax: (916) 358-2912
Land Acquisition Program	-	WCB	-	-	Nonprofit organizations, local government agencies	Land acquisition is a component of all Wildlife Conservation Board (WCB) programs. All acquisitions are made on a "willing seller" basis pursuant to a fair market value appraisal as approved by the Department of General Services (DGS).	Department of Fish and Game – Region 2 1701 Nimbus Road Rancho Cordova, CA 95670 Public Information: (916) 358-2900 Fax: (916) 358-2912
2005-06 Consolidated Grants Program	February 9, 2006	State Water Board	\$143 Million	-	Cities, counties and public districts or corporations	Implement measures (e.g. BMPs, LID, educational outreach materials) to reduce, improve or control stormwater quality in the Truckee River watershed.	Contact Lahontan Regional Water Quality Control Board
Land and Water Conservation Fund	May 1, 2006, for local agencies August 1, for state agencies	NPS via State Parks	-	50% grant - 50% match requirement	Cities, counties and districts authorized to acquire, develop, operate and maintain park and recreation areas.	Acquisition or development of outdoor recreation areas and facilities. Priority development projects include trails, campgrounds, picnic areas, natural areas and cultural areas for recreational use.	California Department of Parks and Recreation Office of Grants & Local Services PO Box 942896 Sacramento, CA 94296-0001 TEL 916-653-7423
Proposition 117 Funding					Public agencies only		
Habitat Conservation Fund	Oct 2, 2006	State Parks	\$2 million	1:1	Local governments	Deer/Mountain Lion Habitat; Rare, Threatened, Endangered, or Fully Protected Species Habitat; Wetland Habitat; and Riparian Habitat	California Department of Parks and Recreation Office of Grants Local Services PO Box 942896 (street) 1416 9th Street, Room 918 Sacramento, California 94296-0001
Public Access Program	Every 3 months	WCB	-	N/A	Vities, counties and public districts or corporations	fishing piers or floats, access roads, boat launching ramps, trails, boardwalks, interpretive facilities and lake or stream improvements	Engineering, costs estimates and contract administration are the responsibility of the local agency. Contact: Wildlife Conservation Board 1807 13th Street, Suite 103, Sacramento, CA 95814 (916) 445-8448 Fax (916) 323-0280
PRIVATE/NON-PROFIT FUNDING							
General Matching Grants Program	September	National Fish and Wildlife Foundation	\$10,000-\$150,000	2:1	Federal, State, local, university, tribal, non-profit organizations/agencies	Address priority actions promoting fish and wildlife conservation and the habitats on which they depend	http://www.nfwf.org/faq.cfm
Five-Star Restoration Matching Grants Program		EPA through the NFWF		Funding, land, technical assistance, workforce support, and/or other in-kind services	Any public or private entity	community-based wetland, riparian, and coastal habitat restoration projects that build diverse partnerships and foster local natural resource stewardship through education, outreach and training activities	http://www.nfwf.org/programs/5star-rfp.cfm
Bring Back the Natives	February 3, 2006	NFWF, in cooperation with the USFWS, BLM, U.S.D.A. Forest Service, and Trout Unlimited.	Average grant size is \$60,000	Requires 2:1 non-federal to federal match	Federal, State, local, university, tribal, non-profit organizations/agencies	The program seeks projects that initiate partnerships with private landowners, demonstrate successful collaborative efforts, address watershed health issues that would lead to restoring habitats and are key to restoring native aquatic species and their migration corridors, promote stewardship on private lands.	Special emphasis is placed on cutthroat trout restoration with specific preference given to projects that will protect or re-establish migration corridors between breeding populations such as Lahontan cutthroat trout and Yellowstone cutthroat trout. Contact: Corey Grace 415-778-0999 or corey.grace@nfwf.org
Acres for America	Varies	Wal-Mart Stores, Inc. and NFWF	Approx. 5,000 acres per year	-	Federal, State, local, university, tribal, non-profit organizations/agencies	Conserve important habitat for fish, wildlife and plants through acquisition of interest in real property.	Goal is to offset the footprint of Wal-Mart stores. Contact Megan Oliver - megan.oliver@nfwf.org
Migratory Bird Conservancy	September	Migratory Bird Conservancy and NFWF	\$100,000	1:1 in-kind or monetary	Federal, State, local, university, tribal, non-profit organizations/agencies	Projects that directly address conservation of priority bird habitats in the Western Hemisphere. Acquisition, restoration, and improved management of habitats are program priorities.	Peter Stangel 404-679-7099 or Stangel@nfwf.org
Native Plant Conservation Initiative	February 17 and August 25, 2006	NFWF	Average grant \$15,000	1:1	State, local, university, tribal, non-profit organizations/agencies	"On-the-ground" projects that involve local communities and citizen volunteers in the restoration of native plant communities. Projects that include a pollinator conservation component are also encouraged.	Ellen Gabel 202-857-0166 or Gabel@nfwf.org

