3.8 RECREATION

This chapter summarizes the regulatory and planning processes for recreation in the Tahoe Basin, describes existing recreation uses and facilities in the project vicinity, and presents an analysis of potential impacts of the proposed alternatives. It addresses impacts on recreation uses and facilities located in the study area and surrounding area of South Lake Tahoe. Consistency with TRPA goals and policies is presented in Section 3.2, Land Use," Table 3.2-1. Cumulative recreation impacts are discussed in Section 3.16, "Cumulative Impacts." The project effects on thresholds are described in Chapter 4, Section 4.6, "Consequences for Environmental Threshold Carrying Capacities."

3.8.1 AFFECTED ENVIRONMENT

REGULATORY SETTING

Federal

No Federal plans, policies, ordinances, laws, regulations, or executive orders related to recreation are applicable to the project.

State

Lake Valley State Recreation Area General Plan

State Parks manages more than 270 park units, which contain the "finest and most diverse collection of natural, cultural, and recreational resources to be found within California" (State Parks 2008). The mission of California State Parks is "…to preserve the state's extraordinary biological diversity, protecting its most valued natural and cultural resources, and creating opportunities for high-quality outdoor recreation" (State Parks 2001:11).

The study area includes Lake Valley SRA and a portion of Washoe Meadows SP; the area was divided into two units to allow for different management goals, including recreation. The Lake Valley SRA General Plan (General Plan) was prepared by State Parks to satisfy requirements of Public Resources Code Section 5002.2 and provide guidelines for long-term management and development of Lake Valley SRA (State Parks 1988). The plan summarizes all available information about the SRA, documents the planning process and relevant data applied in making land use decisions, and describes specific management and development proposals. At the time the plan was prepared in1988, the declaration of purpose for the unit states that designation of Lake Valley SRA "recognizes the significance of the unit in perpetuating an existing quality public golfing opportunity in the increasingly popular Tahoe Basin, where golfing demand far exceeds the opportunities" (State Parks 2008:34). The "Resource Policy Formulation" section of the plan outlines the declaration of purpose for Lake Valley SRA, focusing on two major considerations:

- The purpose of Lake Valley SRA is to make available to the people for their enjoyment and inspiration the 18-hole golf course and the scenic Upper Truckee River and its environs.

- State Parks shall balance the objectives of providing optimum recreational opportunities with maintaining the highest standards of environmental protection. In so doing State Parks shall define and execute a program of management within the unit that perpetuates the unit's declared values, providing for golfing along with other compatible summer and winter recreation opportunities while restoring the natural character and ecological values of the Upper Truckee River, protecting its water quality, and protecting and interpreting significant natural, cultural, and scientific values.

Specific policy direction states that recreation allowed at Lake Valley SRA should take into account and conform to natural and cultural resource values, and the effect such recreation would have on public use and resources of the contiguous Washoe Meadows SP should be considered (State Parks 1988:4).

Lake Tahoe Golf Course is an 18-hole, regulation-length course operated by American Golf under a 20-year concession agreement with State Parks. The agreement expired on March 31, 2009; however, American Golf continues to manage the golf course under the terms of the now expired agreement. The agreement will not be renewed until after a preferred alternative has been selected. Although the concession agreement is contractual rather than regulatory and has not yet been renewed, it is relevant because it contains operational requirements for the golf course, which American Golf is currently following.

In keeping with the General Plan, the concessionaire contract (State Parks 1995) explicitly states: "Of prime importance under this contract is the requirement to balance the dual objectives of providing a quality golfing experience and protecting the ecologically sensitive Upper Truckee River and the natural environment of Lake Valley State Recreation Area."

A key consideration of State Parks with regard to the operation of the golf course is affordability. Section 7 of the concessionaire contract states, "It is the intent of the State under this contract to provide the general public with the opportunity to enjoy quality golfing and winter recreational opportunities at reasonable and affordable prices. Service to the public, with goods, merchandise, and services of the best quality and at reasonable charges, is of prime concern to the State…" Under terms of the concession contract, amended in 1995, a maximum green fee of $40.00 was considered by the State to be fair and reasonable at that time. Increases to this green fee benchmark are made based on changes in the California Consumer Price Index, or other extraordinary circumstances justified by the concessionaire and approved by the State. As of January 2010 the maximum rate of a green fee is $59.00.

In addition, per the terms of the agreement, American Golf must allocate 5 percent of gross annual receipts to a Capital Improvements Program (CIP) fund, which is interest-bearing and administered by the concessionaire for capital improvements or resource management projects with direction by and approval of the State. The State may elect to receive all or part of the CIP funds, including accrued interest, as additional rent (HEC 2008 [Appendix E]).

Revenues generated by Lake Tahoe Golf Course are important to State Parks. The revenue of Lake Tahoe Golf Course operations is the fifth largest source of concession revenue in the State Parks system (California State Parks, Fiscal Year 2006/07).

Washoe Meadows State Park

No general plan has been prepared for Washoe Meadows SP because it is an undeveloped unit. The purpose of Washoe Meadows SP is to preserve and protect a wet meadow area associated with Angora Creek and the Upper Truckee River at the southwestern side of the Tahoe Basin. The statement of purpose indicates that State Parks will preserve, protect, restore, interpret and manage the unit's natural, cultural, and aesthetic resources, features and values of Washoe Meadows SP, making them available to the public for their educational, inspirational and recreational benefits.

Tahoe Regional Planning Agency

Recreation planning, policy, and use in the Tahoe Basin are governed primarily by TRPA. TRPA implements its authority to regulate growth and development in the Lake Tahoe region through the *Regional Plan for the Lake Tahoe Basin* (Regional Plan). The Regional Plan, adopted in 1987 and currently being updated, consists of several documents: Goals and Policies, Code of Ordinances, Plan Area Statements, Water Quality Management Plan, Regional Transportation Plan—Air Quality Plan, and Scenic Quality Improvement Plan. Chapter 5, "Compliance with Applicable Federal Laws and Executive Orders and State Laws and Regulations," of this draft EIR/EIS/EIS provides additional information on TRPA and other agency regulatory and planning processes for the Tahoe Basin.

1987 Regional Plan

The 1987 Regional Plan had a 20-year scope and is currently being reviewed and updated through a collaborative effort led by TRPA. These agencies are working together to update several important environmental documents for the Tahoe Basin. These Regional Plan updates will guide land management, resource management, and environmental regulations in the Tahoe Basin over the next 20 years. The Regional Plan update is anticipated to be completed by 2011.

TRPA is reevaluating nine environmental threshold carrying capacities (thresholds) it established previously to define the levels of environmental quality desired for the region. This includes recreation thresholds, addressed under "TRPA Environmental Threshold Carrying Capacities" below. New research, science, and collaboration at the community level will contribute to development of the updated report.

Regional Plan Goals and Policies

The Goals and Policies portion of the Regional Plan establishes an overall framework for development and environmental conservation in the Tahoe Basin. Chapter V (Recreation Element) of TRPA's Goals and Policies (TRPA 2004) covers dispersed recreational activities, urban recreation facilities, and developed recreation facilities. Chapter V established goals and policies of three subelements, including dispersed, developed, and urban recreation. Dispersed recreational activities include hiking, riding, cross-country skiing, and back country camping. Developed recreational facilities include day use areas, recreation centers, golf courses, participant sports facilities, and sport assembly. Urban recreation is normally provided in urban areas and is primarily intended to serve local needs. Dispersed recreation use normally takes place in the rural portions of the Basin while developed recreation is provided in both rural and urban settings (TRPA 2004).

The goals and policies are intended to ensure that recreational opportunities keep pace with public demand, recreation facilities remain high on the development priority list, and the quality of the outdoor recreational experience is maintained. This is summarized in the general policy statement:

> It shall be the policy of the TRPA Governing Body in development of the Regional Plan to preserve and enhance the high quality recreational experience including preservation of high-quality undeveloped shorezone and other natural areas. In developing the Regional Plan, the staff and Governing Body shall consider provisions for additional access, where lawful and feasible, to the shorezone and high quality undeveloped areas for low density recreational uses.
>
> It shall be the policy of the TRPA Governing Body in development of the Regional Plan to establish and ensure a fair share of the total Basin capacity for outdoor recreation is available to the general public.

For this analysis, the Recreation Element's Dispersed Recreation subelement relates to recreation within Washoe Meadows SP, and the Developed Recreation subelement relates to the Lake Tahoe Golf Course.

Dispersed Recreation Goals

The following specific goals and policies for Dispersed Recreation are applicable to the project.

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

- **Policy1:** Low density recreational experiences shall be provided along undeveloped shorelines and other natural areas, consistent with the tolerance capabilities and character of such areas.

- **Policy 2:** Areas selected for nature study and wildlife observation shall be appropriately regulated to prevent unacceptable disturbance of the habitat and wildlife.

- **Policy 3:** Trail systems for hiking and horseback riding shall be expanded to accommodate projected demands and provide a link with major regional or interstate trails.

- **Policy 4:** Existing trails that are either underutilized or located in environmentally sensitive areas shall be relocated to enhance their use and to protect natural resources.

GOAL 2: Provide high-quality recreational opportunities.

- **Policy 1:** Wilderness and other undeveloped and unroaded areas shall be managed for low-density use.

- **Policy 2:** Separate use areas shall be established for the dispersed winter activities of snowmobiling, cross-country skiing and snowshoeing when conflicts of use exist.

Developed Recreation Goals

The following specific goals for Developed Recreation are applicable:

GOAL 1: Provide a fair share of the total basin capacity for outdoor recreation.

GOAL 2: Provide for the appropriate type, location, and rate of development of outdoor recreational uses.

- **Policy 2:** Bicycle trails shall be expanded to provide alternatives for travel in conjunction with transportation systems.

GOAL 3: Protect natural resources from overuse and rectify incompatibility between uses.

- **Policy 1:** Recreation development in the Tahoe basin shall be consistent with the special resources of the area.

- **Policy 2:** Regulate intensity, timing, type, and location of use to protect resources and separate incompatible uses.

For a full evaluation of the consistency of the alternatives with these policies see Section 3.2, "Land Use."

Code of Ordinances

As described in Chapter 33 of the TRPA Code of Ordinances, TRPA regulates additional recreation use in the Lake Tahoe basin and has adopted the following required findings for approval:

1. There is a need for the project;

2. The project complies with the Goals and Policies, the applicable plan area statements, and Code;

3. The project is consistent with TRPA's targets for outdoor recreation, which are 6,114 PAOT in overnight facilities, 6,761 PAOT in summer day-use facilities, and 12,400 PAOT in winter day-use facilities, as well as the allocations set forth in the plan area statements, or the pools of reserved PAOT capacity;

4. The project meets the findings adopted pursuant to Article V(g) of the Compact as set forth in Chapter 6 as they are applicable to the project's recreational service capacity; and

5. If the project requires PAOT allocations, it is consistent with the TRPA Environmental Improvement Program (EIP).

TRPA has established targets for each of the threshold areas. For the recreation threshold, targets have been identified for outdoor recreation to evaluate threshold attainment. One of the indicators used to measure attainment are PAOT for overnight facilities, summer day-use facilities, and winter day-use facilities. TRPA regulates the rate and distribution of expanding recreational uses in the Lake Tahoe region by allocating PAOTs.

Golf courses are considered a summer day-use facility for purposes of PAOT allocation. The following types of summer day-use facilities require PAOTs:

1. Uses subject to summer day-use PAOT allocation include marinas, boat launching facilities, rural sports, golf courses, visitor information centers, and off-road vehicle courses.

2. Recreation centers, participant sport facilities, sport assembly, beach recreation, and day use areas, operated by the states' Departments of Parks and Recreation or their permittees, or by federal agencies or their permittees shall be subject to summer day use PAOT allocation.

3. Shorezone uses requiring summer day use PAOT allocations include tour boat operation and those portions of beach recreation, commercial boating, or water-oriented outdoor recreation concessions, which provide additional outdoor recreation capacity (TRPA 1991:33-27).

Plan Area Statements

TRPA allocates PAOTs to plan area statements (PAS), community plans, and a reserve pool where PAOTs are held in reserve for overnight and summer day-use facilities. If a proposed expansion of recreation facilities meets TRPA's criteria, the project will be approved. The number of PAOTs necessary to accommodate the increased level of activity associated with a project, if any, will be assigned from the PAOTs allocated to the relevant PAS, community plan, or reserve pool. Through this process, TRPA essentially will grant permission for the project to increase use of a recreation facility by a particular number of people. PAOT disposition allows agencies to quantitatively measure development of recreation facilities and assess how well the development of recreation facilities is keeping pace with other urban development pressures, such as residential and commercial development.

The study area for this project is located in PAS 119, Country Club Meadow. Targets and limits for additional developed outdoor recreation facilities to be located within this plan area have been identified, as specified in Chapter 13 of TRPA's Code of Ordinances, "Plan Area Statements and Plan Area Maps," Country Club Meadow #119. No additional PAOT capacity for summer-day, winter-day, or overnight uses is allocated to PAS 119; however, 6,215 summer-day use PAOTs are available in the reserve pool described in the Code of Ordinances, and discussed in that section above. The Upper Truckee River Restoration and Golf Course Reconfiguration Project is an EIP project, therefore, PAOTs could be allocated from the pool (TRPA 2007:10-9).

The land use classification for PAS 119 is Recreation, and the PAS establishes a list of permissible uses that may occur within this classification. Permissible uses either are classified as allowed (A) or must be considered under the provisions for a special use (S). Existing uses not listed are considered nonconforming uses within this plan area, and the establishment of new uses not listed is prohibited (TRPA Code of Ordinances, Chapter 13). Permissible uses for this PAS include cross-country skiing courses (S), day-use areas (A), riding and hiking trails (A), participant sports (S), developed campgrounds (A), outdoor recreation concessions (A), rural sports (S), group facilities (S), golf courses (A), snowmobile courses (S), and a visitor information center (A).

The PAS also identifies planning considerations and special policies that must be considered (TRPA Code of Ordinances, Chapter 13). The following planning consideration related to recreation is applicable:

#7 The Upper Truckee River, which flows through this area, provides excellent fish spawning and feeding habitats and perhaps offers the best quality stream fishing in the entire Basin. (Note: This

statement is based on the entire Upper Truckee River, while existing data on the study area shows that habitat is degraded. See Section 3.5, "Biological Resources" for additional information on habitat.

Special policies that apply to the project relative to recreation are:

#2 Whenever possible, opportunities for restoration of disturbed stream environment zones and land coverage removal should be encouraged, including strategies to mitigate the impacts of the golf course.

#6 Improved river access for fishing should be provided.

Lake Tahoe Regional Bicycle and Pedestrian Master Plan

The *Lake Tahoe Regional Bicycle and Pedestrian Master Plan* was prepared by TRPA and the Tahoe Metropolitan Planning Organization. The plan provides a blueprint for developing a regional bicycle and pedestrian system that includes both on-street and off-street facilities as well as support facilities and programs throughout the Lake Tahoe region. It contains conceptual trail alignments for various areas throughout the Tahoe Basin. The plan identifies proposed bike routes for neighborhoods east, west, and north of Washoe Meadows SP and Lake Valley SRA (TRPA 2006: Figure 8, Appendix A).

Environmental Threshold Carrying Capacities

TRPA analyzes its thresholds every 5 years to evaluate the progress made toward attainment, or to achieving the levels of environmental quality defined in the thresholds. The most recent evaluation was completed in 2006. The two indicators for recreation are written as policy statements and include:

- **Recreation Threshold Indicator 1 (R1)—Quality Experience and Additional Access.**
  It shall be the policy of the TRPA Governing Body in development of the Regional Plan to preserve and enhance the high-quality recreational experience including preservation of high-quality undeveloped shorezone and other natural areas. In developing the Regional Plan, the staff and Governing Body shall consider provisions for additional access, where lawful and feasible, to the shorezone and high-quality undeveloped areas for low-density recreational uses.

- **Recreation Threshold Indicator 2 (R2)—Fair Share of Resource Capacity.**
  It shall be the policy of the TRPA Governing Body in development of the Regional Plan to establish and ensure a fair share of the total Basin capacity for outdoor recreation is available to the general public.

R1 consists of two parts, (1) preservation and enhancement of a high-quality recreation experience and (2) the provision of additional high-quality, undeveloped lands for recreation, including lake access. R1 is a policy standard, and no numerical standards have been established to determine attainment status of the threshold. However, various numerical indicators, such as linear feet of shoreline or miles of bike trail, are used to gain insight into whether or not the desired standard is being met. In and of themselves, these quantifiable aspects do not express the quality of the recreation experience, nor are they a true expression of access to undeveloped lands, but collectively they provide insight on threshold status (TRPA 2007:10-3). The measures used to assess R1 threshold attainment are described below.

The quality of recreation experience is measured in surveys conducted by TRPA and other recreation providers. Such surveys compare the importance of an identified recreation attribute, such as recreation facilities and conditions, with the experience that the recreationists perceive.

A second part of the threshold indicator is the provision of additional access to the lake and other natural features by the general public. This indicator is supported by public land acquisition programs as well as the provision of additional trails and trailheads, including bicycle trail segments and their supporting amenities.

Overall, the R1 threshold is considered to be in attainment with respect to Quality Experience and Additional Access (TRPA 2007). Because of the threshold's subjective nature, it is difficult to evaluate the attainment status of R1. However, based on recreation user perception surveys (State Parks 2006a) completed since the 2001 threshold evaluation, expectations of visitors and residents related to recreation are being met; therefore, the recreation experience component of the threshold indicator is considered to be in attainment in the *2006 Threshold Evaluation Report* (TRPA 2007:10-3).

R2 is intended to ensure that a fair share of the region's outdoor recreation capacity is available to the general public. The threshold indicators for R2 are more quantifiable than those for R1. Three indicators provide a mechanism for evaluation: cumulative accounts of PAOT allocations, when applicable; facilities development for recreation projects that do not require PAOT allocations; and land acquisition of new public lands that support recreation purposes. Overall, TRPA's 2001 and 2006 threshold evaluation reports concluded that an appropriate level of outdoor recreation facility development, has been planned (TRPA 2002:10-22; TRPA 2007:10-8). Therefore, this recreation capacity indicator is considered to be in attainment.

El Dorado County

Chapter 9, Parks and Recreation Element, of the *El Dorado County General Plan* establishes goals, objectives, and policies that address the long-range provision and maintenance of parks and recreation facilities necessary to improve the quality of life of existing and future El Dorado County residents (El Dorado County 2004). While El Dorado County does not have oversight over State property the following goals, objectives, and policies related to recreation are listed below for reference:

GOAL 9.1: Parks and Recreation Facilities. Provide adequate recreation opportunities and facilities including developed regional and community parks, trails, and resource-based recreation areas for the health and welfare of all residents and visitors of El Dorado County.

Objective 9.1.2: County Trails. Provide for a County-wide, non-motorized, multi-purpose trail system and trail linkages to existing and proposed local, State, and Federal trail systems. The County will actively seek to establish trail linkages between schools, parks, residential, commercial, and industrial uses and to coordinate this non-motorized system with the vehicular circulation system.

- **Policy 9.1.2.8:** Integrate and link, where possible, existing and proposed National, State, regional, County, city and local hiking, bicycle, and equestrian trails for public use.

Objective 9.1.3: Incorporation of Parks and Trails. Incorporate parks and non-motorized trails into urban and rural areas to promote the scenic, economic, and social importance of recreation and open space areas.

- **Policy 9.1.3.3:** Coordinate with Federal, State, other agencies, and private landholders to provide public access to recreational resources, including rivers, lakes, and public lands.

Objective 9.3.1: Recreational and Tourist Uses. Protect and maintain existing recreational and tourist based assets such as Apple Hill, State historic parks, the Lake Tahoe Basin, wineries, South Fork of the American River, and other water sport areas and resorts and encourage the development of additional recreation/tourism businesses and industries.

Objective 9.3.2: Natural Resources. Protect and preserve those resources that attract tourism.

ENVIRONMENTAL SETTING

Recreational opportunities in the Tahoe Basin are abundant, diverse, and generally associated with Lake Tahoe's open water (e.g., swimming, boating, personal watercraft use, fishing), shoreline (e.g., sunbathing, camping, bicycling, sightseeing), river recreation (e.g., fishing, canoeing, swimming), and the terrain surrounding the lake

(e.g., hiking, mountain biking, skiing, snowboarding). Furthermore, several high-quality golf courses are located in the Tahoe Basin; among them is the Lake Tahoe Golf Course. Because Lake Valley SRA and Washoe Meadows SP are not associated with lake- and shoreline-oriented recreation, facilities in the study area primarily provide opportunities for land-based recreation, such as golfing, hiking, biking, and cross-country skiing. However, ample recreation opportunities are associated with the Upper Truckee River, including fishing, swimming, and canoeing. For this analysis, the affected environment is generally confined to the South Lake Tahoe area—specifically, the communities of South Lake Tahoe and Meyers, California.

The study area is located within Lake Valley SRA and Washoe Meadows SP (see Exhibits 2-1and 2-3, in Chapter 2, "Project Alternatives"). The area includes the reach of the Upper Truckee River that extends from an entry point at the southern boundary of Washoe Meadows SP, near Chilicothe Street, to a point just west of U.S. 50 where the river exits Lake Valley SRA. The study area is generally bounded by U.S. 50 to the east, Sawmill Road to the north, the North Upper Truckee residential area to the west, and Bakersfield Street and Country Club Drive to the south and southeast.

Washoe Meadows State Park

Washoe Meadows SP consists of meadows and forest in a valley and hillslopes at the base of an escarpment that leads to Echo Summit, and includes a reach of the Upper Truckee River. The park was named for the Native Americans who inhabited the area for thousands of years (State Parks 2006b). Washoe Meadows SP is an undeveloped park; it has no formal entrance or visitor center, access points, parking, or developed infrastructure. Informal parking occurs largely along neighborhood streets. No signage directs visitors to the park.

Washoe Meadows SP does not have an official trail system in place; trails are either user-created, "volunteer" trails (i.e., voluntarily established by trail users, also known as "casual" trails), or user-adopted preexisting trails or unpaved roads that were constructed for logging, quarry pit, or sewer line access prior to purchase of the property by State Parks. Of these, a few have been used as park service roads that now act as major routes for the public to easily access dispersed areas within the park. Although the park unit has not been developed, Washoe Meadows SP is used for informal, dispersed recreation activities, primarily on a network of casual trails near and along the Upper Truckee River and connecting to residential neighborhoods. The trails are not officially established or designated by State Parks or in the *Lake Tahoe Regional Bicycle and Pedestrian Master Plan* (TRPA 2006: Appendix A, Figure 9).

State Parks mapped and conducted an assessment of the roads and trails in Washoe Meadows SP to characterize existing layout, use, and conditions to assist with interim management planning. Use categories include areas open to State Park and public utility service and maintenance vehicles, nonmotorized recreation, hiking-only trails, and temporary or restored trails that do not support substantial recreation activity. The roads and trails in Washoe Meadows SP are open to nonmotorized recreation on an informal basis, and drivable roads are open to state and public service patrol and maintenance vehicles. No other vehicle access is allowed in Washoe Meadows SP.

The Upper Truckee River is used seasonally, primarily during the spring runoff period, for nonmotorized watercraft activities including kayaking and canoeing. The river is also used for limited fishing activity along the reach of the Upper Truckee River that extends through Lake Valley SRA and Washoe Meadows SP, with the trout fishing season typically extending from July 1 through October 1. Other river uses in the warmer months include swimming and lounging along the river banks.

Winter recreation activities within Washoe Meadows SP include informal cross-country skiing and snowshoeing. Although snowmobiling is not allowed within Washoe Meadows SP, there is a high level of illegal snowmobile activity from surrounding areas. Entry and exist points have been documented by visual tracks along the park boundaries.

Washoe Meadows SP Recreation Use and Access Survey

State Parks personnel conducted a detailed user survey for Washoe Meadows SP for June–September 2006 and 2007 (State Parks 2009). The purpose of this survey was to assist State Parks in its ongoing planning and management efforts in the area and to establish baseline levels of recreation use and access for environmental review purposes and park management objectives. The protocol was designed to answer these primary questions:

- What type and frequency of recreational uses are occurring in the park units?
- Where, within the park units, is recreational use occurring?

Multiple techniques were used to capture the diverse set of visitors over a large area. The methods employed were:

- Observational forms (Washoe Meadows SP)
- Personal interviews with comments and map (Washoe Meadows SP)
- Mail-in interview forms with comments and map
- Public recreation planning workshops

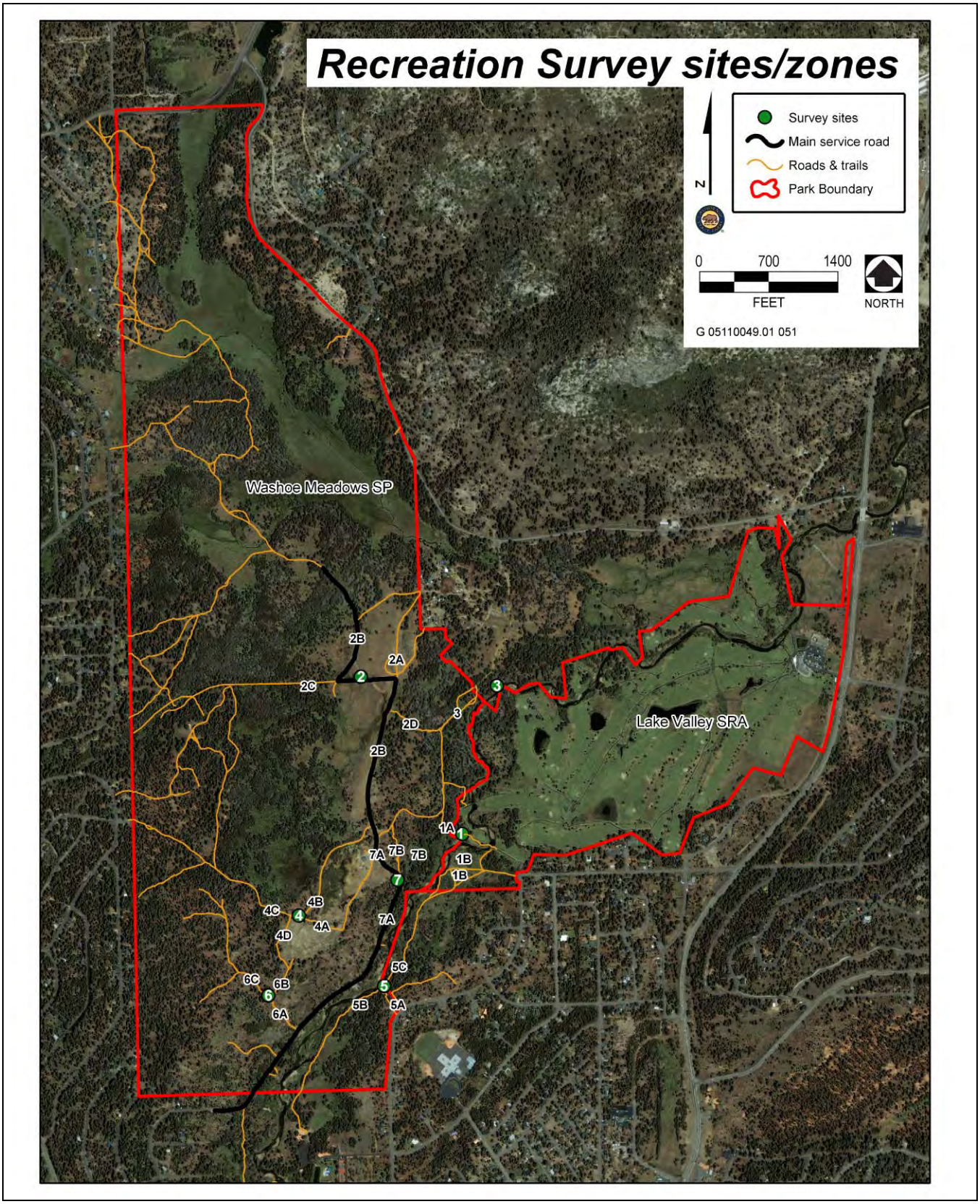
Both interactive survey methods (personal interviews) and observation-based survey methods were conducted during the peak recreation season at seven sites with associated subsites (Exhibit 3.8-1). These seven sites were chosen to provide an accurate description of the recreation activities and user frequency of visitors in all trails in the southern two-thirds of the park. Sites were set up so that the park could be broken up into smaller zones of use based on road/trail configurations. This allowed the surveyor to be able to record visitor use from multiple directions while being in a centralized location at each site, and to gain a better understanding of common routes in which visitors used. Initially in 2006, only sites 1, 2, and 7 had zones associated with them and site 6 had zones added part way through the survey period. In 2007, all sites had affiliated zones and visitors were counted on the forms in the zone through which they entered and exited. Some of these values might have counted the visitor twice, if they used an out and back route going through the same site/zone. These zones enabled State Parks to pin-point which roads and trails that were used the most, and gave general information about the typical routes visitors used. For instance, information gathered at site 6 indicated that the level of use differs within its affiliated zones. Table 3.8-1 below of the total people counted clearly shows the difference of user frequency within each zone for site 6 in 2006. This is an indication that users generally follow specific routes of connectivity (i.e., existing casual trails). Additionally, two winter informal, observational recreation user surveys were conducting in 2007 and 2008. State Parks personnel skied to survey sites and noted types and intensity of tracks present. Routes of tracks were also noted to identify key park entry areas.

Table 3.8-1
Total People Counted per Site/Sub-Zone for Weekdays and Weekends in 2006 and 2007

1A	1B	2A	2B	2C	3	4	5	6A	6B	6C	7A	7B	Total
51	25	43	99	12	14	31	112	25	25	5	89	18	549

Source: State Parks 2009

These survey sites were intended to provide a reasonable representation of the type, level, and frequency of recreation use in the study area. The personal interviews were intended to gauge where people entered Washoe Meadows SP and the route they use, why they chose to recreate in the park, and the frequency of their park use. Surveys were scheduled with approximately equal hours among each site, and surveys were allocated to morning, afternoon, and evening periods. Because of the lack of personnel resources, not all sites could be surveyed at the same time, and surveyors rotated sites according to the hours needed per site. Based on the varied recreational activities and the willingness of the public there were many more observational records than personal interviews completed. Data obtained from the personal interviews and observations are presented in the sections below.



Source: Data provided by EDAW (now AECOM) in 2008

Recreation Survey Locations **Exhibit 3.8-1**

Summary of Personal Interview Data

Interviews were conducted during on-site surveys and were mailed to all individuals on the interested public mailing list. The survey was also available on State Parks' project web site. Of all individuals interviewed on-site, 100 percent were local residents (i.e., people who reside in the Meyers/South Lake Tahoe area), and 86 percent of mail-in interviews were marked with a local zip code. To incorporate the access points that visitors used for recreating in Washoe Meadows SP with the recreation surveys, perimeter access areas (i.e., Survey Access Zones) were created along the boundary of the park property. These areas were outlined from key entry points into the park from the surrounding neighborhoods. Respondents were asked on both the on-site and mail-in forms from which area they entered/exited the park. Some visitors marked more than one area of entry in relation to where they live. Except for Zone E, marked by 5 percent of respondents, and the golf course, marked by 9 percent of the respondents, all other zones had a relatively equal share of responses.

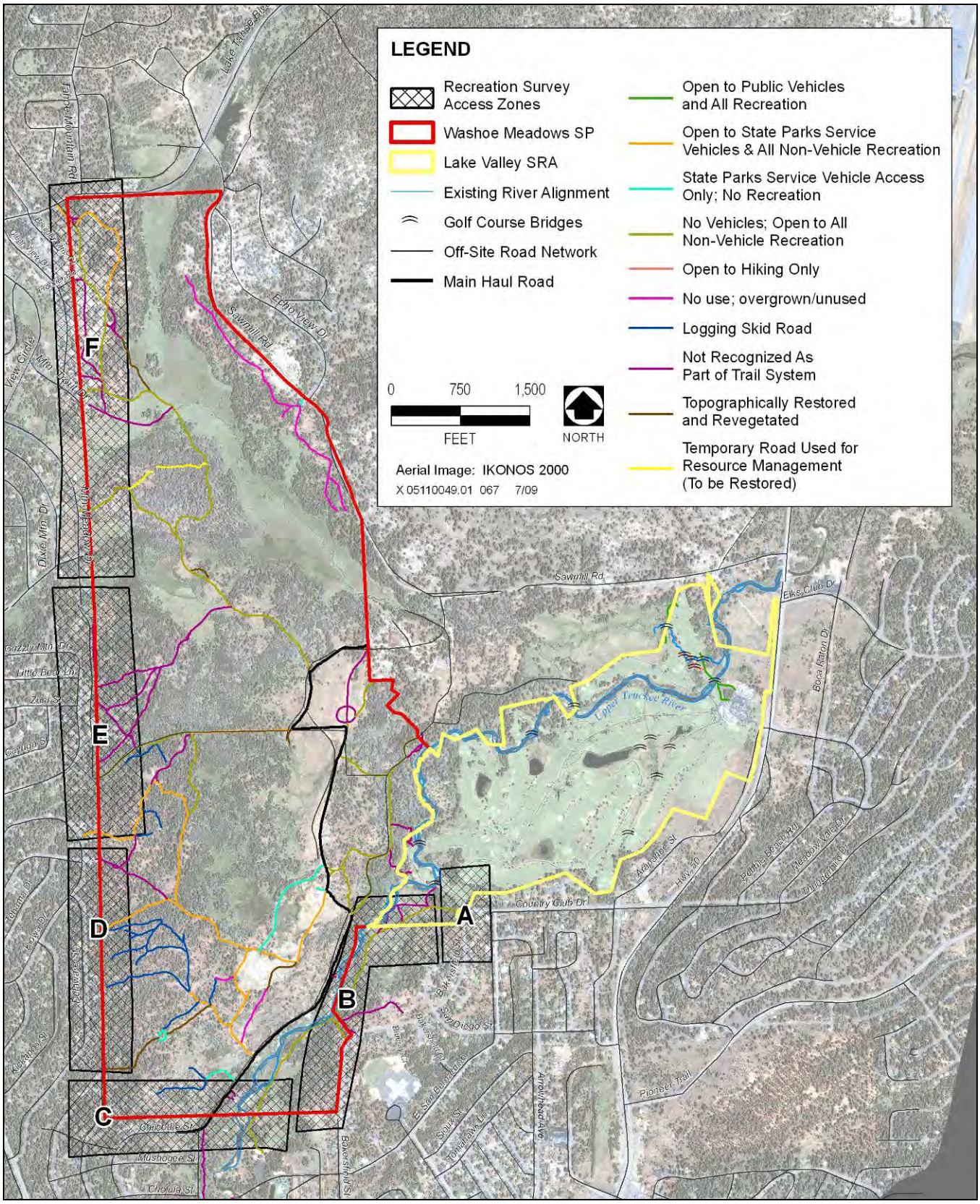
The heaviest park use is from the public residing in the neighborhoods surrounding the boundary of the property. Consequently, most respondents (86 percent) entered the park at locations nearest their homes in Survey Access Zones A, B, C, D, and F (Exhibit 3.8-2). Some visitors marked more than one area of entry in relation to where they live. Twenty percent entered through Zone A, 15 percent through Zone B, 13 percent through Zone C, 18 percent through Zone D, 5 percent through Zone E, 20 percent through Zone F, and 9 percent through the golf course. As might be expected due to the residential location of the majority of survey respondents, 42 percent indicated that they chose to recreate in Washoe Meadows SP because it is close to their home. Other reasons for recreating in the Washoe Meadows SP include ease of access and scenic beauty.

To gain a better understanding of areas of high use, visitors surveyed from the on-site interviews were asked to draw their primary routes on a map. For the mail-in interview forms, users were also asked to draw their primary destination or most often used routes with their area of entry/exit marked on the accompanied map. The results indicate that almost half of the people surveyed (47 percent) incorporate recreation survey point 5 (see Exhibit 3.8-1), which is next to the river, as their primary destination. Recreation survey points 2 and 7 include main routes through Washoe Meadows SP. This correlates with the high percentage of recreational users that access the study area from Zones A, B, C, or F. Recreation survey point 1 is used to access the hole 6 bridge at the Lake Tahoe Golf Course. Although there are five golf course bridges over the river, none of these are open to the public for recreation use because of safety concerns. However, most users entering Washoe Meadows SP from Zones A and B use the hole 6 bridge, which is accessible from Country Club Drive. In contrast, only 3 percent of recreational users chose recreation survey point 6 as their primary destination, and none chose recreation survey point 4.

Summary of Observation-Based Data

Data collected from the observation forms reveals that the heaviest used sites within the study area are sites 2, 5, and 7 (Table 3.8-2). Site 2 is in an area State Parks call "Dry Meadow"; the high level of use is probably because many trails and roads intersect within the site, some of which are used by visitors as connection routes to trails outside the park. It is also a centralized location for visitors coming or going to one side of the park from the other. Site 2 is also in the vicinity of the "old barn," which may serve as a destination for some visitors. Site 5 has a very popular user trail that parallels the Upper Truckee River on the east side. Many users from the adjoining neighborhoods use this trail as an out-and-back hike connecting to the USFS land adjacent to the southern boundary of Washoe Meadows SP or to access the hole 6 bridge at the Lake Tahoe Golf Course to cross the river. Site 7 includes a road that follows the sewer line manholes that traverse the park. The road provides service access for the South Tahoe Public Utility District (STPUD), as well as for State Parks. Many visitors use this road as a connecting route to access other casual trails or other areas within and beyond the park boundaries.

Data collected from the observation-based surveys also indicate that primary recreation uses of the trails within Washoe Meadows SP are walking and hiking (39 percent), and bicycling (36 percent). Jogging and horseback riding are also common uses (Table 3.8-3). Although no data was collected during periods of snow, cross-country ski and snowshoe tracks are also commonly visible in the study area, as well as illegal snowmobile activity (i.e., outside of the concessionaire-operated track on the driving range).



Source: Data provided by EDAW (now AECOM) in 2008

Recreation Survey Access Zones **Exhibit 3.8-2**

Table 3.8-2
Total Recreational Users Counted per Site for Weekdays and Weekends (2006–2007)

	Site Number					
	1	2	4	5	6	7
Number of Recreational Users	76	152	32	112	55	107
Percentage of Total Recreational Users	14%	29%	6%	21%	10%	20%

Source: State Parks 2009

Table 3.8-3
Activity Totals Observed per Site for Weekdays and Weekends (2006-2007)

Activity	Total	Percentage
Hiking/Walking	209	39
Equestrian	81	15
Biking	190	36
Nature/Wildlife Viewing	0	0
Photography/Site Seeing	0	0
ATV/Motorcycle/Off-Highway Vehicle	1	<1
Jogging	30	6
Swimming	9	2
Fishing	0	0
Kayaking/Canoeing/Tubing	14	3
Nordic Skiing	0	0
Snowshoeing	0	0
Snowmobiling	0	0
Total	**534**	**100%**

Source: State Parks 2009

Lake Tahoe Golf Course

The Lake Tahoe Golf Course is located approximately 3.5 miles south of the South Lake Tahoe city limits on the west side of U.S. 50/State Route 89. The golf course is situated on State property within the Lake Valley SRA, a State Parks–managed site. Lake Tahoe Golf Course was constructed from 1958 to 1961 and owned and operated by a private enterprise, beginning in 1962. State Parks purchased the golf course in 1985, and the golf course has been operated by American Golf under a concessionaire contract with State Parks since 1989. As part of the preparation of this draft EIR/EIS/EIS, an extensive economic study of the golf course was prepared. Data regarding use of the golf course is drawn largely from that study (HEC 2008 [Appendix E]), as well as from user surveys conducted by State Parks personnel.

The Lake Tahoe Golf Course is a relatively low-priced, regulation-length golf course in the Lake Tahoe area. Maximum allowed prices are controlled by the contract with State Parks to ensure that the golf course remains affordable and available to general public. The course is generally open from April 15 to November 1 depending on weather and ground saturation conditions. It is a par 71, 18-hole regulation course that plays at 6,741 yards from the back tees. Amenities and features at the golf course include a grass driving range, putting and chipping

practice greens, golf cart paths, five bridges that connect golf course holes northeast and southwest of the Upper Truckee River, a clubhouse, cocktail bar, restaurant, pro shop, snack bar, and a maintenance yard. The course also offers electric golf cart rentals, club rentals, and accommodates tournaments. The golf course hosts tournaments or "championship" play. The term, championship, is used to describe an 18-hole golf course that contains par 3, 4, and 5 holes, is over 6,000 yards for men and between par 70 to 73. The driving range, and putting and chipping greens are used by golfers to both warm up before playing a round, as well as to practice shots without playing a round. Throughout the year, the clubhouse hosts a variety of nongolf functions, such as weddings and banquets. According to the *Lake Tahoe Golf Course Economic Feasibility Study*, an average of approximately 37 such events have been held annually, and approximately 15 of these occur during the winter months (HEC 2008:19 [Appendix E]). The paved parking lot has 115 parking spaces, with parking also provided within unpaved areas on both sides of the golf course entrance.

Based on use data provided by the golf course concessionaire for 2006, the Lake Tahoe Golf Course generated approximately 76 full- and part-time jobs (on average), 60 percent golf-related and 40 percent for food and beverage-related services (serving both golfers and other events) (see Table 3.8-4). Concessionaire data from 2003 – 2006 indicated an average of 33,163 rounds of golf were played and 3,663 guests attended nongolf events each year. (Data from 2007 were not used to contribute to the baseline because of the Angora Fire that year, which caused the golf course to be closed for a substantial portion of the peak season.)

Table 3.8-4
Annual Facility Use at Lake Tahoe Golf Course

Assumptions	Calendar Year 2003	2004	2005	2006	Existing Average	Percent of Average
Number of employees						
Pro Shop				11	11	14%
Carts				7	7	9%
Maintenance				24	24	32%
Food and Beverage				31	31	41%
Administration				3	3	4%
Total Number of Employees				**76**	**76**	**100%**
Number of golf rounds played						
Regular Rounds	27,430	29,001	26,615	28,411	271,164	84%
Tournament Rounds	7,279	5,007	4,467	4,442	5,299	16%
Total Number of Rounds	**34,709**	**34,008**	**31,082**	**32,853**	**33,163**	**100%**
Events						
Number of Weddings	28	28	32	28	29	78%
Number of Banquets	5	10	7	11	8	22%
Total Number of Events	**33**	**38**	**39**	**39**	**37**	**100%**
Guests						
Guests at Weddings	2,920	2,780	3,727	2,935	3,091	84%
Guests at Banquets	410	611	389	880	573	16%
Total Guests at Events	**3,330**	**3,391**	**4,116**	**3,815**	**3,663**	**100%**

Source: HEC 2008 (Appendix E)

The Lake Tahoe Golf Course is particularly susceptible to variability in use levels as influenced by weather-related golf season length. The season beginning and end are dependent on snowmelt in the spring and when substantial snowfall and freezing temperatures occur in the fall, respectively. In addition, because of the high percentage of visiting golfers (i.e., golfers not residing permanently in South Lake Tahoe), the season length is also dependent on visitor use trends. Factors affecting visitation numbers include travel costs and the attractiveness/competitiveness of other visitor destinations. Facility use data show a trend of declining number of rounds played over the 4-year period. This trend is in line with a December 2005 retail market analysis of visitor lodging data, conducted for the City of South Lake Tahoe, which observed that the average annual occupancy rate of hotels, motels, and vacation rentals had declined significantly since 2000, slipping from 43 percent to 29 percent. The data also show increased visitation by guests, corresponding to an increased number of events held at the clubhouse (HEC 2008:19-20 [Appendix E]).

Golfing is considered a summer day-use activity in the TRPA Code. However, summer day-use PAOTs are not currently assigned to the golf course or any other summer day uses within the study area.

Lake Tahoe Golf Course Use Survey

During the 2007 and 2008 golf seasons, State Parks conducted a series of various surveys targeting the golfing community at the Lake Tahoe Golf Course. On-site surveys were conducted at the golf course by staging State Parks personnel at selected holes where golfers were given an opportunity to fill out a standardized form. In addition to the on-site surveys, the same survey form was also placed in the clubhouse of the golf course as extra coverage. State Parks also mailed out a similar survey form in 2007 to the local "Players Club" that is affiliated with the golf course in the hopes of reaching even more of the golfing population. A total of 322 complete surveys were collected during the 2-year period. Although the surveys represent responses from less than 1 percent of the total golfer population, they are still useful and informative about the golfer population and golfing preferences (HEC 2008:29 [Appendix E]).

The surveys revealed that approximately two-thirds of the golfers at the Lake Tahoe Golf Course are visitors from outside the area, and one-third of golfers are local residents (defined as residing in South Lake Tahoe area). Because the majority of golfers are visitors from outside the area, most golfers make five or fewer visits to the golf course per year. About 30 percent of the survey respondents play more than 16 times per year. If the players frequenting the course more than 16 times per year represent the local golfer population, then during the summer the local residents play golf more than three times per month. These local golfers are considered core golfers, or individuals who play eight or more rounds per year. The origins of golfers and number of visits are shown in Table 3.8-5.

The surveys also documented the reasons for choosing to play at Lake Tahoe Golf Course. The survey respondents' primary reasons for playing at this golf course are convenience of the location and playing an 18-hole regulation course. Scenic beauty was chosen by 63 percent of the respondents as a reason for choosing this golf course, followed by course difficulty, and price.

Finally, the survey asked golfers what type of golf course they would play if the course were altered because of river restoration activities. Eighty-two percent of respondents said they would play a reconfigured 18-hole regulation course, with some holes relocated across the river. Eighty percent of the respondents said they would not play a 9-hole course. Similarly, 72 percent indicated they would not play an 18-hole executive course (HEC 2008:31 [Appendix E]).

Table 3.8-5 Summary Statistics from 2007–2008 Lake Tahoe Golf Course User Survey by State Parks				
	First Time Survey Respondent		Repeat Survey Respondent	
Survey Item	Total	Percent of Total	Total	Percent of Total
Origin of Golfers				
Number of Local Residents (South Lake Tahoe area)	103	32%	3	100%
Number of Out-of-Area Visitors	217	68%	0	0%
Total	**319**	**100%**	**3**	**100%**
Number of Visits per Year				
1–5	192	60%	0	0%
6–15	32	10%	2	66%
16+	86	27%	1	33%
No response	9	2%	0	0%
Total	**319**	**100%**	**3**	**100%**
Source: HEC 2008 (Appendix E)				

Lake Tahoe Golf Course Winter Recreation Activities

Consistent with permitted uses in the Lake Valley SRA, winter recreation activities also occur at the golf course. Winter recreation activities consist of organized snowmobiling within a track on the driving range (rental concession), informal public cross-country skiing, and snowshoeing within the golf course boundary. In the winter months, the driving range area of the golf course is used as a snowmobile track. Winter day-use PAOTs are not currently assigned to the snowmobile track or any other winter recreation uses within the study area. The public may rent snowmobiles from a concessionaire for 30-minute increments to ride around an oval track on the driving range. Snowmobile use is restricted to the driving range and snowmobiles are equipped with tracks that are designed only for groomed track use. American Golf has sublet the snowmobile operations since 2000, and executed a new sublease agreement with Sierra Mountain Sports for 2 years, beginning with the 2007–2008 winter season. Under the terms of the lease, rent is paid to American Golf at an increasing percentage as revenue increases. Typically, daily operations have been conducted by two or three employees; however, staffing is determined by projected demand (HEC 2008:23 [Appendix E]).

Snowmobiles are not permitted on any other areas of the golf course or Washoe Meadows SP, except when operated by staff for maintenance or patrol purposes. Staff periodically patrol the golf course and check snow conditions (HEC 2008:21 [Appendix E]). A high level of illegal snowmobile activity occurs within the golf course and Washoe Meadows SP. Although the Lake Tahoe Golf Course is not a designated cross-country ski area, cross-country skiing and snowshoeing are allowed throughout the course and are popular recreational activities.

Other Lake Tahoe Area Recreation

A variety of golf courses, parks, trails, river recreation, and winter recreation opportunities are available in the South Lake Tahoe area, as described below.

Golf

The following public golf courses are located in the greater South Lake Tahoe area:

- *Bijou Municipal Golf Course*, located in South Lake Tahoe, is a public par 32, 9-hole course. It plays at 2,002 yards from the white tees and is open from May 1 through October 31 (Lake Tahoe 2008).

- *Tahoe Paradise Golf Course*, located in Meyers, is a public par 66, 18-hole executive (nonregulation) course. On the short side, it plays at 4,034 yards from the white tees and is open from May 1 through October 15 (Lake Tahoe 2008).

- *Edgewood Tahoe Golf Course*, located in Stateline, Nevada, is a public par 72, 18-hole course. It plays at 6,365 yards from the white tees and is open from May 10 through October 14. Situated next to Lake Tahoe, Edgewood Tahoe Golf Course is known for its scenic beauty. Designed by George Fazio and opened in 1968, Edgewood is rated by Golf Digest Magazine as one of "America's Top Golf Courses." Edgewood has hosted a variety of major golf events throughout the years (Lake Tahoe 2008).

Parks

The South Lake Tahoe region has several park facilities available for public use: Bijou Community Park, El Dorado and Regan Beaches, South Lake Tahoe Parks and Recreation Complex, and athletic fields and playgrounds (City of South Lake Tahoe 2008):

- *Bijou Community Park* is South Lake Tahoe's only true community park (City of South Lake Tahoe 2008). Built in 1992, the park offers a top-rated disc golf course, gazebos, skateboard park, volleyball courts, fitness course, basketball court, horseshoe pits, and dog park.

- *El Dorado Beach* (and boat launch) is the largest beach area in South Lake Tahoe (City of South Lake Tahoe 2008). It offers a boat launch with floating dock, large turf and picnic areas, kayak and water toy concession, rope and buoyed swim areas, and a bike trail.

- *Regan Beach* offers a more tranquil setting than El Dorado Beach, with spectacular views of the lake. It includes a large grass area, sand volleyball court, playground, observation deck, and seasonal restaurant.

- *The South Lake Tahoe Parks and Recreation Complex* consists of a 25-yard indoor/outdoor year-round swimming pool, gymnasium, weight room, kitchen, crafts room, various meeting rooms, changing/shower facilities, outdoor volleyball and basketball courts, picnic area, and Parks and Recreation Department offices.

- *The 13 athletic fields* in the South Lake Tahoe area include a regulation, synthetic-turf soccer/football field; a new full-size, synthetic-turf soccer field with a nine-lane track; a Little League field complex; a full-size baseball field; and athletic fields open to multipurpose use (e.g., softball, football, soccer).

Trails

Many high-quality trails in the South Lake Tahoe region are available on public land for a variety of nonmotorized uses including hiking, mountain biking, and horseback riding. Outside of the State Parks properties, most public trails are located on National Forest lands managed by USFS. The most famous of these is the Tahoe Rim Trail, a 165-mile trail that forms a loop around Lake Tahoe, providing hiking, horseback riding, and Nordic skiing. Mountain biking is allowed on approximately half the trail, but several segments do not allow mountain biking, particularly those segments that overlap the Pacific Crest Trail, which does not allow mountain biking (TRTA 2008).

The Sawmill bike path currently runs along U.S. 50 and is adjacent to part of the Lake Tahoe Golf Course. The bike path is planned to extend along the north boundary of the golf course on Sawmill Road in the future and continue into South Lake Tahoe at U.S. 50, near Sawmill pond. The Pacific Crest Trail runs approximately 2,650 miles from Mexico to Canada, through California, Oregon, and Washington. The trail is designated as nonmechanized and open only to foot, horse, and pack travel. Near the study area, the Pacific Crest Trail can be accessed along U.S. 50 near Echo Summit (PCTA 2008). Most other nonmotorized trail opportunities near the study area are associated with Eldorado National Forest. Several trail opportunities also are available in the Desolation Wilderness area; however, no mechanized travel (i.e., biking) is allowed in wilderness areas (USFS 2006).

River Recreation

River recreation occurs on many reaches of the Upper Truckee River in addition to the area within Washoe Meadows SP and Lake Valley SRA. Most river recreation in the project vicinity that is not associated with the Upper Truckee River occurs on the Truckee River below Lake Tahoe, where recreational opportunities include kayaking, rafting, fishing, and swimming. Many small creeks and tributaries are located throughout the Eldorado National Forest and Desolation Wilderness area that provide good fishing opportunities (USFS 2006).

Winter Recreation

Winter recreation opportunities in the South Lake Tahoe area include snowshoeing, snowmobiling, skiing, snowboarding, sledding, and snow play. Skiing and snowboarding in the South Lake Tahoe area is available at Heavenly Mountain Resort, snowshoeing and cross-country skiing are available at Camp Richardson, and snowmobiling is provided by Tahoe Paradise Golf Course and Zephyr Cove Snowmobiling (Tahoe 360.com 2007).

3.8.2 ENVIRONMENTAL CONSEQUENCES

SIGNIFICANCE CRITERIA

For this analysis, significance criteria are based on the checklist presented in Appendix G of the State CEQA Guidelines; the TRPA Initial Environmental Checklist; factual or scientific information and data; and regulatory standards of Federal, State, and local agencies.

CEQA Criteria

Based on Appendix G of the State CEQA Guidelines, an alternative would result in a significant impact on recreation if it would:

- increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated, or
- include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

In addition, in light of the purpose statements for the State Park units, an alternative was determined to result in a significant effect on recreation resources if it would:

- substantially reduce authorized recreational opportunities or substantially degrade recreational experiences for authorized activities.

NEPA Criteria

An environmental document prepared to comply with NEPA must consider the context and intensity of the environmental effects that would be caused by or result from the proposed action. Under NEPA, the significance of an effect is used solely to determine whether an EIS must be prepared. The factors that are taken into account under NEPA to determine the significance of an action in terms of the context and the intensity of its effects are encompassed by the CEQA criteria used for this analysis.

TRPA Criteria

Based on the TRPA Initial Environmental Checklist Form, an alternative would result in a significant recreation impact if it would:

- create substantial, unmet additional demand for recreation facilities;
- have the potential to create conflicts between recreation uses, either existing or proposed;
- result in a decrease or loss of public access to any lake, waterway, or public lands; or
- result in a reduction of public access to public recreation areas or public recreation opportunities.

In addition, an alternative was determined to result in a significant impact if it would:

- be inconsistent with the *Lake Tahoe Regional Bicycle and Pedestrian Master Plan* (TRPA 2006).

METHODS AND ASSUMPTIONS

For purposes of this analysis, the study area is generally confined to the community of South Lake Tahoe, California. The analysis of PAOT capacity was evaluated recognizing that for any alternative, PAOTs are available for allocation from the reserve pool and that they would be assigned to the Lake Tahoe Golf Course, even under the No Project/No Action Alternative (Alternative 1) for continuation of existing recreation uses. .

IMPACTS FOUND NOT TO BE SIGNIFICANT AND NOT DISCUSSED FURTHER

Lake Tahoe Regional Bicycle and Pedestrian Master Plan (2006) – The Lake Tahoe Regional Bicycle and Pedestrian Master Plan does not identify any officially established or designated trails in the study area (TRPA 2006: Appendix A, Figure 9). In addition, none of the alternatives would affect or preclude the construction of proposed bike routes for neighborhoods east, west, and north of Washoe Meadows SP and Lake Valley SRA that are identified in the plan (TRPA 2006: Figure 8, Appendix A). Because the project would not affect any existing trails identified by the Lake Tahoe Regional Bicycle and Pedestrian Master Plan and would not preclude construction of trails proposed in the plan, this topic is not discussed further.

IMPACT ANALYSIS AND MITIGATION MEASURES

Alternative 1: No Project/No Action—Existing River and 18-Hole Regulation Golf Course

IMPACT 3.8-1 (Alt. 1) Reduction in Recreation Opportunities, Uses, and Experiences Related to Golf. *No new facilities are proposed under Alternative 1; however, repairs to the river or golf course could reduce golfing opportunities in the short term. These effects are expected to be temporary and minor, and no long-term effects on golfing opportunities would occur. This impact would be* ***less than significant****.*

Under Alternative 1, existing conditions in the study area would continue into the future. The reach of the Upper Truckee River within the study area would not be restored and would continue to erode and transport sediment to Lake Tahoe, and the 18-hole regulation golf course would remain in its current location and condition. Repairs to the river and golf course would continue on an emergency or as-needed basis. Future repairs to the river and golf

course could require temporary closures of portions of the golf course, resulting in temporarily reduced golfing opportunities. However, these changes would be short in duration and minor in area affected, and the risk that repairs would be needed is the same as current conditions.

Alternative 1 would not include any new facilities or changes to existing facilities that would result in long-term effects on golfing opportunities.

Because short-term construction activities associated with this alternative (i.e., ongoing repairs to river banks, as needed) would be temporary and minor, and no long-term changes to golfing opportunities in the study area would occur, this impact would be less than significant.

No mitigation is required.

IMPACT 3.8-2 (Alt. 1) **Reduction in Recreation Opportunities, Uses, and Experiences Related to Spring/Summer/Fall Dispersed Outdoor Recreation.** *No new facilities are proposed under Alternative 1; however, future repairs to the river or golf course could result in short-term effects on dispersed outdoor recreation during the spring, summer, and fall. These effects would be temporary and minor, and no long-term effects on recreation opportunities would occur. This impact would be* ***less than significant****.*

Under Alternative 1, existing conditions in the study area would continue into the future. Repairs to the river would continue on an emergency or as-needed basis. Short-term construction-related effects on dispersed outdoor recreation during the spring, summer and fall would not be likely to occur as a result of future repairs to the river within the golf course, because dispersed activities typically take place outside the golf course. In the short-term, future repairs requiring construction activities within and adjacent to the river where other recreation activity occurs would affect primarily water-related recreation and trails along the river. However, these changes would be temporary and minor.

Alternative 1 would not include any new facilities or changes to existing facilities that would result in long-term effects on spring, summer, or fall outdoor recreation opportunities.

Because short-term construction activities associated with this alternative would be temporary and minor, and no long-term changes to spring/summer/fall outdoor recreation opportunities in the study area would occur, this impact would be less than significant.

No mitigation is required.

IMPACT 3.8-3 (Alt. 1) **Reduction in Recreation Opportunities, Uses, and Experiences Related to Winter Recreation.** *No new facilities are proposed under Alternative 1 that would result in short-term or long-term effects on winter recreation. In addition, future repairs to the river or golf course would not likely occur during the winter season and would not disturb areas used for winter recreation. Therefore,* ***no impact*** *would occur.*

Under Alternative 1, repairs to the river and golf course would continue on an emergency or as-needed basis. Repairs to the river would not occur during the winter season unless deemed emergency repairs, and emergency repairs to the river would not affect areas used for winter recreation activities. In addition, the golf course would not be repaired during the winter season. Therefore, short-term construction-related effects associated with future repairs to the river and golf course would not adversely affect winter recreation opportunities.

Alternative 1 would not include any new facilities or changes to existing facilities that would result in long-term effects on winter outdoor recreation opportunities. Snowmobiling would continue to be allowed at the driving range area, and State Parks staff members would continue to periodically patrol for illegal snowmobiling within other areas of the golf course and Washoe Meadows SP. Both activities are the same as occur under existing conditions.

Future repairs associated with this alternative would occur either outside of the winter recreation season or outside of the areas used for winter recreation. No short term or long term changes to winter recreation opportunities would take place. Therefore, no impact would occur.

No mitigation is required.

IMPACT 3.8-4 (Alt. 1) Increased Use of Recreation Facilities and Demand for Recreation Opportunities in the Vicinity of the Study Area. *Alternative 1 would result in the short-term loss of recreation opportunities in the study area during repairs. However, this alternative would not include any new facilities or changes to existing facilities that would result in long-term changes to recreation facility use, recreation demands, or PAOT capacity. This impact would be* ***less than significant****.*

Alternative 1 could result in reduced opportunities for golfing and spring/summer/fall outdoor recreation in the short term during future repairs to the river or golf course. Therefore, the demand for golfing and spring/summer/fall outdoor recreation opportunities in the study area could increase during future repairs. This increased demand would be temporary and would likely be met by a variety of other recreational facilities in the surrounding area, and thus would not cause physical deterioration of any one facility. The impact associated with short-term increases in demand for or use of recreational facilities would be less than significant.

Alternative 1 would not result in any long-term changes to the existing recreation facilities within the study area. Therefore, the use of recreation facilities in the study area would not increase under this alternative. PAOTs are not currently assigned to the Lake Tahoe Golf Course golfing or snowmobiling activities. It can be expected that PAOTs would be assigned to these uses under Alternative 1. Illegal snowmobile activities within the golf course and Washoe Meadows SP would not be assigned PAOTs and State Parks would continue to patrol these areas. Demand for recreational opportunities is expected to fluctuate over time based on factors such as population growth, economic conditions, changes in recreational opportunities, and season. Alternative 1 would not increase long-term demand for recreational opportunities, and future demand is expected to fluctuate as under current and past conditions. Effects on PAOTs capacity would not change from existing conditions. PAOTs are available for allocation from the existing reserve.

Because short-term increases in demand may not occur or would be temporary and Alternative 1 would not result in any new long-term recreational facilities, changes to existing facilities, or needed PAOT capacity this impact would be less than significant.

No mitigation is required.

Alternative 2: River Ecosystem Restoration with Reconfigured 18-Hole Regulation Golf Course

IMPACT 3.8-1 (Alt. 2) Reduction in Recreation Opportunities, Uses, and Experiences Related to Golf. *Construction associated with Alternative 2 would temporarily reduce golfing opportunities on the existing golf course for a two-year construction period; however, other 18-hole courses are available in the region to provide golfing opportunities during this temporary construction disruption. Long-term golfing opportunities under this alternative would be similar to existing conditions after completion of the reconfigured 18-hole golf course. This impact would be* ***less than significant****.*

Under Alternative 2, construction would be phased over a 3- to 4-year period between May 1 and October 15 in each year, beginning in 2012. During Year 1 of construction, golf play would be limited to a 9-hole course on the east side of the river to allow for construction access adjacent to the river. In Year 2, golf play would be either completely shut down or located on the western nine holes constructed in Year 1, if vegetation is properly established. The reconfigured 18-hole regulation golf course would be open to play in Year 3, with possible minor short-term modifications to allow for construction access to the river.

Although golfing opportunities within study area would be reduced during Years 1 and 2 of construction, two other 18-hole golf courses (Tahoe Paradise Golf Course and Edgewood Tahoe Golf Course) and the 9-hole Bijou Golf Course, all located within a 15-mile radius of the study area, would be open for play during construction. Within a 60-minute drive of the South Lake Tahoe area there are also eight other competitive golf courses (i.e., public 18-hole golf courses and/or 18-hole golf courses that offer a similar experience to the Lake Tahoe Golf Course in terms of aesthetic appeal) (HEC 2008:32–33 [Appendix E]). In addition, reduced golfing opportunities during construction of Alternative 2 would be temporary.

The current Lake Tahoe Golf Course is an 18-hole regulation length, par 71 course with a total walking distance of 6,741 yards. The current course has three sets of tees at 6,742, 6,327, and 5,702 yards, respectively. The course rating and slope for the three tees are 70.8/126, 68.9/120, and 66.7/109, respectively.

Under Alternative 2, the reconfigured golf course would incorporate and improve sections of the existing golf course. Two new holes that cross the river and seven new holes on the west side of the river would be constructed, removing the existing golf course from areas adjacent to the river. All existing cart paths that are not within the footprint of the reconfigured golf course would be removed, and the area would be restored to natural topography and vegetation.

The portion of the course on the west side of the river would be designed with maintained turf areas surrounded by native vegetation. This concept creates more target-style golf, in which wider turf areas are placed only in main landing zones (fairways through greens), so that manicured vegetation is thin near the tees and minimized overall. The footprint of the golf course in Alternative 2 would be 156 acres versus the existing 133-acre footprint; however the intensively managed area is less than the existing golf course (92 acres versus 103 acres). The conceptual design for the reconfigured course would maintain its status as an 18-hole regulation course designed to host championship play, with approximately the same yardage and par as the existing course. The design intent is to keep the course's slope and rating similar to its current status for existing tee lengths. The same levels of challenge and playability offered by the current course would be maintained.

The reconfigured golf course would continue to operate from approximately April 15 to November 1 (weather permitting) from dawn until dusk, and would continue to host a variety of golf tournaments and outings each year. There is no anticipated change in tournament play frequency or fees under this alternative, except those that may arise in the normal course of business in accordance with the golf course's business plan.

As discussed in the *Lake Tahoe Golf Course Economic Feasibility Analysis*, approximately two-thirds of rounds played were made by visitors to the area (HEC 2008:29–30 [Appendix E]). Of the estimated 22,219 rounds played by visitors, 8,942 rounds were estimated to be made by visitors whose specific purpose for visiting the Tahoe Basin was to play golf at the Lake Tahoe Golf Course. According to the State Parks' Golf Course use survey, 82 percent of the survey respondents indicated that they would play a modified regulation 18-hole course even if some holes were relocated across the river.

Although Alternative 2 would change the existing golfing experience at the Lake Tahoe Golf Course, this change is not considered adverse. The proposed reconfigured, regulation-length 18-hole golf course would maintain its level of challenge and playability, and the existing hole lengths, slopes, and ratings would be matched to the extent possible. The proposed reconfigured golf course would be capable of providing an exacting level of challenge and excellent playing conditions with the ability to host championship play for talented amateur and professional golfers in regional, state, and national competitions, as are provided by the current course.

In addition, the unpaved parking area north of the golf course entrance would be paved to create an additional 89 parking spaces. Paving and other construction activities would be temporary and minor and would not change the existing use. No changes to the clubhouse or maintenance facilities are proposed.

Because short-term reductions in golfing opportunities would be temporary and golfing opportunities would not be reduced in the long term, this impact would be less than significant.

No mitigation is required.

IMPACT 3.8-2 (Alt. 2) **Reduction in Recreation Opportunities, Uses, and Experiences Related to Spring/Summer/Fall Dispersed Outdoor Recreation.** *Alternative 2 would result in the short-term disruption of spring, summer, and fall dispersed outdoor recreation opportunities in the study area during construction. In addition, there would be long-term changes to the existing informal trail system. However, new trails would be constructed that would maintain similar recreation opportunities to existing conditions and water-related recreation would continue after construction. Therefore, this impact would be* ***less than significant****.*

Alternative 2 would affect all or large portions of Recreation Use Zones 1A, 1B, 4, 5, 6, 7A, and 7B (Exhibit 3.8-1). Combined, these zones accommodate approximately 71 percent of all recreation use that currently occurs in Washoe Meadows SP. More specifically, these zones accommodate 82 percent of hiking/walking, 63 percent of biking, 76 percent of jogging, and 51 percent of equestrian use that occurs in Washoe Meadows SP.

Currently, all the trails on the west side of the river are casual or volunteer trails that have been formed by trail users over time through routine dispersed recreational use or unpaved roads that have been adopted for trail use. Current practices include decommissioning casual and volunteer trails where State Parks deems inappropriate due to effects on water quality or vegetation. Volunteer trails are not maintained by State Parks. Service roads are maintained to allow access for STPUD vehicles. The Upper Truckee River is used seasonally, primarily during the spring and summer, for sunbathing, swimming, fishing, and nonmotorized watercraft activities (kayaking and canoeing). Trout fishing season typically extends from July 1 through October 1.

Construction of Alternative 2 would overlap with the spring/summer/fall recreation season (i.e., May 1–October 15) in all 3–4 years of construction, which would result in reduced spring, summer, and fall outdoor recreation opportunities throughout the construction period. In Year 1, construction would focus on the new golf course holes on the west side of the river, which would interfere with use of existing volunteer trails and service roads within the proposed footprint of the relocated golf course in Washoe Meadow SP, as well as some areas adjacent to the river and areas where off-channel work is proposed. Year 2 of construction would involve reconfiguring the existing golf course for play in Year 3, which would affect trail use and water recreation on the Upper Truckee River and trail use adjacent to the existing golf course. Year 3 would involve removing of bridges, completing in-channel work, and connecting historic meanders and new channel sections; these construction activities would also interfere with water-related recreation and use of some volunteer trails and service roads.

Although access to trails and water recreation opportunities in the study area would be reduced during construction, numerous other trails exist in the remainder of Washoe Meadows SP, nearby USFS lands, and elsewhere in the South Lake Tahoe region, and water recreation opportunities along other segments of the Upper Truckee River would be available during construction. To the extent feasible, measures to maintain pedestrian access to trails and river access within the study area would be implemented, and signage would be posted before construction to notify visitors of trail closures.

After construction under Alternative 2, approximately 2.6 miles of existing volunteer trails within Washoe Meadows SP and all of the existing bridges within the existing golf course (except the four cart path bridges along the unnamed creek) would be permanently removed to accommodate the reconfigured golf course on the west side of the river or restoration of the river. However, new designated trails and a new bridge would be constructed to connect the informal dispersed-recreation trails on the west side of the river to new trails on the east side of the river (refer to Exhibit 2-5 in Chapter 2, “Project Alternatives”). The recreation trail would share the new bridge with the golf cart path and would then diverge into separate paths on both sides of the river. The new bridge would be the first river crossing on the State Park lands built with the intent of supporting authorized dispersed outdoor recreation in a safe manner, avoiding conflicts with golf play; the existing golf course bridges are designed only for golfer use and nongolf pedestrian or bicycle use is not authorized for safety reasons. Two new recreation trails on the east side of the river would connect to the bridge. One would extend to the south and tie into the corner of Country Club Drive and Bakersfield Street, while the other would extend along the south side of

the river to the east and tie into the new Sawmill Bike Path along U.S. 50 near the clubhouse. That trail would cross the unnamed creek on an existing golf course bridge that would no longer be within the reconfigured course; the trail would also require sections of boardwalk through the restored floodplain.

A new trail would also be constructed around the north end of the western section of the golf course, allowing access to the east side of the river across the new bridge. The trail would share the cart path in the central area of the western holes where a gap in the golf course would provide a corridor for other recreation users to pass through to the river and tie into the existing gravel road that parallels the river. This proposed trail configuration would enable public access and use into and within this portion of the study area. A section of the new cart path route would also serve as a walking trail on the west side of the river to provide nongolf recreation access across the golf course and to the new bridge.

In total, approximately 1.4 miles of new designated trails would be created as part of Alternative 2. Alternative 2 would not replace the entire length of informal trails that would be removed; however, the new designated trails would be maintained and would provide better connectivity through the study area than the existing trails. Therefore, the new trails would be of higher quality than the volunteer trails that would be removed and would maintain similar recreation opportunities. The new portion of the reconfigured golf course would remove 23 acres of Washoe Meadows SP from other recreational uses; however, Washoe Meadows SP is 620 acres in total and dispersed recreation would continue throughout the remainder of the state park and portions of the Lake Valley SRA.

The golf course bridges that would be removed do not provide authorized public access; however, they often experience unauthorized use by outdoor recreationists. Unauthorized use of these bridges results in an existing use conflict between golfers and other recreation users and is a safety hazard. Although removing these bridges would reduce unauthorized access across the river, authorized access across the river would be enhanced with the completion of the proposed bridge. Alternative 2 would include a new bridge that would provide authorized and safe, nongolf public access across the river, as well as support golfer access to the holes on the west side of the river.

In addition, the river would be restored after construction, and water-related recreation (e.g., swimming, kayaking, fishing) along the Upper Truckee River would continue informally in the study area after completion. Furthermore, by providing trail access along the Upper Truckee River, in areas which were formerly occupied by golf course, fishing access to the river would be improved by Alternative 2.

In summary, construction-period disruption of dispersed recreation would be temporary. New trails would continue to provide long-term recreation opportunities within the study area similar to existing recreation opportunities, and authorized access across the river would be enhanced by the new bridge. Water-related recreation would continue after construction. Therefore, this impact would be less than significant.

No mitigation is required.

IMPACT 3.8-3 (Alt. 2) Reduction in Recreation Opportunities, Uses, and Experiences Related to Winter Recreation. *Existing snowmobile recreation would be unavailable within the study area in the short term because the snowmobile track area would be used for construction staging. No other short-term or long-term changes would affect existing outdoor winter recreation opportunities, use, or experiences such as cross-country skiing, snowmobiling, and snowshoeing. This impact would be* ***less than significant****.*

Consistent with permitted uses in the Lake Valley SRA, winter recreation activities consist of concessionaire-operated snowmobiling on the driving range and informal public cross-country skiing and snowshoeing within the golf course boundary. Cross-country skiing and snowshoeing are also popular informal uses within Washoe Meadows SP. The golf course's driving range is used as a snowmobile track during the winter. Although snowmobile use is restricted to the driving range and staff periodically patrol the golf course, a high level of

illegal snowmobile activity occurs within the golf course and Washoe Meadows SP (HEC 2008:21 [Appendix E]).

Although construction activities would occur in the study area over a 3- to 4-year construction period, active construction would take place only between May 1 and October 15. The winter recreation season begins in December and ends in April. Therefore, construction would be completed each year before the start of the winter recreation season and would not resume until after the winter recreation season. The snowmobile track at the golf course would be closed during the construction season because the driving range is the main construction staging area for the proposed project. However, this closure is short-term (3–4 years) and snowmobiling would be available at Tahoe Paradise Golf Course and Zephyr Cove Snowmobiling during the construction period.

After construction, winter recreation opportunities would continue to occur in the study area from December through April. Cross-country skiing and snowshoeing would continue to be available throughout the study area on an informal basis. Snowmobiling would remain limited to the existing Lake Tahoe Golf Course driving range and would not be allowed within the reconfigured golf course on the west side of the river or within Washoe Meadows SP. Snowmobile operations would continue to be provided by an outside vendor.

Construction activities would be short-term and would not substantially affect winter recreation opportunities available in the area, and there would be no long-term changes to winter recreation. Therefore, this impact would be less than significant.

No mitigation is required.

IMPACT 3.8-4 (Alt. 2) **Increased Use of Recreation Facilities and Demand for Recreation Opportunities in the Vicinity of the Study Area.** *Alternative 2 would result in the short-term loss of recreation opportunities in the study area during construction. After construction, the golf course would be reconfigured and would offer golfing opportunities similar to those of the existing golf course. All other outdoor recreation opportunities would continue in the study area in the long term. This change to the golf course would not increase the long-term demand for recreational facilities or use of any other recreational facilities, and continuation of existing recreational uses would use PAOTs from the existing PAOT reserve pool. This impact would be* ***less than significant****.*

Alternative 2 would result in reduced opportunities for golfing and other spring/summer/fall outdoor recreation in the short term. Therefore, demand for golfing and other spring/summer/fall outdoor recreation could temporarily increase for other facilities during the construction period. This increase would be temporary and would likely be dispersed among other recreational facilities in the surrounding area, and, therefore, would not cause physical deterioration of any one facility. Short-term demand and increases in use of recreational facilities would be less than significant.

In the long term, Alternative 2 would involve reconfiguration of the existing golf course. The reconfigured golf course would offer comparable challenge and playability to the current golf course. According to the Lake Tahoe Golf Course Economic Feasibility Analysis (HEC 2008), reconfiguration of the Lake Tahoe Golf Course under Alternative 2, it is estimated that the number of rounds, generated visitors and spending would remain essentially the same as current conditions.

Other outdoor recreation opportunities would continue in the study area after construction. Furthermore, numerous other areas of public land already used for outdoor recreation are widely available and used by residents of the area. Alternative 2 would not result in a substantial increase in use of any recreational facilities, because Lake Valley SRA and Washoe Meadows SP would continue to provide similar golf and dispersed outdoor recreation opportunities. Outdoor recreation opportunities provided within the study area would be similar to existing opportunities (i.e., trails, river access, forest areas) and Alternative 2 would not cause a substantial increase in demand for other recreation areas.

Currently, no PAOTs are assigned to recreational facilities within the study area. Continuation of existing recreation opportunities in the study area would likely result in assignment of PAOTs, as would occur under Alternative 1, because the number of rounds are expected to be essentially the same as under existing conditions. The Upper Truckee River Restoration and Golf Course Reconfiguration Project qualifies under the EIP for PAOT allocation from the existing pool (6,215 available for summer-day use and 7,927 available for winter-day use [TRPA 2007: 10-9]) available for the Golf Course and for the driving range snowmobile uses. Therefore, Alternative 2 would not have an adverse effect on PAOT capacity for the study area or Tahoe Basin.

Because short-term increases in demand on other recreation areas would be temporary, Alternative 2 would not result in an increase in long-term use or demand for recreation opportunities, and the project qualifies under the EIP to use existing unassigned PAOTs from the reserve pool, this impact would be less than significant.

No mitigation is required.

Alternative 3: River Ecosystem Restoration with Reduced-Play Golf Course

IMPACT 3.8-1 (Alt. 3) Reduction in Recreation Opportunities, Uses, and Experiences Related to Golf. *Alternative 3 would result in the short-term loss of golf play in the Lake Valley SRA during construction. In addition, the existing 18-hole regulation golf course would be reconfigured to a regulation-length 9-hole or 18-hole executive course, which would permanently reduce golfing opportunities in the study area. This impact would be* ***significant****.*

Implementation of Alternative 3 would require construction activities and scheduling similar to those for Alternative 2. Golf play would be limited to a 9-hole golf course on the east side of the river in Year 1 of construction to allow construction access adjacent to the river. In Year 2 of construction, golf play would be completely shut down for modification of the existing course. Year 3 would include removal of bridges, in-channel work, and connection of historic meanders and new channel sections.

Alternative 3 would temporarily reduce golfing opportunities during the construction period. As discussed for Alternative 2, within a 15-mile radius of the study area, one 18-hole executive golf course, one 18-hole regulation golf course, and the 9-hole Bijou Golf Course would be open for play during the construction period. Within a 60-minute drive of the South Lake Tahoe area there are eight other competitive golf courses, defined as public 18-hole golf courses and/or 18-hole golf courses that offer a similar experience to the Lake Tahoe Golf Course in terms of aesthetic appeal (HEC 2008:32–33 [Appendix E]). In addition, construction-related effects would be temporary.

Under Alternative 3, the golf course would be reconfigured to a regulation 9-hole course or an 18-hole executive course. Under either scenario, Alternative 3 would provide reduced golfing opportunities in the study area in the long term, because of the loss of the regulation-length, 18-hole facility. If the existing golf course were reconfigured to a regulation-length 9-hole course, the reconfigured course would follow the same criteria as the existing 18-hole course. The layout of tees, fairways, and greens would be very similar to numerous holes in the current layout of the 18-hole course, because nine holes could fit on the southeast side of the river and be situated outside of sensitive zones. The lengths, slopes, and ratings would be roughly half those of the 18-hole regulation-course. A reduced-play area course would not maintain golfing opportunities and quality of play, and would not be capable of hosting tournament play.

If the existing golf course were reconfigured to an executive course, it would consist of 18 shorter playing holes that would range in par from 48 to 68. Total yardage would be between 3,000 and 4,500 yards. Executive golf courses typically consist of par-3 and par-4 holes only and require less area than a regulation golf course. The same level of challenge and playability that the existing course offers would not be maintained under the executive course scenario. Therefore, an executive course would also not maintain golf recreation opportunities and quality of play, and would not be capable of hosting tournament play.

As discussed in the *Lake Tahoe Golf Course Economic Feasibility Analysis*, 80 percent of survey respondents indicated they would not play a 9-hole course, and 72 percent said they would not play an 18-hole executive course with all the holes located on the east side of the river. As stated in the survey, 79 percent chose to play the Lake Tahoe Golf Course, because it is a regulation 18-hole golf course and because of its convenient location. The economic feasibility analysis indicated that the survey respondents were likely to have been biased regarding proposed changes to be made to the golf course; a reduced-play golf course would likely appeal to a different group of golfers (HEC 2008:30–31 [Appendix E]).

Although golfing opportunities would still exist under Alternative 3, the existing golf experience at the Lake Tahoe Golf Course would be substantially reduced. Alternative 3 would not maintain golfing opportunities and quality of play, nor tournament or championship play. Therefore, this impact would be significant.

As discussed in Chapter 2, "Project Alternatives," the comprehensive evaluation of potentially feasible alternative locations for the golf course determined that no feasible alternative location for an 18-hole regulation golf course is available. Therefore, no feasible mitigation is available to reduce Impact 3.8-1 (Alt. 3) to a less-than-significant level. The impact would remain significant and unavoidable.

IMPACT 3.8-2 (Alt. 3) **Reduction in Recreation Opportunities, Uses, and Experiences Related to Spring/Summer/Fall Dispersed Outdoor Recreation.** *Alternative 3 would result in the short-term loss of recreation opportunities such as trail use and water-related recreation in the study area during the spring, summer, and fall. However, construction-related effects would be temporary. In addition, no long-term changes to spring, summer, and fall recreation opportunities would occur. Therefore, this impact would be* ***less than significant****.*

Short-term effects on spring, summer, and fall dispersed outdoor recreation opportunities would be similar to effects described in Impact 3.8-2 (Alt. 2), because construction phasing would be similar for both alternatives. However, Alternative 3 would not include construction on the west side of the river outside of the historic meander belt. Short-term effects on volunteer trails and service roads within Washoe Meadows SP would be less than under Alternative 2; only trails adjacent to the Upper Truckee River and the use of the STPUD access road would be affected. Furthermore, removal of bridges, in-channel work, and connection of historic meanders and new channel sections under Alternative 3 would temporarily interfere with water-related recreation on the Upper Truckee River such as fishing, swimming, and kayaking.

Under Alternative 3, the design for the Upper Truckee River would be the same as under Alternative 2 except that Alternative 3 would not include any bridges over the river. All five golf course bridges would be removed from the Upper Truckee River; however, the four golf cart bridges over the unnamed creek would remain, with the northernmost bridge designated for trail use. In addition, the confluence of Angora Creek would be reconfigured and four cart path bridges would be removed. Approximately 0.75 mile of casual trails would be removed under Alternative 3 and a designated and maintained pedestrian trail would be established along the northern edge of the proposed reduced-play golf course. This designated trail would run from U.S. 50 just north of the golf course entrance to Country Club Drive, with a tie-in to the Sawmill Bike Trail and would create approximately 1 mile of new trail.

The existing golf course bridges that would be removed under Alternative 3 are used for unauthorized access between Washoe Meadows SP and Lake Valley SRA. This unauthorized access across the river would be eliminated under this alternative; however, because the access is not authorized and is actively discouraged by State Parks (as a result of safety concerns for nongolf users on a golf course), the removal of the bridges would not cause a significant loss of authorized, public recreational access. Public access to Washoe Meadows SP would remain at the end of several streets. Also, access across the river is provided by the Sawmill multi-use trail adjacent to U.S. 50.

No golf course holes would be relocated to the west side of the river; therefore, no new trails would be constructed within Washoe Meadows SP under this alternative.

In addition, the river would be restored and water-related recreation (e.g., swimming, kayaking, fishing) along the Upper Truckee River would continue informally in the study area after construction. Furthermore, by providing trail access along the Upper Truckee River, in areas which were formerly occupied by golf course fishing access would be improved by Alternative 3.

Short-term effects on spring, summer, and fall outdoor recreation would be temporary, and no long-term effects on authorized outdoor recreation opportunities would occur; therefore, this impact would be less than significant.

No mitigation is required.

IMPACT 3.8-3 (Alt. 3) Reduction in Recreation Opportunities, Uses, and Experiences Related to Winter Recreation. *Existing snowmobile recreation would be unavailable within the study area in the short term because the snowmobile track area would be used for construction staging. No other short-term or long-term changes would affect existing outdoor winter recreation opportunities, use, or experiences such as cross-country skiing, snowmobiling, and snowshoeing. This impact would be* ***less than significant****.*

This impact is the same as Impact 3.8-3 (Alt. 2) because short-term effects of Alternative 3 would be limited to closure of the snowmobile track within the driving range. However, snowmobiles would be available at Tahoe Paradise Golf Course and Zephyr Cove Snowmobiling during the construction period and operations on the driving range would resume following construction. As under Alternative 2, no other short-term or long-term effects on outdoor winter recreation would occur. This impact would be less than significant.

No mitigation is required.

IMPACT 3.8-4 (Alt. 3) Increased Use of Recreation Facilities and Demand for Recreation Opportunities in the Vicinity of the Study Area. *Alternative 3 would result in the short-term loss of recreation opportunities in the study area during construction. After construction, the existing Lake Tahoe Golf Course would be reduced to a 9-hole or 18-hole executive golf course, which would reduce the golfing opportunities provided by the course. In the long term, all other outdoor recreation opportunities would remain available in the study area, as under existing conditions. Reduced golfing opportunities in the short term and long term could increase the use of other 18-hole regulation golf courses in the area; however, this increase in use is expected to be dispersed. In addition, because no PAOTs have been assigned to the study area, PAOTs would be assigned from the existing PAOT reserve pool under Alternative 3. Therefore, this impact would be* ***less than significant****.*

Alternative 3 would result in reduced opportunities for golfing, spring/summer/fall outdoor recreation, and winter outdoor recreation in the short term. Therefore, demand for these activities could increase during the construction period. This increase would be temporary and would likely be dispersed among other recreational facilities in the surrounding area, and therefore would not cause an increase in physical deterioration of any one facility. The effects of short-term demand and increases in use of recreational facilities would be less than significant.

Under Alternative 3, the existing golf course would be reduced to a 9-hole or 18-hole executive golf course after construction. The same level of challenge and playability offered by the existing course would not be maintained under either scenario. A 9-hole or executive course would not maintain golf recreation opportunities and quality of play, nor tournament or championship play.

As discussed in the Lake Tahoe Golf Course Economic Feasibility Analysis, 80 percent of survey respondents indicated they would not play a 9-hole course, and 72 percent said they would not play an 18-hole executive course with all the holes located on the east side of the river (HEC 2008:31 [Appendix E]). Therefore, it is likely that with a reduced golf course under Alternative 3, some golfers would choose to play golf at other regulation courses, which would increase the use of other 18-hole regulation golf courses in the surrounding area. Although the use of other regulation golf courses in the area may increase in the long term, some golfers would continue to use Lake Tahoe Golf Course and some would use golf courses outside of the area. Surveys indicated that

approximately two-thirds of the golfers at the Lake Tahoe Golf Course are visitors from outside the area, so it is expected that many of these golfers would use other golf courses closer to home. Therefore, the increase in use of other golf courses in the long term would be dispersed, and there would not be a substantial increase in use at any one golf course that would cause physical deterioration of any facility. All other outdoor recreation opportunities would continue in the study area after construction. There would not be an increase in demand or use of recreational facilities for other types of outdoor recreation.

Currently no PAOTs are assigned to the golf course or the snowmobile course. It is expected that approval of the project would include assigning winter and summer day use PAOTs to the study area. Because the reduced golf course would result in less golfing opportunities, it would not need the same number of summer day use PAOTs as necessary under Alternatives 1 and 2. It would be expected that winter day use PAOT needs associated with Alternative 3 would be the same as under Alternative 1 and 2 because snowmobiling use on the golf course driving range would not change under this alternative. Because Alternative 3 would qualify under the EIP for PAOT assignment available from the existing reserve pool, it would not have an adverse effect on PAOT capacity for the study area or Tahoe Basin.

Short-term increases in demand would be temporary, and Alternative 3 would not result in a substantial increase in long-term use or demand for recreation opportunities that would result in physical deterioration of any facilities. In addition, Alternative 3 would not affect PAOT capacity. Therefore, this impact would be less than significant.

No mitigation is required.

Alternative 4: River Stabilization/Existing 18-Hole Regulation Golf Course

IMPACT 3.8-1 (Alt. 4) Reduction in Recreation Opportunities, Uses, and Experiences Related to Golf. *Under Alternative 4, the existing golf course would remain largely unchanged. Therefore, little to no change in golf opportunities would occur. This impact would be* ***less than significant****.*

Alternative 4 would require a shorter construction period (i.e., 2–3 years) than the other action alternatives. Most of the work would be within the existing channel, and construction phasing would be the same for both years, working from upstream to downstream or downstream to upstream. Project-related activities would involve primarily in-channel work with minor floodplain work and restroom installation. Attempts would be made to keep nine holes of the golf course open during the 2- to 3-year construction period; however, it is possible that the golf course would need to be completely shut down for 1 year for construction access. Although golfing opportunities could be reduced during construction, this reduction in golfing opportunities would be temporary and other golf courses in the surrounding area would be open during construction.

Under Alternative 4, the current golf course would remain primarily in its existing configuration and location, with minor modifications to holes 6 and 7 to account for the removal two golf course bridges. One new bridge would be installed over the Upper Truckee River to accommodate two-way golf cart traffic. Minor modifications to the cart path would occur, and bridges across Angora Creek would remain. Three of the existing bridges over the Upper Truckee River would remain in place while the two upstream bridges would be replaced by one longer bridge. A new 650 square foot restroom facility would be constructed adjacent to hole 5. There would be only minor changes to the existing golf course under this alternative, the regulation 18-hole golf course would maintain its level of challenge and playability, and the existing hole lengths, slopes, and ratings would not change, and it would still be able to host championship play and tournaments.

Because construction-related effects would be temporary and the existing 18-hole regulation golf course would remain largely unchanged, this impact would be less than significant.

No mitigation is required.

IMPACT 3.8-2 (Alt. 4) **Reduction in Recreation Opportunities, Uses, and Experiences Related to Spring/Summer/Fall Dispersed Outdoor Recreation.** *Alternative 4 would not include substantial changes to spring, summer, and fall dispersed outdoor recreation opportunities in the study area. This impact would be* ***less than significant****.*

Under Alternative 4, construction activities would occur over a 2- to 3-year period. Most of the work would be within the existing channel and no construction would occur on the west side of the river (other than along the river) under this alternative. Therefore, the majority of casual or volunteer trails in the study area would not be affected by construction activities. Volunteer trails immediately adjacent to the river and use of the STPUD access road would be temporarily affected by construction activities.

Water-related recreation would be affected by construction within the river channel. Access to the river would not be allowed in areas of construction activity.

Although some trails and water-recreation opportunities in the study area would be reduced during construction, these effects would be temporary and other spring, summer, and fall outdoor recreation opportunities would be available in the surrounding area during the construction period.

Under Alternative 4, no long-term changes would be made to the network of existing volunteer trails in the study area, and water-related recreation, including fishing access, would continue on an informal basis along the Upper Truckee River. The existing trails and roads would remain in their current locations and are expected to have similar uses as existing conditions. Under this alternative, no new designated trails would be constructed on the east side of the river, and no tie-in would be made with the Sawmill Road Bike Path. The golf course bridges over the Upper Truckee River would remain closed to non-golf use.

Because short-term effects on spring, summer, and fall outdoor recreation would be temporary and no long-term changes to outdoor recreation in the study area would occur, this impact would be less than significant.

No mitigation is required.

IMPACT 3.8-3 (Alt. 4) **Reduction in Recreation Opportunities, Uses, and Experiences Related to Winter Recreation.** *Existing snowmobile recreation would be unavailable within the study area in the short term because the snowmobile track area would be used for construction staging. No other short-term or long-term changes would affect existing outdoor winter recreation opportunities, use, or experiences such as cross-country skiing, snowmobiling, and snowshoeing. This impact would be* ***less than significant****.*

This impact is the same as Impact 3.8-3 (Alt. 2) because short-term effects of Alternative 4 would be limited to closure of the snowmobile track within the driving range. However, snowmobiles would be available at Tahoe Paradise Golf Course and Zephyr Cove Snowmobiling during the construction period and operations on the driving range would resume following construction. As under Alternative 2, no other short-term or long-term effects on outdoor winter recreation would occur. Snowmobiling within other parts of Lake Valley SRA and Washoe Meadows SP would continue to be prohibited. This impact would be less than significant.

No mitigation is required.

IMPACT 3.8-4 (Alt. 4) **Increased Use of Recreation Facilities and Demand for Recreation Opportunities in the Vicinity of the Study Area.** *Under Alternative 4, the existing golf course would remain largely unchanged and would offer golfing opportunities similar to those available under existing conditions. All other outdoor recreation opportunities would remain available in the study area. Therefore, this alternative would not increase the demand for recreational facilities or use of any other recreational facilities that would cause physical deterioration, or effects on PAOT capacity. This impact would be* ***less than significant****.*

This impact is the same as Impact 3.8-4 (Alt. 2) because increases in demand for other recreation areas in the vicinity of the study area would be temporary and there would be no long-term changes to recreation opportunities or demand for recreational facilities. Summer and winter day use PAOTs requirements would be the same as what are required under Alternatives 1 and 2. This impact would be less than significant.

No mitigation is required.