ACRONYMS AND ABBREVIATIONS:

BLM Bureau of Land Management **EPA** Environmental Protection Agency **NFWF** National Fish and Wildlife Foundation **NPS** National Park Service **RES/DGS** Real Estate Services Division, Department of General Services **DFG** California Department of Fish and Game **USFWS** U.S. Fish and Wildlife Service **SWB** State Water Board **WCB** Wildlife Conservation Board
TRPA Tahoe Regional Planning Agency **State Parks** California Department of Parks and Recreation (under the State Resources Agency)

5.4 RECREATION ACCESS STRATEGIES AND NEXT STEPS

Implementation of individual trail and access projects involves a number of next steps, as described below.

BIKE TRAIL ALIGNMENT

An overall potential trail alignment stretching from Squaw Valley Road to the Truckee town limits has been generally identified in this Master Plan. In some areas, potential alignments on both the east and west sides of the river have been identified. The next step in the trail development process will involve more detailed work, including additional fieldwork and precise property boundary surveys, to determine alignment feasibility and identify a single preferred alignment. This preferred alignment would need to avoid private parcels or identify realistic easements through parcels with willing owners. Specific locations for bridge crossings, engineering needs, and potential environmental issues will also need to be identified at this time. Once a preferred alignment has been identified, a phasing plan should be developed for the trail, identifying logical incremental trail segments for development. The initial segments need to connect to an existing facility at either end—either the existing trail at Squaw Valley, or a future trail segment into the Town of Truckee. The segments should take into account logical stopping points—not just stopping at a private property line, but instead ending the segment at a location that has facilities, such as one of the existing USFS campgrounds. By tackling the trail development in discrete segments, initial funding can be focused on the less expensive and more feasible segments. Once these segments are in use, they can help build momentum for the more challenging and expensive segments needed to complete the corridor, and help to leverage further funding.

TRAILHEAD/RIVER ACCESS PROJECTS

The first step will be to identify more precise locations of Type A and Type B trail access points along the alignment. For the Type A access points (full trailhead/parking), locations are envisioned for larger areas within existing public parcels, such as within the existing U.S. Forest Service parcels. Consideration will need to be given to the proximity of these trailheads to other parking oppor-

tunities (e.g., the Squaw Valley parking area), and potential future parking/access areas within Truckee at the north end. If creation of any Type A access point requires constructing a new access driveway off SR 89, a traffic study will be required with consideration to the sight distances for vehicles pulling out. For the Type B access (improved roadside pullout), more precise locations will also need to be identified, taking into consideration factors such as demand for access at a specific location (e.g., a known fishing spot); adjacent private property/private driveways; and potential impacts on a future trail alignment.

SPECIFIC BIKE PATH IMPROVEMENT LOCATIONS

The specific bike path improvements identified—River Ranch and Squaw Valley—will all need additional feasibility, traffic, and design work before moving ahead. For the River Ranch projects it will be crucial to get the owners of River Ranch involved in the planning for the bike path modification because it would directly affect two of their parking areas. If it is demonstrated that the improvements will help to improve safety and circulation for everybody—trail users, River Ranch patrons, and River Ranch employees—support for the proposed modifications will be more likely. Both the River Ranch and Squaw Valley Road improvements, which involve some modifications within the SR 89 right-of-way, will require close coordination with Caltrans.

5.5 ACCESS AND TRAIL FUNDING

There are a variety of potential funding sources including federal, state, regional, and local programs that can be used to construct the proposed bicycle improvements (Table 5-3). Most of the federal, state, and regional programs are competitive and involve the completion of extensive applications with clear documentation of the project need, costs, and benefits. Regional funding for bicycle projects typically comes from Transportation Development Act (TDA) funding, which is prorated to each county based on the return of gasoline taxes. Many of the projects and programs would need to be funded by either TDA funds, the general fund (for staff time), or federal, state, and regional sources. The primary funding sources are described below.