Alternative 5: River Ecosystem Restoration with Decommissioned Golf Course

IMPACT 3.8-1 (Alt. 5) **Reduction in Recreation Opportunities, Uses, and Experiences Related to Golf.** *Alternative 5 would involve decommissioning the entire 18-hole Lake Tahoe Golf Course and restoring the area to meadow habitat. Decommissioning the golf course would eliminate golfing opportunities in the study area. This impact would be* ***significant****.*

Under Alternative 5, construction would be phased over the 3- to 4-year period as described under Alternative 2. Upon completion, Alternative 5 would result in the removal of the golf course and restoration of the land in Lake Valley SRA as meadow and riparian habitat. State Parks would have the opportunity to conduct a follow-up planning process to determine the ultimate disposition of uses in both the Washoe Meadows SP and Lake Valley SRA units. If new park and recreation uses are proposed as a result of the planning effort, they would be subject to their own environmental review prior to approval.

If economically feasible, a temporary 9-hole golf course may remain in use for an interim period while State Parks evaluates alternative uses of this meadow area in the follow-up planning process. If this interim use approach is pursued, golf play would be limited in the first year of construction to a 9-hole course on the east side of the river to allow for construction access adjacent to the river during all years of construction. A temporary 9-hole course would use a portion of the existing 18-hole course. The layout of tees, fairways, and greens would be similar to the layout of holes at the 18-hole regulation course, but the course would include only nine holes, and the smaller course would fit on the southeast side of the river. All holes, cart paths, and bridges adjacent to the Upper Truckee River would be removed and only nine holes would remain. The 9-hole course would continue to operate from April 15 to November 1 from dawn until dusk. It would no longer host golf tournaments or championship play. Use of the clubhouse would be evaluated in a separate planning process.

If a temporary 9-hole golf course is not retained this alternative would permanently eliminate golfing opportunities in the study area upon construction implementation. As discussed for Alternative 2, one 18-hole executive golf course, one 18-hole regulation golf course, and the 9-hole Bijou Golf Course would be open for play within a 15-mile radius of the study area during the construction period. Within a 60-minute drive of the South Lake Tahoe area, eight other competitive golf courses offer an experience similar to the experience of the Lake Tahoe Golf Course in terms of aesthetic appeal (HEC 2008:32–33 [Appendix E]). However, decommissioning the Lake Tahoe Golf Course would permanently eliminate golfing opportunities in the study area, which would substantially reduce long-term, golfing opportunities in the South Lake Tahoe area. Therefore, this impact would be significant.

As discussed for Alternative 3, the comprehensive evaluation of potentially feasible alternative locations for the golf course determined that no feasible alternative location is available. Therefore, no feasible mitigation is available to reduce Impact 3.8-1 (Alt. 5) and this impact would remain significant and unavoidable.

IMPACT 3.8-2 (Alt. 5) **Reduction in Recreation Opportunities, Uses, and Experiences Related to Spring/Summer/Fall Dispersed Outdoor Recreation.** *Alternative 5 would result in the short-term loss of spring, summer, and fall dispersed outdoor recreation opportunities in the study area during construction. In addition, minor long-term changes would be made to the existing informal trail system adjacent to the river. All golf course bridges would be removed. However, they have not provided authorized non-golf use. This impact would be* ***less than significant****.*

Short-term effects on spring, summer, and fall outdoor recreation opportunities would be similar to effects described in Impact 3.8-2 (Alt. 2) because construction phasing would be similar for both alternatives. However, Alternative 5 would not include construction on the west side of the river outside of the historic meander belt. Short-term effects on volunteer trails and service roads within Washoe Meadows SP would be less than under Alternative 2; only trails adjacent to the Upper Truckee River and the use of the STPUD access road would be affected. Furthermore, removing bridges, completing in-channel work, and connecting historic meanders and new channel sections under Alternative 5 would interfere with water-related recreation on the Upper Truckee River such as fishing, swimming, and kayaking.

Under Alternative 5, the design approach for the Upper Truckee River would be the same as under Alternatives 2 and 3 except that the cart path bridges over the unnamed creek would be removed under Alternative 5. All five golf course bridges would be removed from the Upper Truckee River. In addition, the confluence of Angora Creek would be reconfigured and four cart path bridges would be removed. Approximately 0.75 mile of trail would be removed and no new trails are proposed under Alternative 5.

The existing golf course bridges that would be removed under Alternative 5 are used for unauthorized access between Washoe Meadows SP and Lake Valley SRA. This unauthorized access across the river would be eliminated under this alternative; however, because the access is not authorized and is actively discouraged by State Parks (as a result of safety concerns for non-golf users on a golf course), the removal of the bridges would not cause a significant loss of authorized, public recreational access. Public access to Washoe Meadows SP would remain at the end of several streets. Also, access across the river is provided by the Sawmill multi-use trail adjacent to U.S. 50.

In addition, the river would be restored and water-related recreation (e.g., swimming, kayaking, fishing) along the Upper Truckee River would continue informally in the study area after construction. Furthermore, by removing the golf course in areas adjacent to the Upper Truckee River fishing access would be improved by Alternative 5.

Short-term effects on spring, summer, and fall outdoor recreation would be temporary and available elsewhere and no long-term effects on authorized outdoor recreation opportunities would occur; therefore, this impact would be less than significant.

No mitigation is required.

IMPACT 3.8-3 (Alt. 5) **Reduction in Recreation Opportunities, Uses, and Experiences Related to Winter Recreation.** *Alternative 5 would involve short-term loss of existing winter outdoor recreation opportunities within the golf course area. In addition, snowmobiling would be discontinued in the long-term. Other winter outdoor recreation would continue on an informal basis in the long-term within the study area. Therefore, this impact would be* ***less than significant****.*

In the short-term, the golf course portion of the study area would be closed for construction and staging, and winter recreation opportunities within this portion of the study area would not be available. However, cross-country skiing and snowshoeing would continue to be available in the short-term within Washoe Meadows SP. In addition, snowmobiling would be available at Tahoe Paradise Golf Course and Zephyr Cove Snowmobiling.

In the long-term, snowmobiling would be discontinued because the snowmobile track on the driving range would be decommissioned along with the golf course. Other winter recreation activities (i.e., snowshoeing, cross-country

skiing) would continue informally in the long-term in the study area. Although snowmobiling in the study area would be eliminated under this alterative, snowmobiling is available at Tahoe Paradise Golf Course and Zephyr Cove Snowmobiling. Overall, the existing dispersed outdoor recreation opportunities, use, and experiences would not be substantially altered.

Because short-term effects on winter outdoor recreation would be temporary and available elsewhere, and outdoor winter recreation opportunities would continue to be available in the long term, this impact would be less than significant.

No mitigation is required.

IMPACT 3.8-4 (Alt. 5) **Increased Use of Recreation Facilities and Demand for Recreation Opportunities in the Vicinity of the Study Area.** *Alternative 5 would result in the short-term loss of recreation opportunities in the study area during construction. After construction, the existing golf course would be decommissioned, which would eliminate golfing opportunities in the study area. In addition, snowmobiling in the study area would be eliminated. This change would increase the use of other golf courses and winter outdoor recreation facilities in the area; however, this increase would be dispersed among other facilities and would not lead to physical deterioration of any facilities. In addition, because no PAOTs have been assigned to the study area, there would be no affect on PAOT capacity. This impact would be* ***less than significant****.*

Alternative 5 would result in reduced opportunities for golfing, spring/summer/fall outdoor recreation, and winter outdoor recreation in the short term. Therefore, demand for these activities could increase during the construction period. This increase would be temporary and would likely be dispersed among other recreational facilities in the surrounding area, and therefore would not cause an increase in physical deterioration to any one facility. The effects of short-term increases in demand for and use of recreational facilities would be less than significant. It is expected that removing the existing golf course under Alternative 5 would increase the long-term use of other golf courses in the surrounding area. Approximately two-thirds of the golfers at the Lake Tahoe Golf Course are visitors from outside the area, so it is expected that many of these golfers would use other golf courses closer to home. Local golfers would likely use multiple other golf courses in the South Lake Tahoe area. Therefore, the increased use of any one golf course would be dispersed among other available golf courses, and this alternative would not cause a substantial long-term increase in use of any individual golf course that would lead to physical deterioration.

In addition, Alternative 5 would eliminate snowmobiling in the study area. Snowmobiling within areas outside of the driving range within the SRA and within Washoe Meadows State Park would continue to be prohibited. Snowmobiling is available at other facilities in the surrounding area, and other outdoor winter recreation opportunities would remain available in the study area and the surrounding area. Therefore, outdoor winter recreation would be dispersed among other available facilities and would not cause a substantial increase in long-term use of any individual facility that would lead to physical deterioration.

No PAOTs have been assigned to the golf course or other recreational facilities within the study area. Therefore, although eliminating the golf course and snowmobile track would result in reduced recreation opportunities within the study area, there would not be a loss of PAOTs or a reduction in PAOT capacity. PAOTs necessary for and future planned recreational uses would be evaluated in a separate planning process for both Washoe Meadows SP and Lake Valley SRA.

Because short-term increases in demand would be temporary, Alternative 5 would not result in a substantial increase in use of or demand for recreation opportunities that would result in deterioration of other recreational facilities, and there would be no reduction in PAOT capacity, this impact would be less than significant.

No mitigation is required.

This page intentionally left blank.

3.9 CULTURAL RESOURCES

This section includes an evaluation of the potential impacts on cultural resources that could result from project implementation. Cultural resources may include archaeological traces, such as early Native American occupation sites and artifacts; historic-era buildings and structures; and places used for traditional Native American observances or places with special cultural significance. These materials can be found at many locations on the landscape in the Tahoe Basin. Along with prehistoric and historic human remains and associated grave-goods, such materials are protected under Federal and State statutes, including Section 106 of the National Historic Preservation Act (NHPA), and TRPA ordinances. Cumulative cultural resource impacts are discussed in Section 3.16, "Cumulative Impacts."

3.9.1 AFFECTED ENVIRONMENT

REGULATORY SETTING

The criteria for determining the significance of cultural resources in the study area are based on NEPA Policies 1 and 2; Section 106 and its implementing regulations, and significance criteria for cultural resources listed in Title 36, Section 60.4 of the Code of Federal Regulations (36 CFR 60.4); Chapter 29, "Historic Resource Protection," of the TRPA Code of Ordinances; and CEQA and the State CEQA Guidelines. The following discussion focuses on cultural resources requirements applicable to the project.

Federal

NEPA Guidelines

In accordance with NEPA, an agency must consider:

- unique characteristics of the geographic area, such as proximity to historic or cultural resources (40 CFR 1508); and
- the degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places (NRHP) (40 CFR 1508.27[b][8]).

Section 106 of the National Historic Preservation Act

Under Section 106 (Title 16, Section 470 and subsequent sections of the United States Code [16 USC 470 et seq.]) and its implementing regulations (36 CFR 800 et seq.), scoping, assessment, and consultation must occur to determine impacts on properties included in or eligible for the NRHP. Section 106 consultation is conducted during EIS preparation to determine whether historic resources will be adversely affected, and if so, whether measures can be implemented to reduce adverse effects to a less-than-significant level. Section 106 does not deal with impacts on all types of cultural resources, or all cultural aspects of the environment; it deals only with impacts on properties included in or eligible for the NRHP.

Section 106 requires Federal agencies to consider the effects of their actions—including those they fund or permit—on properties that may be eligible for listing or are listed in the NRHP. To determine an undertaking's effects on NRHP-eligible properties, archaeological, historical, and architectural properties must first be inventoried and their eligibility for listing in the NRHP must be evaluated. The lead Federal agency is responsible for complying with Section 106, but a qualified representative of the lead agency can conduct the necessary steps. Section 106 review involves four steps:

- Initiate the Section 106 process by establishing the undertaking, developing a plan for public involvement, and identifying other consulting parties.

- Identify historic properties by determining the scope of efforts, identifying cultural resources, and evaluating their eligibility for inclusion in the NRHP.

- Assess adverse effects by applying the criteria of adverse effect on historic properties (resources that are eligible for inclusion in the NRHP).

- Resolve adverse effects by consulting with the State Historic Preservation Officer and other consulting agencies, including the Advisory Council on Historic Preservation if necessary, to develop an agreement that addresses the treatment of historic properties.

State

CEQA and Historical or Archaeological Resources

CEQA offers directives regarding project-related impacts on historical resources and unique archaeological resources. Generally, if implementing a project would result in significant environmental impacts, then public agencies must consider whether such impacts can be substantially lessened or avoided through feasible mitigation measures or feasible alternatives.

Only significant cultural resources (e.g., "historical resources" and "unique archaeological resources") need to be addressed. The State CEQA Guidelines define a historical resource as, among other things, "a resource listed or eligible for listing on the California Register of Historical Resources" (CRHR) (State CEQA Guidelines, Section 15064.5[a][1]; see also Sections 5024.1 and 21084.1 of the California Public Resources Code. A historical resource may be eligible for inclusion in the CRHR, as determined by the State Historical Resources Commission or the lead agency, if the resource:

- is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

- is associated with the lives of persons important in our past;

- embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

- has yielded, or may be likely to yield, information important in prehistory or history.

In addition, a resource is presumed to constitute an "historical resource" if it is included in a "local register of historical resources" unless "the preponderance of evidence demonstrates that it is not historically or culturally significant" (State CEQA Guidelines, Section 15064.5[a][2]). CEQA (Public Resources Code, Section 21083.2) and the State CEQA Guidelines (Section 15064.5) also require consideration of unique archaeological sites. CEQA defines a unique archaeological resource as follows:

> …an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:
>
> (1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
>
> (2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.
>
> (3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If an archaeological site does not meet the criteria for inclusion in the CRHR, but does meet the definition of a unique archaeological resource, it is entitled to special protection or attention under CEQA. Treatment options under CEQA (Public Resources Code, Section 21083.2) include activities that preserve the resource in place in an undisturbed state. Other acceptable methods of mitigation under Section 21083.2 include excavation and curation or study in place without excavation and curation (if the study finds that the artifacts would not meet one or more of the criteria defining a unique archaeological resource).

Section 15064.5(e) of the State CEQA Guidelines requires that excavation cease whenever human remains are uncovered and that the county coroner be called in to assess the remains. If the county coroner determines that the remains are those of Native Americans, the Native American Heritage Commission must be contacted within 24 hours. The lead agency must then consult with the appropriate Native Americans, as identified by the Native American Heritage Commission; under certain circumstances, the lead agency must develop an agreement with the Native Americans for the treatment and disposition of the remains (State CEQA Guidelines, Section 15064.5[d]).

Cultural Resources on State-owned Lands – PRC Section 5024.5

Historical and archaeological resources on state-owned lands are subject to the requirements of Section 5024.5 of the Public Resources Code (PRC). The provisions are intended to protect significant historical and prehistorical features by requiring notification of the State Historic Preservation Officer (SHPO) during the planning process. If the SHPO determines that a proposed action would have an adverse effect on a listed historical resource, the State Parks and SHPO shall adopt prudent and feasible measures that will eliminate or mitigate the adverse effects. State Parks would maintain written documentation of the SHPO's concurrence with proposed actions which would have an effect on an historical resource on the master list.

Tahoe Regional Planning Agency

TRPA regulates growth and development in the Lake Tahoe region through the *Regional Plan for the Lake Tahoe Basin* (Regional Plan). TRPA's Regional Plan, adopted in 1987, consists of several documents: the Goals and Policies, Code of Ordinances, Water Quality Management Plan, Plan Area Statements, and Scenic Quality Improvement Plan.

1987 Regional Plan

The 1987 Regional Plan had a 20-year scope and is currently being reviewed and updated through a collaborative effort led by TRPA. These agencies are working together to update several important environmental documents for the Tahoe Basin. These Regional Plan updates will guide land management, resource management, and environmental regulations in the Tahoe Basin over the next 20 years. The Regional Plan update is anticipated to be completed by 2011.

Regional Plan Goals and Policies

The Goals and Policies document of the 1987 Regional Plan establishes an overall framework for development and environmental conservation in the Lake Tahoe region. The Conservation Element (Chapter IV) of the Goals and Policies document considers 10 subelements selected to cover the full range of Lake Tahoe's natural and historical resources. The following goal and policies in the Cultural subelement are applicable to this project:

GOAL 1: Identify and preserve sites of historical, cultural, and architectural significance within the region.

- **Policy 1:** Historical or culturally significant landmarks in the Basin shall be identified and protected from indiscriminate damage or alteration.

- **Policy 2:** Sites and structures designated as historically, culturally, or archaeologically significant shall be given special incentives and exemptions to promote the preservation and restoration of such structures and sites.

Code of Ordinances

In compliance with Federal and State laws, TRPA has adopted guidelines to determine the significance of cultural resources in the Tahoe Basin and impacts on such resources. Section 29.5 in Chapter 29 of the TRPA Code of Ordinances states that "sites, objects, structures, districts or other resources of historical, cultural, archaeological, paleontological, or architectural significance locally, regionally, state-wide, or nationally" must meet at least one of the following criteria:

- resources associated with historically significant events such as an important community function or memorable happening in the past, or that contain qualities reminiscent of an early stage of development in the region;

- resources associated with significant persons, such as buildings or structures associated with a locally, regionally, or nationally known person; notable examples or best surviving works of a pioneer architect; or structures associated with the life or work of significant persons;

- resources embodying the distinctive characteristics of a type, period, or method of construction; possessing high artistic values; or representing a significant or distinguishable entity;

- archaeological or paleontological resources protected or eligible for protection under Federal or State regulations; or

- prehistoric archaeological or paleontological resources that contribute to the knowledge and understanding of early cultural or biological development.

Section 29.2 of the TRPA Code of Ordinances requires the protection of sites, objects, structures, or other resources designated as historic resources, or for which designation is pending. Demolition, disturbance, removal, or significant alterations are prohibited unless TRPA has approved a resource protection plan to protect the historic resources. Section 29.2.A requires that the resource protection plan be prepared by a qualified professional cultural resources specialist and provide for resource documentation and evaluation. Section 29.2.B requires protection during construction, which includes prohibiting grading or excavation in designated historic resource areas, except with a TRPA-approved resource protection plan (TRPA 1991).

Section 64.8 of the TRPA Code of Ordinances addresses the discovery of historic resources during grading activities. Grading must cease and TRPA must be notified if resources are encountered that appear to be 50 years or older. TRPA will suspend grading and consult with appropriate Federal, State, or local entities to determine the significance of the resource, if any. The property owner must protect the materials during the investigation period (TRPA 1991).

ENVIRONMENTAL SETTING

This section of the draft EIR/EIS/EIS describes the cultural resources that may be affected as a result of implementation of any of the project alternatives.

Cultural Setting

Prehistoric Archaeological Context

Heizer and Elsasser (1953) were the first researchers to postulate an archaeological chronology for the north-central Sierra Nevada. Based on mutually exclusive site locations and tool technologies noted from the Tahoe Basin, they identified two main cultural manifestations or "complexes":

- **The Martis Complex (ca. 5000–1300 years Before Present [B.P.])**. This period, also commonly referred to as the "Middle Archaic," was defined by a heavy reliance on flaked basalt implements and milling stones and slabs for the grinding of seed foods. The predominance of flaked and ground stone artifacts on archaeological sites of this time appears to reflect an economic focus on hunting and seed gathering. This complex was first identified at site CA-Pla-5 in the Martis Valley, south of Truckee.

- **The Kings Beach Complex (ca. 1300–150 B.P.)**. In contrast with the Martis Complex, technology during this time was characterized by chert and obsidian toolstone, bedrock mortars, smaller projectile points (presumably arrow points), and an economic emphasis on fishing and seed gathering. The Kings Beach Complex is usually attributed to the late prehistoric Washoe. Archaeological site CA-Pla-9 on the north shore of Lake Tahoe is the type site for the Kings Beach Complex.

Heizer and Elsasser's 1953 archaeological sequence for the north-central Sierra was revised and expanded to reflect research findings by Elston (1970, 1972), Elston and Davis (1972), and Elston, Davis, and Townsend (1976). Based on the subsequent discoveries of stratified archaeological deposits and on the presence of Great Basin Stemmed series projectile points and accompanying radiocarbon dates, the regional chronological framework was amended to include a pre-Martis culture, incorporating a transitional phase between Martis and Kings Beach (Elston, Davis, and Townsend 1976:44–51). Elston's "Pre-Archaic" (pre-Martis) incorporates the ill-defined **Tahoe Reach Phase** and broadly places the earliest Eastern Front prehistory between 10,000 and 8000 years B.P. This phase is generally associated with small, highly mobile groups whose economy was focused on game hunting. Little evidence for sites of this phase has been found in the Sierra Nevada; the presence of the Tahoe Reach Phase in the region is postulated based on sites of this age at lower elevations.

Cultural manifestations better defined by Elston (1970, 1972), Elston and Davis (1972), and Elston, Davis, and Townsend (1976) are listed below.

- **The Early Archaic (8,000–5,000 B.P.)**, which consists of the Spooner Phase, is described by Elston, Davis, and Townsend (1976:13) as "a hypothetical construct to name the interval for which little archaeological data existed, and it remains poorly known to the present." This cultural phase has been characterized (but not without some controversy; see Milliken and Hildebrandt 1997:22–23) by the presence of Pinto (Gatecliff) Split Stem and Humboldt series projectile points found predominantly in the Great Basin. Paleoenvironmental conditions during this period reflect a widespread Middle Holocene warming and drying trend. General cultural patterns attributed to the Early Archaic include small game hunting, increased milling of hard seeds, and mixed-mode, forager-collector subsistence strategy.

- **The Middle Archaic (5000–1300 B.P.)**, as defined by Elston, Davis, and Townsend (1976), is represented by the Early Martis (5000–3000 B.P.) and the Late Martis (3000–1300 B.P.) phases. During this time, conditions became cooler and wetter, similar to the climate experienced today. Human populations increased and diversified, although they remained low enough to prevent overexploitation of resources (Zeier and Elston 1992:8). The origins and cultural implications of the Martis Complex remain a mystery to local researchers and debate continues (e.g., Bloomer et al. 1997, Clewlow 1984, Duke 1998, Elsasser and Gortner 1991, Jackson et al. 1994:101–109). Researchers are discussing whether the Martis Complex represents a distinct cultural phenomenon or a unique culture specializing in high Sierran resources, particularly the uncharacteristic reliance on basalt toolstone. Lindström (1985), for instance, speculates that Martis reflects an

indigenous Sierran culture, rather than comprising groups from the Great Basin or California that incorporate the mountains into their seasonal settlement patterns.

- **The Late Archaic** is divided into the **Early Kings Beach Phase (1300–700 B.P.)** and **Late Kings Beach Phase (700–150 B.P.)** (Elston, Ataman, and Dugas 1995). The transition from Middle to Late Archaic/ethnographic Washoe is described as one of "profound cultural change" (Elston 1986:19). Environmental conditions continued to be temperate during the Late Archaic, although periodic warm-dry intervals appear to have resulted in substantial and prolonged droughts (Lindström and Bloomer 1994:17). Socioeconomic and technological changes likely resulted from population increases and "demographic packing" and consequent "interspersed" settlement patterns (Elston 1986). Innovations attributed to the Late Archaic include the bow and arrow as well as the increased use of bedrock mortars (for exploitation of the piñon pine) and simple flake tools. The use of basalt and other coarse-grained material to manufacture tools decreased during this time, while obsidian and chert were increasingly exploited.

In summary, the cultural chronology for the Sierra/Lake Tahoe region recognizes six generally distinct phases, each of which can be defined largely by the presence of distinct projectile points found on archaeological sites:

- Tahoe Reach Phase (ca. 10,000–8000 B.P.)—Great Basin Stemmed series projectile points.
- Spooner Phase (ca. 8000–5000 B.P.)—various large basalt projectile points.
- Early Martis Period (ca. 5000–3000 B.P.)—Martis Contracting Stem and Martis Split Stem projectile points.
- Late Martis (ca. 3000–1300 B.P.)—Martis Corner Notched, Elko Corner Notched, and Elko Eared points.
- Late Archaic—divided into the Early Kings Beach Phase (ca. 1300–800 B.P.), typified by Rosegate and Gunther Series points and the Late Kings Beach Phase (ca. 800–150 B.P.), marked by Desert Side–notched and Cottonwood series projectile points.

Ethnographic Context

Lake Valley SRA and Washoe Meadows SP are situated within the ethnographic territory of the Washoe, who inhabited the Tahoe Basin region at the time of Euro-American contact in the early 1840s (Carlson 1986; d'Azevedo 1986:466–471; Price 1962, 1980). The largest Washoe settlements were found in the larger valleys on and along the eastern slope of the Sierra Nevada between Honey Lake to the north and Little Antelope Valley to the south (d'Azevedo 1986:468 [Figure 1], Elston 1986:13).

Although most Washoe resided in long-term or "winter" settlements in the lowland valleys east of the Sierra crest, Lake Tahoe was the spiritual and geographic center of the Washoe world (Downs 1966:16). The Washoe, members of the widespread Hokan linguistic group, are the only Great Basin group to speak a non-Numic language. Although the evidence is far from conclusive, Kroeber (1925:569) and Downs (1966:70) postulate an early relationship (more than 4,500 years ago) between the Hokan-speaking Washoe and other Hokan speakers in California.

The Washoe were economically and socially organized into basic household or extended family units residing in multifamily communities (Barrett 1917:8, Jackson et al. 1994:II.A). Groups maintained ties with each other and with neighboring Penutian-speaking groups, including the Maidu, Miwok, and Paiute. The territory of ethnographic Washoe, like the territories of most native California groups, was fluid; it was also utilized by non-Washoe neighboring groups, particularly when resources were abundant, or as a trade/travel corridor. Joint land use, particularly in areas where resources were abundant or that served as trade and travel corridors, was usually accommodated by negotiation (d'Azevedo 1986:467).

With a relatively abundant environment and some of the highest precontact population densities in the region (Lindström and Bloomer 1994:27, Price 1980), the Washoe pursued an "intensive subsistence strategy and a demographically packed settlement pattern" (Zeier and Elston 1986:379). This pattern of land use involved high seasonal mobility, mixed strategies of foraging and collecting, and intensive exploitation of resources. Areas such as the upper Truckee River watershed include several types of microenvironments—meadows, marshes, and riparian corridors—and each supported a diverse range of floral and faunal species available for use by the Washoe.

Fishing was one of the most important forms of subsistence acquisition available to the Washoe, and d'Azevedo (1986:473) and Lindström (1992:308) suggest that this activity provided the most predictable and consistent source of year-round food during prehistoric and ethnographic times. Seasonal fish runs occurred in all of the major rivers and streams along the eastern side of the Sierra Nevada. Runs in the streams surrounding Lake Tahoe included varieties of Tahoe sucker (*Catostomus tahoensis*) and Lahontan cutthroat trout (*Salmo clarki henshawi*) in the spring and summer, and mountain whitefish (*Prosopium williamsoni*) in the fall and winter. Fishing was accomplished through the use of spears, traps, weirs, hooks and lines, and angling through ice-holes during the winter months.

The hunting of large and small mammals provided hides, bone, ligament, and other important materials as well as another important food source. The late summer and early fall were preferred hunting seasons when species such as mule deer, pronghorn antelope, and mountain sheep were at their most robust. Hares and jackrabbits (white-tailed jackrabbit, cottontail, and snowshoe hare) also supplied an abundant meat source, and drives were organized in late fall to take advantage of this important resource.

The wide variety of flora available provided a substantial part of the diet of the Washoe, and many species were valued for their medicinal properties. The varied distribution of seasonally available plants was a major factor in the dispersal of Washoe groups and their frequent movements over a large range. Two of the most important Washoe staple foods, pine nuts (*ta gim*) and acorns (*malin*), were available mostly in the late fall and winter when other plant resources were becoming scarce. The study area is within lands traditionally used by the Carson Valley Washoe as a route to the western Sierra Nevada, where they obtained acorns. The eastern *Pauwalu* band of Carson Valley and southern *Hungalelti* band from Woodfords may have occupied the present-day Washoe Meadows SP seasonally, probably from spring through fall (d'Azevedo 1986:468–469).

In general, Washoe lifeways remained largely unchanged for centuries until the middle decades of the 19th century. Would-be miners, loggers, ranchers, and Euro-American settlers began to flood the region following the gold strikes in the Sierra Nevada foothills and the silver discoveries in the nearby Nevada Comstock Lode. Like many Native American groups in California and Nevada, the Washoe suffered greatly from the loss of their traditional territory and lifeways, and their population decreased dramatically and soon became marginalized. Today, however, the Washoe people constitute a thriving native community that is reinvesting in its heritage and culture through newfound political, economic, and social influence throughout the Basin and the surrounding region.

Historic-Era Context

Although the earliest documented Euro-American presence in the Lake Valley area occurred in the late 1840s and the early to mid-1850s as travelers and surveyors passed through the area, it was the Comstock mining boom in Nevada starting in 1859 that led to rapid development of the Tahoe Basin (Scott 1957:179–185). The surge in freight and passenger traffic through the Sierra Nevada quickly led to the creation of improved transportation routes, the harvesting of vast stands of timber, and the eventual development of ranching, all of which have played important roles in the economic and social history of the Lake Valley area.

Transportation

The most prominent historic-era transportation feature in the vicinity of the study area is present-day U.S. 50, which has largely followed the existing roadway alignment since at least the 1860s. Formerly known as the Johnson Pass Road, the Placerville–Lake Tahoe Road, the Lake Bigler Toll Road, and the Lincoln Highway, U.S. 50 was originally part of a series of routes informally referred to in the 19th century as the Bonanza Road System in reference to its connection with the rich Comstock Lode mines, located just over the Sierra crest in Nevada (Lindström 2004:8, Scott 1973:59). Originally laid out in 1852 as little more than a footpath, the Johnson Pass Road was not capable of supporting wagon traffic before 1854 (Hoover, Rensch, and Rensch 1966:76).

For much of the 19th century, roadways in the Tahoe Basin supported the region's mining, ranching, and timber industries. However, by the latter years of the 1800s, Lake Tahoe tourism began to emerge as a powerful economic force. Once the automobile became a common fixture on the American landscape, the Tahoe Basin's recreation industry boomed. To encourage tourism and to further entice Americans to purchase automobiles, the Lincoln Highway Association was established in 1912. The association was founded by Carl Fisher, owner of the Indianapolis Motor Speedway; Henry Joy, President of the Packard Motor Car Company; and Frank Seiberling of Goodyear. The goal of the association was mainly to create a demand for automobiles and related products and services (Lincoln Highway Association 2008).

Completed by 1915 in time for the Panama-Pacific Exposition in San Francisco, the Lincoln Highway consisted of a route patched together from preexisting roads and newly built "seedling miles" intended to spur growth. The route started in New York City's Times Square and ended in Oakland's Jack London Square. The Sierra Nevada Southern Route of the Lincoln Highway through Lake Valley was a somewhat later designation, only incorporated into the system in 1924. This route generally followed present-day U.S. 50, although it did deviate from that alignment and followed Pioneer Trail through a portion of South Lake Tahoe (Lincoln Highway Association 2008).

At the time the Lincoln Highway Association was established, the Federal government had nothing to do with the designation and construction of the route; the highway was a strictly private venture. However, with the passage of the Federal Highway Act of 1921, many sections of the 1915 Lincoln Highway were absorbed into the Federally administered interstate system and were assigned numerical designations. This was the eventual fate of the 1924 route through Lake Valley and South Lake Tahoe.

Lumbering

Logging in the Tahoe Basin generally began in support of the Nevada Comstock mines in 1859 and expanded to support the rapid economic and population growth in Carson City, Reno, and Northern California. By the early 1880s, timber production was the single most important regional industry, significantly outpacing the economic output of ranching and agriculture in the region (Scott 1957:186).

Several major lumber companies operated within the Tahoe Basin during the 19th and 20th centuries. Among them was the Carson & Tahoe Lumber and Fluming Company (CTLFC), which had some holdings within the study area. Founded in 1873, the CTLFC was one of the earliest and largest firms in the region and owned property in the east-central, south, and southwestern portions of the Tahoe Basin (Lindström 2004:11). By the 1890s, the company had obtained timber rights on more than 6,000 acres in the southern part of the basin. Business prospered; the CTLFC supported its own employees but also provided economic support for the ranchers, dairymen, and other entrepreneurs throughout the region. However, in keeping with the boom-and-bust cycles of the industry, the CTLFC and other companies began to scale back their operations as saleable timber diminished. Many of these companies soon ceased to exist altogether, and the industry eventually faded as the primary source of employment and income in the region.

Ranching and Dairy Farming

One of the first industries established in the Lake Valley area, aside from timber production, was ranching and dairy farming. The prominence of this endeavor is reflected in the 1870 California Products of Agriculture census, which shows production of 228 tons of hay and 500 tons of butter in Lake Valley alone (Scott 1957:186). By 1875 the quantity of butter produced in the valley had decreased, but at 42 cents per pound, dairy farming was still a profitable venture along with hay production (hay was selling for $30 per ton).

With the rise in timber production, dairy farming and ranching in Lake Valley decreased during the latter decades of the 19th century. However, even during this brief period of decline, it was noted in 1880 that some 1,800 head of cattle were grazing in the valley (Scott 1957:186). By the turn of the century, when most of the profitable stands of timber had been cut in the region, dairy farming expanded once again, revived in part by the increased pasturage made available by the lack of dense stands of timber.

Although portions of the study area were owned or otherwise controlled by the CTLFC (portions of Sections 20 and 21 on the present-day U.S. Geological Survey Echo Lake quadrangle map) during the early 20th century, most of the present-day Washoe Meadows SP and Lake Valley SRA was owned by "M. Forni et al." and C. G. Celio & Sons. Samuel and Cesare Forni (cousins) arrived in the Lake Valley region in 1870 and were soon established as one of the largest cattle families in El Dorado County. The Celio family operated their dairy between 1870 and about 1931, at which time they began to rent the property to Walter Broder, who eventually—in 1942—purchased 600 acres of the land and dairy facilities. However, by 1950, Broder discontinued the dairy operations and was strictly raising beef cattle (Shapiro, Jackson, and Fernandez 2004:23).

Bordering the study area in the northwest portion of Section 21 was land owned by the Barton Ranch, one of the most prominent ranches in the area during the late 1800s and early 1900s (Lindström 2004:Figure 8). First established by Hiram Barton in the 1860s, the Barton Ranch, like many in the Tahoe Basin, was primarily a seasonal pursuit. According to Alva Barton, a direct descendent of Hiram Barton, the Lake Valley meadows were used primarily as summer range for livestock because of the cooler temperatures, well-watered meadows, and lush graze (Lindström and Rucks 2002:18). However, even some of these pastures needed to be irrigated at times and networks of impounding dams, wing walls, water gates, and various earthworks needed to be constructed. These networks for irrigation are still visible on the landscape through Lake Valley today.

Methodology and Findings of the Cultural Resources Study

Cultural resource investigations for the project consisted of a phased approach that included Native American consultation, prefield research, field reconnaissance surveys, and resource documentation. All aspects of the cultural resource study were conducted in accordance with the *Secretary of the Interior's Guidelines for Identification of Cultural Resources* (48 CFR 44720–44723).

Native American Consultation

Implementing regulations for Section 106 require that Federal agencies identify potentially affected Indian tribes that might have knowledge of sites of religious and cultural significance in the area of potential effects (36 CFR 800.3[f][2]). If any such properties exist, Federal agencies must invite Indian tribes to participate in the Section 106 process as consulting parties. In accordance with Section 106 requirements, State Parks contacted the Washoe Tribe of Nevada and California regarding the proposed project (Appendix H). Lynda Shoshone and William Dancing Feather of the Washoe Tribe contacted State Parks archaeologist Denise Jaffke regarding the Phase II archaeological testing conducted at several sites within the study area (Jaffke 2007), stating that they were in agreement with State Parks' findings. EDAW (now AECOM) and State Parks have also been coordinating with Mr. Darrel Cruz, Tribal Historic Preservation Officer (THPO) for the Washoe Tribe regarding the proposed project. Mr. Cruz has been involved in reviewing previous study findings, the results of EDAW's (now AECOM) archival and field research, and mitigation measures designed to reduce potential impacts on cultural resources to less-than-significant levels.

Archival Research

To determine the locations of documented cultural resources within and in the vicinity of the study area, EDAW (now AECOM) conducted background research at the USFS' Lake Tahoe Basin Management Unit (LTBMU). The LTBMU maintains files on cultural resources throughout the Tahoe Basin, including those within the study area. These include State Parks Series 523 Primary, Archaeological Site, and other related forms, historical documents, and cultural resources reports. All relevant site documents, maps, and previous cultural studies at the LTBMU and additional materials were made available through State Parks.

Cultural Resources Documented in the Study area

A total of four prehistoric cultural resources have been documented within the study area that could be affected by the proposed alternatives (Table 3.9-1). These include sites showing evidence of early Native American occupation and retain integrity and data potential; rendering them eligible for NRHP listing under Criterion d. These sites consist of CA-Eld-2158, CA-Eld-2160, CA-Eld-555, and CA-Eld-2156. Sites CA-Eld-2158, CA –Eld-2156, and CA-Eld-2160 were recommended eligible to the NRHP based on subsurface evaluation investigations conducted by Jaffke (2006). Site CA-Eld-555 was recommended eligible by Shapiro, Jackson, and Fernandez in 2004 based on the presence of surface artifacts, a bedrock mortar, and indications of subsurface potential are assumed eligible for the purpose of this project (Jaffke 2009).

Table 3.9-1
Significant Cultural Resources within the Study Area

Site No.	Association	Resource Type	Location				NRHP/CRHR Eligibility Recommendations
			USGS Quadrangle	T.	R.	S.	
CA-ELD-555	Prehistoric–Historic	Lithic scatter, bedrock mortar, historic-era debris	Echo Lake	12N	18E	30	Prehistoric—eligible; Historic—not eligible
CA-ELD-2156	Prehistoric	Lithic Scatter	Echo Lake	12N	18E	19	Eligible
CA-ELD-2158	Prehistoric	Lithic scatter	Echo Lake	12N	18E	19	Eligible (Locus B)
CA-ELD-2160	Prehistoric	Lithic scatter	Echo Lake	12N	18E	20	Eligible

Notes:
CRHR = California Register of Historical Resources; NRHP = National Register of Historic Places; R. = Range; S. = Section; T. = Township; USGS = U.S. Geological Survey
Sources: Data provided by DPR in 2007 and LTMBU in 2007; Shapiro, Jackson, and Fernandez 2004

3.9.2 ENVIRONMENTAL CONSEQUENCES

SIGNIFICANCE CRITERIA

For this analysis, significance criteria are based on the checklist presented in Appendix G of the State CEQA Guidelines; the TRPA Initial Environmental Checklist; factual information; scientific data; and regulatory standards of Federal, State, and local agencies.

CEQA Criteria

Based on Appendix G of the State CEQA Guidelines, an alternative would result in a significant impact on cultural resources if it would:

- cause a substantial adverse change in the significance of a unique archaeological resource or a historical resource as defined in Section 21083.2 of CEQA and Section 15064.5 of the State CEQA Guidelines, respectively;
- have the potential to cause a physical change that would affect unique ethnic cultural values;
- restrict existing religious or sacred uses within the potential impact area; or
- disturb any human remains, including those interred outside of formal cemeteries.

Section 15064.5 of the State CEQA Guidelines defines "substantial adverse change" as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the historical resources is materially impaired.

NEPA Criteria

Under NEPA, the criteria for determining the significance of impacts to cultural resources is based on whether or not a particular resource is eligible for listing on the National Register of Historic Places (NRHP). These criteria also encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. Under Section 106, an adverse effect on a historic resource ("historic property") (a resource presently listing or determined eligible for listing on the NRHP) is found when an undertaking may alter, directly or indirectly, any of the characteristics of the property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration is given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the NRHP. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be further removed in distance, or be cumulative. Adverse effects on historic properties include but are not limited to:

- physical destruction of or damage to all or part of the property;
- alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary of the Interior's standards for the treatment of historic properties (36 CFR Part 68) and applicable guidelines;
- removal of the property from its historic location;
- change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;
- neglect of a property that causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and
- transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

TRPA Criteria

Based on TRPA's Initial Environmental Checklist, an alternative would result in a significant impact on cultural resources if it would:

- result in an alteration of or adverse physical or aesthetic effect to a significant archaeological or historical site, structure, object, or building;
- be located on a property with any known cultural, historical, and/or archaeological resources, including resources on TRPA or other regulatory official maps or records;
- occur on a property associated with any historically significant events and/or sites or persons;
- have the potential to cause a physical change that would affect unique ethnic cultural values; or
- restrict historic or prehistoric religious or sacred uses within the potential impact area.

METHODS AND ASSUMPTIONS

The following analysis is based on a combination of background research, archaeological pedestrian surveys, site investigations, and consultation with the Native American community. Research into potential cultural resources issues began with contacts made with the Washoe Tribe of Nevada and California by State Parks in 2006 for NRHP evaluation excavations proposed for archaeological sites CA-Eld-2152, CA-Eld-2157, CA-Eld-2158, and CA-Eld-2160. These sites were contained within portions of the project site and could have been affected by proposed river restoration activities and golf course reconfiguration. Further consultation with the Washoe Tribe occurred in 2007, also in relation to NRHP evaluation studies (CA-Eld-2156 and CA-Eld-2159).

EDAW (now AECOM) cultural resources specialists also contacted the Washoe Tribe directly in 2007 and coordination with State Parks is ongoing. Most importantly, the Tribal Historic Preservation Officer for the Washoe Tribe, Mr. Darrel Cruz, has been involved in the planning process and the mitigation of potential impacts on important early Native American cultural resources situated within and in the immediate vicinity of the project site.

EDAW (now AECOM) archaeologists, in coordination with State Parks and the USFS LTBMU, reviewed archaeological site records and other documents related to all presently documented cultural sites, features, and artifacts located in and near the study area. Although conventional records searches within California are typically conducted through the California Historical Resources Information System (CHRIS), in this case State Parks and LTBMU maintained more extensive and detailed archives for the project site and the overall study area than the CHRIS. Consequently, the CHRIS was not consulted for this effort. In addition, State Parks archaeologist Denise Jaffke has been in regular contact with the Washoe Tribe regarding cultural resources and culturally sensitive locales on and near the project site. This ongoing contact has provided information on ethnographic and recent historic-era Washoe Tribe use of the study area and the surrounding region.

Archaeological surface surveys and subsurface investigations have been conducted within the entire study area Among these investigations are reconnaissance-level surveys performed by EDAW (now AECOM) and State Parks and an intensive cultural resources inventory conducted by Pacific Legacy within the Washoe Meadows SP. Subsurface investigations included the NRHP evaluation reports on the sites noted above. Information derived from these investigations, archival research, and consultation with the Washoe Tribe has provided a highly detailed and up-to-date assessment of the nature and distribution of prehistoric and historic-era sites, features, and artifacts within and near the study area.

IMPACT ANALYSIS AND MITIGATION MEASURES

Alternative 1: No Project/No Action: Existing River and 18-Hole Regulation Golf Course

IMPACT 3.9-1 (Alt. 1) — Damage to or Destruction of Significant Documented Cultural Resources. *Research has documented 10 prehistoric and historic-era cultural resources recommended eligible for listing on the NRHP/CRHR within and in the immediate vicinity of the study area. None of these sites are situated within areas that would be directly affected by Alternative 1. Consequently, no impact would occur.*

The NRHP/CRHR-eligible cultural resources situated in the study area range from Native American habitation sites, lithic artifact scatters, and bedrock mortars to historic-era building remains and refuse deposits. These include the locations of early Native American habitation such as sites CA-Eld-2160, CA-Eld-2158, and CA-Eld-555. Site CA-Eld-555 is of particular interest to the local Washoe Tribe because many tribal members remember a time when their parents and grandparents camped in this vicinity on a seasonal basis or when working in nearby sawmills. Euro-American occupation of the area can be found in several documented historic-era occurrences such as the Celio Barn (CA-Eld-2151H) or the remains of an early log house and associated debris scatters (CA-Eld-530H). These resources represent traces of human activity over a period of several thousand years within and in the vicinity of the project site. None of these locations, however, would be affected by Alternative 1 because none are situated within or immediately adjacent to the existing golf course. Also, Alternative 1 would not involve ground disturbance activities additional to what would otherwise be able to occur as a result of existing operating conditions (i.e., maintenance of the golf course or repair of existing streambank treatments and bridges). Consequently, no impact would occur.

No mitigation is required.

IMPACT 3.9-2 (Alt. 1) — Damage to or Destruction of As-Yet Undiscovered Cultural Resources. While *subsurface disturbances associated with golf course maintenance or repair of riverbank erosion and damage could potentially destroy or damage as-yet undiscovered prehistoric or historic-era cultural resources, this risk of disturbance is not different than existing conditions. If these resources were disturbed, they would be handled according to State Parks' existing cultural resource management procedures, which would provide adequate response, protection of discovered resources, and consultation with the Washoe Tribe, as needed. Because there is no adverse change in the risk of disturbing undiscovered resources, there would be no impact difference from existing conditions.*

Recent archaeological investigations in the study area (Jaffke 2006, Jaffke and Bloomer 2007) have demonstrated that subsurface archaeological deposits can and do occur in the region. Although the existence of such deposits is often indicated by the presence of surface artifacts, this may not always be the case in areas where ongoing golf course maintenance and use or river bank erosion might occur. Although surface scatters of prehistoric and historic-era artifacts are commonly encountered in the project vicinity and study area, they are often ephemeral and typically do not possess the integrity, association, or data potential necessary for listing on the NRHP or CRHR. Subsurface archaeological remains, on the other hand, are more likely to represent intact deposits capable of retaining, in particular, data potential. Such sites could, due to their potential ability to be used in addressing scientific research topics, be eligible for NRHP/CRHR listing and ongoing activities, such as golf course use and repair, could disturb previously unknown resources. . However, existing State Park's management procedures provide a mechanism for adequate protection of such sites and response to unintentional discoveries resulting in no further impacts.

No mitigation is required

IMPACT 3.9-3 (Alt. 1) Discovery of Human Remains. *While subsurface disturbances associated with golf course maintenance or repair of riverbank erosion and damage could potentially uncover prehistoric or historic-era human remains, this risk of disturbance is not different than existing conditions. If human remains were discovered, they would be handled by State Parks according to existing State of California regulations which would provide adequate response, protection of human remains, and investigation and/or repatriation as appropriate. Because there is no adverse change in the risk of uncovering or disturbing human remains, there would be* ***no impact*** *difference from existing conditions.*

Although no human remains have been documented in the project site or study area, the presence of subsurface archaeological materials suggests that prehistoric remains in particular could exist in subsurface contexts where they could be impacted by activities and occurrences such as ongoing golf course use and maintenance and river bank erosion. While historic-era human interments could also be uncovered, it is more likely that early Native American burials possibly associated with deeply buried archaeological materials such as those noted at sites CA-Eld-2158 and CA-Eld-2160 could be found and disturbed. Although such discovery and disturbance could constitute a significant impact, State Park's protocols and State of California regulations provide adequate protection and discovery response protocols that would result in no further impacts to presently unrecorded prehistoric or historic-era human interments.

No mitigation is required.

Alternative 2: River Ecosystem Restoration with Reconfigured 18-Hole Regulation Golf Course

IMPACT 3.9-1 (Alt. 2) Damage to or Destruction of Significant Documented Cultural Resources. *Research has documented four prehistoric cultural resources recommended eligible for listing on the NRHP/CRHR within and in the immediate vicinity of Alternative 2. If these resources were to be damaged or destroyed, this impact would be* ***potentially significant****.*

Four prehistoric archaeological sites (CA-Eld-2156, CA-Eld-2158, CA-Eld-2160, and CA-Eld-555) are located within or in areas immediately adjacent to the proposed reconfigured 18-hole golf course and/or proposed meadow and floodplain restoration activities. Three of these sites have been recommended eligible to the NRHP under Criterion D (data potential). Sites CA-Eld-2156, CA-Eld-2158 and CA-Eld-2160 were investigated by State Parks (Jaffke 2006) and both were found to contain well-preserved spatially and temporally discrete archaeological deposits that could contribute significant information on early Native American activities in the Tahoe Basin. Site CA-Eld-555 was assumed eligible for the purpose of this project (Pacific Legacy 2004 and Jaffke 2009).

Based on the current conceptual layout of the golf course reconfiguration, elements of Alternative 2 could affect each of these NRHP-eligible sites, but most notably would affect CA-Eld-2160, which is located completely within the proposed reconfigured 18-hole golf course. Site CA-Eld-2158 is located partially within the proposed golf course and portions could be affected by project-related ground-disturbing activities or subsequent course operation and maintenance. Site CA-Eld-555 is located at the western edge of an area where no golf course features or construction are proposed. Sufficient land area exists to avoid Site CA-Eld-555 during the detailed design of the golf course. State Parks would refine the design so the golf course footprint would entirely avoid the resource site. CA-Eld-2156 would be indirectly affected by the project due to increased use of the existing road that travels through the site during construction activities. Each of these four sites is considered an historical resource under CEQA and Section 106 of the NHPA; therefore, if any of them were damaged or destroyed by project activities, this impact would be potentially significant.

Mitigation Measure 3.9-1 (Alt. 2): Avoid Impacts to Documented Significant Cultural Resources (CA-Eld-2156, CA-Eld-2158, CA-Eld-2160, and CA-Eld-555) through a Combination of Site Capping, Project Design Revision, and Archaeological/Washoe Tribe Monitoring.

State Parks will employ one or a combination of three mitigation techniques that can be used to protect sites CA-Eld-2156, CA-Eld-2158, CA-Eld-2160, and CA-Eld-555 as determined during development of more detailed design. To the extent feasible, State Parks will design the project to avoid disturbance of the identified resources. If avoidance is not feasible, State Parks will cap the site locations over which the golf course and/or other related facilities would be constructed. The site capping method has been employed in recent years and, assuming certain qualities of fill and capping methodology, has been endorsed by the Advisory Council on Historic Preservation. Using either technique protects the resource from damage. Based on the layout of Alternative 2, capping a large area encompassing the easternmost portion of CA-Eld-2158 ("Locus B," the NRHP-eligible portion of the site) and CA-Eld-2160 and CA-Eld-2156 may be the most effective approach. During the design development, State Parks will consult with the Washoe Tribe to confirm that design revisions and/or capping are acceptable approaches to protect the resources. CA-Eld-2156, which is bisected by an existing road and experiencing erosion would also be capped.

Mitigation Technique (a): Site Capping. Capping of these sites is consistent with preservation methods described in the archaeological literature. Mathewson and Gonzalez (1988); Mathewson, Gonzalez, and Eblen (1992:10–12); and Mathewson (1989) all concur that burial and capping of an archaeological site, when performed appropriately, preserves the deposit in place. Their reasons are described as follows:

- Burial of an archeological site, unlike excavation, maintains the archaeological resource in place.
- An archaeological site is continually changing and decaying with time; hence, the goal of preservation is not to prevent change but to reduce the natural process of decay by shielding a site from adverse human and natural effects.
- Capping a site with soils of comparable or greater pH value than the pH of the on-site deposit can slow down decay of the organic constituents of an archaeological deposit.
- Capping the sites will make them less permeable to infiltration of surface water and will thus reduce the frequency and severity of cycles of inundation and drying that expedite the decay of organic remains.

Given these conditions and measures, the best method of preservation is to cap the sites with an initial lift of material that has a pH value that is equal to or greater than that currently located at the site locations. This material will be placed on the site so as to avoid direct ground disturbance of surface layers and to avoid compaction of on-site soils and cultural strata.

The potential for compaction decreases with depth; therefore, it is critical that potential stress from compaction be minimized during the initial placement of sediments covering the site. To meet this objective, an initial 1-foot-thick lift of uncompacted soil equal to or higher in pH than soils on-site will be placed directly over the cultural site by mechanized equipment. Working from outside the cultural site, the initial lift will be placed over the cultural site with a Caterpillar D6 LGP (low-ground-pressure) dozer or equivalent low-ground-pressure equipment. Within the cultural site boundaries, this initial lift will be placed in such a manner that the dozer travels only on previously placed material and never directly on the original ground surface.

Mitigation Technique (b): Project Revised Design to Avoid the Resource. If necessary to account for continued access to CA-Eld-555 in its present condition, State Parks will revise the final design of the southernmost proposed portion of the golf course. The final layout would leave an area within which the site is located completely undeveloped and designated as an Environmentally Sensitive Area. The boundaries of this area will be clearly marked and/or restricted with construction cyclone fencing or other suitable materials. No

ground-disturbing activities will be permitted within this Environmentally Sensitive Area, nor will it be used for equipment or materials staging, or transit for vehicles or persons while golf course construction is ongoing.

Mitigation Technique (c): Archaeological/Washoe Tribe Monitoring. While the project will be designed to avoid these four sites to the extent feasible and/or other adequate measures will be developed to protect them during project construction and future golf course operation and maintenance activities, data recovery would be necessary at these sites, if complete protection is not feasible. Construction, and if necessary, data recovery would be monitored by a qualified member of the Washoe Tribe. Washoe and archaeological monitors will evaluate subsequent project-related ground-disturbing activities within and in the immediate vicinity of these site locations. If data recovery is necessary, findings of effect and one or more historic property treatment plans will be prepared and approved by the State Historic Preservation Officer, the lead Federal agency, and the Washoe Tribe THPO. Following data recovery investigations, a data recovery report will be prepared in accordance with the Secretary of the Interior's guidelines and guidance provided by the California Office of Historic Preservation and the THPO.

Implementation of Mitigation Measure 3.9-1 (Alt. 2) would reduce effects on sites CA-Eld-555, CA-Eld-2156, and CA-Eld-2160 if portions of the project could be designed to avoid these sites and/or if NRHP-eligible portions of CA-Eld-2158 (Locus B) , CA-Eld-2156, and CA-Eld-2160 are capped in accordance with established precedent. Archaeological/Washoe monitoring of ground-disturbing activities will also be implemented, along with data recovery, if complete protection is not feasible. Implementation of Mitigation Measure 3.9-1 (Alt. 2) would reduce this impact to a less-than-significant level by protecting the sites from project-related disturbances and potential impacts from ongoing and future golf course use and maintenance. Previously un-recorded cultural materials potentially discovered during monitoring would be protected through their identification and subsequent protection or through further investigation that would recover important scientific data suitable for addressing regional prehistoric or historic-era research issues.

IMPACT 3.9-2 (Alt. 2) Damage to or Destruction of as-yet Undiscovered Cultural Resources. *Subsurface disturbances could potentially destroy or damage of as-yet undiscovered prehistoric or historic-era cultural resources. If these were to represent significant cultural resources per CRHR, TRPA, and/or NRHP criteria, this impact would be potentially significant.*

Recent archaeological investigations in the study area (Jaffke 2006, Jaffke and Bloomer 2007) have demonstrated that subsurface archaeological deposits can and do occur in the region. Although the existence of such deposits is often indicated by the presence of surface artifacts, this may not always be the case in areas where construction related to this alternative might occur. Although surface scatters of prehistoric and historic-era artifacts are commonly encountered in the project vicinity and study area, they are often ephemeral and typically do not possess the integrity, association, or data potential necessary for listing on the NRHP or CRHR. If subsurface archaeological remains are present, on the other hand, they are more likely to represent intact deposits capable of retaining, in particular, data potential. Such sites could, due to their potential ability to be used in addressing scientific research topics, be eligible for NRHP/CRHR listing and impacts to them from construction activities, such as golf course modifications and river treatments, could be significant per Section 106 and CEQA criteria. This impact would be potentially significant.

Mitigation Measure 3.9-2 (Alt. 2): Stop Work and Implement Measures to Protect Cultural Resources Discovered during Ground-Disturbing Activities.

If unrecorded cultural resources are encountered during project-related ground-disturbing activities, a qualified cultural resources specialist will be contacted to assess the potential significance of the find.

If an inadvertent discovery of cultural materials (e.g., unusual amounts of shell, animal bone, glass, ceramics, structure/building remains) is made during project-related construction activities, such as repairs to the river or golf course, ground disturbances in the area of the find will be halted and a qualified professional archaeologist

and the Washoe Tribe's THPO will be notified regarding the discovery. The archaeologist, in cooperation with the THPO, will determine whether the resource is potentially significant per CRHR, TRPA, and/or NRHP criteria and will develop appropriate mitigation to protect the integrity of the resource and ensure that no additional resources are affected. Mitigation could include but is not necessarily limited to preservation in place, archival research, subsurface testing, or contiguous block unit excavation and data recovery.

Implementation of Mitigation Measure 3.9-2 (Alt. 2) would reduce this impact to a less-than-significant level by identifying previously-undocumented cultural resources prior to their destruction and providing an opportunity for their preservation in-place or for further investigation and the recovery of potential important scientific data that could be used to address regional prehistoric and historic-era research issues.

IMPACT 3.9-3 (Alt. 2) Discovery of Human Remains during Construction. *Although no evidence exists to suggest that buried human remains would be encountered during project construction, the potential nonetheless exists for buried human remains to be encountered. Construction activities could thus result in damage to or destruction of such remains. This impact would be* ***potentially significant****.*

Although no evidence of prehistoric or early historic interments was found on the project site in surface contexts, this does not preclude the existence of buried human remains. Furthermore, human remains are known to occur in the project vicinity. California law recognizes the need to protect historic era and Native American human burials, skeletal remains, and items associated with Native American interments from vandalism and inadvertent destruction. The procedures for the treatment of Native American human remains are contained in Sections 7050.5 and 7052 of the California Health and Safety Code and Section 5097 of the California Public Resources Code.

It is possible that previously unknown buried human remains could be unearthed and damaged or destroyed during excavation activities associated with Alternative 1, such as grading or excavation for ongoing repairs. Damage to or destruction of human remains during construction or other project-related activities would be considered significant. Because there is potential for such damage to occur, this impact would be potentially significant.

Mitigation Measure 3.9-3 (Alt. 2): Stop Work and Comply with Relevant State Laws if Human Remains are Uncovered during Construction.

In accordance with the California Health and Safety Code, if human remains are uncovered during ground-disturbing activities, potentially damaging excavation in the area of the burial will be halted and the El Dorado County Coroner and a professional archaeologist will be contacted to determine the nature and extent of the remains.

The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code, Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission (NAHC) by phone within 24 hours of making that determination (Health and Safety Code, Section 7050[c]).

Following the coroner's findings, State Parks or its authorized representative, an archaeologist, and the NAHC-designated Most Likely Descendant (MLD) will determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments are not disturbed. The responsibilities for acting upon notification of a discovery of Native American human remains are identified in Section 5097.9 of the California Public Resources Code.

The landowner will ensure that the immediate vicinity (according to generally accepted cultural or archaeological standards and practices) is not damaged or disturbed by further development activity until consultation with the MLD has taken place. The MLD will have 48 hours to complete a site inspection and make recommendations

after being granted access to the site. A range of possible treatments for the remains may be discussed, including nondestructive removal and analysis, preservation in place, relinquishment of the remains and associated items to the descendents, or other culturally appropriate treatment. Assembly Bill [AB] 2641 (Chapter 863, Statutes of 2006) suggests that the concerned parties may extend discussions beyond the initial 48 hours to allow for the discovery of additional remains. AB 2641 includes a list of site protection measures and states that the landowner will comply with one or more of the following requirements:

- record the site with the NAHC or the appropriate Information Center,
- utilize an open-space or conservation zoning designation or easement, and/or
- record a document with the county in which the property is located.

State Parks or its authorized representative will rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance if the NAHC is unable to identify a MLD or if the MLD fails to make a recommendation within 48 hours after being granted access to the site. State Parks or its authorized representative may also reinter the remains in a location not subject to further disturbance if it rejects the recommendation of the MLD, and mediation by the NAHC fails to provide measures acceptable to State Parks.

Implementation of Mitigation Measure 3.9-3 (Alt. 1) would reduce potential impact to human remains to a less-than-significant level by adhering to these procedures and other provisions of the California Health and Safety Code and AB 2641(e). Therefore, either preserving the human remains in-place or, assuming an agreement can be reached between the property owner and the MLD, or resulting in the repatriation and/or re-interment of the remains in accordance with the wishes of the MLD.

Alternative 3: River Ecosystem Restoration with Reduced Play Golf Course

IMPACT 3.9-1 (Alt. 3) Damage to or Destruction of Significant Documented Cultural Resources. *Research has documented 8 prehistoric and historic-era cultural resources recommended eligible for listing on the NRHP/CRHR within and in the immediate vicinity of the project site. None of these sites are situated within areas that would be affected by Alternative 3. Therefore, no impact would occur.*

No historic resources recommended NRHP eligible under Criterion d by State Parks (Jaffke 2006), are located within the project site under Alternative 3. Therefore, as currently designed under this alternative, proposed meadow/floodplain restoration activities would not affect the integrity of any sites within the study area. **No impact** would occur.

No mitigation is required.

IMPACT 3.9-2 (Alt. 3) Damage to or Destruction of as-yet Undiscovered Cultural Resources. *Subsurface disturbances could potentially destroy or damage as-yet undiscovered prehistoric or historic-era cultural resources. If these were to represent significant cultural resources per CRHR, TRPA, and/or NRHP criteria, this impact would be potentially significant.*

This impact is the same as Impact 3.9-2 (Alt. 2). For the same reasons as described for Alternative 2, this impact would be potentially significant.

Mitigation Measure 3.9-2 (Alt. 3): Stop Work and Implement Measures to Protect Cultural Resources Discovered during Ground-Disturbing Activities.

This mitigation measure is identical to Mitigation Measure 3.9-2 (Alt. 2). For the same reasons as described for Alternative 2, implementation of Mitigation Measure 3.9-2 (Alt. 3) would reduce this impact to a less-than-significant level.

IMPACT 3.9-3 (Alt. 3) Discovery of Human Remains during Construction. *Although no evidence exists to suggest that buried human remains would be encountered during project construction, the potential, nonetheless, exists that for buried human remains to could be encountered. Construction activities could thus result in damage to or destruction of such remains. This impact would be* ***potentially significant****.*

This impact is the same as Impact 3.9-3 (Alt. 2). For the same reasons as described for Alternative 2, this impact would be potentially significant.

Mitigation Measure 3.9-3 (Alt. 3): Stop Work and Comply with Relevant State Laws if Human Remains are Uncovered during Construction.

This mitigation measure is identical to Mitigation Measure 3.9-3 (Alt. 2). For the same reasons as described for Alternative 2, implementation of Mitigation Measure 3.9-3 (Alt. 3) would reduce this impact to a less-than-significant level.

Alternative 4: River Stabilization with Existing 18-Hole Regulation Golf Course

IMPACT 3.9-1 (Alt. 4) Damage to or Destruction of Significant Documented Cultural Resources. *Research has documented 8 prehistoric and historic-era cultural resources recommended eligible for listing on the NRHP/CRHR within and in the immediate vicinity of the project site. None of these sites are situated within areas that would be affected by Alternative 4. Consequently,* ***no impact*** *would occur.*

This impact is the same as Impact 3.9-1 (Alt. 2). For the same reasons as described for Alternative 1, no impact would occur.

No mitigation is required.

IMPACT 3.9-2 (Alt. 4) Damage to or Destruction of as-yet Undiscovered Cultural Resources. *Subsurface disturbances could potentially destroy or damage as-yet undiscovered prehistoric or historic-era cultural resources. If these were to represent significant cultural resources per CRHR, TRPA, and/or NRHP criteria, this impact would be* ***potentially significant****.*

This impact is the same as Impact 3.9-2 (Alt. 2). For the same reasons as described for Alternative 2, this impact would be potentially significant.

Mitigation Measure 3.9-2 (Alt. 4): Stop Work and Implement Measures to Protect Cultural Resources Discovered during Ground-Disturbing Activities.

This mitigation measure is identical to Mitigation Measure 3.9-2 (Alt. 2). For the same reasons as described for Alternative 2, implementing Mitigation Measure 3.9-2 (Alt. 4) would reduce this impact to a less-than-significant level.

IMPACT 3.9-3 (Alt. 4) Discovery of Human Remains during Construction. *Although no evidence exists to suggest that buried human remains would be encountered during project construction, the potential nonetheless exists for buried human remains to be encountered. Construction activities could thus result in damage to or destruction of such remains. This impact would be* ***potentially significant****.*

This impact is the same as Impact 3.9-2 (Alt. 2). For the same reasons as described for Alternative 2, this impact would be potentially significant.

Mitigation Measure 3.9-3 (Alt. 4): Stop Work and Comply with Relevant State Laws if Human Remains are Uncovered during Construction.

This mitigation measure is identical to Mitigation Measure 3.9-3 (Alt. 2). For the same reasons as described for Alternative 2, implementing Mitigation Measure 3.9-3 (Alt. 4) would reduce this impact to a less-than-significant level.

Alternative 5: River Ecosystem Restoration with Decommissioned Golf Course

IMPACT 3.9-1 (Alt. 5) Damage to or Destruction of Significant Documented Cultural Resources. *Research has documented no prehistoric cultural resource recommended eligible for listing on the NRHP/CRHR within or in the immediate vicinity of Alternative 5. Therefore, no impact would occur.*

This impact is the same as Impact 3.9-1 (Alt. 3). For the same reasons as described for Alternative 3, no impact would occur.

No mitigation required.

IMPACT 3.9-2 (Alt. 5) Damage to or Destruction of as-yet Undiscovered Cultural Resources. *Subsurface disturbances could potentially destroy or damage as-yet undiscovered prehistoric or historic-era cultural resources. If these were to represent significant cultural resources per CRHR, TRPA, and/or NRHP criteria, this impact would be potentially significant.*

This impact is the same as Impact 3.9-2 (Alt. 2). For the same reasons as described for Alternative 2, this impact would be potentially significant.

Mitigation Measure 3.9-2 (Alt. 5): Stop Work and Implement Measures to Protect Cultural Resources Discovered during Ground-Disturbing Activities.

This mitigation measure is identical to Mitigation Measure 3.9-2 (Alt. 2). For the same reasons as described for Alternative 2, implementation of Mitigation Measure 3.9-2 (Alt. 5) would reduce this impact to a less-than-significant level.

IMPACT 3.9-3 (Alt. 5) Discovery of Human Remains during Construction. *Although no evidence exists to suggest that buried human remains would be encountered during project construction, the potential nonetheless exists that buried human remains could be encountered. Construction activities could thus result in damage to or destruction of such remains. This impact would be potentially significant.*

This impact is the same as Impact 3.9-3 (Alt. 2). For the same reasons as described for Alternative 2, this impact would be potentially significant.

Mitigation Measure 3.9-3 (Alt. 5): Stop Work and Comply with Relevant State Laws if Human Remains are Uncovered during Construction.

This mitigation measure is identical to Mitigation Measure 3.9-3 (Alt. 2). For the same reasons as described for Alternative 2, implementing Mitigation Measure 3.9-3 (Alt. 5) would reduce this impact to a less-than-significant level.

3.10 TRANSPORTATION, PARKING, AND CIRCULATION

This section describes regulations related to transportation, parking, and circulation, and the existing transportation systems in the project vicinity; identifies significance criteria for impacts on transportation, parking, and circulation; and evaluates potential impacts associated with the project alternatives. Consistency with TRPA goals and policies is presented in Section 3.2, "Land Use," Table 3.2-1. Cumulative transportation and parking impacts are presented in Section 3.16, "Cumulative Impacts." The project effects on thresholds are described in Chapter 4, Section 4.6 "Consequences for Environmental Threshold."

3.10.1 AFFECTED ENVIRONMENT

REGULATORY SETTING

Several State, regional, and local transportation-related standards and criteria apply to the project (Table 3.10-1), as described below. Standards and performance targets are identified in the Transportation Element of the *Regional Plan for the Lake Tahoe Basin* (*Regional Plan*), the TRPA threshold evaluation reports (TRPA 2002, 2007a), the *Regional Transportation Plan–Air Quality Plan for the Lake Tahoe Region* (RTP-AQP) (TRPA 1995), the *U.S. 50 Transportation Concept Report* (TCR), and the *El Dorado County General Plan* (El Dorado County 2004). Of these plans, the RTP-AQP provides the most detailed direction for transportation program development within the study area. Its provisions are discussed under "Tahoe Regional Planning Agency" below.

Table 3.10-1
Transportation and Circulation Standards

Plan/Policy	Standard/Criteria
Tahoe Regional Planning Compact (1980)	Transportation planning in the Tahoe Region is required to (a) reduce dependency on the automobile by making more effective use of existing transportation modes and of public transit to move people and goods within the Tahoe Region; and (b) reduce, to the extent feasible, air pollution caused by motor vehicles.
TRPA Thresholds (2007)	The following threshold that involves transportation issues is intended to reduce air quality problems: *Air Quality: Subregional Visibility & Nitrate Deposition.* Reduce vehicle miles of travel in the Tahoe Basin by 10 percent of the year-1981 base-year values.
TRPA Regional Plan Goals and Policies (2006)	The Transportation Element of the Goals and Policies establishes general goals to be further defined by the RTP. This element sets LOS standards of LOS D for urban roads and LOS D, with brief periods (no more than 4 hours) of LOS E, for signalized intersections. No standards exist for unsignalized intersections.
TRPA *Regional Transportation Plan* (1992)	The Goals and Policies Element of the RTP includes subelements applicable to all projects in the Tahoe Region. Some policies relevant to community plans are: (1) "Community…plans shall make specific recommendations for locating mass transit terminals and transfer points within the community plan…boundaries." (2) "TRPA shall encourage large employers to provide incentives to increase automobile vehicle occupancies." (3) "TRPA shall assist in the location and development of out-of-basin and in-basin park-and-ride lots."
TRPA Air Quality Plan (1995)	The AQP provides more detail than the RTP on strategies required to meet air quality–related goals.
TRPA Code of Ordinances (1998, 2001)	Projects must adhere to requirements in Chapter 14 of the Code for traffic considerations, including vehicle trip reduction targets, and requirements in Chapter 93 for traffic analysis; the Code sections require reducing significant impacts to a less-than-significant level.

Table 3.10-1
Transportation and Circulation Standards

Plan/Policy	Standard/Criteria
U.S. 50 Transportation Concept Report (1998)	The TCR identifies Caltrans's long-term goals for the operating LOS on state highways.
El Dorado County General Plan (2004)	The *El Dorado County General Plan* provides traffic capacity and LOS criteria for various types of highways and intersections.

Notes:
AQP = air quality plan; Caltrans = California Department of Transportation; Code = Code of Ordinances; LOS = level of service; RTP = regional transportation plan; TCR = transportation concept report
Source: Data provided by KD Anderson & Associates in 2009

Federal

No Federal plans, policies, regulations, or laws related to transportation and circulation are applicable.

State

The California Department of Transportation (Caltrans) is responsible for planning, designing, constructing, operating, and maintaining all State-owned roadways, including those in El Dorado County. Federal highway standards are implemented in California by Caltrans.

The TCR notes that the 20-year concept level of service (LOS) for the portion of U.S. 50 that runs in front of the study area is LOS F. LOS definitions are provided in Table 3.10-2 below. Caltrans District 3 considers the following to be significant project impacts:

- deterioration of State highway or intersection LOS beyond LOS D and
- vehicle queues at intersections that exceed existing lane storage.

Tahoe Regional Planning Agency

1987 Regional Plan

TRPA implements its authority to regulate growth and development in the Lake Tahoe region through the *Regional Plan for the Lake Tahoe Basin*. TRPA's *Regional Plan*, adopted in 1987, includes the Regional Transportation Plan–Air Quality Plan, which is designed to maintain the excellent air quality in the Tahoe Region and to reduce dependency on private automobiles.

The 1987 Regional Plan had a 20-year scope and is currently being reviewed and updated through a collaborative effort led by TRPA. These agencies are working together to update several important environmental documents for the Tahoe Basin. These Regional Plan updates will guide land management, resource management, and environmental regulations in the Tahoe Basin over the next 20 years. The Regional Plan update is anticipated to be completed by 2011.

Regional Plan Goals and Policies

The formulation of regional transportation goals and policies is a fundamental step in the transportation planning process. The Goals and Policies reflect the consideration of environmental, social, and economic factors in making transportation-related decisions.

Regional Transportation Goals

1. It is the goal of the Regional Transportation Plan to attain and maintain the Environmental Threshold Carrying Capacities and federal, state, and local transportation standards.

2. It is the goal of the Regional Transportation Plan to establish a safe, efficient, and integrated transportation system which reduces reliance on the private automobile, provides for alternative modes of transportation, and serves the basic transportation needs of the citizens of the Tahoe Region, supports the economic base of the Region in the movement of goods and people, and minimizes adverse impacts on man and the environment.

Regional Transportation Policies and Objectives

1. Plan for and promote land use changes and development patterns which will encourage the use of alternative transportation modes and minimize impacts on the existing transportation system.

   A. Community Plans shall promote land use development patterns and designs which will increase the ability to use public transportation, waterborne, bicycle and pedestrian facilities.

   B. New, expanded or revised developments and land uses shall fully mitigate their regional and cumulative traffic impacts.

   C. Parking for non-residential uses shall be the minimum/maximum required to meet the demand for parking generated by the use, except as may be offset by reducing parking demand through parking management and trip reduction programs.

   D. Driveways shall be designed and sited to minimize impacts on public transportation, adjacent roadways and intersections, bicycle and pedestrian facilities.

2. Develop and encourage the use of pedestrian and bicycle facilities as a safe and viable alternative to automobile use.

   A. Pedestrian and bicycle facilities shall be constructed, or upgraded, and maintained along major travel routes.

   B. Bicycle and pedestrian facilities in urbanized areas and along transportation routes used for commuting should be maintained to allow year-around use of the facilities.

3. Transportation System Management (TSM) measures shall be used to improve the efficiency of the existing transportation system.

   A. Traffic conflicts should be reduced by limiting or controlling access to major regional travel routes and major local road ways.

   B. Intersection improvements required to upgrade existing levels of service including lane restriping, turn lanes, channelization and traffic signals should be implemented when warranted.

   C. Roadway designs shall accommodate bicycle lanes and transit stops and reduce conflicts between vehicles and bicycle and pedestrians.

   D. Left-turn lanes and right-turn lanes shall be provided to reduce turning conflicts along major travel routes.

4. Limit improvements to the regional highway system to those necessary to meet the Goals and Policies of the Regional Plan.

   Level of service (LOS) criteria for the Region's highway system and signalized intersections during peak periods shall be:

   - Level of service "C" on rural recreational/scenic roads.
   - Level of service "D" on rural developed area roads.
   - Level of service "D" on urban developed area roads.
   - Level of service "D" for signalized intersections.
   - Level of service "E" may be acceptable during peak periods in urban areas, not to exceed four hours per day.

Code of Ordinances

Chapter 93 of the TRPA Code of Ordinances (TRPA 2008) includes guidelines and definitions for evaluating the impacts of additional development or transferred development and all changes in operation as defined in the chapter. The chapter defines the level of traffic increase that may be deemed to be insignificant (i.e., 100 additional daily vehicle trips), minor (i.e., 100–200 daily vehicle trips) or significant (i.e., greater than 200 daily vehicle trips). The chapter also identifies the breadth of the traffic analysis to be conducted for actions that are judged to be significant under these definitions.

Plan Area Statements

Traffic and transportation is not among the issue areas addressed by the Plan Area Statements for the study area.

Environmental Threshold Carrying Capacities

TRPA thresholds related to transportation address carbon monoxide, ozone, regional and subregional visibility, and nitrate deposition. Numerical standards have been established for each of these parameters, in addition to management standards that are intended to assist in attaining the thresholds. Management standards have been established for reducing wood smoke, maintaining levels of oxides of nitrogen, reducing U.S. 50 traffic volumes, and reducing vehicle miles traveled (VMT). Two thresholds established for air quality are based on information relating to transportation and are identified below.

AQ-5—Traffic Volume. TRPA established thresholds for traffic volume to reduce the level of carbon monoxide in the Tahoe Basin. The indicator of TRPA's traffic volume program states that there shall be a 7 percent reduction in the daily traffic volume on the U.S. 50 corridor from the 1981 values. The 1981 traffic count was 25,173 vehicles; therefore, attainment of this standard requires a directional daily traffic count of fewer than 23,411 vehicles. TRPA evaluates this indicator by measuring the traffic volume on the Saturday of the President's Day holiday weekend between 4 p.m. and 12 midnight at a site immediately west of the intersection of U.S. 50 and Park Avenue in the city of South Lake Tahoe.

AQ-7—Vehicle Miles Traveled. TRPA adopted the VMT threshold in 1982 as both a water quality and air quality threshold. The TRPA thresholds for air quality, under both visibility and nitrate deposition, include the following management standard: "Reduce vehicle miles of travel by 10 percent of the 1981 base values." The indicator of TRPA's VMT threshold states that there shall be a 10 percent reduction in VMT below the 1981 summer day levels. The 1981 VMT was determined to be 1,648,466 VMT; therefore, the attainment level for this indicator would be 1,483,619 miles for a peak summer day. The 1981 estimate is a modeled value that has been calculated over the years using various travel demand software programs and interim annual methods based on traffic counts.

Level of Service Standards

The Transportation Element of TRPA's RTP-AQP also establishes traffic capacity and LOS criteria for various types of highways, and an operational LOS for signalized intersections (TRPA 1995). The LOS describes the quality of traffic flow through intersections, using a scale from A to F. This analysis procedure is a measure of several factors: operating speeds, freedom to maneuver, traffic interruptions, and average delay for vehicles at intersections. The LOS descriptions provided in Table 3.10-2 summarize the quality of traffic flow for each LOS rating. Intersections operating at LOS A, B, or C function effectively; traffic can move relatively freely. At LOS D, delay is more noticeable, with a traffic condition characterized by heavy but stable traffic flows. LOS E represents conditions where traffic volumes are at or near capacity, resulting in notable delays and average speeds that are one-third the uncongested speed or lower, frequently requiring motorists to wait more than one signal cycle. Finally, LOS F represents traffic volumes in excess of the intersection's capacity, indicates extreme vehicle delay, and is characterized by very slow traffic speeds (stop-and-go) and long delays (more than 1 minute) and queues at signalized intersections (Table 3.10-2).

Table 3.10-2
Definitions of Levels of Service

Level of Service	Signalized Intersection	Unsignalized Intersection	Roadway (Daily)
A	Uncongested operations; all queues clear in a single signal cycle. Delay $\leq$ 10.0 sec/veh.	Little or no delay. Delay $\leq$ 10.0 sec/veh.	Completely free flow.
B	Uncongested operations; all queues clear in a single cycle. Delay > 10.0 sec/veh and $\leq$ 20.0 sec/veh.	Short traffic delays. Delay > 10 sec/veh and $\leq$ 15 sec/veh.	Free flow; presence of other vehicles noticeable.
C	Light congestion; occasional backups on critical approaches. Delay > 20.0 sec/veh and $\leq$ 35.0 sec/veh.	Average traffic delays. Delay > 15 sec/veh and $\leq$ 25 sec/veh.	Ability to maneuver and select operating speed affected.
D	Significant congestion at critical approaches but intersection functional. Cars required to wait through more than one cycle during short peaks. No long queues formed. Delay > 35.0 sec/veh and $\leq$ 55.0 sec/veh.	Long traffic delays. Delay > 25 sec/veh and $\leq$ 35 sec/veh.	Unstable flow; speeds and ability to maneuver restricted.
E	Severe congestion with some long standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersection(s) upstream of critical approach(es). Delay > 55.0 sec/veh and $\leq$ 80.0 sec/veh.	Very long traffic delays, failure, extreme congestion. Delay > 35 sec/veh and $\leq$ 50 sec/veh.	At or near capacity, flow quite unstable.
F	Total breakdown, stop-and-go operation. Delay > 60.0 sec/veh.	Intersection blocked by external causes. Delay > 50 sec/veh.	Forced flow, breakdown.

Notes: sec/veh = seconds per vehicle
Sources: TRB 2000

El Dorado County

The Transportation and Circulation Element of the *El Dorado County General Plan* (El Dorado County 2004) identifies roadway improvement standards as minimum LOS goals. The following policy in the general plan is relevant to transportation and circulation within the study area.

- **Policy TC-XD:** LOS for County-maintained roads and state highways within the unincorporated areas of the county shall not be worse than LOS E in the Community Regions or LOS D in the Rural Centers and Rural

Regions except as specified in Table TC-2 or, after December 31, 2008, Table TC-3. The volume to capacity ratio of the roadway segments listed in Tables TC-2 and TC-3 as applicable shall not exceed the ratio specified in that table. LOS will be as defined in the latest edition of the Highway Capacity Manual (Transportation Research Board, National Research Council) and calculated using the methodologies contained in that manual. Analysis periods shall be based on the professional judgment of the Department of Transportation which shall consider periods including, but not limited to, Weekday Average Daily Traffic (ADT), a.m. Peak Hour, and p.m. Peak hour traffic volumes.

El Dorado County considers deterioration of operations of county facilities (intersections, county roads) beyond LOS D to be a significant project impact.

ENVIRONMENTAL SETTING

Existing traffic conditions are the baseline from which potential project impacts are measured. Existing traffic conditions are presented in terms of the roadway system network, traffic volumes, and current traffic operating conditions. The project location and study area roadway network are depicted in Exhibit 3.10-1.

Roadway System

Highways in the Project Vicinity

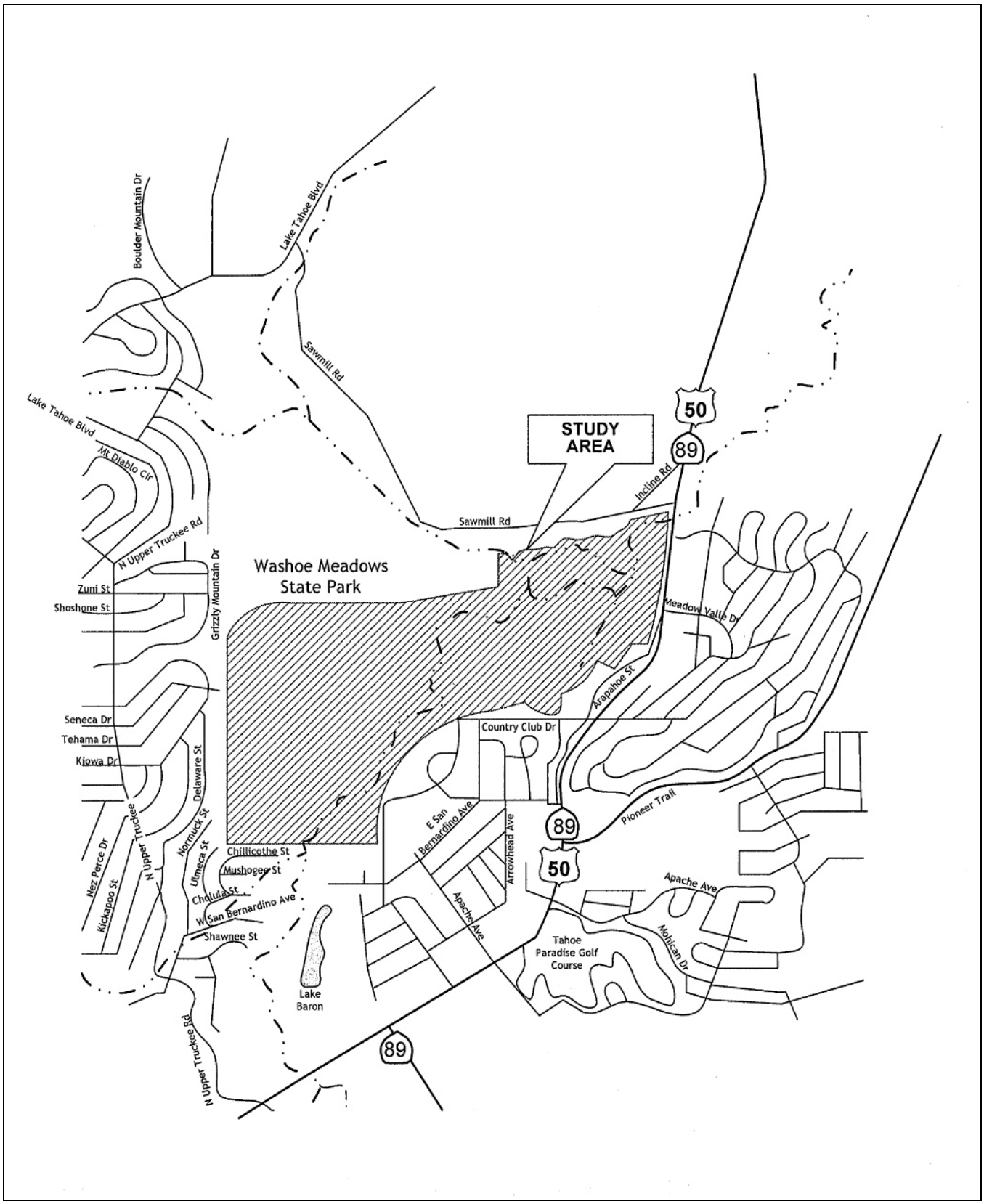
U.S. 50 is the primary route providing access to and through South Lake Tahoe. South of its intersection with State Route (SR) 89, U.S. 50 is also designated as Emerald Bay Road. At the signalized intersection of Emerald Bay Road and Lake Tahoe Boulevard (at the South Tahoe "Y"), U.S. 50 becomes Lake Tahoe Boulevard, then the highway heads east through South Lake Tahoe. At the South Tahoe "Y," SR 89 splits from U.S. 50 and continues north.

The physical characteristics of U.S. 50 in the Tahoe Basin vary. As the highway enters the Tahoe Basin from the west, U.S. 50 is a two-lane roadway until it reaches approximately F Street in South Lake Tahoe. The posted speed limit along the two-lane segment ranges from 45 to 55 miles per hour (mph). At F Street, U.S. 50 becomes a four-lane highway with a continuous center left-turn lane and a posted speed limit of 40 mph, and this configuration continues through South Lake Tahoe into Nevada. TRPA staff were contacted and asked to identify LOS classification for this and all other roads in the study area. U.S. 50 is an Urban Developed Area road, and the LOS D minimum applies.

SR 89 joins U.S. 50 in Meyers, south of both the South Lake Tahoe city limits and the study area, and operates as a single roadway with U.S. 50 until the intersection with Lake Tahoe Boulevard, where SR 89 and U.S. 50 split and continue north and east, respectively, as described above. SR 89 is a two-lane roadway in the Tahoe Basin, except between F Street and West Way, where the roadway is four lanes. Posted speed limits on SR 89 in the project vicinity range from 40 to 50 mph. SR 89 continues north along the west side of the lake to Tahoe City, then heads northwest toward Truckee, Interstate 80, and points beyond. SR 89 is an Urban Developed Area road, and the LOS D minimum applies.

Other Roadways and Local Streets in the Project Vicinity

North Upper Truckee Road provides a route to the west side of the study area from a stop-controlled "T" intersection at Lake Tahoe Boulevard (U.S. 50). North Upper Truckee Road is a two-lane roadway with a posted speed of 40 mph. Bike lanes exist on both sides of the road. North Upper Truckee Road is an Urban Developed Area road, and the LOS D minimum applies.



Source: KD Anderson 2009

Roadways and Highways in the Project Vicinity **Exhibit 3.10-1**

San Bernardino Avenue, Cholula Street, and Chilicothe Street combine to link North Upper Truckee Road with the west side of the study area. All are two-lane roadways with unpaved shoulders that provide access to the residential area east of North Upper Truckee Road. The speed limit on these roads is 25 mph. All are Urban Developed Area roads, and the LOS D minimum applies.

Other local streets exist in the vicinity of the study area, but these streets provide less direct routes to the study area. Seneca Drive, Kiowa Drive, Delaware Street, Normuk Street, and Ulmeaca Street extend east from North Upper Truckee Road toward the study area but do not connect to designated access points for project construction. Bakersfield Street, Modoc Way, Hopi Avenue, Apache Avenue, San Diego Street, and Arapahoe Street link the residential area south of the study area with U.S. 50 as well, but do not provide direct access to designated construction access points. These two-lane roads have speed limits of 25 mph. All are Urban Developed Area roads, and the LOS D minimum applies.

Country Club Drive is a two-lane local street that provides access to residences along the south side of the Lake Tahoe Golf Course. Country Club Drive intersects U.S. 50 at an intersection controlled by stop signs on the Country Club Drive approaches. The speed limit on Country Club Drive is 25 mph. Country Club Drive is an Urban Developed Area Road, and the LOS D minimum applies.

Meadow Vale Lane is a two-lane local street that provides access to the residential area across U.S. 50 from the golf course. Meadow Vale Lane intersects U.S. 50 at the existing golf course access point. That intersection is controlled by stop signs on the Meadowvale Lane approach and at the golf course exit. The speed limit on Meadow Vale Lane is 25 mph. Meadow Vale lane is an Urban Developed Area road, and the LOS D minimum applies.

Sawmill Road is a two-lane collector street that connects Lake Tahoe Boulevard with Emerald Bay Road (U.S. 50) through the area north of the golf course. Sawmill Road intersects U.S. 50 at a "T" intersection controlled by a stop sign on the Sawmill Road approach. A left-turn lane is located on U.S. 50 at this intersection. The speed limit on Sawmill Road is 25 mph. Sawmill Road is a Rural Developed Area Road, and the LOS D minimum applies.

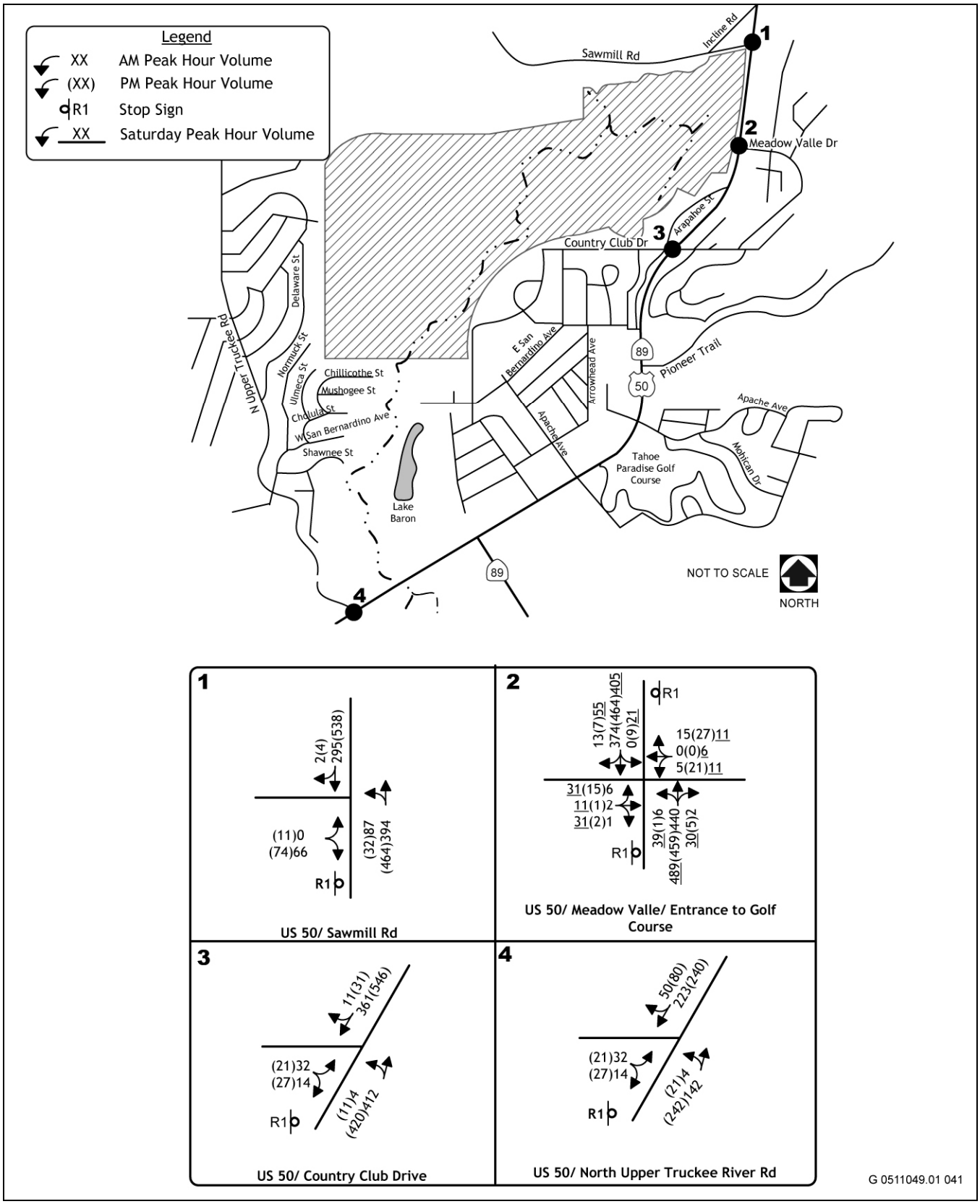
Existing Traffic Volumes

Traffic-count data were collected for this analysis. Weekday peak-hour turning movements were counted in September 2007 at the four study intersections that would provide access to golf course or construction areas. A Saturday peak-hour count also took place at the golf course entrance in September 2007. The intersections in this area that were selected for analysis were those that carry the most traffic and are expected to incur the highest volume of construction traffic. The new September counts were factored to peak-month (August) values based on seasonal factors provided by TRPA. Exhibit 3.10-2 identifies these peak-hour traffic volumes.