FEDERAL FUNDING SOURCES

SAFE, ACCOUNTABLE, FLEXIBLE, EFFICIENT TRANSPORTATION EQUITY ACT

The Safe, Accountable, Flexible, Efficient Transportation Equity Act (SAFETEA) is the third iteration of the transportation vision established by Congress in 1991 with the Intermodal Surface Transportation Efficiency Act (ISTEA) and renewed in 1998 through the Transportation Equity Act for the 21st Century (TEA-21). Also known as the federal transportation bill, the \$286.5 million SAFETEA bill was passed in 2005.

SAFETEA funding will be administered through the state (Caltrans or Resources Agency) and regional planning agencies. Most, but not all, of the funding programs are oriented toward transportation versus recreation, with an emphasis on reducing auto trips and providing intermodal connections. Funding criteria often include completion and adoption of a pedestrian master plan, quantification of the costs and benefits of the system (such as saved vehicle trips and reduced air pollution), proof of public involvement and support, CEQA compliance, and commitment of some local resources. In most cases, SAFETEA provides matching grants of 80% to 90% but prefers to leverage other monies at a lower rate. SAFETEA continues to support many of the nonmotorized programs that were contained in TEA-21, with the following new and existing nonmotorized programs (dollar amounts listed are totals for the entire federal transportation bill):

- Recreational Trails Program—\$110 million over 5 years, to be dedicated to nonmotorized trail projects
- Safe Routes to School Program—A new program with \$612 million over 5 years
- Transportation, Community and System Preservation Program—\$270 million over 5 years reserved for bicycle and pedestrian projects
- Alternative Transportation in Parks and Public Lands—\$96 million over the next 4 years reserved for promoting nonmotorized transportation in national parks and other public lands

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TABLE 5-3 Trail and Access Funding Sources

Grant Source	Due Date	Agency	Annual Total	Matching Requirement	Eligible Applicants	Project Types	Comments
FEDERAL FUNDING							
Regional Surface Transportation Program	Varies by RTPA	RTPAs, Caltrans	\$320 million	11.47% nonfederal match	Cities, counties, transit operators, Caltrans, and MPOs	Bicycle/pedestrian transportation and trail projects	RSTP funds may be exchanged for local funds for nonfederally certified local agencies; no match may be required if project improves safety. Contact Cathy Gomes, Caltrans, (916) 654-3271
Congestion Mitigation and Air Quality Program	December 1 yearly	RTPAs, Caltrans	\$400 million	11.47% nonfederal match	Federally certified jurisdictions	Bicycle/pedestrian transportation projects	Counties redesignated to attainment status for ozone may lose this source. Contact Cathy Gomes, Caltrans, (916) 654-3271
Transportation Enhancement Activities	Varies by RTPA	RTPAs, Caltrans	\$60 million	11.47% nonfederal match	Federally certified jurisdictions	Bicycle/pedestrian transportation and trail projects	Funds are dispersed through the four shares listed below
- Regional Share			\$45 million		Federal, state, or local, depending on category		
- Caltrans Share		Caltrans	\$6.6 million		Caltrans		
- Statewide Transportation Enhancement Share		Caltrans, State Resources Agency	\$20-30 million		Federal, state (except Caltrans), regional, and local agencies with a state partner		
- Conservation Lands Share			\$11 million		RTPAs, counties, cities, and nonprofits		
National Highway System	Varies by RTPA	RTPAs	\$500 million	20%	State and local agencies, MPOs	Bicycle/pedestrian transportation projects	Funding share to RTPAs
Recreational Trails Program	October 1	State Parks	\$3 million	20% match	Jurisdictions, special districts, nonprofits with management responsibilities over the land	For recreational trails to benefit bicyclists, pedestrians, and other users	Contact State Parks, Statewide Trails Coordinator, (916) 653-8803
Transportation and Community and System Preservation Pilot Program	Pending	FHWA	\$25 million nationwide		State and local agencies, MPOs	Projects that improve system efficiency, reduce environmental impacts of transportation, etc.	Contact K. Sue Kiser, Regional FHWA office, (916) 498-5009
Land & Water Conservation Fund	May 1	State Parks	\$7.7 million statewide	50%, including in-kind	Federal and state agencies, cities, counties, eligible districts	Projects that acquire and develop outdoor recreation areas and facilities	Contact Odel King, State Parks, (916) 653-8758
STATE FUNDING							
Environmental Enhancement and Mitigation Program	November	State Resources Agency, Caltrans	\$10 million statewide	Not required but favored	Local, state, and federal government nonprofit agencies	Projects that enhance or mitigate future transportation projects; can include acquisition or development of roadside recreational facilities	Contact Carolyn Dudley, State Resources Agency, (916) 653-5656
Bicycle Transportation Account	December	Caltrans	\$7.2 million	Minimum 10% local match on construction	Cities, counties	Projects that improve safety and convenience of bicycle commuters.	Contact Ken McGuire, Caltrans, (916) 653-2750
Regional Transportation Improvement Program	December 15, odd years	RTPA			Cities, counties, transit operators, Caltrans	Bicycle/pedestrian transportation and safety/education projects	Part of State Transportation Improvement Program, the main state program for transportation project funding. For "improving transportation within the region." RTPA must program funds
Petroleum Violation Escrow Account	Ongoing	State Legislature	\$5 million		Cities, counties, transit operators, Caltrans	Bicycle and trail facilities	Contact Caltrans Federal Resource Office, (916) 654-7287
Habitat Conservation Fund Grant Program	October	State Parks	\$500,000	50%	Local governments	Acquisition, enhancement, and restoration of wildlife areas	Contact State Parks, (916) 653-7423
Community Based Transportation Planning Demonstration Grant Program	November	Caltrans	\$3 million	20% local	MPOs, RTPAs, cities, counties	Projects that exemplify livable community concepts, including bicycle/pedestrian transportation and safety/education projects	Contact Leigh Levine, Caltrans, (916) 651-6012