Daily traffic volume was also counted in July 2008 on streets that could be expected to be used by construction traffic. These counts were also factored to weekday peak-month levels, but because traffic volume is nearly the same in July as in August, the observations were simply rounded upward.

Intersection Levels of Service

As described under "Level of Service Standards" in the "Regulatory Setting" section above, intersections are routinely evaluated in terms of LOS, a measure of driving conditions and vehicle delay, with LOS ranging from A (best) to F (poorest). For this project, signalized intersections were evaluated consistent with the Operations Method from the Transportation Research Board's 2000 *Highway Capacity Manual* (TRB 2000) using TRAFFIX software. This method evaluates the amount of time a green signal is available at each traffic approach and the total intersection capacity used by the traffic demand, and assigns an LOS based on the average delay that drivers would experience at the intersection during the peak hour (Table 3.10-2).



Source: KD Anderson 2009

Existing Traffic Volumes and Lane Configurations **Exhibit 3.10-2**

Unsignalized intersections were evaluated using the methodology from Chapter 9 of the 2000 *Highway Capacity Manual*. At these intersections, each turning movement that yields to an opposing movement is evaluated separately and assigned an LOS based on the relative ability of turning traffic to find adequate gaps in conflicting traffic flows.

Existing LOS was calculated for each study intersection (Table 3.10-3). Motorists attempting to turn onto U.S. 50 at the unsignalized study intersections experience delays that generally indicate LOS C or better conditions on weekdays. Delays at the golf course access point reach LOS D on weekends when both golf course use and U.S. 50 traffic volumes are high.

Daily Traffic Volumes

To provide additional perspective on current traffic conditions, 24-hour traffic volume counts were conducted in July 2008 on selected roads that could provide construction access to the site. These volumes are reported in Table 3.10-4 and Exhibit 3.10-2 and rounded to peak-month (August) values. Current daily traffic volumes reported by Caltrans for U.S. 50 are also noted.

Pedestrian/Bicycle Facilities

The *Lake Tahoe Regional Bicycle and Pedestrian Master Plan* (TMPO 2006) provides information about bicycle and pedestrian trails and paths in and around the study area. The facilities identified in the master plan are noted in Table 3.10-5.

Transit Service

Existing transit service in the Tahoe Basin is provided by four publicly operated transit systems, various tourist-oriented trolley services, and several privately operated shuttle systems and taxi services. On the South Shore, the South Tahoe Area Transit Authority operates the BlueGo Coordinated Transit System in El Dorado County, including Meyers and South Lake Tahoe, and western Douglas County, Nevada. BlueGo Route 40 runs along U.S. 50, North Upper Truckee Road and Lake Tahoe Boulevard from the South Y (Emerald Bay Boulevard/Lake Tahoe Boulevard) transit center and continues along Lake Tahoe Boulevard to Stateline, Nevada. In addition to this fixed-route service, the BlueGo system provides demand-responsive service within portions of El Dorado County, including Meyers and South Lake Tahoe.

Parking

The Lake Tahoe Golf Course provides parking for guests and employees. The paved parking lot off U.S. 50 can accommodate approximately 115 vehicles. Unpaved areas on both sides of the golf course entrance are used for additional parking. There are no parking facilities associated with Washoe Meadows SP.

Table 3.10-3
Existing Levels of Service during Peak Hours

Location	Control	Weekday Peak-Hour Levels of Service				Saturday Peak-Hour Levels of Service (Noon to 2:00 p.m.)	
		a.m. Peak Hour (7:00 to 9:00 a.m.)		p.m. Peak Hour (4:00 to 6:00 p.m.)			
		Average Delay (sec/vehicle)	LOS	Average Delay (sec/vehicle)	LOS	Average Delay (sec/vehicle)	LOS
U.S. 50/Sawmill Road							
(overall)[1]	EB Stop	(1.7)	(A)	(1.4)	(A)		
Northbound left turn		8.2	A	8.8	A	–	–
Eastbound left and right turn		10.6	B	15.6	C		
U.S. 50/Golf Course/Meadow Vale Drive							
(overall)		(0.6)	(A)	(0.9)	(A)	(2.8)	(A)
Northbound left turn	EB/WB	8.2	A	8.4	A	8.5	A
Southbound left turn	Stop	–	–	8.4	A	8.7	A
Eastbound left, through, and right turn		18.7	C	22.8	C	27.7	D
Westbound left, through, and right turn		13.5	B	17.7	C	24.3	C
U.S. 50/Country Club Drive							
(overall)	EB Stop	(0.9)	(A)	(0.9)	(A)		
Northbound left turn		8.1	A	8.8	A	–	–
Eastbound left and right turn		15.7	C	17.8	C		
U.S. 50/North Upper Truckee Road							
(overall)	EB Stop	(2.5)	(A)	(3.1)	(A)		
Northbound left turn		7.9	A	8.0	A	–	–
Eastbound left, through, and right turn		12.6	B	18.5	C		

Notes:
EB = eastbound; LOS = level of service; sec/vehicle = seconds per vehicle; WB = westbound; U.S. 50 = U.S. Highway 50
[1]Values in parentheses are the "overall" LOS for the intersection.
Source: Calculations conducted by KD Anderson & Associates in 2008

Table 3.10-4 Current Daily Traffic Volumes				
Location			Weekday Daily Volume	
Road/Street	From	To	July	Peak Month
U.S. 50	SR 89	Pioneer Trail		17,600
	Pioneer Trail	Sawmill Road		18,000
Sawmill Road	Incline Road	U.S. 50	1,184	1,200
Country Club Drive	Arapahoe	U.S. 50	669	670
North Upper Truckee Road	U.S. 50	Otomites Street	1,923	1,950
San Bernardino Avenue	U.S. 50	Cholula Street	494	500

Notes: SR = State Route; U.S. 50 = U.S. Highway 50
Source: Calculations conducted by KD Anderson & Associates in 2008

Table 3.10-5 Bicycle/Pedestrian Facilities			
Facility	Street	From	To
Class I/Shared Use	North side of U.S. 50 and west side of Sawmill Road*	SR 89	Pioneer Trail and Sawmill Road
		U.S. 50	Lake Tahoe Boulevard
Class II Bike Lane	North Upper Truckee Road	U.S. 50	Mt. Rainier Drive
	Lake Tahoe Boulevard	Angora Creek Drive	Boulder Mountain Drive

* To be built before project construction
Note: SR = State Route; U.S. 50 = U.S. Highway 50
Source: TMPO 2006

3.10.2 ENVIRONMENTAL CONSEQUENCES

SIGNIFICANCE CRITERIA

For this analysis, significance criteria are based on the checklist presented in Appendix G of the State CEQA Guidelines; the TRPA Initial Environmental Checklist; factual information; scientific data; and regulatory standards of Federal, State, and local agencies. In development of mitigation measures for significant impacts of the project, effects on thresholds of the Tahoe Regional Planning Compact were considered. The project's effects on thresholds are further described in Chapter 4, Section 4.6, "Consequences for Environmental Threshold Carrying Capacities."

CEQA Criteria

Based on Appendix G of the State CEQA Guidelines, an alternative would result in a significant impact on transportation and circulation if it would result in:

- a change in LOS from A, B, C, or D (existing conditions) to E or F (existing plus project conditions);
- a substantial traffic safety concern; or
- substantial deterioration of roadway surfaces or structural sections caused by project traffic.

NEPA Criteria

An environmental document prepared to comply with NEPA must consider the context and intensity of the environmental effects that would be caused by or result from the proposed action. Under NEPA, the significance of an effect is used solely to determine whether an EIS must be prepared. The factors that are taken into account under NEPA to determine the significance of an action in terms of the context and the intensity of its effects are encompassed by the CEQA criteria used for this analysis.

TRPA Criteria

Based on TRPA's Initial Environmental Checklist, an alternative would result in a significant impact on transportation and circulation if it would:

- generate 100 or more new Daily Vehicle Trip Ends (DVTE);
- result in changes to existing parking facilities or demand for new parking;
- substantially affect existing transportation systems, including highway, transit, bicycle, or pedestrian facilities;
- alter present patterns of circulation or movement of people and/or goods;
- alter waterborne, rail, or air traffic; or
- increase traffic hazards to motor vehicles, bicyclists, or pedestrians.

METHODS AND ASSUMPTIONS

During the construction phase of the project, the relative impact of implementing an alternative has been determined by estimating the amount of traffic associated with construction activities within the study area and superimposing that traffic onto current traffic volumes. After construction, existing golfing activities at the site would be perpetuated, reduced, or eliminated under various alternatives. Because the traffic volumes associated with regular post-project activities would be approximately equal to or less than existing traffic volumes, quantitative analysis of resulting traffic operations under current and cumulative conditions is not required. However, a qualitative analysis is presented below.

Trip Generation

The amount of automobile and truck traffic associated with implementation of the project alternatives would vary throughout the construction season as different activities occur. To ensure that the magnitude of traffic impacts is not underestimated for this analysis, it assumes the maximum probable concurrent employment on the site and maximum concurrent truck activity as the construction traffic level to evaluate.

Construction Employee Traffic

For this analysis it has been assumed that each construction worker would drive a personal vehicle to the construction site. In reality, it is likely that some employees within individual trade groups would informally carpool to the job site; as a result, this assumption yields a conservatively high estimate of site trip generation. It has also been assumed that on a given day 100 percent of the construction employment arrives at the project site during the a.m. peak hour, and that 100 percent of the on-site construction employment departs during the p.m. peak hour. In reality, it is likely that some employees would arrive and depart during periods outside of peak commute hours. Thus, this analysis provides a conservatively high estimate of peak-hour construction employee traffic.

Construction Truck Traffic

Trucks would travel to and from the study area over the life of the construction phase. The amount of truck activity has been estimated based on a review of preliminary construction quantities for each aspect of the project alternatives. The number of truckloads needed to accommodate identified quantities was estimated over the construction season and spread throughout the typical construction day to forecast hourly truck traffic.

From the standpoint of traffic impacts, large trucks have a disproportionate impact on operating LOS and on impacts on the structure of the roadway. The length and acceleration/deceleration characteristics of large trucks exceed those of regular passenger vehicles. Standard engineering practice is to convert each truck to a number of Passenger Car Equivalents (PCEs) and to use that adjusted volume in LOS calculations. PCE factors range from 2.0 to 4.0, and for this analysis, a PCE of 4.0 has been assumed for each truck.

Project Traffic After Implementation

The traffic generated by golf course facilities created or remaining under each alternative would be approximately the same or less than current conditions. For alternatives that continue an 18-hole, regulation-length course, the number of golfers would be also continue to be the approximately same as under existing conditions. This conclusion is confirmed by the economic study conducted for the EIR/EIS/EIS (Appendix E). Traffic from golf course employees would increase slightly under Alternatives 2 and 4 and decreases under Alternatives 3 and 5. However, the increase under Alternative 2 or 4 (i.e., up to four additional employees) would generate fewer trips (i.e., 8 daily trip ends) than the 100 trip minimum threshold employed by TRPA. Regular site traffic would be less than existing traffic under alternatives that would eliminate the golf course or provide a golf course with shorter or fewer holes, based on the results of the economic study (Appendix E). In each case, the net traffic increase under regular conditions would be well below the minimum level employed by TRPA for determining the need for traffic impact analysis (i.e., less than 100 daily trips). Although a quantitative analysis of traffic related to golf course operations is not presented, a qualitative comparison is discussed.

Trip Distribution/Assignment

Regional Trip Distribution

It is necessary to identify the traffic routes that would be used under each project alternative, and the regional distribution of project trips is an element in that process. It is assumed that the relative regional distribution of the project's employee and construction truck traffic would differ, because employee traffic would be oriented to residential centers throughout the Lake Tahoe/western Nevada area while truck traffic would be oriented to the sources of imported materials or the disposal sites for exported materials.

The relative assumptions made about employee and truck distribution are identified in Table 3.10-6. As noted, the primary route for truck traffic would be to the east on U.S. 50 because this is the route to area landfills. Imported materials could come from either direction (e.g., Gardnerville, Placerville), but would likely approach via U.S. 50. Employee traffic could originate in areas surrounding the site, but would also be heaviest to and from the east, based on the location of residential areas.

Table 3.10-6
Project Trip Distribution

Direction	Route	Percentage of Total Traffic	
		Trucks	Employees
East	U.S. 50	80	55
East	Pioneer Trail	0	10
West	U.S. 50	20	10
North	North Upper Truckee Road	0	10
South	SR 89	0	15
	Total	**100%**	**100%**

Source: Data provided by KD Anderson & Associates in 2009

Trip Assignment

Once the regional orientation of project traffic has been identified, traffic is assigned to the street system in the vicinity. Over the course of the construction schedule, various roads can be expected to be used to access individual work zones, and staging areas have been identified on both sides of the golf course under each alternative. The primary staging area would be located near the golf course driving range and unpaved parking area, and this analysis assumes that construction employee commute traffic would be destined for that location. Localized truck traffic could result on various roads as materials are hauled to specific work zones under each alternative. The exact breakdown of travel on each route would vary from day to day, and a "composite" trip assignment reflecting the average use on each route over the duration of the project has been employed for this analysis.

Level of Service Analysis

The relative impact of project construction traffic during peak traffic hours has been determined by superimposing project automobile and truck traffic onto current background traffic volumes and calculating resulting LOS.

Daily Traffic Volumes

To provide additional perspective on project impacts, the amount of traffic added to local streets during construction on a daily basis has been identified. These forecasts have been identified in terms of automobile and truck traffic that would occur over the duration of construction and "random" traffic that may occur occasionally when construction takes place in areas that make use of specific access routes. This additive traffic has been compared to existing 24-hour traffic volume counts.

Traffic Safety/Pavement Deterioration

At various times over the life of the project's construction phase, truck traffic would be added to the roads that link designated project area access locations with the regional highway network. Although the effect of this traffic on overall traffic operations and LOS has been evaluated, it is also important to consider the effects of trucks on the conditions of these roads, as well as truck maneuvering requirements that could affect traffic safety. Because of their weight, trucks can have a disproportionate impact on roadway pavement sections and can accelerate the need for maintenance. Because the turning paths taken by large trucks exceed those of automobiles, trucks may encroach into opposing lanes or leave the pavement when negotiating turns on narrow streets. The effects of truck circulation on local streets have been evaluated based on the general width of key roads and intersections used under each alternative and on the availability of pedestrian/bicycle facilities along haul routes.

IMPACTS FOUND TO BE LESS THAN SIGNIFICANT AND NOT DISCUSSED FURTHER

Waterborne, rail, or air traffic—No alternative would result in increasing or creating waterborne, rail, or air traffic. Therefore, the proposed project alternatives would have no impact on such traffic, and these issues are not discussed further in the EIR/EIS/EIS.

Alternative 1: No Project/No Action: Existing River and 18-Hole Regulation Golf Course

IMPACT 3.10-1 (Alt. 1) **Increased Construction Traffic on the Local and Regional Circulation System.** *No construction traffic would be generated under Alternative 1, so no traffic would be added to major roads in the project vicinity. Because current operating LOS at key intersections would not change,* ***no impact*** *would occur.*

Under Alternative 1, LOS standards would not be exceeded because existing activities would continue at the same level into the future and no project construction would be required. No on-site construction would be needed for the No Project/No Action Alternative, because river restoration and golf course reconfiguration would not occur. Site maintenance traffic would continue to operate as it does today (i.e., for fuels management and repairs to the river or golf course), which involves trucks and other vehicles that are smaller and lighter than construction trucks; therefore, LOS would remain comparable to current conditions. Potential emergency construction may be conducted as necessary. However, the nature and extent of these unforeseeable activities are unknown, and such activities would not directly result from implementing Alternative 1. No impact would occur.

No mitigation is required.

IMPACT 3.10-2 (Alt. 1) **Contribution to Deterioration of Local Streets.** *No construction would occur under Alternative 1, so additional truck traffic on local roads and across bicycle trails in the project vicinity would not occur. Because traffic volumes would not change, Alternative 1 would not contribute to additional deterioration of pavement sections on streets and bicycle trails. This impact would be* ***less than significant****.*

Under Alternative 1, truck traffic would only be associated with maintenance and fuels management of Lake Valley SRA and Washoe Meadows SP and with maintenance of and repairs to the golf course and the river, similar to existing conditions. Trucks would continue to use the roads surrounding the study area. However, these trips would use the golf course's entrance or access gates within Washoe Meadows SP. The amount of truck traffic on local streets that is related to Alternative 1 would be similar to existing conditions, so the rate of pavement deterioration would not change. This impact would be less than significant.

No mitigation is required.

IMPACT 3.10-3 (Alt. 1) **Potential for Conflicts between Construction Traffic and Local Traffic, Pedestrians, and Bicycles.** *Construction truck traffic would not be added under Alternative 1 to local roads in the project vicinity. Because traffic volumes would not change, additional conflicts with pedestrians and bicyclists would not be created. This impact would be* ***less than significant****.*

Under Alternative 1, truck traffic would only be associated with maintenance and fuels management of Lake Valley SRA and Washoe Meadows SP and with maintenance of and repairs to the golf course and the river, similar to existing conditions. Golf course operational traffic would also continue similar to existing conditions. Trucks and other traffic would continue to use the roads surrounding the study area. However, these trips would use the golf course's clubhouse access to U.S. 50 or access gates within Lake Valley SRA and Washoe Meadows SP. The amount of truck traffic related to Alternative 1 on local streets would be similar to the amount under existing conditions, so the potential for traffic conflicts with pedestrians and bicycles would not change. This impact would be less than significant.

No mitigation is required.

IMPACT 3.10-4 (Alt. 1) Operational Traffic Impacts on the Local and Regional Circulation System. *The continuing operation of a golf course under Alternative 1 would attract traffic to Lake Valley SRA, but this traffic volume would be the same as the current volume of traffic associated with the golf course. Therefore, no impact would occur.*

Under Alternative 1 current operational activity at the golf course would continue; access would remain in the same location, and the volume of traffic at the site would not differ from the current volume. Current traffic volumes and travel patterns would remain as noted in Table 3.10-4 and Exhibit 3.10-2. LOS would not change as a result of Alternative 1 and would remain as noted in Table 3.10-3. For these reasons, no impact would occur.

No mitigation is required.

Alternative 2: River Ecosystem Restoration with Reconfigured 18-Hole Regulation Golf Course

IMPACT 3.10-1 (Alt. 2) Increased Construction Traffic on the Local and Regional Circulation System. *Construction under Alternative 2 would add traffic to major roads in the project vicinity, but current LOS would not change appreciably. This impact would be less than significant.*

Construction under Alternative 2 is expected to take place over 3 to 4 years. As noted in Table 3.10-7, the maximum on-site construction employment under Alternative 2 is 32 persons. Thus, 32 inbound trips are expected to be generated in the a.m. peak hour and 32 outbound trips are expected in the p.m. peak hour. The estimated total number of truckloads is 5,758 over the life of Alternative 2. The largest number of truckloads would be hauled during the first year when 2,125 loads are projected. During that year, 42 truckloads per day could be hauled to or from the study area.

Table 3.10-7
Traffic Characteristics of Alternative 2 Construction Phase

Description	Alternative 2
Total cubic yards of export over the life of the project	7,850
Total cubic yards of import over the life of the project	76,450
Total external truckloads over the life of the project @ 15 cu. yd./truck	5,758
Maximum annual truckloads in highest year	2,125
Duration of haul (varies)	24–108 days
Average daily truckloads	42
Highest hourly truck trips (10-hour day)	5 in, 5 out
Maximum on-site employment	32
Highest hourly employee traffic	a.m. 32 inbound, p.m. 32 outbound

Note: cu. yd./truck = cubic yards per truck
Source: Data provided by KD Anderson & Associates in 2009

Table 3.10-8 summarizes peak-hour and daily trip generation for Alternative 2 on both a vehicle and PCE basis. Alternative 2 would add 20 PCEs during both the a.m. and p.m. peak hours.

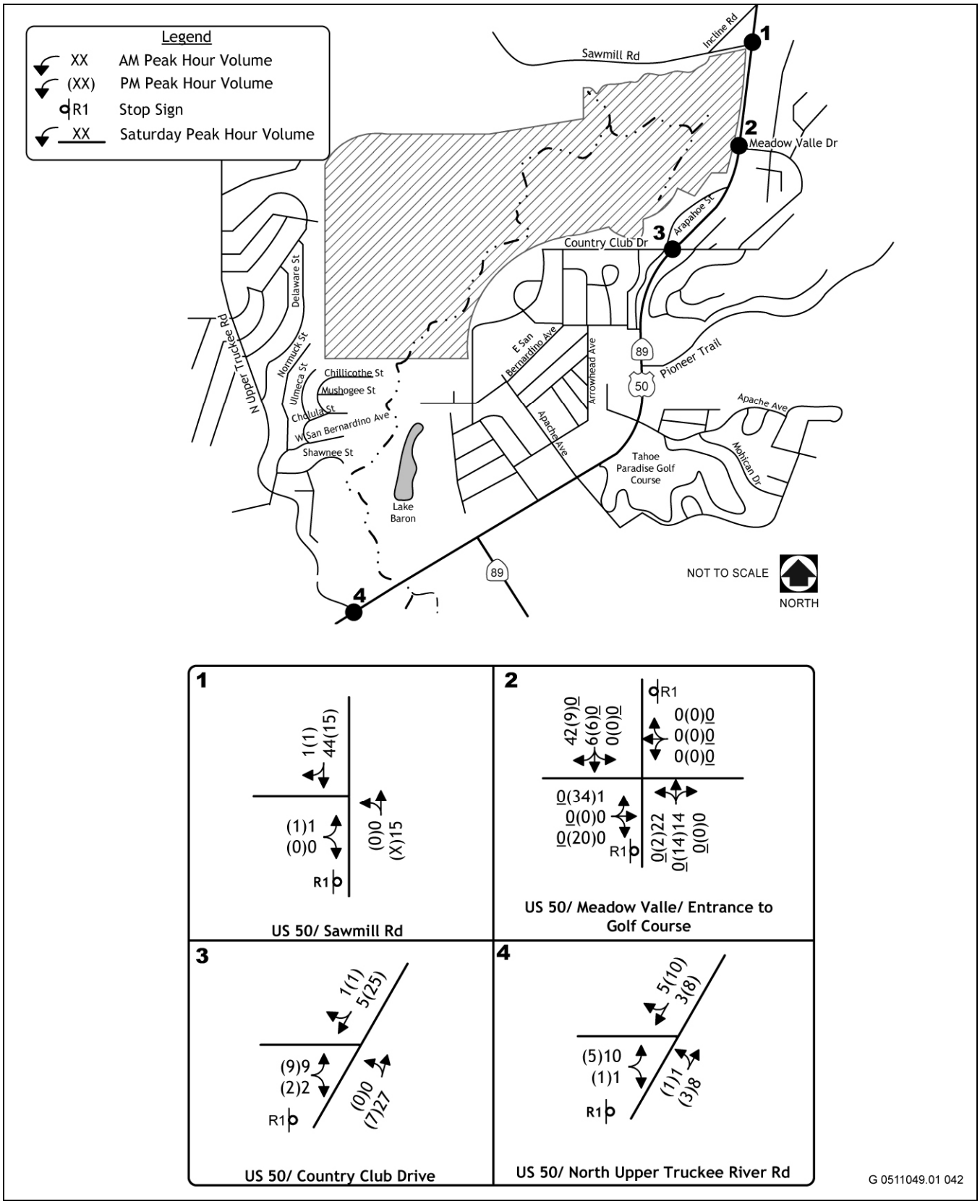
Table 3.10-8
Peak-Hour and Daily Trip Generation Estimates for Alternative 2 Construction Phase

Description	In	Out
a.m. truck trips	5	5
a.m. employee trips	32	0
Total a.m. trips (vehicles)	37	5
Total a.m. PCEs	20	20
p.m. truck trips	5	5
p.m. employee trips	0	32
Total p.m. trips (vehicles)	5	37
Total p.m. PCEs	20	20
Total daily vehicles (employees, trucks, and misc. [10%])	**87**	**87**
Total daily PCEs	**168**	**168**

Note: PCE = Passenger Car Equivalent
Source: Data provided by KD Anderson & Associates in 2009

Localized truck traffic could result as materials are hauled to specific work zones under Alternative 2. Truck traffic destined for the main staging area would enter via the golf course entrance on U.S. 50. However, supplies and materials that would be delivered directly to various locations in the work area may enter via Sawmill Road, the golf course entrance, Country Club Drive, and the western Chilicothe Street, Cholula Street, and San Bernardino Street route. Although trucks would be noticeable on these routes at various times over the construction period, they would not represent an appreciable volume that affects traffic operation and congestion, as measured on a daily or peak-hour basis. Resulting construction-related traffic volumes under Alternative 2, expressed as project PCEs, are shown in Exhibit 3.10-3.

The amount of truck traffic on each haul route over the life of Alternative 2 has also been estimated. As noted in Table 3.10-9, approximately 57 percent of the 5,758 truckloads would enter via the golf course entrance and exit on Country Club Drive. Approximately 29 percent of the materials hauled to and from the site under Alternative 2 would use the Chilicothe Street access.



Source: KD Anderson 2009

Construction-Related Traffic Volumes under Alternative 2, Expressed as Passenger Car Equivalents **Exhibit 3.10-3**

Table 3.10-9
Truck Trip Assignment for Alternative 2 Construction Phase

Access	Inbound Trips	Percent of Total	Outbound Trips	Percent of Total
Sawmill Road	381	7	386	7
Golf Course Entrance	3,298	57	409	7
Country Club Drive	409	7	3,299	57
Chilicothe Street	1,670	29	1,665	29
Total	**5,758**	**100**	**5,760**	**100**

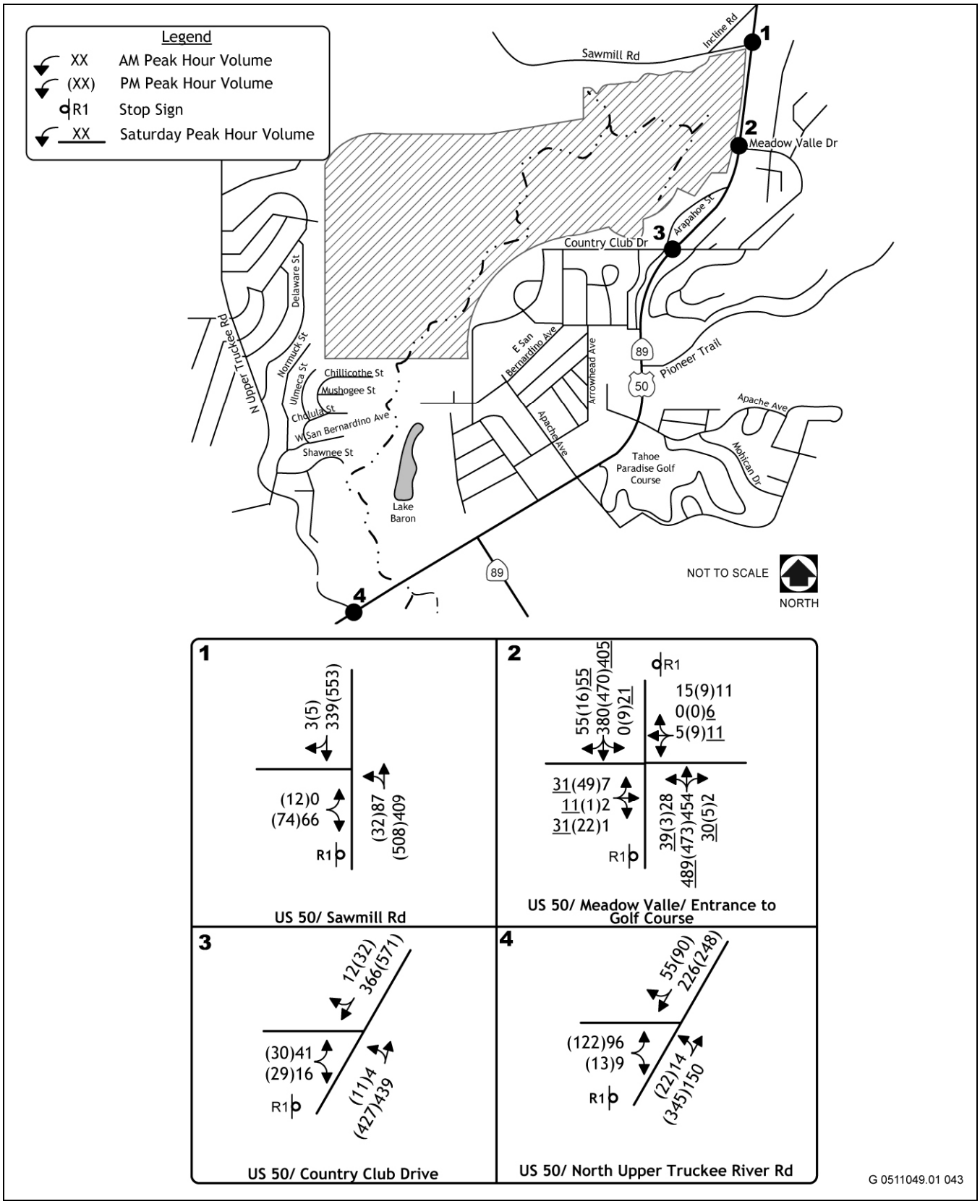
Source: Data provided by KD Anderson & Associates in 2009

Exhibit 3.10-4 illustrates existing traffic volumes plus construction-related traffic volumes associated with Alternative 2, again expressed in terms of project PCEs. Table 3.10-10 identifies peak-hour LOS at intersections in the project vicinity during the weekday a.m. and p.m. peak hour, respectively, under Alternative 2. No intersections are projected to operate with an overall or side-street LOS worse than LOS D. At intersections controlled by side-street stop signs, adding project traffic would incrementally increase the length of delays experienced by motorists waiting to turn onto U.S. 50, but project traffic would not change acceptable LOS to unacceptable conditions. Levels of service under Alternative 2 would be similar to those occurring under Alternative 1, the No Project/No Action Alternative.

Implementation of Alternative 2 would add truck and automobile traffic to roads in the vicinity of the study area throughout the construction period. Project truck traffic is compared to existing 24-hour traffic volume counts in Table 3.10-11.

Overall, the automobile and truck traffic generated during the construction phase of Alternative 2 would result in total volumes higher than existing conditions or those associated with Alternative 1. Resulting construction traffic volume increases would be noticeable by residents in the project vicinity, but the volume of traffic on local streets is not a measure of significance related to operation and congestion, and project trips would not result in operating conditions in excess of adopted standards for LOS at intersections. Thus, this impact would be less than significant.

No mitigation is required.



Source: KD Anderson 2009

Traffic Volumes under Existing Conditions plus Alternative 2
Construction-Related Traffic, Expressed as Passenger Car Equivalents **Exhibit 3.10-4**

Table 3.10-10
Peak-Hour Levels of Service—Existing Conditions plus Alternative 2 Construction Traffic

Location	Control	Weekday Peak-Hour Levels of Service							
		a.m. Peak Hour (7:00 to 9:00 a.m.)				p.m. Peak Hour (4:00 to 6:00 p.m.)			
		Existing		Existing plus Alternative 2		Existing		Existing plus Alternative 2	
		Average Delay (sec/veh)	LOS	Average Delay (sec/vehicle)	LOS	Average Delay (sec/veh)	LOS	Average Delay (sec/vehicle)	LOS
U.S. 50/Sawmill Road									
(overall)	EB Stop	(1.7)	(A)	(1.6)	(A)	(1.4)	(A)	(1.4)	(A)
Northbound left turn		8.2	A	8.3	A	8.8	A	8.8	A
Eastbound left+right turn		10.6	B	11.1	B	15.6	C	16.3	C
U.S. 50/Golf Course/Meadow Vale Drive									
(overall)	EB/WB Stop	(0.6)	(A)	(0.8)	(A)	(0.9)	(A)	(2.3)	(A)
Northbound left turn		8.2	A	8.4	A	8.4	A	8.5	A
Southbound left turn		–	–	–	–	8.4	A	8.5	A
Eastbound left+through+right turn		18.7	C	21.3	C	22.8	C	26.9	D
Westbound left+through+right turn		13.5	B	14.2	B	17.7	C	19.0	C
U.S. 50/Country Club Drive									
(overall)	EB Stop	(0.9)	(A)	(1.1)	(A)	(0.9)	(A)	(1.2)	(A)
Northbound left turn		8.1	A	8.1	A	8.8	A	8.9	A
Eastbound left+right turn		15.7	C	16.8	C	17.8	C	20.1	C
U.S. 50/North Upper Truckee Road									
(overall)	EB Stop	(2.5)	(A)	(2.7)	(A)	(3.1)	(A)	(3.3)	(A)
Northbound left turn		7.9	A	7.9	A	8.0	A	8.1	A
Eastbound left+through+right turn		12.6	B	13.0	B	18.5	C	19.4	C

Notes: EB = eastbound; LOS = level of service; sec/veh = seconds per vehicle; U.S. 50 = U.S. Highway 50; WB = westbound
Source: Data provided by KD Anderson & Associates in 2009

Table 3.10-11
Daily Traffic Volumes—Existing Conditions plus Alternative 2 Construction Traffic

Location			Weekday Daily Volume					
			July			Peak Month		
Road/Street	From	To	Existing	Project Only	Total	Existing	Project Only (PCEs)	Total
U.S. 50	North Upper Truckee Road	SR 89				13,400	150	13,550
	SR 89	Pioneer Trail				16,800	172	16,972
	Pioneer Trail	Golf Course				17,200	237	17,437
	Golf Course	Sawmill Road				17,200	322	17,522
	Sawmill Road	H Street				16,000	336	16,336
Sawmill Road	Incline Road	U.S. 50	1,184	22	1,206	1,200	22	1,222
Country Club Drive	Arapahoe	U.S. 50	669	107	776	670	107	777
North Upper Truckee Road	U.S. 50	Otomites Street	1,923	110	2,033	1,950	110	2,060
San Bernardino Avenue	North Upper Truckee Road	Cholula Street	494	98	592	500	98	598

Notes: PCEs = Passenger Car Equivalents; SR = State Route; U.S. 50 = U.S. Highway 50
Source: Data provided by KD Anderson & Associates in 2009

IMPACT 3.10-2 (Alt. 2) Contribution to Deterioration of Local Streets. *Construction under Alternative 2 would add truck traffic on local roads and across bicycle trails in the project vicinity. This traffic has the potential to contribute to the accelerated deterioration of pavement sections on streets and bicycle trails. This impact would be significant.*

Under Alternative 2, large trucks (e.g., water trucks, trucks and trailers, dump trucks) would be required to travel on and make several turns along the designated western route that would follow Chilicothe Street, Cholula Street, and San Bernardino Street to reach North Upper Truckee Road. The background traffic on these streets is low (i.e., less than 500 vehicles per day) and the number of trucks using the route is low (i.e., less than 42 per day); therefore, the potential for encounters between vehicles at local intersections would occur infrequently. However, if trucks need to maneuver around existing traffic, it is possible that trucks would move toward the edge of the roadway and could leave the pavement, which could result in damage to the pavement. Also, the weight of larger trucks and normal maneuvering at corners and road turns could accelerate pavement deterioration. Locations where effects on pavement would be expected include the northwest corner of the intersection of Chilicothe Street/Cholula Street, and the northwest corner of the intersection of Cholula Street/San Bernardino Avenue. Also, pavement damage from the weight of heavy trucks, such as trucks loaded with excavated material destined for disposal, could occur on any local roadways along the site access routes between the project and U.S. 50. Trucks using the Sawmill Road access would also cross the bicycle trail planned on the south side of the road. Truck traffic could damage the trail. Therefore, this impact would be significant.

Mitigation Measure 3.10-2 (Alt. 2): Survey Pavement Conditions and Repair Damage.

State Parks will prepare a baseline survey of pavement conditions along roads and bicycle trails on potential haul routes prior to initiating construction. The survey will include all local roads between the project and U.S. 50, where effects on pavement would be expected. This information shall be used as the basis for indentifying and repairing any damage caused by project related large truck traffic at the end of the project. State Parks will also monitor pavement conditions each year and make improvements, as needed, to ensure the safety of motorists, pedestrians, and bicyclists.

Because State Parks will repair road damage caused by project related traffic during and after construction with implementation of Mitigation Measure 3.10-2 (Alt. 2), Impact 3.10-2 (Alt. 2) would be less than significant.

IMPACT 3.10-3 (Alt. 2) Potential for Conflicts between Construction Traffic and Local Traffic, Pedestrians, and Bicycles. *Construction under Alternative 2 would add short-term truck traffic on local roads in the project vicinity. This traffic has the potential to create conflicts with local traffic, pedestrians, and bicyclists. This impact would be significant.*

Under Alternative 2, large trucks would be required to travel on local streets between the project and U.S. 50, including the need to make several turns. The construction access to the site includes the designated western haul route that would follow Chilicothe Street, Cholula Street, and San Bernardino Street to reach North Upper Truckee Road and U.S. 50. Other automobiles, pedestrians, or bicyclists present along those streets and at the local intersections could encounter potential conflicts with construction trucks. “Conflicts” in this context mean changes to normal travel behavior in response to encountering construction traffic, such as traveling outside designated lanes, stopping more quickly than normal, or other maneuvering actions to avoid a hazard. Along these routes the potential for conflicts between pedestrians, bicyclists, and trucks would be most acute when large trucks are involved. Regular “bobtail” dump trucks would not be expected to create substantial conflicts, but the turning requirements of large five-axle truck/trailer combinations could create conflicts. Potential risks to traffic, bicycle, and pedestrian safety would occur where there is a potential for such conflicts.

Trucks that arrive and depart via Sawmill Road are also a consideration. Trucks would cross the new bicycle trail proposed along the south side of Sawmill Road, creating the possibility of conflicts between trucks and cyclists.

On days with particularly frequent, heavy-truck use (i.e., more than 10 trucks per hour), the potential for conflicts and risks to cyclist safety would be the greatest. This impact would be significant.

Under Alternative 2 the unpaved parking areas would be paved to create an additional 89 paved parking spaces and regular automobile parking/circulation and parking access would occur near the Sawmill bike trail along U.S. 50. The proposed paving is not expected to create conflicts between cyclists and on-site automobiles. Local access and volume of the lot would likely remain where it exists today. Therefore, no impact would occur related to the proposed parking area.

Mitigation Measure 3.10-3 (Alt. 2): Construction Traffic Management Plan

State Parks will implement a Construction Traffic Management Plan to ensure the safety of local traffic, pedestrians, and bicyclists. The plan will be prepared sufficiently in advance of project construction for adequate review, comment, and concurrence by the El Dorado County Department of Public Works. The plan will include advance public advisories, construction-period signage, flag personnel, and other special traffic-control actions. Specific measures contained in the plan include the following.

- Distribute or mail flyers to residents in the nearby Upper Truckee North and Meyers neighborhoods advising about upcoming project traffic prior to the initiation of construction.
- Place advisory signs along construction routes in advance of construction to alert traffic, pedestrian, and bicyclists about the upcoming construction traffic activity.
- Install construction area signage on designated haul routes to inform the public of the presence of trucks. These signs shall identify the construction truck crossing on the Sawmill Road bike trail.
- Provide flag personnel at the Sawmill Road crossing when truck activity at this location is heavy (i.e., more than 10 trucks per hour).
- Provide flag personnel at the Chilicothe Street/Cholula Street and San Bernardino Street/Cholula Street intersections to separate opposing vehicles, pedestrians, and cyclists when these large trucks use the route (i.e., one or more heavy trucks per day).
- Provide information to all truck drivers identifying haul routes, speed limits, location of flaggers, and any other pertinent public safety information.
- Monitor truck and traffic Conditions to identify traffic congestion, safety concerns regarding truck, vehicle, pedestrian and bicycle conflicts and to adjust the TCM as needed.

Because construction traffic controls implemented through the plan would minimize the potential conflicts, the impact of Alternative 2 would be less than significant after mitigation.

IMPACT 3.10-4 (Alt. 2) Operational Impacts on the Local and Regional Circulation System. *The continuing operation of a golf course under Alternative 2 would attract traffic to Lake Valley SRA. However, the expected traffic volume would not be substantially different from the current traffic associated with the golf course. Therefore, this impact would be less than significant.*

Alternative 2 would continue the operation of an 18-hole, regulation-length golf course at Lake Valley SRA. The reconfiguration implemented as a part of the alternative would require approximately four additional employees compared to the current golf course, which is estimated to involve up to three or four additional trips during the morning and afternoon peak hours each day. According to the economics study conducted for the EIR/EIS/EIS, the level of golf play would continue along current trends and would not change substantially, which is reasonable

recognizing the continuation of a course with similar length as the current golf course (Appendix E). Golfer traffic constitutes the strong majority of total daily traffic when the course is open. Consequently, while a minor amount of additional operational employee traffic would occur, the total traffic generation of the golf course in Alternative 2 would not change substantially compared to existing conditions. As a result, LOS would remain the same and would remain within adopted standards. For these reasons, this impact of operational traffic on the local and regional circulation system would be less than significant.

No mitigation is required.

Alternative 3: River Ecosystem Restoration with Reduced Play Golf Course

IMPACT 3.10-1 (Alt. 3) Increased Construction Traffic on Local and Regional Circulation System. *Construction under Alternative 3 would add traffic to major roads in the project vicinity, but current LOS would not change appreciably. This impact would be* ***less than significant.***

As noted in Table 3.10-12, the maximum on-site construction employment under Alternative 3 is 28 persons. Thus, 28 inbound trips are expected to be generated in the a.m. peak hour and 28 outbound trips are expected in the p.m. peak hour. The total estimated amount of traffic associated with commuting by construction employees is similar to that forecast for Alternative 2.

Table 3.10-12
Traffic Characteristics of Alternative 3 Construction Phase

Description	Alternative 3
Total cubic yards of export over the life of the project	7,410
Total cubic yards of import over the life of the project	59,430
Total external truckloads over the life of the project @ 15 cu. yd./truck	4,474
Maximum annual truckloads in highest year	2,520
Duration of haul (varies)	24–108 days
Average daily truckloads	37
Highest hourly truck trips (10-hour day)	4 in, 4 out
Maximum on-site employment	28
Highest hourly employee traffic	a.m. 28 inbound, p.m. 28 outbound

Note: cu. yd./truck = cubic yards per truck
Source: Data provided by KD Anderson & Associates in 2009

The total number of truckloads is estimated to be 4,470 over the 3- to 4-year construction period of Alternative 3. The largest number of truckloads hauled in any given year would be 2,520 during the last year because Alternative 3 would include the most trail work of any of the alternatives and that trail work would all occur during the last year of construction. During that year, 42 truckloads per day could be hauled to or from the study area. The number of trucks per day under Alternatives 2 and 3 is similar because although the total number of trucks is higher under Alternative 2 than Alternative 3, the maximum trucks in one year is similar under both alternatives and the number of trucks per day is based on the construction year with the largest number of truckloads.

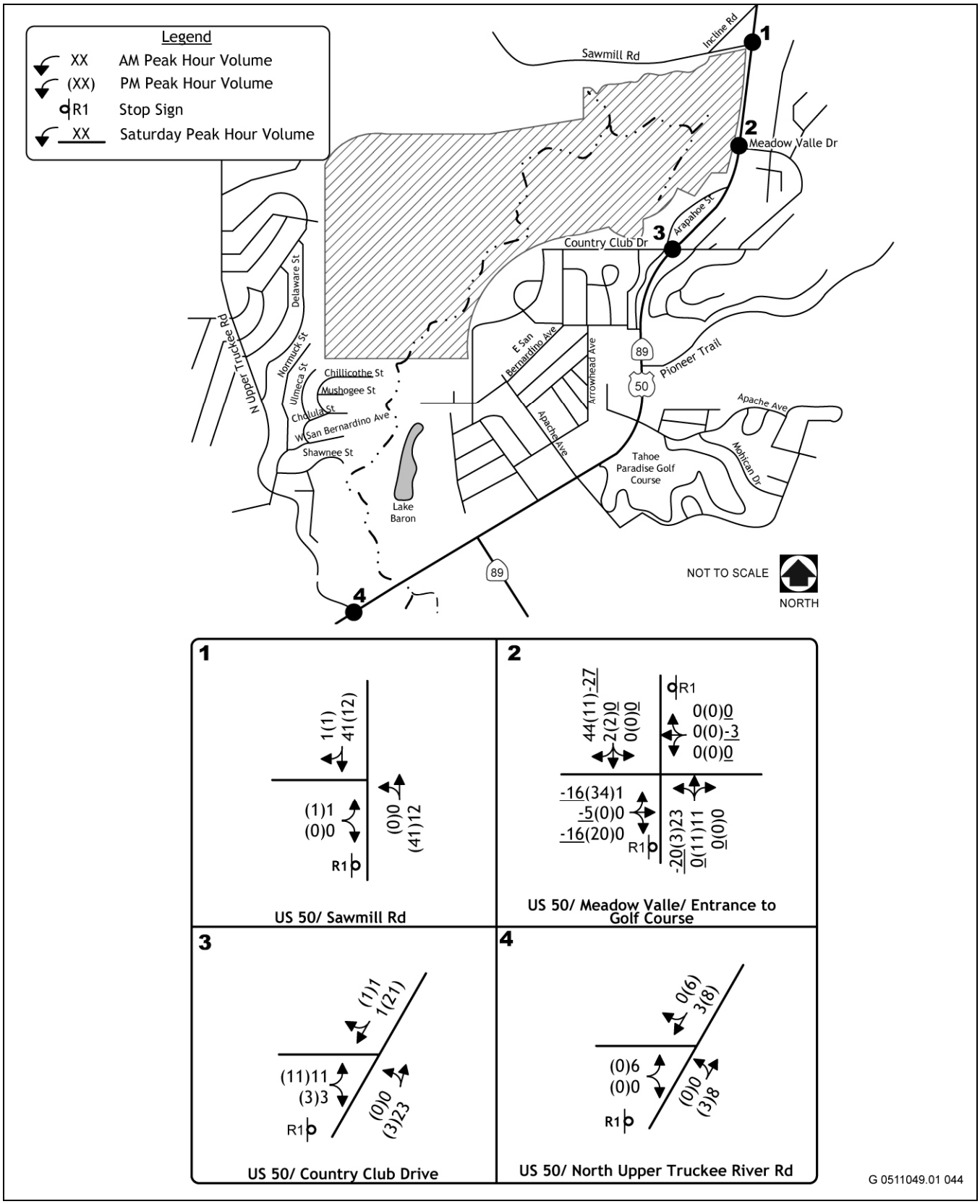
Table 3.10-13 summarizes peak-hour and daily trip generation for Alternative 3 on both a vehicle and PCE basis. Alternative 3 would add 16 PCEs to the local street system during both the a.m. and p.m. peak hours. This forecast is less than the projection for Alternative 2.

Table 3.10-13 Peak-Hour and Daily Trip Generation Estimates for Alternative 3 Construction Phase		
Description	In	Out
a.m. truck trips	4	4
a.m. employee trips	28	0
Total a.m. trips (vehicles)	32	4
Total a.m. PCEs	16	16
p.m. truck trips	4	4
p.m. employee trips	0	28
Total p.m. trips (vehicles)	4	32
Total p.m. PCEs	16	16
Total daily vehicles (employees, trucks, and misc. [10%])	**72**	**72**
Total daily PCEs	**148**	**148**
Source: Data provided by KD Anderson & Associates in 2009		

Localized truck traffic could result as materials are hauled to specific work zones under Alternative 3. Truck traffic destined for the main staging area would enter via the golf course entrance on U.S. 50. However, supplies and materials that would be delivered directly to various locations in the work area may enter via Sawmill Road, the golf course entrance, Country Club Drive, and the western Chilicothe Street, Cholula Street, and San Bernardino Street route to reach North Upper Truckee Road and U.S. 50. Although trucks would be noticeable on these routes at various times over the construction period, they would not represent an appreciable volume that affects traffic operations and congestion, as measured on a daily or peak-hour basis. Resulting construction-related traffic volumes under Alternative 3, expressed as project PCEs, are shown in Exhibit 3.10-5.

The amount of truck traffic on each haul route over the life of Alternative 3 has also been estimated. As noted in Table 3.10-14, approximately 83 percent of the 4,474 truckloads would enter via the golf course entrance and exit on Country Club Drive. Approximately 2 percent of the materials hauled to and from the study area under Alternative 3 would use the Chilicothe Street access. Compared to Alternative 2, Alternative 3 would add relatively little truck traffic to the Chilicothe Street–Cholula Street–San Bernardino Street to North Upper Truckee Road route and would add more traffic to the golf course entrance–Country Club Drive exit route.

Table 3.10-14 Truck Trip Assignment for Alternative 3 Construction Phase				
Access	Inbound	Percent of Total	Outbound	Percent of Total
Sawmill Road	258	6	258	6
Golf Course Entrance	3,715	83	409	9
Country Club Drive	409	9	3,715	83
Chilicothe Street	93	2	93	2
Total	**4,474**	**100**	**4,474**	**100**
Source: Data provided by KD Anderson & Associates in 2009				



Source: KD Anderson 2009

Construction-Related Traffic Volumes under Alternative 3, Expressed as Passenger Car Equivalents **Exhibit 3.10-5**

Exhibit 3.10-6 illustrates existing traffic volumes plus construction-related traffic volumes associated with Alternative 3, again expressed in terms of project PCEs. Table 3.10-15 identifies peak-hour LOS at intersections in the project vicinity during the weekday a.m. and p.m. peak hour, respectively, under Alternative 3. No intersections are projected to operate with an overall or side-street LOS worse than LOS D. Levels of service would be similar to those under Alternative 2. At intersections controlled by side-street stop signs, adding project traffic would incrementally increase the length of delays experienced by motorists waiting to turn onto U.S. 50, but project traffic would not change acceptable LOS to unacceptable LOS at any location.

Implementation of Alternative 3 would add automobile and truck traffic to roads in the vicinity of the study area throughout the 3-year construction period. Project truck traffic (PCEs) is compared to existing 24-hour traffic volume counts in Table 3.10-16. Overall, the automobile and truck traffic resulting from implementation of Alternative 3 would result in total volumes that similar to or less than those associated with Alternative 2. As noted, the volume of traffic added to the Chilicothe Street–Cholula Street–San Bernardino Street route would be less under Alternative 3 than under Alternative 2 and project trips would not result in operating conditions in excess of adopted standards for LOS at intersections. Thus, this impact would be less than significant.

No mitigation is required.

IMPACT 3.10-2 (Alt. 3) Contribution to Deterioration of Local Streets. *Construction under Alternative 3 would add truck traffic on local roads and across bicycle trails in the project vicinity. This traffic has the potential to contribute to the accelerated deterioration of pavement sections on streets and bicycle trails. This impact would be significant.*

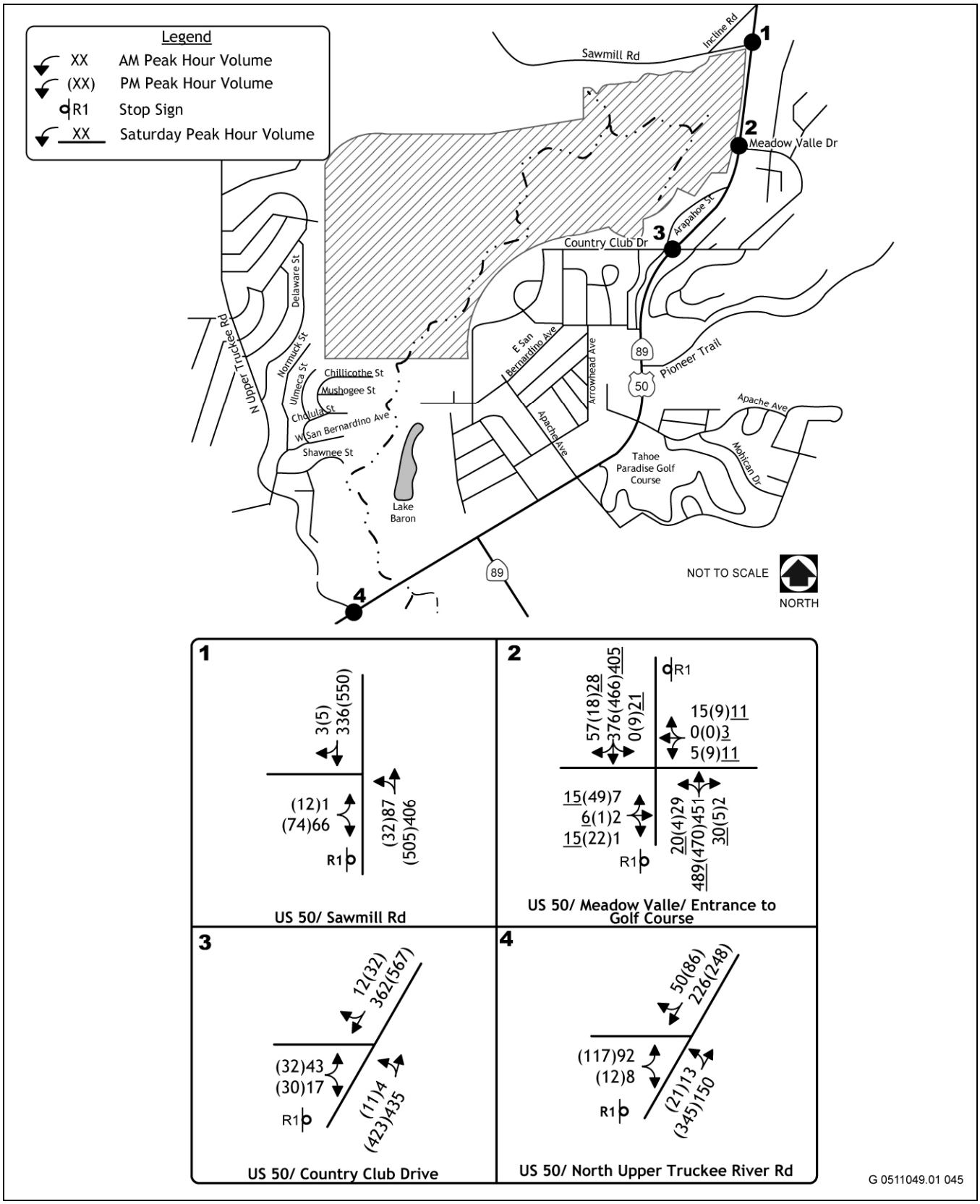
This contribution to pavement deterioration by Alternative 3 is similar to Alternative 2 (Impact 3.10-2) because large trucks could damage pavement along the northwest corner of the intersection of Chilicothe Street/Cholula Street and the northwest corner of the intersection of Cholula Street/San Bernardino Avenue, and along those local streets leading to U.S. 50. Although fewer trucks would use this route under Alternative 3 than under Alternative 2, reducing the severity of roadway deterioration compared to Alternative 2, the contribution would still be substantial.

Trucks using the Sawmill Road access would cross the bicycle trail planned on the south side of the road. Truck traffic could damage the trail. The amount of truck traffic across the trail under Alternative 3 would be similar to the amount under Alternative 2. This impact would be significant.

Mitigation Measure 3.10-2 (Alt. 3): Survey Pavement Conditions and Repair Damage.

This mitigation measure is identical to Mitigation Measure 3.10-2 (Alt. 2).

For the same reasons as described under Alternative 2, with implementation of Mitigation Measure 3.10-2 (Alt. 3), Impact 3.10-2 (Alt. 3) would be less than significant.



Source: KD Anderson 2009

Traffic Volumes under Existing Conditions plus Alternative 3 Construction-Related Traffic, Expressed as Passenger Car Equivalents **Exhibit 3.10-6**

Table 3.10-15
Peak-Hour Levels of Service—Existing Conditions plus Alternative 3 Construction Traffic

Location	Control	Weekday Peak-Hour Levels of Service							
		a.m. Peak Hour (7:00 to 9:00 a.m.)				a.m. Peak Hour (4:00 to 6:00 p.m.			
		Existing		Existing plus Alternative 3		Existing		Existing plus Alternative 3	
		Average Delay (sec/veh)	LOS	Average Delay (sec/vehicle)	LOS	Average Delay (sec/veh)	LOS	Average Delay (sec/vehicle)	LOS
U.S. 50/Sawmill Road	EB Stop								
(overall)		(1.7)	(A)	(1.6)	(A)	(1.4)	(A)	(1.4)	(A)
Northbound left turn		8.2	A	8.3	A	8.8	A	8.8	A
Eastbound left+right turn		10.6	B	11.1	B	15.6	C	16.3	C
U.S. 50/Golf Course/Meadow Vale Drive	EB/WB Stop	(0.6)	(A)	(0.8)	(A)	(0.9)	(A)	(2.3)	(A)
(overall)		8.2	A	8.4	A	8.4	A	8.5	A
Northbound left turn		–	–	–	–	8.4	A	8.5	A
Southbound left turn		18.7	C	21.2	C	22.8	C	26.7	D
Eastbound left+through+right turn		13.5	B	14.2	B	17.7	C	18.9	C
Westbound left+through+right turn									
U.S. 50/Country Club Drive	EB Stop								
(overall)		(0.9)	(A)	(1.2)	(A)	(0.9)	(A)	(1.2)	(A)
Northbound left turn		8.1	A	8.1	A	8.8	A	8.9	A
Eastbound left+right turn		15.7	C	16.8	C	17.8	C	20.2	C
U.S. 50/North Upper Truckee Road	EB Stop								
(overall)		(2.5)	(A)	(2.7)	(A)	(3.1)	(A)	(3.1)	(A)
Northbound left turn		7.9	A	7.9	A	8.0	A	8.1	A
Eastbound left+through+right turn		12.6	B	12.9	B	18.5	C	18.9	C

Notes: EB = eastbound; LOS = level of service; sec/veh = seconds per vehicle; U.S. 50 = U.S. Highway 50; WB = westbound
Source: Data provided by KD Anderson & Associates in 2009

Table 3.10-16
Daily Traffic Volumes—Existing Conditions plus Alternative 3 Construction Traffic

Location			Weekday Daily Volume					
			July			Peak Month		
Road/Street	From	To	Existing	Project Only	Total	Existing	Project Only (PCEs)	Total
U.S. 50	North Upper Truckee Road	SR 89				13,400	88	13,488
	SR 89	Pioneer Trail				16,800	108	16,908
	Pioneer Trail	Golf Course				17,200	191	17,391
	Golf Course	Sawmill Road				17,200	294	17,494
	Sawmill Road	H Street				16,000	304	16,306
Sawmill Road	Incline Road	U.S. 50	1,184	14	1,198	1,200	14	1,214
Country Club Drive	Arapahoe	U.S. 50	669	137	806	670	137	707
North Upper Truckee Road	U.S. 50	Otomites Street	1,923	20	1,942	1,950	20	1,970
San Bernardino Avenue	North Upper Truckee Road	Cholula Street	494	12	506	500	12	512

Notes: PCEs = Passenger Car Equivalents; SR = State Route; U.S. 50 = U.S. Highway 50
Source: Data provided by KD Anderson & Associates in 2009

IMPACT 3.10-3 (Alt. 3) **Potential for Conflicts between Construction Traffic and Local Traffic, Pedestrians, and Bicycles.** *Construction under Alternative 3 would add short-term truck traffic on local roads in the project vicinity, and this traffic has the potential to create conflicts with local traffic, pedestrians, and bicyclists. This impact would be* ***significant.***

This impact is similar to Impact 3.10-3 (Alt. 2) because truck traffic could conflict with local traffic, pedestrians, or bicycles at the Chilicothe Street/Cholula Street and San Bernardino Street/Cholula Street intersections and along local streets used for construction access when large trucks use the route. Because fewer trucks are expected on this route under Alternative 3 than under Alternative 2, this impact would be less severe under Alternative 3 compared to Alternative 2, but it would still be substantial. As under Alternative 2, conflicts could occur at Sawmill Road where trucks would cross the new bicycle trail proposed along the south side of Sawmill Road, creating the possibility of conflicts between trucks and cyclists. The number of trucks crossing the trail under Alternative 3 is similar to that occurring under Alternative 2. This impact would be significant.

Mitigation Measure 3.10-3 (Alt. 3): Construction Traffic Management Plan

This mitigation measure is identical to Mitigation Measure 3.10-3 (Alt. 2).

For the same reasons as described under Alternative 2, with implementation of Mitigation Measure 3.10-3 (Alt. 3), Impact 3.10-3 (Alt. 3) would be less than significant.

IMPACT 3.10-4 (Alt. 3) **Operational Impacts on the Local and Regional Circulation System.** *The continuing operation of a golf course under Alternative 3 would attract traffic to Lake Valley SRA. However, this traffic volume would be no greater than the current traffic associated with the golf course, and in fact could be less.* ***No impact*** *would occur.*

Alternative 3 would continue to generate operational traffic with the reduced-play golf course, but a reduced course would accommodate fewer golfers and the volume of traffic associated with travel to and from the course could be less than existing conditions. The golf course access location would not change, but if the volume of traffic at the access on U.S. 50 were reduced, the length of delays at this location would be less than those identified under Alternative 1 or Alternative 2. Because traffic operations would be better than the current condition, the operational, post-project impact under Alternative 3 would be less than existing conditions. Therefore, no impact would occur.

No mitigation is required.

Alternative 4: River Stabilization with Existing 18-Hole Regulation Golf Course

IMPACT 3.10-1 (Alt. 4) **Increased Construction Traffic on Local and Regional Circulation System.** *Construction under Alternative 4 would add traffic to major roads in the project vicinity, but current operating LOS would not change appreciably. This impact would be* ***less than significant.***

As noted in Table 3.10-17, the maximum on-site construction employment under Alternative 4 is 42 persons. Thus 42 inbound trips are expected to be generated in the a.m. peak hour and 42 outbound trips are expected in the p.m. peak hour. This forecast is similar to the estimate for Alternative 2.

The total number of truckloads is 6,868 over the 2- to 3-year construction life of Alternative 4. Because the duration of construction could be only 2 years, the largest number of truckloads that would be hauled in a single year is 4,050 during the second year. During that year, 49 truckloads per day could be hauled to or from the study area. Although the number of trucks per day under Alternative 4 is only slightly higher than under other alternatives, the total number of truckloads is the highest under this alternative because the boulder material being imported for stabilization of the river is more than for geomorphic restoration. The trucks per day values are

similar because of the materials being imported for golf course reconfiguration under Alternative 2 (e.g., asphalt and sod).

Table 3.10-17
Traffic Characteristics of Alternative 4 Construction Phase

Description	Alternative 4
Total cubic yards of export over the life of the project	27,720
Total cubic yards of import over the life of the project	76,640
Total external truckloads over the life of the project @ 15 cu. yd./truck	6,868
Maximum annual truckloads in highest year	4,050
Duration of haul (varies)	24–108 days
Average daily truckloads	49
Highest hourly truck trips (10-hour day)	5 in, 5 out
Maximum on-site employment	42
Highest hourly employee traffic	a.m. 42 inbound, p.m. 42 outbound

Note: cu. yd./truck = cubic yards per truck
Source: Data provided by KD Anderson & Associates in 2009

Table 3.10-18 summarizes peak-hour and daily trip generation for Alternative 4 on both a vehicle and PCE basis. Alternative 4 would add 94 PCEs during the a.m. and p.m. peak hours. This forecast is similar to but slightly higher than the estimate for Alternative 2 or Alternative 3.

Table 3.10-18
Peak-Hour and Daily Trip Generation Estimates for Alternative 4 Construction Phase

	Alternative 4	
Description	In	Out
a.m. truck trips	5	5
a.m. employee trips	42	0
Total a.m. trips (vehicles)	47	5
Total a.m. PCEs	20	20
p.m. truck trips	5	5
p.m. employee trips	0	42
Total p.m. trips (vehicles)	5	47
Total p.m. PCEs	20	20
Total daily vehicles (employees, trucks, and misc. [10%])	100	100
Total daily PCEs	196	196

Note: PCE = Passenger Car Equivalent
Source: Data provided by KD Anderson & Associates in 2009

Localized truck traffic could result as materials are hauled to specific work zones under Alternative 4. Truck traffic destined for the main staging area would enter via the golf course entrance on U.S. 50. However, supplies and materials that would be delivered directly to various locations in the work area may enter via Sawmill Road,

the golf course entrance, Country Club Drive, and the western Chilicothe Street, Cholula Street, and San Bernardino Street route to reach North Upper Truckee Road and U.S. 50. Although trucks would be noticeable on these routes at various times over the construction period, they would not represent an appreciable volume that affects traffic operations and congestion, as measured on a daily or peak-hour basis. Resulting construction-related traffic volumes under Alternative 4, expressed as project PCEs, are shown in Exhibit 3.10-7.

The amount of truck traffic on each haul route over the life of Alternative 4 has also been estimated. As noted in Table 3.10-19, approximately 71 percent of the 6,868 truckloads would enter via the golf course entrance and exit on Country Club Drive. Approximately 13 percent of the materials hauled to and from the site under Alternative 4 would use the Chilicothe Street access. The amount of truck traffic using the Chilicothe Street access would be less than forecast under Alternative 2, but more than under Alternative 3. The number of trucks using Country Club Drive would be higher under Alternative 4 than under Alternative 2 or Alternative 3.

Table 3.10-19
Truck Trip Assignment for Alternative 4 Construction Phase

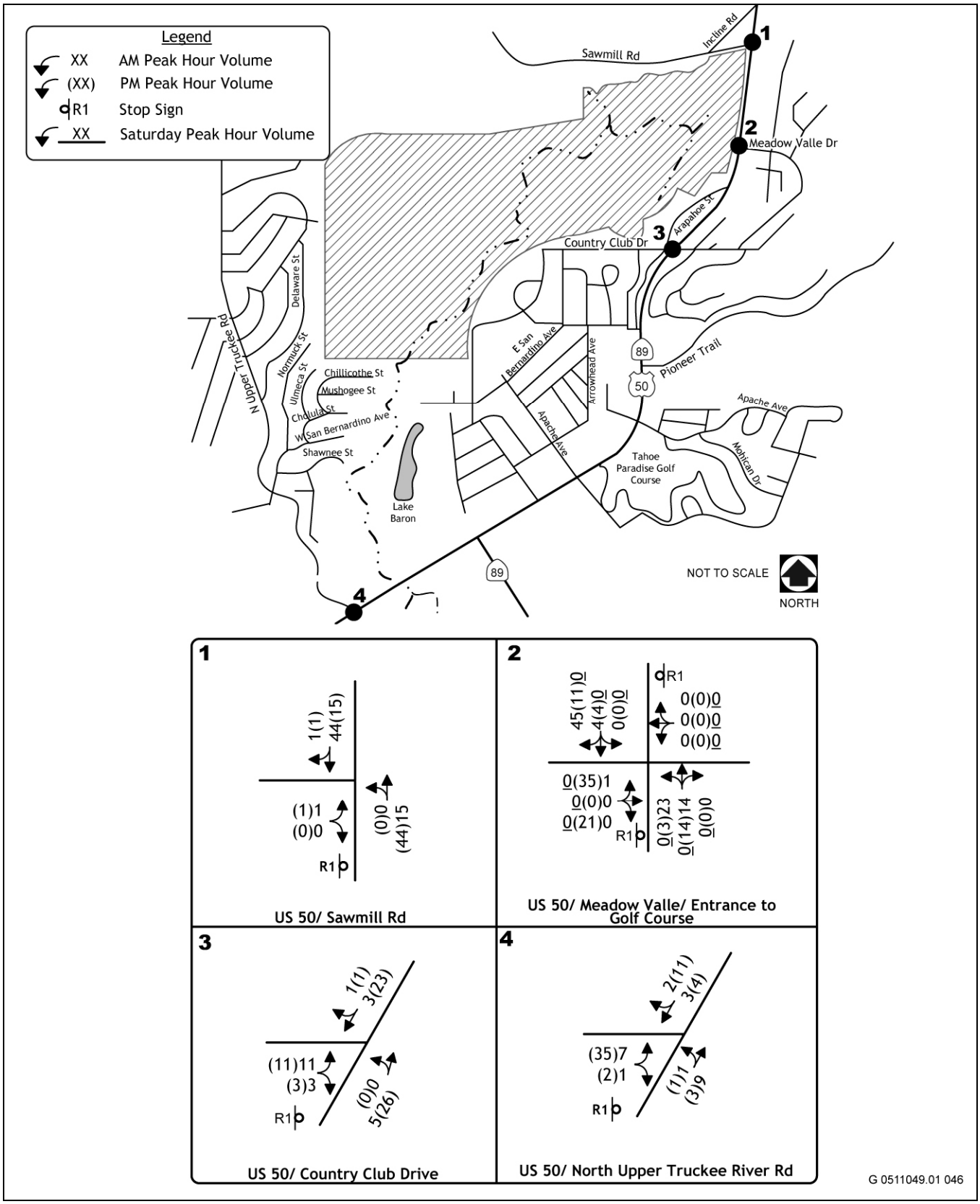
Access	Inbound	Percent of total	Outbound	Percent of total
Sawmill Road	644	9	644	9
Golf Course Entrance	4,847	71	483	7
Country Club Drive	483	7	4,847	71
Chilicothe Street	894	13	894	13
Total	**6,868**	**100**	**5,760**	**100**

Source: Data provided by KD Anderson & Associates in 2009

Exhibit 3.10-8 illustrates existing traffic volumes plus construction-related traffic volumes associated with Alternative 4, again expressed in terms of project PCEs. Table 3.10-20 identifies peak-hour LOS at intersections in the project vicinity during the a.m. and p.m. peak hour, respectively, under Alternative 4. Although the volume of traffic through study intersections may increase, no intersections are projected to operate with an overall or side-street LOS worse than LOS D. At intersections controlled by side-street stop signs, adding project traffic would incrementally increase the length of delays experienced by motorists waiting to turn onto U.S. 50, but project traffic would not change acceptable LOS to unacceptable conditions. Levels of service under Alternative 4 are similar to that forecast for Alternative 2.

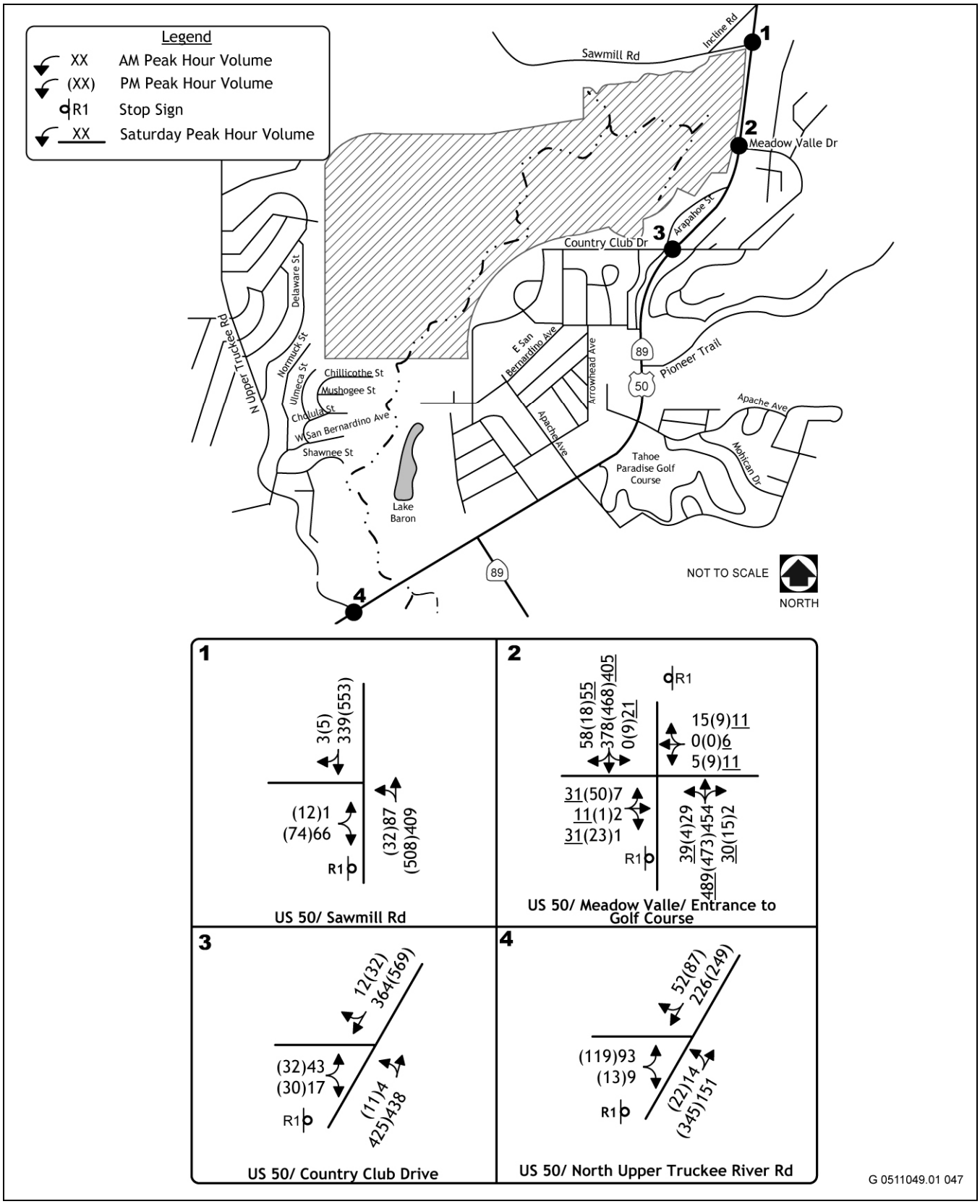
Development of Alternative 4 would add construction truck and employee traffic to roads in the project vicinity throughout the construction period. Alternative 4 truck traffic is compared to existing 24-hour traffic volume counts in Table 3.10-21. Overall, the automobile and truck traffic resulting from implementation of Alternative 4 would result in total volumes that are similar to those accompanying Alternative 2 and Alternative 3. Alternative 4 trips would not result in operating conditions in excess of adopted standards for LOS at intersections. Thus, this impact would be less than significant.

No mitigation is required.



Source: KD Anderson 2009

Construction-Related Traffic Volumes under Alternative 4, Expressed as Passenger Car Equivalents **Exhibit 3.10-7**



Source: KD Anderson 2009

Traffic Volumes under Existing Conditions plus Alternative 4
Construction-Related Traffic, Expressed as Passenger Car Equivalents **Exhibit 3.10-8**

Table 3.10-20
Peak-Hour Levels of Service—Existing Conditions plus Alternative 4 Construction Traffic

Location	Control	Weekday Peak-Hour Levels of Service							
		a.m. Peak Hour (7:00 to 9:00 a.m.)				a.m. Peak Hour (4:00 to 6:00 p.m.)			
		Existing		Existing plus Alternative 4		Existing		Existing plus Alternative 4	
		Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
U.S. 50/Sawmill Road									
(overall)	EB Stop	(1.7)	(A)	(1.6)	(A)	(1.4)	(A)	(1.4)	(A)
Northbound left turn		8.2	A	8.3	A	8.8	A	8.8	A
Eastbound left+right turn		10.6	B	11.1	B	15.6	C	16.3	C
U.S. 50/Golf Course/Meadow Vale Drive									
(overall)	EB/WB	(0.6)	(A)	(0.8)	(A)	(0.9)	(A)	(2.3)	(A)
Northbound left turn	Stop	8.2	A	8.4	A	8.4	A	8.5	A
Southbound left turn		–	–	–	–	8.4	A	8.5	A
Eastbound left+through+right turn		18.7	C	21.4	C	22.8	C	27.2	D
Westbound left+through+right turn		13.5	B	14.2	B	17.7	C	19.0	C
U.S. 50/Country Club Drive									
(overall)	EB Stop	(0.9)	(A)	(1.2)	(A)	(0.9)	(A)	(1.2)	(A)
Northbound left turn		8.1	A	8.1	A	8.8	A	8.9	A
Eastbound left+right turn		15.7	C	16.9	C	17.8	C	20.3	C
U.S. 50/North Upper Truckee Road									
(overall)	EB Stop	(2.5)	(A)	(2.6)	(A)	(3.1)	(A)	(3.2)	(A)
Northbound left turn		7.9	A	7.9	A	8.0	A	8.1	A
Eastbound left+through+right turn		12.6	B	13.0	B	18.5	C	19.1	C

Notes: EB = eastbound; LOS = level of service; sec/veh = seconds per vehicle; U.S. 50 = U.S. Highway 50; WB = westbound
Source: Data provided by KD Anderson & Associates in 2009

Table 3.10-21
Daily Traffic Volumes—Existing Conditions plus Alternative 4 Construction Traffic

Location			Weekday Daily Volume					
			July			Peak Month		
Road/Street	From	To	Existing	Project Only	Total	Existing	Project Only (PCEs)	Total
U.S. 50	North Upper Truckee Road	SR 89				13,400	136	13,536
	SR 89	Pioneer Trail				16,800	158	16,958
	Pioneer Trail	Golf Course				17,200	249	17,449
	Golf Course	Sawmill Road				17,200	364	17,564
	Sawmill Road	H Street				16,000	384	16,384
Sawmill Road	Incline Road	U.S. 50	1,184	36	1,220	1,200	36	1,236
Country Club Drive	Arapahoe	U.S. 50	669	153	822	670	153	823
North Upper Truckee Road	U.S. 50	Otomites Street	1,923	64	1,987	1,950	64	2,014
San Bernardino Avenue	North Upper Truckee Road	Cholula Street	494	12	506	500	12	512

Notes: PCEs = Passenger Car Equivalents; SR = State Route; U.S. 50 = U.S. Highway 50
Source: Data provided by KD Anderson & Associates in 2009

IMPACT 3.10-2 (Alt. 4) Contribution to Deterioration of Local Streets. *Construction under Alternative 4 would add truck traffic on local roads and across bicycle trails in the project vicinity. This traffic has the potential to contribute to the accelerated deterioration of pavement sections on street and bicycle trails. This impact would be* ***significant****.*

This contribution to pavement deterioration by Alternative 4 is similar to Alternative 2 (Impact 3.10-2) because large trucks could damage pavement along the northwest corner of the intersection of Chilicothe Street/Cholula Street and the northwest corner of the intersection of Cholula Street/San Bernardino Avenue, and along those local streets leading to U.S. 50. Although, fewer trucks would use this route under Alternative 4 than under Alternative 2, the number of trucks would be greater than Alternative 3 and would be substantial.

Trucks using the Sawmill Road access would cross the bicycle trail planned on the south side of the road. Truck traffic could damage the trail. The number of trucks crossing the trail under Alternative 4 would be greater than the number projected under Alternative 2 or Alternative 3. This impact would be significant.

Mitigation Measure 3.10-2 (Alt. 4): Survey Pavement Conditions and Repair Damage.

This mitigation measure is identical to Mitigation Measure 3.10-2 (Alt. 2).

For the same reasons as described under Alternative 2, with implementation of Mitigation Measure 3.10-2 (Alt. 4), Impact 3.10-2 (Alt. 4) would be less than significant.

IMPACT 3.10-3 (Alt. 4) Potential for Conflicts between Construction Traffic and Local Traffic, Pedestrians, and Bicycles. *Construction under Alternative 4 would add short-term truck traffic on local roads in the project vicinity. This traffic has the potential to create conflicts with local traffic, pedestrians, and bicyclists. This impact would be* ***significant****.*

This impact is similar to Impact 3.10-3 (Alt. 2) because truck traffic could conflict with local traffic, pedestrians, or bicycles at the Chilicothe Street/Cholula Street and San Bernardino Street/Cholula Street intersections and along local streets used for construction access when large trucks use the route. The number of trucks expected on this route under Alternative 4 is lower than the number projected for Alternative 2 and more than under Alternative 3. As under Alternative 2 and 3, Alternative 4 trucks would cross the new bicycle trail proposed along the south side of Sawmill Road, creating the possibility of conflicts between trucks and cyclists. More trucks would use Sawmill Road under Alternative 4 than under Alternative 2 and 3. The number of trucks crossing the bicycle trail under Alternative 4 would be similar to the number of trucks under Alternative 2. This impact would be significant.

As with Alternative 2, the unpaved parking area would be paved under Alternative 4 to create an additional 89 parking spaces. The issues associated with use of this lot would be similar to those noted under Alternative 2.

Mitigation Measure 3.10-3 (Alt. 4): Construction Traffic Management Plan

This measure is identical to Mitigation Measure 3.10-3 (Alt. 2).

For the same reasons noted for Mitigation Measure 3.10-3 (Alt. 2), with implementation of Mitigation Measure 3.10-3 (Alt 4) this impact is less than significant.

IMPACT 3.10-4 (Alt. 4) Operational Impacts on the Local and Regional Circulation System. *The continuing operation of a golf course under Alternative 4 would attract traffic to Lake Valley SRA. However, because this traffic volume is no greater than the current traffic associated with the existing use of the golf course,* ***no impact*** *would occur.*

Construction under Alternative 4 would not generate traffic continuing beyond the construction period. In addition, although Alternative 4 would perpetuate regular activity at the golf course, the access location would not change and the volume of traffic at the site after construction would not be different from the current volume. For

these reasons, the LOS occurring under regular conditions after completion of the project would be the same as those occurring under Alternative 1. No impact would occur.

No mitigation measures are required.

Alternative 5: River Ecosystem Restoration with Decommissioned Golf Course

IMPACT 3.10-1 (Alt. 5) **Increased Construction Traffic on the Local and Regional Circulation System.** *Construction under Alternative 5 would add traffic to major roads in the project vicinity, but current LOS would not change appreciably. This impact would be* ***less than significant.***

As noted in Table 3.10-22, the maximum on-site construction employment under Alternative 5 is 20 persons. Thus 20 inbound trips are expected to be generated in the a.m. peak hour and 20 outbound trips are expected in the p.m. peak hour.

Table 3.10-22
Traffic Characteristics of Alternative 5 Construction Phase

Description	Alternative 5
Total cubic yards of export over the life of the project	18,760
Total cubic yards of import over the life of the project	36,600
Total external truckloads over the life of the project @ 15 cu. yd./truck	3,712
Maximum annual truckloads in highest year	1,780
Duration of haul (varies)	24–108 days
Average daily truckloads	22
Highest hourly truck trips (10-hour day)	5 in, 5 out
Maximum on-site employment	20
Highest hourly employee traffic	a.m. 20 inbound, p.m. 20 outbound

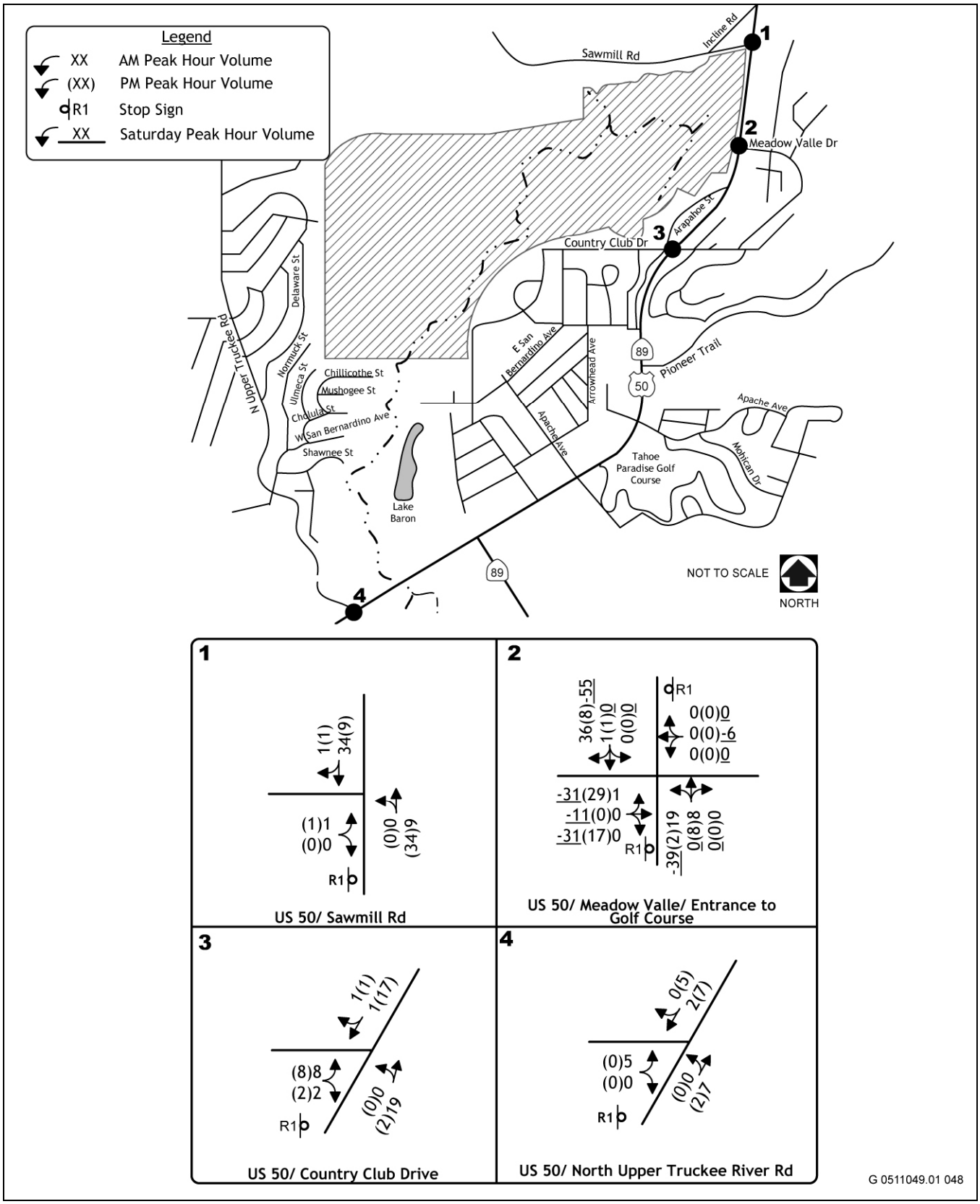
Note: cu. yd./truck = cubic yards per truck
Source: Data provided by KD Anderson & Associates in 2009

The total number of truckloads is 3,712 over the life of Alternative 5. This estimate of truckloads is lower than that made for Alternative 2, 3, or 4. Construction would be spread over 3 years, and the largest number of truckloads would be hauled in the first year (1,780). During that year, 22 truckloads per day could be hauled to or from the site, and this forecast is lower than Alternative 2, 3, or 4.

Table 3.10-23 summarizes peak-hour and daily trip generation for Alternative 5 on both a vehicle and PCE basis. Alternative 5 would add 69 PCEs during the a.m. and p.m. peak hours. This estimate is lower than the estimate under Alternative 2, 3, or 4.

As discussed under Alternative 2, localized truck traffic could result as materials are hauled to specific work zones under Alternative 5. Although trucks would be noticeable on various routes at different times over the construction period, they would not represent an appreciable volume that affects traffic operations, as measured on a daily or peak-hour basis. Resulting construction-related traffic volumes under Alternative 5, expressed as project PCEs, are shown in Exhibit 3.10-9.

The amount of truck traffic on each haul route over the life of Alternative 5 has also been estimated. As noted in Table 3.10-24, approximately 80 percent of the 3,712 truckloads would enter via the golf course entrance and exit on Country Club Drive. Approximately 2 percent of the materials hauled to and from the site under Alternative 5 would use the Chilicothe Street access. This value is smaller than the forecast for that road under Alternative 2 and Alternative 4, but similar to the use under Alternative 3.



Source: KD Anderson 2009

Construction-Related Traffic Volumes under Alternative 5, Expressed as Passenger Car Equivalents **Exhibit 3.10-9**

Table 3.10-23 Peak-Hour and Daily Trip Generation Estimates for Alternative 5 Construction Phase		
Description	Alternative 5	
	In	Out
a.m. truck trips	5	5
a.m. employee trips	20	0
Total a.m. trips (vehicles)	23	5
Total a.m. PCEs	20	20
p.m. truck trips	5	5
p.m. employee trips	0	20
Total p.m. trips (vehicles)	5	23
Total p.m. PCEs	20	20
Total daily vehicles (employees, trucks, and misc. [10%])	**46**	**46**
Total daily PCEs	**88**	**88**

Note: PCE = Passenger Car Equivalent
Source: Data provided by KD Anderson & Associates in 2009

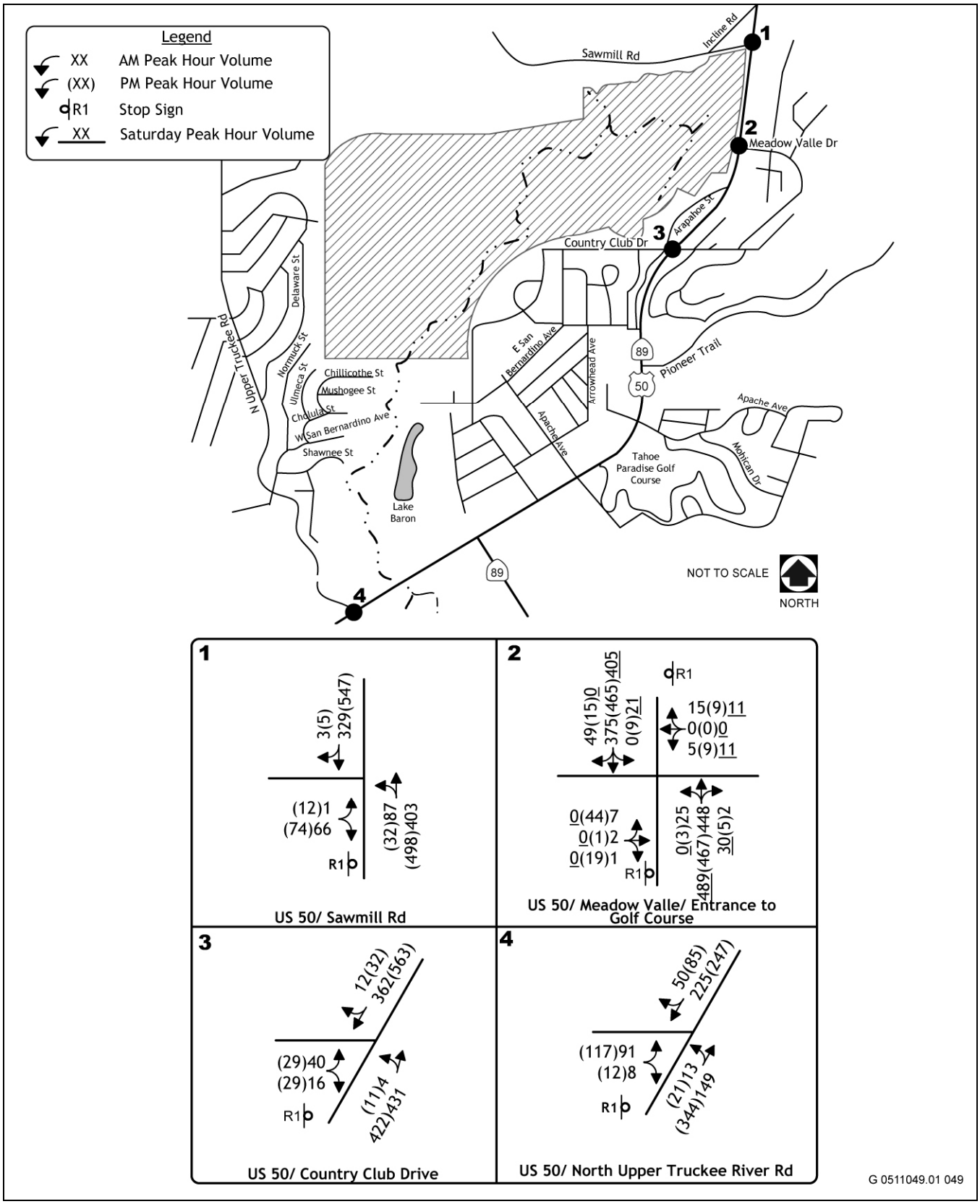
Table 3.10-24 Truck Trip Assignment for Alternative 5 Construction Phase				
Access	Inbound	Percent of Total	Outbound	Percent of Total
Sawmill Road	258	7	258	7
Golf Course Entrance	2,952	80	409	11
Country Club Drive	409	11	2,952	80
Chilicothe Street	93	2	93	2
Total	**3,712**	**100**	**3,712**	**100**

Source: Data provided by KD Anderson & Associates in 2009

Exhibit 3.10-10 illustrates existing traffic volumes plus construction-related traffic volumes associated with Alternative 5, again expressed in terms of project PCEs. Table 3.10-25 identifies peak-hour LOS at intersections in the project vicinity during the a.m. and p.m. peak hour, respectively, under Alternative 5. As indicated, no intersections are projected to operate with an overall or side-street LOS worse than LOS D. At intersections controlled by side-street stop signs, adding project traffic would incrementally increase the length of delays experienced by motorists waiting to turn onto U.S. 50, but project traffic would not change acceptable LOS to unacceptable conditions. Levels of service under Alternative 5 would be similar to those occurring under Alternatives 2, 3, and 4.