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TABLE 5-3 Trail and Access Funding Sources Continued

Grant Source	Due Date	Agency	Annual Total	Matching Requirement	Eligible Applicants	Project Types	Comments
Office of Traffic Safety Grants	January 31	OTS			State agencies, cities, counties	Bicycle/pedestrian safety and education projects	Bicycle and pedestrian projects have been funded through this program. Contact OTS, (916) 262-0990
DFG Public Access Program	Quarterly	DFG	Not grants, but state projects developed with local governments. Funding up to \$250,000		Local units of eligible governments (must do EIR and engineering)	Acquisition or improvements that preserve wildlife habitat or provide recreational access for hunting, fishing or other wildlife-oriented activities	Includes interpretive trails, river access, parking areas. Contact Georgia Lipphardt, DFG, (916) 445-8448
LOCAL FUNDING							
Transportation Development Act Article 3 (2% of total TDA)	January	RPTA					
State Gas Tax (local share)		State Auditor Controller					Allocated by State Auditor Controller
Developer Fees or Exactions (developer fee for street improvements)		Cities or County					Mitigation required during land use approval process
PRIVATE FUNDING							
Bikes Belong Coalition	Ongoing	Private	Each project not to exceed \$10,000	NA	Nonprofit organizations and public agencies	Bicycle paths, trails, routes, lanes, parking, and transit	http://bikesbelong.org
American Greenways Kodak Awards	June	Private	Each project not to exceed \$2,500	NA	Local, regional, or statewide nonprofit organizations. Public agencies may apply but community organizations receive preference	Small grants for planning and design of greenways	http://www.conservationfund.org
Powerbar's Direct Impact on Rivers and Trails	June	Private	Project awards between \$1,000 and \$5,000	NA	Individuals and organizations	Small grants for improving trails and river access	http://www.powerbar.com

ACRONYMS AND ABBREVIATIONS:

APCD	Air Pollution Control District	RTPA	Regional Transportation Planning Agency
Caltrans	California Department of Transportation	RTSP	Regional Surface Transportation Program
CMAQ	Congestion Mitigation and Air Quality	SACOG	Sacramento Area Council of Governments
CTC	California Transportation Commission	TDA	Transportation Development Act
DFG	California Department of Fish and Game	TEA	Transportation Enhancement Activities
EIR	Environmental Impact Report	TRPA	Tahoe Regional Planning Agency
FHWA	Federal Highway Administration	SAFETEA	Safe Accountable Flexible, Efficient Transportation Equity Act: A Legacy for Users
MPO	[need definition]	State Parks	California Department of Parks and Recreation (under the State Resources Agency)
OTS	Office of Traffic Safety		

JURISDICTIONS FOR PLACER COUNTY, CALIFORNIA:

Caltrans — Caltrans District 3
 Placer County Transportation Planning Agency
 SACOG
 TRPA (portions of Placer County within Tahoe Basin)

RESOURCES:

Caltrans SAFETEA website - <http://www.dot.ca.gov/hq/TransEnhAct/>
 FHWA-SAFETEA-LU website - <http://www.fhwa.dot.gov/reauthorization/>

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CONGESTION MITIGATION AND AIR QUALITY IMPROVEMENT PROGRAM

Congestion Mitigation and Air Quality Improvement Program funds are allocated by the federal transportation bill to projects that are likely to contribute to the attainment of a national ambient air quality standard, and to congestion mitigation. These funds can be used for a broad variety of bicycle and pedestrian projects, particularly those that are developed primarily for transportation purposes. The funds can be used either for construction of bicycle transportation facilities and pedestrian walkways or for nonconstruction projects related to bicycle and pedestrian safety (maps, brochures, etc.). The projects must be tied to a plan adopted by the state and the Sacramento Area Council of Governments.

LAND AND WATER CONSERVATION FUND

The Land and Water Conservation Fund, a program administered by the National Park Service, allocates money to state and local governments to acquire new land for recreational purposes, including bicycle paths and support facilities such as bike racks. Funding allocated to California is administered by the California Department of Parks and Recreation. Eligible applicants include cities, counties, and districts authorized to acquire, develop, operate, and maintain park and recreation areas. For local agencies, funds are provided through a competitive selection process. There is a 50% local match requirement.

STATE FUNDING SOURCES

BICYCLE TRANSPORTATION ACCOUNT

The State Bicycle Transportation Account is an annual statewide discretionary program that is available through the Caltrans Bicycle Facilities Unit for funding bicycle projects. Funds are available as grants to local jurisdictions; the emphasis is on projects that benefit bicycling for commuting purposes. As a result of the passage of Assembly Bill 1772 in the year 2000, the Bicycle Transportation Account has had \$7.2 million available each year through 2005. Following the year 2005, the fund will drop to \$5 million per year unless new legislation is passed. The local match must be a minimum of 10% of the total project cost.

NATIONAL RECREATIONAL TRAILS FUND

The Recreational Trails Program provides funds for developing and maintaining recreational trails and trail-related facilities for both nonmotorized and motorized recreational trail uses. Examples of trail uses include hiking, bicycling, in-line skating, equestrian use, and other nonmotorized as well as motorized uses. Recreational Trails Program funds may be used for:

- maintenance and restoration of existing trails (including bike paths),
- development and rehabilitation of trailside and trailhead facilities and trail linkages,
- purchase and lease of trail construction and maintenance equipment,
- construction of new trails (with restrictions for new trails on federal lands),
- acquisition of easements or property for trails,
- state administrative costs related to this program (limited to 7% of a state's funds), and
- operation of educational programs to promote safety and environmental protection related to trails (limited to 5% of a state's funds).

ENVIRONMENTAL ENHANCEMENT AND MITIGATION PROGRAM

Environmental Enhancement and Mitigation Program funds are allocated to projects that offset the environmental impacts of modified or new public transportation facilities. Bike paths, bike lanes, and other facilities that encourage alternative transportation are eligible. State gasoline tax monies fund this program.

LOCAL FUNDING SOURCES

TRANSPORTATION DEVELOPMENT ACT ARTICLE III

Transportation Development Act Article III (Senate Bill 821) funds are state block grants awarded annually to local jurisdictions for bicycle projects in California. These funds originate from the state gasoline tax and are distributed to local jurisdictions based on population. These funds should be used as leveraging monies for competitive state and federal sources.

MELLO-ROOS COMMUNITY FACILITIES ACT

Bike paths and bike lanes can be funded as part of a local assessment or benefit district. Defining the boundaries of the benefit district may be difficult unless the facility is part of a larger parks and recreation or public infrastructure program with broad community benefits and support.

IMPACT FEES

Another potential local source of funding is developer impact fees, typically tied to trip generation rates and traffic impacts produced by a proposed project. A developer may reduce the number of trips (and hence impacts and cost) by paying for on- and off-site bikeway improvements that will encourage residents to bicycle rather than drive. Establishing a clear nexus or connection between the impact fee and the project's impacts is critical in avoiding a potential lawsuit.

Other opportunities for implementation will appear over time that may be used to implement the project.

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