Implementation of Alternative 5 would add truck and automobile traffic to roads in the vicinity of the study area throughout the construction period. Project truck traffic is compared to existing 24-hour traffic volume counts in Table 3.10-26. Overall, the automobile and truck traffic resulting from construction period of Alternative 5 would result in total volumes that are similar to those associated with Alternative 2, but less than under Alternatives 3 and 4. Project trips would not result in operating conditions in excess of adopted standards for LOS at intersections. Thus, this impact would be less than significant.

No mitigation is required.



Source: KD Anderson 2009

Traffic Volumes under Existing Conditions plus Alternative 5 Construction-Related Traffic, Expressed as Passenger Car Equivalents **Exhibit 3.10-10**

Table 3.10-25
Peak-Hour Levels of Service—Existing Conditions plus Alternative 5 Construction Traffic

Location	Control	Weekday Peak-Hour Levels of Service							
		a.m. Peak Hour (7:00 to 9:00 a.m.)				a.m. Peak Hour (4:00 to 6:00 p.m.)			
		Existing		Existing plus Alternative 5		Existing		Existing plus Alternative 5	
		Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
U.S. 50/Sawmill Road	EB Stop								
(overall)		(1.7)	(A)	(1.6)	(A)	(1.4)	(A)	(1.4)	(A)
Northbound left turn		8.2	A	8.3	A	8.8	A	8.8	A
Eastbound left+right turn		10.6	B	11.0	B	15.6	C	16.2	C
U.S. 50/Golf Course/Meadow Vale Drive	EB/WB Stop								
(overall)		(0.6)	(A)	(0.8)	(A)	(0.9)	(A)	(2.0)	(A)
Northbound left turn		8.2	A	8.4	A	8.4	A	8.5	A
Southbound left turn		–	–	–	–	8.4	A	8.5	A
Eastbound left+through+right turn		18.7	C	20.7	C	22.8	C	25.5	D
Westbound left+through+right turn		13.5	B	14.0	B	17.7	C	18.6	C
U.S. 50/Country Club Drive	EB Stop								
(overall)		(0.9)	(A)	(1.1)	(A)	(0.9)	(A)	(1.1)	(A)
Northbound left turn		8.1	A	8.1	A	8.8	A	8.9	A
Eastbound left+right turn		15.7	C	16.5	C	17.8	C	19.6	C
U.S. 50/North Upper Truckee Road	EB Stop								
(overall)		(2.5)	(A)	(2.6)	(A)	(3.1)	(A)	(3.1)	(A)
Northbound left turn		7.9	A	7.9	A	8.0	A	8.1	A
Eastbound left+through+right turn		12.6	B	12.8	B	18.5	C	18.8	C

Notes: EB = eastbound; LOS = level of service; sec/veh = seconds per vehicle; U.S. 50 = U.S. Highway 50
Source: Data provided by KD Anderson & Associates in 2009

Table 3.10-26
Daily Traffic Volumes—Existing Conditions plus Alternative 5 Construction Traffic

Location			Weekday Daily Volume					
			July			Peak Month		
Road/Street	From	To	Existing	Project Only	Total	Existing	Project Only (PCEs)	Total
U.S. 50	North Upper Truckee Road	SR 89				13,400	58	13,458
	SR 89	Pioneer Trail				16,800	76	16,876
	Pioneer Trail	Golf Course				17,200	124	17,324
	Golf Course	Sawmill Road				17,200	190	17,380
	Sawmill Road	H Street				16,000	198	16,198
Sawmill Road	Incline Road	U.S. 50	1,184	12	1,196	1,200	12	1,212
Country Club Drive	Arapahoe	U.S. 50	669	184	853	670	184	854
North Upper Truckee Road	U.S. 50	Otomites Street	1,923	14	1,937	1,950	14	1,964
San Bernardino Avenue	North Upper Truckee Road	Cholula Street	494	4	498	500	4	504

Notes: PCEs = Passenger Car Equivalents; SR = State Route; U.S. 50 = U.S. Highway 50
Source: Data provided by KD Anderson & Associates in 2009

IMPACT 3.10-2 (Alt. 5) Contribution to Deterioration of Local Streets. *Construction under Alternative 5 would add truck traffic on local roads and across bicycle trails in the project vicinity. This traffic has the potential to contribute to the accelerated deterioration of pavement sections on streets and bicycle trails. This impact would be significant.*

This contribution to pavement deterioration by Alternative 5 is similar to Alternative 2 (Impact 3.10-2), because large trucks could damage pavement along the northwest corner of the intersection of Chilicothe Street/Cholula Street and the northwest corner of the intersection of Cholula Street/San Bernardino Avenue, and along those local streets leading to U.S. 50. Fewer trucks would use this route under Alternative 5 than under Alternative 2, but the route would be used by more trucks than under Alternative 3 and the number would be substantial.

Trucks using the Sawmill Road access would cross the bicycle trail planned on the south side of the road. Truck traffic could damage the trail. The number of trucks crossing the trail under Alternative 5 is the same as under Alternative 3 and less than projected under Alternative 2 or Alternative 4. This impact would be significant.

Mitigation Measure 3.10-2 (Alt. 5): Survey Pavement Conditions and Repair Damage.

This mitigation measure is identical to Mitigation Measure 3.10-2 (Alt. 2).

For the same reasons as described under Alternative 2, with implementation of Mitigation Measure 3.10-2 (Alt. 3), Impact 3.10-2 (Alt. 3) would be less than significant.

IMPACT 3.10-3 (Alt. 5) Potential for Conflicts between Construction Traffic and Local Traffic, Pedestrians, and Bicycles. *Construction under Alternative 5 would add short-term truck traffic on local roads in the project vicinity. This traffic has the potential to create conflicts with local traffic, pedestrians, and bicyclists. This impact would be significant.*

This impact is similar to Impact 3.10-3 (Alt. 3) because truck traffic could conflict with local traffic, pedestrians or bicycles at the Chilicothe Street/Cholula Street and San Bernardino Street/Cholula Street intersections and along local streets used for construction access when large trucks use the route. Because fewer trucks are expected on this route under Alternative 5 than under Alternative 2 and Alternative 4, this impact would be less severe under Alternative 5. As under Alternative 3, conflicts could occur at Sawmill Road where trucks would cross the new bicycle trail proposed along the south side of Sawmill Road, creating the possibility of conflicts between trucks and cyclists. The number of trucks crossing the trail under Alternative 5 is similar the number of trucks under Alternatives 2 and 3, but less than under Alternative 4.

Mitigation Measure 3.10-3 (Alt. 5): Construction Traffic Management Plan

This mitigation measure is identical to Mitigation Measure 3.10-3 (Alt. 2).

For the same reasons as described under Alternative 2, with implementation of Mitigation Measure 3.10-3 (Alt. 5), Impact 3.10-3 (Alt. 5) would be less than significant.

IMPACT 3.10-4 (Alt. 5) Operational Impacts on the Local and Regional Circulation System. *The site would no longer generate the traffic accompanying the regular operation of a golf course under Alternative 5, and resulting traffic volumes on the regional circulation system would be less than under existing conditions. Resulting operating LOS for regular traffic would be the same as or better than current LOS. No impact would occur.*

Alternative 5 would eliminate the regular operation of the 18-hole, regulation-length golf course and restore the golf course site to natural meadow and riparian habitat. Prior to elimination, if feasible, the State may operate a short golf course or a 9-hole course on an interim basis until land use planning for long-term outdoor recreation

uses and/or natural habitat is completed. The volume of traffic at the site after construction would be less than current volume because of either the absence of the golf course, or the extended interim use as a smaller golf course, and LOS would be the same or better than current LOS. Therefore, no impact would occur.

No mitigation is required.

3.11 AIR QUALITY

This section describes the study area's existing air quality conditions and applicable air quality regulations, and analyzes potential short-term and long-term air quality impacts that could result from implementation of Alternatives 1–5. Mitigation measures are recommended as necessary to reduce potentially significant adverse impacts on air quality. Consistency with TRPA goals and policies is presented in Section 3.2, Land Use," Table 3.2-1. Cumulative air quality impacts are discussed in Section 3.16, "Cumulative Impacts." The project effects on thresholds are described in Chapter 4, Section 4.6 "Consequences for Environmental Threshold Carrying Capacities."

3.11.1 AFFECTED ENVIRONMENT

REGULATORY SETTING

Air quality within the El Dorado County portion of the Lake Tahoe Air Basin (LTAB) is regulated by the EPA, California Air Resources Board (ARB), TRPA, and El Dorado County Air Quality Management District (EDCAQMD). Each of these agencies develops rules, regulations, policies, and/or goals to comply with applicable legislation. Although EPA regulations may not be superseded, State and local regulations may be more stringent.

Federal

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

Criteria Air Pollutants

The CAA required EPA to establish national ambient air quality standards (NAAQS). As shown in Table 3.11-1, EPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable and fine particulate matter (PM_{10} and $PM_{2.5}$), and lead. The primary standards protect the public health and the secondary standards protect public welfare. The CAA also required each state to prepare an air quality control plan referred to as a State implementation plan (SIP). The Federal Clean Air Act Amendments of 1990 (CAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. EPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and whether implementation will achieve air quality goals. If EPA determines a SIP to be inadequate, a Federal implementation plan that imposes additional control measures may be prepared for the nonattainment area. If an approvable SIP is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and stationary air pollution sources in the air basin. It is important to note that because the study area would not be located in a nonattainment or maintenance area with respect to any of the NAAQS and because the project would not require Federal funding, a CAA conformity determination is not required for the project.

Toxic Air Contaminants/Hazardous Air Pollutants

Air quality regulations also focus on toxic air contaminants (TACs), or in Federal parlance hazardous air pollutants (HAPs). In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no threshold level below which adverse health impacts may not be

Table 3.11-1
Ambient Air Quality Standards

Pollutant	Averaging Time	TRPA Thresholds	California [a,b]	National [c]	
				Primary [b,d]	Secondary [b,e]
Ozone	1-hour	0.08 ppm	0.09 ppm (180 µg/m^3)	– [e]	Same as primary standard
	8-hour	–	0.07 ppm (137 µg/m^3)	0.08 ppm (157 µg/m^3)	
Carbon monoxide (CO)	1-hour	–	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	Same as primary standard
	8-hour	6 ppm	6 ppm [f] (7 mg/m^3)	9 ppm (10 mg/m^3)	
Nitrogen dioxide (NO_2) [g]	Annual arithmetic mean	–	0.030 ppm (56 µg/m^3)	0.053 ppm (100 µg/m^3)	Same as primary standard
	1-hour	–	0.18 ppm (338 µg/m^3)	–	–
Sulfur dioxide (SO_2)	Annual arithmetic mean	–	–	0.030 ppm (80 µg/m^3)	–
	24-hour	–	0.04 ppm (105 µg/m^3)	0.14 ppm (365 µg/m^3)	–
	3-hour	–	–	–	0.5 ppm (1300 µg/m^3)
	1-hour	–	0.25 ppm (655 µg/m^3)	–	–
Respirable particulate matter (PM_{10})	Annual arithmetic mean	–	20 µg/m^3	–	Same as primary standard
	24-hour	–	50 µg/m^3	150 µg/m^3	
Fine particulate matter ($PM_{2.5}$)	Annual arithmetic mean	–	12 µg/m^3	15 µg/m^3	Same as primary standard
	24-hour	–	–	35 µg/m^3	
Lead [h]	Calendar quarter	–	–	1.5 µg/m^3	Same as primary standard
	30-Day average	–	1.5 µg/m^3	–	–

Table 3.11-1
Ambient Air Quality Standards

Pollutant	Averaging Time	TRPA Thresholds	California [a,b]	National [c]	
				Primary [b,d]	Secondary [b,e]
Hydrogen sulfide	1-hour	–	0.03 ppm (42 µg/m^3)	No national standards	
Sulfates	24-hour	–	25 µg/m^3		
Vinyl chloride[h]	24-hour	–	0.01 ppm (26 µg/m^3)		
Visibility-reducing particulate matter	8-hour	*Regional:* Extinction coefficient of 25 Mm-1 (157 km, 97 miles) 50 percent of the year, 34 Mm-1 (115 km, 71 miles) 90 percent of the year. *Subregional:* 50 Mm-1 (48 miles) 50 percent of the year, 125 Mm-1 (19 miles) 90 percent of the year.			

Notes: µg/m^3 = micrograms per cubic meter; km = kilometers; ppm = parts per million; TRPA = Tahoe Regional Planning Agency

[a] California standards for ozone, SO_2 (1- and 24-hour), NO_2, particulate matter, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[b] Concentration expressed first in units in which it was issued. Equivalent units given in parentheses are based on a reference temperature of 25 degrees Celsius (°C) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[c] National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. The PM_{10} 24-hour standard is attained when 99 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. The $PM_{2.5}$ 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the U.S. Environmental Protection Agency for further clarification and current Federal policies.

[d] National primary standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[e] National secondary standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[f] Applicable in the Lake Tahoe Air Basin.

[g] On February 19, 2008, the Office of Administrative Law approved a new NO_2 ambient air quality standard, which lowers the 1-hour standard to 0.19 ppm and establishes a new annual standard of 0.030 ppm. These changes became effective March 20, 2008.

[h] The California Air Resources Board has identified lead and vinyl chloride as toxic air contaminants with no threshold of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants

Sources: TRPA 2007a, ARB 2008a

expected to occur. (By contrast, for the criteria air pollutants, acceptable levels of exposure can be determined and the ambient standards have been established [Table 3.11-1].) Instead, EPA and, in California, ARB regulate HAPs and TACs, respectively, through statutes and regulations that generally require the use of the maximum available control technology or best available control technology for toxics to limit emissions. (See the discussion of TACs in the "State" section below for a description of ARB's efforts.) These in conjunction with additional rules set forth by EDCAQMD, described below under "El Dorado County Air Quality Management District," establish the regulatory framework for TACs.

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

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

State

ARB is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA). The CCAA, which was adopted in 1988, required ARB to establish California ambient air quality standards (CAAQS) (Table 3.11-1).

Criteria Air Pollutants

ARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned criteria air pollutants. In most cases the CAAQS are more stringent than the NAAQS. Differences in the standards are generally explained by the health effects studies considered during the standard-setting process and the interpretation of the studies. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals.

The CCAA requires that all local air districts in the state endeavor to achieve and maintain the CAAQS by the earliest date practical. The act specifies that local air districts should focus particular attention on reducing the emissions from transportation and areawide emission sources, and provides districts with the authority to regulate indirect sources.

Among ARB's other responsibilities are overseeing local air district compliance with Federal and State laws, approving local air quality plans, submitting SIPs to EPA, monitoring air quality, determining and updating area designations and maps, and setting emissions standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels. There are 15 nonattainment areas for the national ozone standard and two nonattainment areas for the $PM_{2.5}$ standard. The SIP must show how each area will attain the Federal standards. To do this, the SIP will identify the amount of pollution emissions that must be reduced in each area to meet the standard and the emissions controls needed to reduce the necessary emissions.

ARB and local air pollution control districts are currently developing plans for meeting new NAAQS for ozone and $PM_{2.5}$. The draft strategy for California's 2007 SIP was released in April 2007 and the adopted version transmitted to EPA in November 2007 (ARB 2008b). EPA is reviewing the submittal for approval.

Toxic Air Contaminants

TACs in California are regulated primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807, Chapter 1047, Statutes of 1983) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588, Chapter 1252, Statutes of 1987). AB 1807 sets forth a formal procedure for ARB to designate substances as TACs. Research, public participation, and scientific peer review are required before ARB can designate a substance as a TAC. To date, ARB has identified more than 21 TACs and adopted EPA's list of HAPs as TACs. Most recently, diesel PM was added to ARB's list of TACs.

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

The Hot Spots Act requires that existing facilities that emit toxic substances above a specified level prepare an inventory of toxic emissions, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures.

ARB has adopted diesel exhaust control measures and more stringent emission standards for various on-road mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). In February 2000, ARB adopted a new public-transit bus fleet rule and emissions standards for new urban buses. These rules and standards included more stringent emission standards for some new urban bus engines, beginning with the 2002 model year; zero-emission-bus demonstration and purchase requirements for transit agencies; and reporting requirements, under which transit agencies must demonstrate compliance with the public-transit bus fleet rule. Recent milestones included the low-sulfur diesel fuel requirement, and tighter emissions standards for heavy-duty diesel trucks (effective in 2007 and subsequent model years) and off-road diesel equipment (2011) nationwide. Over time, replacing older vehicles will result in a vehicle fleet that produces substantially lower levels of TACs than under current conditions. Mobile-source emissions of TACs (e.g., benzene, 1-3-butadiene, diesel PM) in California have been reduced significantly over the last decade; such emissions will be reduced further through a progression of regulatory measures (e.g., Low Emission Vehicle/Clean Fuels and Phase II reformulated-gasoline regulations) and control technologies.

Over time, replacing older vehicles will result in a vehicle fleet that produces substantially lower levels of TACs than under current conditions. Mobile-source emissions of TACs (e.g., benzene, 1-3-butadiene, diesel PM) have been reduced significantly over the last decade, and will be reduced further in California through a progression of regulatory measures (e.g., low-emission vehicle/clean fuels and Phase II reformulated gasoline regulations) and control technologies. With implementation of ARB's risk reduction plan, it is expected that concentrations of diesel PM will be reduced by 75 percent in 2010 and 85 percent in 2020 from the estimated year-2000 level. Adopted regulations are also expected to continue to reduce formaldehyde emissions from cars and light-duty trucks. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced.

Tahoe Regional Planning Agency

TRPA implements its authority to regulate growth and development in the Lake Tahoe region through the *Regional Plan for the Lake Tahoe Basin* (Regional Plan). TRPA's Regional Plan, adopted in 1987, consists of several documents: the Goals and Policies, Code of Ordinances, Plan Area Statements, Water Quality Management Plan, Regional Transportation Plan—Air Quality Plan, and Scenic Quality Improvement Plan.

1987 Regional Plan

The 1987 Regional Plan had a 20-year scope and is currently being reviewed and updated through a collaborative effort led by TRPA. These agencies are working together to update several important environmental documents for the Tahoe Basin. These Regional Plan updates will guide land management, resource management, and environmental regulations in the Tahoe Basin over the next 20 years. The Regional Plan update is anticipated to be completed by 2011.

Regional Plan Goals and Policies

The Goals and Policies document of the 1987 Regional Plan establishes an overall framework for development and environmental conservation in the Lake Tahoe region. These goals and policies are designed to achieve and maintain adopted environmental threshold carrying capacities (thresholds) and are implemented through the TRPA Code of Ordinances. Chapter II (Land Use Element) of the Goals and Policies document consists of seven subelements, one of which is the Air Quality subelement (TRPA 1987). However, the Air Quality subelement does not contain any specific goals or policies.

TRPA has jurisdiction within the LTAB portion of El Dorado County in regard to air quality. Therefore, the Air Quality subelement of the Goals and Policies document focuses on achieving the NAAQS and CAAQS, as well as special TRPA-adopted regional and subregional visibility standards, and on reducing the deposition of nitrate from oxides of nitrogen (NO_X) emitted by vehicles. TRPA's Code of Ordinances and Regional Transportation Plan contain specific measures designed to monitor and achieve the air quality objectives of the Regional Plan. EDCAQMD's rules and regulations (discussed below) also govern in the Lake Tahoe area.

Code of Ordinances

TRPA adopted Chapter 91 (Air Quality Control) and Chapter 93 (Traffic and Air Quality Mitigation Program) of the TRPA Code of Ordinances (TRPA 2004). The applicable provisions of these chapters are described below.

Chapter 91—Air Quality Control

The provisions of Chapter 91 apply to direct sources of air pollution in the Lake Tahoe region, including certain motor vehicles registered in the region, combustion heaters installed in the region, open burning and stationary sources of air pollution, and idling combustion engines:

- Section 91.2, "Vehicle Inspection and Maintenance Program, states that to avoid duplication of effort in implementation of an inspection/maintenance program for certain vehicles registered in the CO nonattainment area, TRPA shall work with the affected State agencies to plan for applying State inspection/maintenance programs to the Lake Tahoe region.

- Section 91.3, "Combustion Appliances, establishes emissions standards for wood heaters, as well as natural gas– or propane-fired water heaters and central furnaces.

- Section 91.5.B "Environmental Assessment," states that any new stationary source of air pollution that produces emissions for the peak 24-hour period beyond any of the limits in Table II, reproduced as Table 3.11-2 below, shall be considered to have a significant adverse environmental impact. New stationary sources that have a significant adverse environmental impact shall be prohibited.

Table 3.11-2 TRPA Peak 24-Hour Period Limits for Stationary Sources		
Pollutant	Kilograms	Pounds
Nitrogen Dioxide	11.0	24.2
PM_{10}	10.0	22.0
Volatile Organic Compounds (Reactive Organic Gases)	57.0	125.7
Sulfur Dioxide	6.0	13.2
Carbon Monoxide	100.0	220.5
Notes: PM_{10} = respirable particulate matter; TRPA = Tahoe Regional Planning Agency Source: TRPA 2004		

Chapter 93—Traffic and Air Quality Mitigation Program

The purpose of Chapter 93 of the TRPA Code of Ordinances is to establish fees and other procedures to offset impacts from indirect sources of air pollution. As part of a project application for any additional development that would result in an increase of more than 200 daily vehicle trips, a technically adequate analysis of potential traffic and air quality impacts must be prepared (Section 93.3.B). To offset regional and cumulative impacts, project proponents must contribute to the air quality mitigation fund, or they may provide mitigation measures that cost at least as much as the required contribution to the air quality mitigation fund (Section 93.3.C[1]). Such regional and cumulative mitigation measures may include transportation systems management measures such as bicycle facilities and pedestrian facilities. For new residential units, the required contribution would be $270 per daily vehicle trip (Section 93.3.D).

Regional Transportation Plan—Air Quality (Goals and Policies, Action Element)

The purpose of the *Regional Transportation Plan—Air Quality Plan* (RTP-AQP) is to attain and maintain the thresholds established by TRPA in 1982, and all applicable Federal, State, and local standards established for transportation and air quality. The RTP-AQP contains specific measures designed to monitor and achieve the air quality objectives of its Regional Plan and to attain and maintain the TRPA thresholds (TRPA 1982).

TRPA thresholds address CO, ozone, regional and subregional visibility, and nitrate deposition. There are numerical standards for each of these parameters, in addition to management standards that are intended to assist in attaining the thresholds. The management standards include reducing wood smoke, maintaining NO_X levels, reducing traffic volumes on U.S. 50, and reducing vehicle miles of travel. These thresholds and associated management standards are described in more detail in the following section. In addition, the Compact states that the Regional Plan shall provide for attaining and maintaining Federal, State, or local air quality standards, whichever are strictest, in the respective portions of the region for which the standards are applicable.

Environmental Threshold Carrying Capacities

Thresholds are used by TRPA to set environmental goals and standards for the Tahoe Basin. TRPA threshold criteria have been established for water quality, air quality, scenic resources, soil conservation, fish habitat, vegetation, wildlife habitat, noise, and recreation. Every 5 years TRPA conducts a comprehensive evaluation of whether each threshold is being achieved and/or maintained, makes specific recommendations to address problem areas, and directs general planning efforts for the next 5-year period. The most recent threshold evaluation was completed and adopted by the TRPA Governing Board in 2006 (TRPA 2007a, 2007b).

The thresholds for air quality are listed below (TRPA 2007a).

Carbon Monoxide

- **Numerical Standard:** Maintain CO concentrations at or below 6.0 ppm averaged over 8 hours.
- **Management Standard:** Reduce average daily traffic volume between 4:00 p.m. and midnight in the U.S. 50 corridor by 7 percent from the 1981 base year during the months of November through February.

Ozone

- **Numerical Standard:** Maintain ozone concentration below 0.08 ppm averaged over 1 hour.

Regional Visibility

- **Numerical Standards:**
  - Achieve 156 kilometers (97 miles) at least 50 percent of the year as measured by aerosol concentrations measured at the Bliss State Park monitoring site.
  - Achieve 115 kilometers (71 miles) at least 90 percent of the year as measured by aerosol concentrations measured at the Bliss State Park monitoring site.
- **Management Standard:** Reduce wood smoke emissions by 15 percent of the 1981 base values through technology, management practices, and educational programs.

Subregional Visibility

- **Numerical Standards:**
  - Achieve 78 kilometers (48 miles) at least 50 percent of the year as measured by particulate concentrations measured at the South Lake Tahoe monitoring site.
  - Achieve 31 kilometers (19 miles) at least 90 percent of the year as measured by particulate concentrations measured at the South Lake Tahoe monitoring site.
- **Management Standards:**
  - Reduce suspended soil particles by 30 percent of the 1981 base values through technology, management practices, and educational programs.
  - Reduce wood smoke emissions by 15 percent of the 1981 base values through technology, management practices, and educational programs.
  - Reduce vehicle miles of travel by 10 percent of the 1981 base values.

Atmospheric Deposition

- **Water Quality Numerical Standard:** Reduce dissolved inorganic nitrogen loading to Lake Tahoe from all sources by 25 percent of the 1973–1981 annual average.
- **Management Standards:**
  - Reduce dissolved inorganic nitrogen loads from surface runoff by approximately 50 percent, from groundwater approximately 30 percent, and from atmospheric sources approximately 20 percent of the

1973–1981 annual average. This threshold relies on predicted reductions in pollutant loadings from out-of-basin sources as part of the total pollutant loading reduction.

- Reduce the transport of nitrates into the LTAB and reduce oxides of nitrogen produced in the LTAB consistent with water quality thresholds.

- Reduce vehicles miles of travel in the Lake Tahoe Basin by 10 percent of the 1981 base year values.

These current thresholds are presented above in Table 3.11-1.

El Dorado County

Overview

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

Criteria Air Pollutants

The 1994 *Sacramento Regional Clean Air Plan* was developed cooperatively with all the air quality management districts (AQMD) and air pollution control districts (APCD) in the Sacramento Region (EDCAQMD, Feather River AQMD, Placer County APCD, Sacramento Metropolitan AQMD, and Yolo-Solano AQMD). The plan was adopted in 1994 in compliance with the Federal 1990 CAAA. At that time, the region could not show that it would meet the Federal 1-hour ozone standard by 1999. In exchange for moving the deadline to 2005, the region accepted a designation of "severe nonattainment" for the Federal 1-hour ozone standard, with additional emissions requirements imposed on stationary sources. Updates to the plan were adopted in 1999 and 2002. A new clean-air plan was published in March 2009 and has been submitted to the ARB and EPA for final approval on March 26, 2009. The plan has not yet been adopted.

Adopted EDCAQMD rules and regulations in effect at the time of construction should be considered. Specific rules applicable to the construction of the proposed project may include but are not limited to the following:

- **Rule 202—Visible Emissions.** A person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than 3 minutes in any 1 hour which is as dark or darker in shade as that designated as number 1 on the Ringelmann Chart, as published by the U.S. Bureau of Mines.

- **Rule 223-1—Fugitive Dust–Construction.**

  A. **PURPOSE:** The purpose of this Rule is to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (man-made) fugitive dust sources by requiring actions to prevent, reduce or mitigate fugitive dust emissions.

  B. **APPLICABILITY:** The provisions of this rule are applicable to specified outdoor fugitive dust sources. The definitions, exemptions, requirements, administrative requirements, recordkeeping requirements, and test

methods set forth in this rule are applicable to Rules 223, 223-1 and 223-2 of the Rules and Regulations of the El Dorado County Air Quality Management District.

As discussed above, TRPA has jurisdiction over air quality considerations in the LTAB portion of El Dorado County, although EDCAQMD's rules and regulations are also applicable within TRPA's jurisdiction (EDCAQMD 2002: Chapter 3, Page 6).

Toxic Air Contaminants

Local APCDs or AQMDs may adopt and enforce ARB control measures (described above in the discussion of State regulations). Under EDCAQMD Regulation V, all sources that possess the potential to emit TACs are required to obtain permits from the district. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including new-source review standards and air toxics control measures. EDCAQMD limits emissions and public exposure to TACs through several programs. EDCAQMD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors.

Sources that require a permit are analyzed by EDCAQMD (e.g., through a health risk assessment) based on their potential to emit toxics. If it is determined that the source would emit TACs in excess of EDCAQMD's threshold of significance for TACs, as identified below, sources must implement the best available control technology for TACs (T-BACT) to reduce emissions. If a source cannot reduce the risk below the threshold of significance even after T-BACT has been implemented, EDCAQMD will deny the permit. This helps to prevent new problems and reduces emissions from existing older sources by requiring them to apply new technology when retrofitting with respect to TACs. It is important to note that EDAQMD's air quality permitting process applies to stationary sources; properties that are exposed to elevated levels of TACs from nonstationary type sources, and the nonstationary type sources themselves (e.g., on-road vehicles), are not subject to air quality permits. Further, for reasons of feasibility and practicality, mobile sources (e.g., cars, trucks) are not required to implement T-BACT, even if they have the potential to expose adjacent properties to elevated levels of TACs. Rather, emissions controls on such sources (e.g., vehicles) are subject to regulations implemented on the Federal and State levels.

Odors

EDCAQMD has determined some common types of facilities that have been known to produce odors: wastewater treatment facilities, chemical manufacturing plants, painting/coating operations, feed lots/dairies, composting facilities, landfills, and transfer stations. Because offensive odors rarely cause any physical harm, and Federal and State air quality regulations do not contain any requirements for their control are included in Federal or State air quality regulations, EDCAQMD has no rules or standards related to odor emissions other than its nuisance rule:

- **Rule 205—Nuisance.** A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons, or to the public, or which endanger the comfort, repose, health or safety of any such persons, or the public, or which cause to have a natural tendency to cause injury or damage to business or property. The provisions of Rule 205 do not apply to odors emanating from agriculture operations necessary for the growing of crops or raising of fowl or animals.

Any actions related to odors are based on citizen complaints to local governments and EDCAQMD.

ENVIRONMENTAL SETTING

The study area is located in the southern portion of the LTAB. The LTAB comprises portions of El Dorado and Placer Counties on the California side, and Washoe County, Douglas County, and the Carson City Rural District on the Nevada side.

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

Climate, Meteorology, and Topography

Overview

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

The constant water temperature of Lake Tahoe at 600 feet below the surface is approximately 39 degrees Fahrenheit (ºF). This characteristic and the lake's topographic location combine to define one of the LTAB's most important atmospheric regimes: in the absence of strong synoptic weather systems (large-scale system, 620 miles or more), the LTAB develops shallow subsidence and radiation inversions throughout the year (air temperature variations unique to the basin relative to surrounding areas). In addition, rapid radiation cooling at night regularly generates gentle downslope nocturnal winds that blow from the mountain ridges down to the shore, then fan across the lake (Cahill and Cliff 2000: 1).

Pollutants from local sources are trapped by frequent inversions in the LTAB, greatly limiting the volume of air into which the pollutants are mixed (e.g., diluted), which results in accumulation and elevated concentrations of pollutants. Further, each night the downslope winds transport local pollutants from nearby developed areas out over the lake, increasing the opportunity for pollutants to deposit. This meteorological regime, characterized by weak or calm winds and a strong inversion, is the most common pattern at all times of the year (Cahill and Cliff 2000: 1).

A second important meteorological regime is the transport of pollutants from the Sacramento Valley and San Francisco Bay Area because winds from these areas move upslope in the Sierra Nevada and the lake is located directly east of the Sierra Nevada crest. This pattern develops when the western slopes of the Sierra Nevada are heated, which causes the air to rise in a chimney effect and move upslope to the Sierra crest and over into the LTAB. The strength of this pattern depends on the amount of heating; thus it is strongest in summer, beginning in April and essentially ceasing in late October (Cahill and Cliff 2000: 1).

Other regimes in the LTAB are defined by strong synoptic weather patterns that overcome the dominant terrain-defined meteorology regimes discussed above. The most important is the winter storm regime, which is responsible for precipitation primarily in the form of snow (Cahill and Cliff 2000: 1).

Each of the meteorological regimes could influence pollution concentrations in the LTAB. Concentrations of pollutants typically increase when local inversions are present, trapping emissions, and when conditions allow pollution to be transported from the western slopes of the Sierra Nevada, the Sacramento Valley, and San Francisco Bay. Recent studies have even shown spring and fall contributions to local pollution levels from Asia. Periods of low pollution concentrations are associated with winter storms and high winds. Winter storms dilute the local and upwind pollution with strong vertical mixing and the incorporation of clean North Pacific air (Cahill and Cliff 2000: 1).

Local meteorological conditions representative of the study area are recorded at the South Lake Tahoe Airport Station. The annual normal precipitation is approximately 15 inches and occurs primarily from November through March in the form of snowfall. January temperatures average approximately 26ºF and August temperatures

average approximately 63ºF (WRCC 2008a). The annual predominant wind direction and mean speed is from the south at 6 miles per hour (mph) (WRCC 2008b).

Criteria Air Pollutants

Concentrations of ozone, CO, NO_2, SO_2, PM_{10} and $PM_{2.5}$, and lead are used as indicators of ambient air quality conditions. Because these are the most prevalent air pollutants known to be deleterious to human health and extensive health-effects criteria documents are available, they are commonly referred to as "criteria air pollutants."

A brief description of each criteria air pollutant—source types, health effects, and future trends—is provided below along with a description of the most current emissions inventory, attainment area designations, and monitoring data for the study area.

Ozone

Ozone is a photochemical oxidant, a substance whose oxygen combines chemically with another substance in the presence of sunlight, and the primary component of smog. Ozone is not directly emitted into the air, but is formed through complex chemical reactions between precursor emissions of reactive organic gases (ROG) and NO_X in the presence of sunlight. ROG are volatile organic compounds that are photochemically reactive. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NO_X are a group of gaseous compounds of nitrogen and oxygen that result from the combustion of fuels. A highly reactive molecule, ozone readily combines with many different components of the atmosphere. Consequently, high levels of ozone tend to exist only while high ROG and NO_X levels are present to sustain the ozone formation process. Once the precursors have been depleted, ozone levels rapidly decline. Because these reactions occur on a regional scale, ozone is a regional pollutant.

Ozone located in the upper atmosphere (stratosphere) acts in a beneficial manner by shielding the earth from harmful ultraviolet radiation that is emitted by the sun. However, ozone located in the lower atmosphere (troposphere) is a major health and environmental concern. Meteorology and terrain play a major role in ozone formation. Generally, low wind speeds or stagnant air coupled with warm temperatures and clear skies provide the optimum conditions for formation. As a result, summer is generally the peak ozone season. Because of the reaction time involved, peak ozone concentrations often occur far downwind of the precursor emissions. In general, ozone concentrations over or near urban and rural areas reflect an interplay of emissions of ozone precursors, transport, meteorology, and atmospheric chemistry (Godish 2004: 169, 170).

The adverse health effects associated with exposure to ozone pertain primarily to the respiratory system. Scientific evidence indicates that ambient levels of ozone affect not only sensitive receptors, such as asthmatics and children, but healthy adults as well. Exposure to ambient levels of ozone ranging from 0.10 ppm to 0.40 ppm for 1–2 hours has been found to substantially alter lung functions by increasing respiratory rates and pulmonary resistance, decreasing tidal volumes (the amount of air inhaled and exhaled), and impairing respiratory mechanics. Ambient levels of ozone above 0.12 ppm are linked to symptomatic responses that include such symptoms as throat dryness, chest tightness, headache, and nausea. In addition to the above adverse health effects, evidence exists relating ozone exposure to an increase in permeability of respiratory epithelia; such increased permeability leads to an increased response of the respiratory system to challenges, and a decrease in the immune system's ability to defend against infection (Godish 2004: 169, 170).

Ozone emissions have decreased over the past several years because of more stringent motor vehicle standards and cleaner burning fuels. Peak levels have not declined as much as the number of days when standards are exceeded has declined. From 1990 to 2006, the maximum peak 8-hour indicator decreased by 6 percent. The number of State 8-hour exceedance days declined by 75 percent. Most of this progress occurred after 1999. However, there were no exceedance days in 2003, 2004, and 2005 and just two in 2006; these were among the lowest rates in the 17-year period (ARB 2008c). Data from 2006 showing the trend in 3-year averages of 8-hour

ozone data indicate that the LTAB continues to be in attainment for the national and State ozone standards (ARB 2008c: 3-7).

Carbon Monoxide

CO is a colorless, odorless, and poisonous gas produced by incomplete burning of carbon in fuels, primarily from mobile (transportation) sources. In fact, 77 percent of the nationwide CO emissions are from mobile sources. The other 23 percent consists of CO emissions from wood-burning stoves, incinerators, and industrial sources.

CO enters the bloodstream through the lungs by combining with hemoglobin, which normally supplies oxygen to the cells. However, CO combines with hemoglobin much more readily than oxygen does, resulting in a drastic reduction in the amount of oxygen available to the cells. Adverse health effects associated with exposure to CO concentrations include such symptoms as dizziness, headaches, and fatigue. CO exposure is especially harmful to individuals who suffer from cardiovascular and respiratory diseases (EPA 2008a).

The highest concentrations are generally associated with cold, stagnant weather conditions that occur during the winter. In contrast to problems caused by ozone, which tends to be a regional pollutant, CO problems tend to be localized.

Nitrogen Dioxide

NO_2 is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal-combustion engines. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2 (EPA 2008b). The combined emissions of NO and NO_2 are referred to as NO_X and reported as equivalent to NO_2. Because NO_2 is formed and depleted by reactions associated with ozone, the NO_2 concentration in a particular geographical area may not be representative of the local NO_X emission sources.

Inhalation is the most common route of exposure to NO_2. Because NO_2 has relatively low solubility in water, the principal site of toxicity is in the lower respiratory tract. The severity of the adverse health effects depends primarily on the concentration inhaled rather than the duration of exposure. An individual may experience a variety of acute symptoms during or shortly after exposure, including coughing, difficulty with breathing, vomiting, headache, and eye irritation. After approximately 4–12 hours, an exposed individual may experience chemical pneumonitis or pulmonary edema with breathing abnormalities, cough, cyanosis, chest pain, and rapid heartbeat. Severe, symptomatic NO_2 intoxication after acute exposure has occasionally been linked with prolonged respiratory impairment with such symptoms as chronic bronchitis and decreased lung functions (EPA 2008b).

Sulfur Dioxide

SO_2 is produced by such stationary sources as coal and oil combustion, steel mills, refineries, and pulp and paper mills. The major adverse health effects associated with SO_2 exposure pertain to the upper respiratory tract. SO_2 is a respiratory irritant with constriction of the bronchioles occurring with inhalation of SO_2 at 5 ppm or more. On contact with the moist mucous membranes, SO_2 produces sulfurous acid, which is a direct irritant. Concentration rather than duration of the exposure is an important determinant of respiratory effects. Exposure to high SO_2 concentrations may result in edema of the lungs or glottis and respiratory paralysis (EPA 2008d).

Particulate Matter

Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM_{10}. PM_{10} consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires and natural windblown dust, and particulate matter formed in the

atmosphere by condensation and/or transformation of SO_2 and ROG (EPA 2008c). $PM_{2.5}$ is a subgroup of PM_{10}, consisting of smaller particles that have an aerodynamic diameter of 2.5 micrometers or less (ARB 2008c).

The adverse health effects associated with PM_{10} depend on the specific composition of the particulate matter. For example, health effects may be associated with metals, polycyclic aromatic hydrocarbons, and other toxic substances adsorbed onto fine particulate matter (referred to as the "piggybacking effect"), or with fine dust particles of silica or asbestos. Generally, adverse health effects associated with PM_{10} may result from both short-term and long-term exposure to elevated concentrations and may include breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, alterations to the immune system, carcinogenesis, and premature death (EPA 2008c). $PM_{2.5}$ poses an increased health risk because the particles can deposit deep in the lungs and may contain substances that are particularly harmful to human health.

Direct emissions of PM_{10} remained relatively unchanged between 1975 and 2005 and are projected to remain unchanged through 2020. PM_{10} emissions in the LTAB are dominated by emissions from areawide sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, waste burning, and residential fuel combustion. The annual average concentrations for California remained relatively constant from 1999 through 2005, with a slight drop in 2006. The trends are different because of differences in State and national monitoring methods. $PM_{2.5}$ emissions in the LTAB are dominated by emissions from the same areawide sources as PM_{10} (ARB 2008c: 3-12).

Lead

Lead is a metal found naturally in the environment and in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. As a result of the phase-out of leaded gasoline (discussed in detail below), metal processing is currently the primary source of lead emissions. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.

Twenty years ago, mobile sources were the main contributor to ambient lead concentrations in the air. In the early 1970s, EPA set national regulations to gradually reduce the lead content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. EPA banned the use of leaded gasoline in highway vehicles in December 1995 (EPA 2008e).

As a result of EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector have declined dramatically (95 percent between 1980 and 1999), and levels of lead in the air decreased by 94 percent between 1980 and 1999. Transportation sources, primarily airplanes, now contribute only 13 percent of lead emissions. A national health and nutrition examination survey reported a 78 percent decrease in the levels of lead in people's blood between 1976 and 1991. This dramatic decline can be attributed to the move from leaded to unleaded gasoline (EPA 2008e).

The decrease in lead emissions and ambient lead concentrations over the past 25 years is California's most dramatic success story with regard to air quality management. The rapid decrease in lead concentrations can be attributed primarily to phasing out the lead in gasoline. This phase-out began during the 1970s, and subsequent ARB regulations have virtually eliminated all lead from gasoline now sold in California. All areas of the state are currently designated as attainment for the State lead standard (EPA does not designate areas for the national lead standard). Although the ambient lead standards are no longer violated, lead emissions from stationary sources still pose "hot spot" problems in some areas. As a result, ARB identified lead as a toxic air contaminant (TAC).

Monitoring Station Data and Attainment Area Designations

Concentrations of criteria air pollutants are measured at several monitoring stations in the LTAB. The South Lake Tahoe–Sandy Way and South Lake Tahoe–1901 Airport Road stations are the closest monitoring stations to the study area with recent data for ozone, CO, NO_2, $PM_{10,}$ and $PM_{2.5}$. In general, the measurements of ambient air

quality from these monitoring stations are representative of the air quality in the vicinity of the study area. Table 3.11-3 summarizes the air quality data from these stations for the past 3 years, 2005–2007.

Table 3.11-3
Summary of Annual Air Quality Data (2005–2007)[1]

	2006	2007	2008
Ozone[2]			
Maximum concentration (1-hour/8-hour, ppm)	0.086/0.075	0.090/0.073	0.091/0.077
Number of days State standard exceeded (1-hour/8-hour)	0/2	0/5	0/5
Number of days national standard exceeded (1-hour/8-hour)	0/0	0/0	0/1
Respirable Particulate Matter (PM_{10})[3]	2005	2006	2007
Maximum Concentration ($\mu g/m^3$) (California)	33.0	66.6	55.6
Number of days State standard exceeded (measured/calculated[4])	0/0	3/3	2/–
Number of days national standard exceeded (measured/calculated[4])	0/0	–/–	–/–

Notes: $\mu g/m^3$ = micrograms per cubic meter,— = data not available; ppm = parts per million

[1] Data provided from the South Lake Tahoe–Sandy Way and South Lake Tahoe–1901 Airport Road monitoring stations, as noted below. Data on carbon monoxide, nitrogen dioxide, sulfur dioxide, and fine particulate matter not available for the Lake Tahoe Air Basin.

[2] Data from the South Lake Tahoe–1901 Airport Road Station.

[3] Data from the South Lake Tahoe–Sandy Way Station, data not collected after 2007.

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

Sources: ARB 2009

EPA, ARB, and TRPA use this type of monitoring data to designate areas according to attainment status for criteria air pollutants established by the agencies. The purpose of these designations is to identify those areas with air quality problems and thereby initiate planning efforts for improvement. The three basic designation categories are "nonattainment," "attainment," and "unclassified." "Unclassified" is used in areas that cannot be classified on the basis of available information as meeting or not meeting the standards. The most current national, State, and TRPA attainment designations for the El Dorado County portion of the LTAB are shown in Table 3.11-4 for each criteria air pollutant. Table 3.11-4 also contains the TRPA threshold attainment designations from the *2006 Thresholds Evaluation Report* (TRPA 2007a: 2-8).

Emissions Inventory for Criteria Air Pollutants

Table 3.11-5 summarizes emissions of criteria air pollutants within the LTAB portion of El Dorado County for various source categories. According to El Dorado County's LTAB emissions inventory, mobile sources are the largest contributor to the estimated annual average air pollutant levels of ROG, CO, NO_X, and oxides of sulfur (SO_X), accounting for approximately 63, 68, 90, and 100 percent, respectively, of the total emissions. Areawide sources account for approximately 92 percent, and 90 percent of the county's PM_{10} and $PM_{2.5}$ emissions, respectively.

Table 3.11-4
Attainment Status Designations for the El Dorado County Portion of the Lake Tahoe Air Basin

Pollutant	National Designation	State Designation	TRPA Designation
Ozone—1-hour	–	Unclassified	Nonattainment
Ozone—8-hour	Attainment/Unclassified	–	–
PM_{10}	Attainment/Unclassified	Nonattainment	Nonattainment
$PM_{2.5}$	Attainment/Unclassified	Attainment	–
CO	Attainment/Unclassified	Attainment	Nonattainment
NO_2	Attainment/Unclassified	Attainment	–
SO_2	Attainment	Attainment	–
Lead (Particulate)	Attainment/Unclassified	Attainment	–
Hydrogen Sulfide	–	Unclassified	–
Sulfates	–	Attainment	–
Visibility Reducing Particulates	–	Unclassified	Attainment
Traffic Volume	–	–	Attainment
Wood Smoke	–	–	Unknown[1]
Vehicle Miles of Travel	–	–	Nonattainment
Atmospheric Deposition—TRPA Interim Target	–	–	Unknown[1]
Atmospheric Deposition—TRPA Standard	–	–	Unknown[1]

Notes: CO = carbon monoxide; NO_2 = nitrogen dioxide; $PM_{2.5}$ = fine particulate matter; PM_{10} = respirable particulate matter; SO_2 = sulfur dioxide; TRPA = Tahoe Regional Planning Agency.

[1] The status of these standards is unknown because the technology necessary to determine base year values does not exist, and the original standards and indicators were not well defined.

Sources: ARB 2008d, EPA 2008f, TRPA 2007a: 2-8

Toxic Air Contaminants

Concentrations of TACs are also used as indicators of ambient air quality conditions. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

Table 3.11-5
Summary of 2006 Estimated Emissions Inventory for Criteria Air Pollutants and Precursors (El Dorado County—Lake Tahoe Air Basin)

Source Type/Category	Estimated Annual Average Emissions (Tons per Day)					
	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Stationary Sources						
Fuel Combustion	0.0	0.0	0.1	0.0	0.0	0.0
Waste Disposal	0.0	0.1	0.0	0.0	0.0	0.0
Cleaning and Surface Coating	0.1	–	–	–	–	–
Petroleum Production and Marketing	0.0	–	–	–	–	–
Industrial Processes	–	0.0	0.0	0.0	0.0	0.0
Subtotal (Stationary Sources)	0.2	0.1	0.1	0.0	0.0	0.0
Areawide Sources						
Solvent Evaporation	0.7	–	–	–	–	–
Miscellaneous Processes	0.8	10.3	0.2	0.0	3.6	1.8
Subtotal (Areawide Sources)	1.5	10.3	0.2	0.0	3.6	1.8
Mobile Sources						
On-Road Motor Vehicles	1.1	11.3	1.5	0.0	0.1	0.0
Other Mobile Sources	1.6	10.6	2.0	0.0	0.2	0.2
Subtotal (Mobile Sources)	2.7	21.9	3.5	0.1	0.3	0.2
Total for El Dorado County in Lake Tahoe	**4.3**	**32.3**	**3.9**	**0.1**	**3.9**	**2.0**

Notes: CO = carbon monoxide; NO_X = oxides of nitrogen; SO_X = oxides of sulfur; $PM_{2.5}$ = fine particulate matter; PM_{10} = respirable particulate matter; ROG = reactive organic gases
Source: ARB 2008e

Diesel Particulate Matter

According to the *California Almanac of Emissions and Air Quality* (ARB 2008c: Chapter 5), most of the estimated health risk from TACs can be attributed to relatively few compounds, the most important being PM from diesel-fueled engines (diesel PM). Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present. Unlike the other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, ARB has made preliminary concentration estimates based on a PM exposure method. This method uses the ARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of diesel PM. In addition to diesel PM, benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene pose the greatest existing risk in California of the TACs for which data are available.

Diesel PM poses the greatest health risk among these 10 TACs mentioned. Based on receptor modeling techniques, ARB estimated the California statewide average diesel PM health risk in 2000 to be 540 excess cancer cases per million people. Since 1990, the health risk of diesel PM in California has been reduced by 40 percent.

Overall, levels of most TACs, except for para-dichlorobenzene and formaldehyde, have declined since 1990 (ARB 2008c: Chapter 5).

Existing sources of TACs in the project vicinity include mobile-source emissions from the nearby highway (i.e., U.S. 50) and from minor stationary sources, such as the South Lake Tahoe Airport. There are no major existing stationary sources of TACs near the study area (ARB 2008f, ARB 2008g).

Naturally Occurring Asbestos

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

According to two reports by the California Department of Conservation, Division of Mines and Geology, *Areas More Likely to Contain Naturally Occurring Asbestos in Western El Dorado County* and *A General Location Guide to Ultramafic Rocks in California—Areas More Likely to Contain Naturally Occurring Asbestos* (Churchill 2000, Churchill and Hill 2000: 2), the study area is not likely to contain naturally occurring asbestos.

Odors

Odors are typically regarded as an annoyance rather than a health hazard. However, a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals can smell minute quantities of specific substances; others may not have the same sensitivity, but may be sensitive to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person may be perfectly acceptable to another (e.g., some odors at fast-food restaurants). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and the odor is recognized only when its intensity changes.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the odor is quite difficult to detect or recognize. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

No major odor sources (e.g., wastewater treatment facilities, landfills, food processing facilities) exist in the project vicinity.

GREENHOUSE GAS EMISSIONS

Federal Plans, Policies, Regulations, and Laws

Supreme Court Ruling

The EPA is the Federal agency responsible for implementing the Federal CAA. The Supreme Court of the United States ruled on April 2, 2007 that CO_2 is an air pollutant as defined under the CAA, and that EPA has the

authority to regulate emissions of greenhouse gases (GHGs) (Massachusetts et al. v. Environmental Protection Agency et al. Case No. 05-1120). However, there are no Federal regulations or policies regarding GHG emissions applicable to the project alternatives.

EPA Proposed Regulations

In response to the mounting issue of climate change, EPA has taken actions to regulate, monitor, and potentially reduce GHG emissions. Although both actions discussed below are still in the proposal stage, they would have implications on the regulation, monitoring, and reduction of GHG emissions from stationary and mobile sources.

Proposed Mandatory Greenhouse Gas Reporting Rule

On April 10, 2009, EPA published its Proposed Mandatory Greenhouse Gas Reporting Rule (proposed reporting rule) in the *Federal Register*. The proposed reporting rule is a response to the FY 2008 Consolidate Appropriations Act (H.R. 2764; Public Law 110-161), which required EPA to develop "…mandatory reporting of greenhouse gases above appropriate thresholds in all sectors of the economy…." The proposed reporting rule would apply to fossil fuel and industrial GHG suppliers, vehicle and engine manufacturers, and all facilities that would emit 25,000 metric tons of CO_2e or more per year. Facility owners would be required to submit an annual GHG emissions report with detailed calculations of facility GHG emissions. The proposed reporting rule would also mandate record keeping and administrative requirements in order for EPA to verify annual GHG emissions reports. Owners of existing facilities that commenced operation prior to January 1, 2010 would be required to submit an annual report for calendar year 2010. Owners of new facilities commencing operation after January 1, 2010 would be required to submit an annual report from the facility's commencement date to December 31, 2010. For all subsequent operating years, facility owners would be required to report GHG emissions for the whole calendar year (January 1 to December 31). The comment period on the proposed reporting rule ended on June 6, 2009.

Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Clean Air Act

On April 23, 2009, EPA published their Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under the CCA (Endangerment Finding) in the *Federal Register*. The Endangerment Finding is based on Section 202(a) of the CAA, which states that the Administrator (of EPA) should regulate and develop standards for "emission[s] of air pollution from any class of classes of new motor vehicles or new motor vehicle engines, which in [its] judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." The proposed rule addresses Section 202(a) in two distinct findings. The first addresses whether or not the concentrations of the six key GHGs (i.e., carbon dioxide [CO_2], methane [CH_4], nitrous oxide [N_2O], hydrofluorocarbons [HFCs], perflurorocarbons [PFCs], and sulfur hexafluoride [SF_6]) in the atmosphere threaten the public health and welfare of current and future generations. The second addresses whether or not the combined emissions of GHGs from new motor vehicles and motor vehicle engines contribute to atmospheric concentrations of GHGs and therefore the threat of climate change.

The Administrator proposed the finding that atmospheric concentrations of GHGs endanger the public health and welfare within the meaning of Section 202(a) of the CCA. The evidence supporting this finding consists of human activity resulting in "high atmospheric levels" of GHG emissions, which are very likely responsible for increases in average temperatures and other climatic changes. Furthermore, the observed and projected results of climate change (e.g., higher likelihood of heat waves, wild fires, droughts, sea level rise, higher intensity storms, and changes in snow storage) are a threat to the public health and welfare. Therefore, GHGs were found to endanger the public health and welfare of current and future generations.

The Administrator also proposed the finding that GHG emissions from new motor vehicles and motor vehicle engines are contributing to air pollution, which is endangering public health and welfare. The proposed finding cites that in 2006 (74 *Federal Register* 18907, Friday, April 24, 2009), motor vehicles were the second largest

contributor to domestic GHG emissions (24% of total) behind electricity generation. Furthermore, in 2005, the U.S. was responsible for 18% of global GHG emissions. Therefore, GHG emissions from motor vehicles and motor vehicle engines were found to contribute to air pollution that endangers public health and welfare.

State Plans, Policies, Regulations, and Laws

ARB is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing the CCAA, which was adopted in 1988.

Greenhouse Gases

Various statewide and local initiatives to reduce the state's contribution to GHG emissions have raised awareness that, even though the various contributors to and consequences of global climate change are not yet fully understood, global climate change is under way, and there is a real potential for severe adverse environmental, social, and economic effects in the long term. Because every nation emits GHGs and therefore makes an incremental cumulative contribution to global climate change, cooperation on a global scale will be required to reduce the rate of GHG emissions to a level that can help to slow or stop the human-caused increase in average global temperatures and associated changes in climatic conditions.

Executive Order S-3-05

Executive Order S-3-05, which was signed by Governor Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra's snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the Executive Order established total greenhouse gas emission targets. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80% below the 1990 level by 2050.

The Executive Order directed the Secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce greenhouse gas emissions to the target levels. The Secretary will also submit biannual reports to the governor and State legislature describing: progress made toward reaching the emission targets; impacts of global warming on California's resources; and mitigation and adaptation plans to combat these impacts. To comply with the Executive Order, the Secretary of the CalEPA created the California Climate Action Team (CCAT) made up of members from various State agencies and commission. CCAT released its first report in March 2006. The report proposed to achieve the targets by building on voluntary actions of California businesses, local government and community actions, as well as through State incentive and regulatory programs.

Assembly Bill 32, the California Global Warming Solutions Act of 2006

In September 2006, Governor Arnold Schwarzenegger signed AB 32, the California Global Warming Solutions Act of 2006. AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished through an enforceable statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs ARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then ARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires that ARB adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrives at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state achieves the reductions in GHG emissions necessary to meet

the cap. AB 32 also includes guidance to institute emissions reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions.

AB 32 Climate Change Scoping Plan

On December 11, 2008, ARB adopted the *Climate Change Scoping Plan* (*Scoping Plan*), which is the State's plan to achieve GHG reductions in California required by AB 32 (ARB 2008h: ES-1). The *Scoping Plan* contains the main strategies California will implement to achieve reduction of 169 million metric tons (MMT) of CO_2e, or approximately 30% from the state's projected 2020 emission level of 596 MMT of CO_2e under a business-as-usual scenario (this is a reduction of 42 MMT CO2e, or almost 10%, from 2002-2004 average emissions). The *Scoping Plan* also includes ARB-recommended GHG reductions for each emissions sector of the state's GHG inventory. The largest proposed GHG reductions are recommended from improving emission standards for light-duty vehicles (estimated reductions of 31.7 MMT CO_2e), implementation of the Low-Carbon Fuel Standard (15.0 MMT CO_2e, discussed below), energy efficiency measures in buildings and appliances and the widespread development of combined heat and power systems (26.3 MMT CO_2e), and a renewable portfolio standard for electricity production (21.3 MMT CO_2e).

Senate Bill 97

Senate Bill (SB) 97, signed August 2007, acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. This bill directs the California Office of Planning and Research (OPR) to prepare, develop, and transmit to the Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA by July 1, 2009. The California Natural Resources Agency adopted those guidelines on December 31, 2009, within the legislated deadline of January 1, 2010. These CEQA Guideline amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of greenhouse gas emissions in draft CEQA documents. The Natural Resources Agency conducted formal rulemaking in 2009, prior to certifying and adopting the amendments, as required by SB 97. The adopted amendments to the State CEQA Guidelines were effective as of March 18, 2010 and included, among other things, provisions for determining significance of GHG emissions, mitigating significant GHG impacts, streamlining of CEQA analysis of GHG impacts, and additional questions in the Appendix G checklist.

Senate Bill 375

SB 375, signed in September 2008, aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a Sustainable Communities Strategy (SCS) or Alternative Planning Strategy (APS), which will prescribe land use allocation in that MPO's Regional Transportation Plan (RTP). ARB, in consultation with MPOs, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every 8 years, but can be updated every 4 years if advancements in emissions technologies affect the reduction strategies to achieve the targets.

ATTRIBUTING CLIMATE CHANGE—THE PHYSICAL SCIENTIFIC BASIS

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface, and a smaller portion of this radiation is reflected back toward space. This absorbed radiation is then emitted from the earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. The earth has a much lower temperature than the sun; therefore, the earth emits lower frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for

maintaining a habitable climate on Earth. Without the greenhouse effect, Earth would not be able to support life as we know it.

Prominent GHGs contributing to the greenhouse effect are CO_2, CH_4, N_2O, hydrofluorocarbons, chlorofluorocarbons, and sulfur hexafluoride. Human-caused emissions of these GHGs in excess of natural ambient concentrations are responsible for intensifying the greenhouse effect and have led to a trend of unnatural warming of the earth's climate, known as global climate change or global warming. It is *extremely unlikely* that global climate change of the past 50 years can be explained without the contribution from human activities (IPCC 2007: Summary, Page 10).

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants (TACs), which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about 1 day), GHGs have long atmospheric lifetimes (1 year to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule is dependent on multiple variables and cannot be pinpointed, it is understood that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO_2 emissions, approximately 54% is sequestered through ocean uptake, uptake by northern hemisphere forest regrowth, and other terrestrial sinks within a year, whereas the remaining 46% of human-caused CO_2 emissions remains stored in the atmosphere (Seinfeld and Pandis 1998: 1090, 1091).

Similarly, impacts of GHGs are borne globally, as opposed to localized air quality effects of criteria air pollutants and TACs. The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; suffice it to say, the quantity is enormous, and no single project alone would measurably contribute to a noticeable incremental change in the global average temperature, or to global, local, or micro climate. From the standpoint of CEQA, GHG impacts to global climate change are inherently cumulative.

3.11.2 ENVIRONMENTAL CONSEQUENCES

SIGNIFICANCE CRITERIA

For this analysis, significance criteria are based on the checklist presented in Appendix G of the State CEQA Guidelines; the TRPA Initial Environmental Checklist; factual information; scientific data; and regulatory standards of Federal, State, and local agencies. In development of mitigation measures for significant impacts of the project, effects on environmental threshold of the Compact were considered. The project's effects on thresholds are further described in Chapter 4, Section 4.5, "Consequences for Environmental Threshold Carrying Capacities."

CEQA Criteria

Based on Appendix G of the State CEQA Guidelines, an air quality impact is considered significant if implementation of the proposed project would do any of the following:

- conflict with or obstruct implementation of the applicable air quality plan;
- violate any air quality standard or contribute substantially to an existing or projected air quality violation (Table 3.11-1);
- result in a cumulatively considerable net increase of any criteria air pollutant for which the project region is in nonattainment under any applicable National or State ambient air quality standards (including releasing emissions that exceed quantitative standards for ozone precursors);

- expose sensitive receptors to substantial pollutant concentrations (including TACs/HAPs); or
- create objectionable odors affecting a substantial number or people.

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

- short-term construction-related or long-term operation-related (regional) emissions of ROG or NO_X that exceed mass emissions of 82 pounds per day (lb/day) (EDCAQMD 2002:Chapter 3, page 5)

Appendix G of the State CEQA Guidelines were updated to address impacts of GHG emissions with the adoption of amendments, as directed by Senate Bill 97 (Statutes of 2007). OPR has added the following questions to Appendix G. An impact related to global climate change is considered significant if the proposed project would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or,
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

For the purposes of this analysis, State Parks has decided to quantify total GHG emissions from the proposed Alternatives, and determine whether the associated emissions would substantially help or hinder the State's ability to attain the goals identified in AB 32 (i.e., reduction of statewide GHG emissions to 1990 levels by 2020). The approach to the discussion is presented below.

NEPA Criteria

An environmental document prepared to comply with NEPA must consider the context and intensity of the environmental effects that would be caused by or result from the proposed action. Under NEPA, the significance of an effect is used solely to determine whether an EIS must be prepared. The factors that are taken into account under NEPA to determine the significance of an action in terms of the context and the intensity of its effects are encompassed by the CEQA criteria used for this analysis.

TRPA Criteria

Based on TRPA's Initial Environmental Checklist, an alternative was determined to have a significant impact on air quality if it would result in:

- substantial air pollutant emissions;
- deterioration of ambient (existing) air quality;
- the creation of objectionable odors;
- alteration of air movement, moisture or temperature, or any change in climate, either locally or regionally; or
- increased use of diesel fuel.

METHODS AND ASSUMPTIONS

Almost all increased pollutant emissions that would be associated with the improvements in the study area would be generated by construction-related activities. The number of visitors to the study area is not expected to change substantially. Construction emissions are described as short term or temporary in duration. These emissions,

especially emissions of criteria air pollutants (e.g., PM_{10}) and ozone precursors (e.g., ROG and NO_X), have the potential to represent a significant air quality impact.

The method of analysis for short-term construction, long-term operational (regional), local mobile-source, and TAC emissions is consistent with the recommendations of EDCAQMD and TRPA. Short-term construction- and long-term operation-related emissions of ROG, NO_X, and PM_{10} were modeled using Urban Emissions Model (URBEMIS) 2007 (Version 9.2.4) computer program and EMFAC 2007 emission factors, as recommended by EDCAQMD and TRPA. The equipment lists shown in the project description provide total equipment usage for each construction season (May 1 through October 15) through project completion. Not every piece of equipment would be used every day and many pieces would only be used for certain components of each phase. Therefore for modeling purposes it was assumed that each piece of equipment would operate on average 4 hours per day for the entire construction phase. In addition, ARB restricts diesel equipment idling to 5 minutes, so it was assumed that equipment not in use would be powered off.

Climate Change

The EDAQMD has not adopted significance criteria for analyzing GHG emissions generated by development, or a methodology for analyzing impacts related to GHG emissions or global climate change. By enactment of AB 32 and SB 97, the state of California has identified GHG reduction goals and determined that the effect of GHG emissions on global climate change is an adverse environmental impact issue. While the emissions of one single project will not cause global climate change, GHG emissions from multiple projects throughout the world could result in a cumulative impact with respect to global climate change.

To meet AB 32 goals, California would need to generate less GHG emissions than current levels. It is recognized, however, that for most projects there is no simple metric available to determine if a single project would substantially increase or decrease overall GHG emission levels.

Although the text of AB 32 applies to stationary sources of GHG emissions, this mandate demonstrates California's commitment to reducing the rate of GHG emissions and the state's associated contribution to climate change, without intent to limit population or economic growth within the state. Thus, to achieve the goals of AB 32, which are tied to GHG emission rates of specific benchmark years (i.e., 1990), California would have to achieve a lower rate of emissions per unit of population than it has now. Further, in order to accommodate future population and economic growth, the state would have to achieve an even lower rate of emissions per unit than was achieved in 1990. (The goal to achieve 1990 quantities of GHG emissions by 2020 means that this will need to be accomplished with 30 years of population and economic growth beyond 1990 in place.) Thus, future planning efforts that would not encourage reductions in GHG emissions would conflict with the policy decisions contained in the spirit of AB 32, thus impeding California's ability to comply with the mandate.

If a statewide context for GHG emissions is considered, any net increase in GHG emissions within state boundaries would be considered "new" emissions. For example, in a land development project, such as the proposed project, does not create "new" emitters of GHGs, but would theoretically accommodate a greater number of residents in the state. Some of the residents that move to the project could already be California residents, while some may be from out-of-state (or would 'take the place' of in-state residents who 'vacate' their current residences to move to the new project). The out-of-state residents would be contributing new emissions in a statewide context, but would not necessarily be generating new emissions in a global context. Given the California context established by AB 32, the project would need to accommodate an increase in population in a manner that would not inhibit the state's ability to achieve the goals of lower emissions overall.

However, the state of California has established GHG reduction targets and has determined that GHG emissions as they relate to global climate change are a source of adverse environmental impacts in California that should be addressed under CEQA. Although AB 32 did not amend CEQA, it identifies the myriad environmental problems in California caused by global warming (Health and Safety Code, Section 38501[a]). SB 97, however, did amend

CEQA by directing OPR to prepare revisions to the State CEQA Guidelines addressing the mitigation of GHGs or their consequences. As an interim step toward development of required guidelines, in June of 2008, OPR published a technical advisory, entitled "CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review." OPR recommends that the lead agencies under CEQA make a good-faith effort, based on available information, to estimate the quantity of GHG emissions that would be generated by a proposed project, including the emissions associated with vehicular traffic, energy consumption, water usage, and construction activities, to determine whether the impacts have the potential to result in a project or cumulative impact and to mitigate the impacts where feasible (OPR 2008).

In that document, OPR acknowledged that "perhaps the most difficult part of the climate change analysis will be the determination of significance," and noted that "OPR has asked ARB technical staff to recommend a method for setting criteria which will encourage consistency and uniformity in the CEQA analysis of GHG emissions throughout the state." ARB has not yet completed this task at the time of writing.

The EDAQMD has not adopted a methodology for evaluating GHG emissions. In the case of the proposed project, CO_2 emissions associated with project construction and operation were modeled using URBEMIS 2007 version 9.2.4; a model widely-used in regional air quality analysis.

It is important to note that all CO_2 emissions from project operation may not necessarily be considered "new" emissions, given that a project itself does not create "new" emitters (people) of GHGs, at least not in the traditional sense. In other words, the operational GHG emissions for this project are not necessarily all new GHG emissions; to a large degree, recreation projects accommodate existing populations. In this sense, recreation projects can be seen as reacting to increased demand from the growing economy and population, and are not in themselves creators of economic and population growth. Emissions of GHGs are, however, influenced by the location and design of projects, to the extent that they can influence travel to and from the projects, and to the degree the projects are designed to maximize energy efficiency.

The methodology used in this document to analyze the project's potential effect on global warming includes a calculation of GHG emissions. The purpose of calculating the project's GHG emissions is for informational and comparison purposes, as there is no adopted quantifiable threshold for either a project level or cumulative level of impact.

Please refer to Section 3.16, "Cumulative Impacts," of this EIR/EIS/EIS for discussion of greenhouse gas emissions and the project's contribution to the cumulative impact of climate change.

IMPACT ANALYSIS AND MITIGATION MEASURES

Alternative 1: No Project/No Action: Existing River and 18-Hole Regulation Golf Course

IMPACT 3.11-1 (Alt. 1) Short-Term Emissions of Criteria Air Pollutants and Precursors during Construction. *Because no construction activities would occur under Alternative 1, no short-term construction-related emissions would occur. No impact would occur.*

Implementing Alternative 1 would not result in any construction activities in the study area, and no material hauling would occur. The study area would remain in its current state as an 18-hole championship golf course and passive recreation area. No project-related heavy equipment exhaust or fugitive dust emissions would be created. As a result, no new short-term construction-related emissions of criteria air pollutants (e.g., PM_{10}) or precursors (e.g., ROG and NO_X) would occur. Therefore, no impact would occur.

No mitigation is required.

IMPACT 3.11-2 (Alt. 1) Long-Term Operational (Regional) Emissions of Criteria Air Pollutants and Precursors. *No new long-term operational emissions sources would result from implementing Alternative 1, and use of the study area would remain comparable to existing use. Vehicle emissions from recreation activity would remain at existing levels. No impact would occur.*

Alternative 1 would not include any new stationary, area, or mobile sources of emissions associated with project operation. No land use changes would occur in the study area, which would remain in its current state as an 18-hole championship golf course and passive recreation area, and use of the area would remain comparable to existing use. Non-project related fuels reduction programs or maintenance for public utilities would continue during summer. Work crews would typically use small pieces of equipment and other power tools, such as chainsaws, haul trucks, and chippers. Fuels reduction activities may include thinning, pruning, prescribed burning, and chipping. Public utility work would include routine line maintenance and repair. Emissions from the vehicles of recreation-related visitors to the study area would be unchanged from existing emission levels. Because no new stationary, area, or mobile sources of missions would result from implementation of Alternative 1, no impact would occur.

No mitigation is required.

IMPACT 3.11-3 (Alt. 1) Long-Term Operational (Local) Emissions of Carbon Monoxide by Mobile Sources. *No long-term change would occur to traffic levels from activities in the study area under Alternative 1; thus, implementing Alternative 1 would not increase CO levels on nearby local roadways. No impact would occur.*

Implementing Alternative 1 would not result in a long-term change in traffic caused by project-related activities in the study area. No trip-generating features or parking areas would be developed. Therefore, implementing this alternative would not result in changes to the LOS at signalized intersections in the project vicinity, nor would it result in increased long-term local emissions of CO from mobile sources. No impact would occur.

No mitigation is required.

IMPACT 3.11-4 (Alt. 1) Exposure of Sensitive Receptors to Odors. *Because no construction would occur and no new operations would be created, no sources of odor would be caused by activities in the study area, and odors at nearby sensitive receptors would not change under Alternative 1. No impact would occur.*

Because no action would occur under Alternative 1, the project site would remain in its current state. Implementing Alternative 1 would not result in any additional sources of odors, and existing odors at nearby sensitive receptors would not change. No impact would occur.

No mitigation is required.

IMPACT 3.11-5 (Alt. 1) Exposure of Sensitive Receptors to Emissions of Hazardous Air Pollutants. *Under Alternative 1, no short-term or long-term emissions of HAPs (TACs) would occur. As a result, No impact would occur.*

Implementing Alternative 1 would not result in any project-related construction activities in the study area. The study area would remain in its current state as an 18-hole championship golf course and passive recreation area. Existing HAP sources related to maintenance and fuels reduction programs would continue as they do today. No new HAP emissions would be created by short- or long-term sources. As a result, no short-term or long-term emissions of HAPs (known in State parlance as TACs) would occur. Therefore, no impact would occur.

No mitigation is required.

Alternative 2: River Ecosystem Restoration with Reconfigured 18-Hole Regulation Golf Course

IMPACT 3.11-1 (Alt. 2) **Short-Term Emissions of Criteria Air Pollutants and Precursors during Construction.** *Construction-related emissions of criteria air pollutants and precursors under Alternative 2 could contribute substantially to an existing or projected air quality violation and expose sensitive receptors to substantial pollutant concentrations. This impact would be* ***significant****.*

Construction emissions are described as short term or temporary in duration and have the potential to represent a significant impact with respect to air quality. Fugitive PM_{10} dust emissions are associated primarily with site preparation and vary as a function of such parameters as soil silt content, soil moisture, wind speed, acreage of disturbance area, and VMT by construction vehicles on- and off-site. Emissions of the ozone precursors ROG and NO_X are associated primarily with exhaust from gas- and diesel-powered equipment and the application of architectural coatings.

Under Alternative 2, the golf course relocation and river restoration phases of construction would temporarily generate emissions of criteria air pollutants (e.g., PM_{10}) and precursors (e.g., ROG and NO_X) from excavation, grading, and clearing; use of off-road equipment; import and export of materials; paving; and workers traveling to and from the study area.

Short-term construction-related emissions of ROG, NO_X, and PM_{10} under Alternative 2 were modeled using the URBEMIS 2007 (Version 9.2.4) computer program and EMFAC 2007 emission factors, as recommended by EDCAQMD and TRPA. URBEMIS is designed to model construction emissions for land use development projects and allows for the input of project-specific information. Input parameters were based on default model settings and information provided in Chapter 2, "Description of Alternatives." Project construction is anticipated to be carried out in three phases over 3 years. The first phase is anticipated to begin in spring 2012 with final project completion in fall 2014. Modeling assumed an annual construction period of May 1 through October 15 (120 work days). Emissions generated by construction equipment and vehicles beyond 2012 would likely be the same or less because emissions standards generally become more stringent with time. Therefore, if the start of construction were to be delayed beyond May 2012, emissions generated by construction trips thereafter would be the same or less than described below. The modeled maximum daily construction-related emissions are summarized in Table 3.11-6 and described in more detail below and in Appendix I, "Air Quality Modeling Results."

Based on the results of the modeling conducted, which reflect reasonable, conservatively high assumptions about the level of activity, construction of Alternative 2 would result in maximum unmitigated daily emissions of approximately 12 lb/day of ROG, 94 lb/day of NO_X, and 425 lb/day of PM_{10} (Table 3.11-6). Daily unmitigated, construction-related emissions would exceed EDCAQMD's short-term significance criterion of 82 lb/day for NO_X.

Before compliance with TRPA-recommended mitigation measures, construction-related emissions of PM_{10} under Alternative 2 could violate or contribute substantially to an existing or projected air quality violation. Such emissions could expose sensitive receptors to substantial concentrations of pollutants, especially considering the nonattainment status of the LTAB with respect to the TRPA standards (e.g., the 1-hour ozone and visibility-reducing particulate standards). As a result, this impact would be significant.

Table 3.11-6
Summary of Daily Construction-Related Emissions under Alternative 2[1]

Source	Project-Generated Emissions (pounds per day)		
	ROG	NO_X	PM_{10}
Phase 1 (May 2012–October 2012)			
Fugitive Dust	–	–	245.3
Off-Road Diesel	8.9	68.3	3.9
On-Road Diesel	1.7	27.2	1.1
Worker Trips	0.3	0.6	0.1
Maximum Daily Total, Unmitigated	*10.9*	*96.1*	*250.4*
Maximum Daily Total, Mitigated	*10.4*	*76.9*	*62.6*
Phase 2 (May 2013–October 2013)			
Fugitive Dust	–	–	420.
Off-Road Diesel	8.1	61.9	3.5
On-Road Diesel	1.6	24.0	1.0
Worker Trips	0.2	0.4	0.0
Maximum Daily Total, Unmitigated	*9.9*	*86.3*	*424.5*
Maximum Daily Total, Mitigated	*9.4*	*69.0*	*106.1*
Phase 3 (May 2014–October 2014)			
Fugitive Dust	–	–	420.2
Off-Road Diesel	10.0	72.6	4.4
On-Road Diesel	1.4	20.7	0.7
Worker Trips	0.3	0.5	
Maximum Daily Total, Unmitigated	*11.7*	*93.8*	*425.3*
Maximum Daily Total, Mitigated	*11.1*	*75.0*	*106.2*

Notes: NO_X = oxides of nitrogen; PM_{10} = respirable particulate matter; ROG = reactive organic gases.
See Appendix I, "Air Quality Modeling Results," for modeling results.
[1] On-site emissions from mobile equipment used for site grading were based on default emission factors and durations of URBEMIS 2007, Version 9.2.4. Construction activities that involve soil disturbance must occur between May 1 and October 15 to comply with Section 62.4.A of the Tahoe Regional Planning Agency (TRPA) Code of Ordinances unless special approval has been granted by TRPA.
Source: Modeling performed by EDAW (now AECOM) in 2009

Mitigation Measure 3.11-1 (Alt. 2): Reduce the Generation of Construction-Related Emissions of ROG, NO_X, and PM_{10}.

In accordance with the TRPA Code of Ordinances and El Dorado County Code, State Parks shall implement the following mitigation measures during construction:

- State Parks shall obtain all necessary TRPA and El Dorado County permits and approvals and shall follow all required TRPA codes and procedures with respect to best management practices (BMPs) (TRPA Code Chapter 25), project grading (TRPA Code Chapter 64), excavation- and construction-related and emissions-generating activities (TRPA Code Chapter 91: Air Quality Control), and all required County laws and procedures with respect to BMPs, project grading and excavation, and construction-related and emissions-

generating activities. The following specific emissions-related mitigation measures are recommended by EDCAQMD:

- State Parks shall require the prime contractor to provide an approved plan demonstrating that the heavy-duty (i.e., greater than 50 horsepower) off-road vehicles to be used in project construction and operated by either the prime contractor or any subcontractor will achieve, at a minimum, a fleet-averaged 20-percent NO_X reduction compared to the most recent ARB fleet average. Implementation of this measure requires the prime contractor to submit a comprehensive inventory of all off-road construction equipment greater than 50 horsepower that will be used an aggregate of 40 or more hours during the construction project. The inventory shall include the horsepower rating, engine production year, and hours of use or fuel consumed for each piece of equipment. The inventory shall be updated monthly.

- State Parks shall require that the 15% of on-site equipment include options for reducing criteria air pollutant exhaust emissions such as using late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, and/or after-treatment products.

- Dust control measures shall be required for any grading activity creating substantial quantities of dust. They shall be approved by TRPA before groundbreaking and shall comply with the provisions of Chapter 64.4 of the TRPA Code of Ordinances, El Dorado County Code, and the EDCAQMD-recommended control measures listed below:

  - State Parks shall require that the prime contractor enclose, cover, or water twice daily all disturbed soil areas, including storage piles, to keep soil moist at all times.

  - State Parks shall require that the prime contractor water all haul roads twice daily.

  - State Parks shall require the prime contractor to cover or maintain 2 feet of freeboard on all haul loads to reduce dust emissions from escaping over the side of the truck.

  - Activities disturbing the soil shall not occur between October 15 and May 1 of each year, unless approval has been granted by TRPA. All construction sites shall be winterized by October 15 of each construction year in accordance with the provisions of Chapter 64.2.D of the TRPA Code of Ordinances, unless an extension is granted by TRPA.

- State Parks shall require its contractors and suppliers, its general contractor, and all of the general contractor's subcontractors and suppliers to comply with all of the terms and conditions of all project permits, approvals, and conditions attached thereto, including all TRPA and El Dorado County permits and approvals.

Implementation of Mitigation Measure 3.11-1 would reduce fugitive PM_{10} dust emissions by a minimum of approximately 75 percent and would prevent the fugitive PM_{10} dust from dispersing beyond the property boundary. Implementation of this mitigation measure would also reduce exhaust emissions of ROG, NO_X, and PM_{10} from diesel equipment by at least 5, 20, and 45 percent, respectively (WRAP 2006:3, EDCAQMD 2002:4-22 and 4-23). Implementation of Mitigation Measure 3.11-1 would ensure compliance with TRPA regulations for construction emissions, and mitigated daily emissions of NO_X would be reduced below the EDCAQMD mass emission standard of 82 lb/day. This impact would be less then significant with mitigation.

IMPACT 3.11-2 (Alt. 2) **Long-Term Operational (Regional) Emissions of Criteria Air Pollutants and Precursors.** *Long-term operational emissions would not exceed TRPA's significance criteria for stationary sources or the EDCAQMD significance criterion for mass emissions of ROG and NO_X. Therefore, implementation of Alternative 2 would not violate an air quality standard, contribute substantially to an existing or projected air quality violation, expose sensitive receptors to substantial pollutant concentrations, or conflict with or obstruct implementation of the applicable air quality plan. This impact would be* ***less than significant****.*

Regional emissions of ROG, NO_X, PM_{10}, CO, and SO_X from area and mobile sources associated with project implementation were estimated using the URBEMIS 2007 (Version 9.4.2) computer program, which is designed to model emissions for land use development projects (including recreation land uses). URBEMIS allows selection of project location specifics and trip generation rates. The program accounts for area-source emissions from the use of natural gas, wood stoves, fireplaces, landscape maintenance equipment, and consumer products, as well as mobile-source emissions associated with vehicle trips. Regional emissions from area (e.g., landscaping equipment) and mobile sources were estimated based on proposed land use types and sizes identified in Chapter 2, "Project Alternatives"; the net increase in trip generation from the project's transportation analysis described in Section 3.10, "Transportation, Parking, and Circulation" (e.g., fewer than 8 daily vehicle trips); and the default model setting for 2014 conditions (i.e., the first year of anticipated project operation). No major stationary sources of emissions would be constructed or operated under Alternative 2.

The modeled maximum daily operational emissions under Alternative 2 are summarized in Table 3.11-7 and described in more detail below and in Appendix I, "Air Quality Modeling Results." Estimates are conservative, and actual emissions could be less over time as a result of fluctuations in activity and maintenance.

Based on the modeling conducted, project operations under Alternative 2 would result in maximum unmitigated daily emissions of approximately less than 1 lb/day of ROG, less than 1 lb/day of NO_X, less than 1 lb/day of PM_{10}, 3 lb/day of CO, and less than 1 lb/day of SO_X, none of which would exceed the applicable EDCAQMD standards (Table 3.11-7). These standards are based on SIP requirements to reduce emissions from heavy-duty vehicles and land use projects. Because project implementation would not exceed these standards, Alternative 2 would not conflict with air quality planning efforts.

Table 3.11-7
Summary of Modeled Maximum Long-Term Operational Emissions under Alternative 2–5

Source Type	Project-Generated Emissions (pounds per day)				
	ROG	NO_X	PM_{10}	CO	SO_X
Summer					
Area sources [1]	0.13	0.02	0.00	1.60	0.00
Mobile sources [2]	1.29	0.10	0.01	0.80	0.00
Total	*1.42*	*0.12*	*0.01*	*2.40*	*0.00*
Winter					
Area sources [1]	0.00	0.00	0.00	0.00	0.00
Mobile sources [2]	0.10	0.15	0.01	1.14	0.00
Total	*0.10*	*0.15*	*0.01*	*1.14*	*0.00*
Standards					
EDCAQMD Total emissions [3]	*82.00*	*82.00*	–	–	–
TRPA Stationary Source Emissions[4]	125.7	24.2	22.0	220.5	13.2

Table 3.11-7
Summary of Modeled Maximum Long-Term Operational Emissions under Alternative 2–5

Notes: CO = carbon monoxide; NO_X = oxides of nitrogen; PM_{10} = respirable particulate matter; ROG = reactive organic gases; SO_X = oxides of sulfur.

[1] Area-source emissions include emissions from landscaping and were estimated based on default model settings.

[2] Mobile-source emissions were estimated based on default model settings and on trip generation rates obtained from the transportation analysis prepared for this project under buildout conditions.

[3] The total emissions standard applies to the sum of area and mobile sources for ROG and NO_X only.

[4] TRPA standards apply to stationary-source emissions only.

Source: Modeling performed by EDAW (now AECOM) in 2009

Long-term operational emissions under Alternative 2 would not violate an air quality standard, contribute substantially to an existing or projected air quality violation, expose sensitive receptors to substantial pollutant concentrations, or conflict with or obstruct implementation of the applicable air quality plan. This impact would be less than significant.

No mitigation is required.

IMPACT 3.11-3 (Alt. 2) Long-Term Operational (Local) Emissions of Carbon Monoxide by Mobile Sources. *Long-term local emissions of CO from mobile sources related to project operation under Alternative 2 would not violate an air quality standard (i.e., the 8-hour TRPA standard of 6 ppm), contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. This impact would be* ***less than significant****.*

CO concentration is a direct function of motor vehicle activity (e.g., idling time and traffic flow conditions), particularly during peak commute hours, and meteorological conditions. Under specific meteorological conditions, CO concentrations may reach unhealthy levels with respect to local sensitive land uses, such as residential areas, schools, and hospitals. As a result, the analysis of CO emissions is at a local level.

The *Transportation Project-Level Carbon Monoxide Protocol* (Garza, Graney, and Sperling 1997) states that signalized intersections that operate at an unacceptable LOS represent a potential for a CO violation, also known as a "hot spot," and thus undergo a quantitative screening-level analysis. The Goals and Policies in the TRPA Regional Plan indicate that up to 4 hours of LOS E conditions are acceptable at a signalized intersection (TRPA 1987:III-6). No TRPA standard exists for the operation of unsignalized intersections. Thus, an analysis of CO concentrations is typically recommended for receptors located near signalized intersections that are projected to operate at LOS E (for more than 4 hours per day) or LOS F.

According to the transportation analysis, operation of Alternative 2 would not reduce the LOS at any signalized intersections to an unacceptable level (LOS E or F) during any time of the day or substantially worsen LOS at any signalized intersections (see Section 3.10, "Transportation, Parking, and Circulation," for additional detail). Thus, long-term local emissions of CO from mobile sources during project operation under Alternative 2 would not violate an air quality standard (i.e., the 8-hour TRPA standard of 6 ppm), contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. As a result, this impact would be less than significant.

No mitigation is required.

IMPACT 3.11-4 (Alt. 2) **Exposure of Sensitive Receptors to Odors.** *Neither construction nor operation of Alternative 2 would create objectionable odors affecting a substantial number of people. This impact would be* ***less than significant.***

Implementation of Alternative 2 would not result in any major sources of odor, and the project's proposed land use type is not one of the types commonly known to generate odors (e.g., landfill, coffee roaster, wastewater treatment plant). Emissions of diesel exhaust from the use of on-site construction equipment would be intermittent and temporary, and the exhaust would dissipate rapidly from the source. Thus, neither construction nor operation of Alternative 2 would create objectionable odors affecting a substantial number of people. As a result, this impact would be less than significant.

No mitigation is required.

IMPACT 3.11-5 (Alt. 2) **Exposure of Sensitive Receptors to Emissions of Hazardous Air Pollutants.** *Neither construction nor operation of Alternative 2 would expose sensitive receptors to substantial emissions of HAPs (TACs). As a result, this impact would be* ***less than significant.***

Construction of Alternative 2 would result in the short-term emission of diesel exhaust by on-site heavy-duty equipment. As shown in Table 3.11-6, off-road diesel-powered equipment operated during project construction would generate approximately 12 lb/day of diesel PM exhaust emissions at the project site during the construction effort (i.e., off-road diesel exhaust during site preparation, off-site hauling). This amount would be lower with implementation of Mitigation Measure 3.11-1 (Alt. 2) because implementing the NO_X and PM reduction measures would reduce emissions of diesel PM. Diesel PM was identified as a TAC by ARB in 1998. The potential cancer risk from the inhalation of diesel PM, as discussed below, outweighs the potential for all other health impacts (ARB 2003). At this time, TRPA has not adopted a methodology for analyzing such impacts and does not recommend the completion of health risk assessments for construction-related emissions of TACs, with a few exceptions (e.g., where construction phase is the only phase of project) (Reed, pers. comm., 2007).

In January 2001, EPA promulgated a final rule to reduce emissions standards for heavy-duty diesel engines beginning with the 2007 model year. These emissions standards represent emissions reductions of 90 percent for NO_X, 72 percent for nonmethane hydrocarbons, and 90 percent for PM relative to the emissions standards for the 2004 model year.

The dose of a substance in the environment to which receptors are exposed—a function of the substance's concentration and the duration of exposure—is the primary factor used to determine the health risks associated with HAPs (known in State parlance as TACs). Dose is positively correlated with time; that is, a longer exposure period would result in a higher exposure level. Thus, the estimated risks are higher if a fixed exposure occurs over a longer period. According to California's Office of Environmental Health Hazard Assessment, health risk assessments, which determine the exposure of sensitive receptors to HAP emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period and duration of activities associated with the project (Salinas, pers. comm., 2004). Because off-road heavy-duty diesel equipment would be used only temporarily and because of the highly dispersive properties of diesel PM (Zhu et al. 2002) and future reductions in exhaust emissions, construction under Alternative 2 would not expose sensitive receptors to substantial emissions of HAPs.

No major stationary sources of HAP emissions would be constructed or operated with long-term operation of Alternative 2, nor would implementing this alternative result in the generation of HAP emissions from on-site mobile sources (e.g., diesel truck traffic). In addition, no major sources of HAPs exist in the vicinity of the study area. Nonetheless, all stationary sources with the potential to emit HAPs are required to obtain permits from TRPA. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, specifically Chapter 91 (Air Quality Control) of the TRPA Code of Ordinances. Given that

compliance with applicable standards is required for the development and operation of facilities that may emit HAPs, emissions in the study area are expected to remain within established standards. Thus, neither construction nor operation of Alternative 2 would expose sensitive receptors to substantial emissions of HAPs. As a result, this impact would be less than significant.

No mitigation is required.

Alternative 3: River Ecosystem Restoration with Reduced Play Golf Course

IMPACT 3.11-1 (Alt. 3) Short-Term Emissions of Criteria Air Pollutants and Precursors during Construction. *Construction-related emissions of criteria air pollutants and precursors under Alternative 3 could contribute substantially to an existing or projected air quality violation and expose sensitive receptors to substantial pollutant concentrations, especially considering the nonattainment status of the LTAB with respect to TRPA standards. This impact would be* ***significant.***

As described under Impact 3.11-1 (Alt. 2), construction emissions of fugitive PM_{10} dust, ROG, and NO_X have the potential to represent a significant short-term impact with respect to air quality. Under Alternative 3, the study area restoration and reduced play golf course phases of construction would temporarily generate emissions of criteria air pollutants (e.g., PM_{10}) and precursors (e.g., ROG and NO_X) from excavation, grading, and clearing; use of off-road equipment; import and export of materials; and workers traveling to and from the study area. Modeling was conducted using the same protocol as described for Alternative 2.

The modeled maximum daily construction-related emissions are summarized in Table 3.11-8 and described in more detail below and in Appendix I, "Air Quality Modeling Results."

Based on the modeling conducted , construction of Alternative 3 would result in maximum unmitigated daily emissions of approximately 10 lb/day of ROG, 79 lb/day of NO_X, and 334 lb/day of PM_{10} (Table 3.11-8).

Table 3.11-8
Summary of Daily Short-Term Construction-Related Emissions under Alternative 3[1]

Source	Project-Generated Emissions (pounds per day)		
	ROG	NO_X	PM_{10}
Phase 1 (May 2011–October 2011)			
Fugitive Dust	–	–	200.4
Off-Road Diesel	2.4	18.3	1.0
On-Road Diesel	1.4	21.5	0.7
Worker Trips	0.1	0.2	0.0
Maximum Daily Total, Unmitigated	*3.8*	*40.0*	*202.1*
Maximum Daily Total, Mitigated	*3.6*	*32.0*	*50.5*
Phase 2 (May 2012–October 2012)			
Fugitive Dust	–	–	330.1
Off-Road Diesel	5.9	45.4	2.5
On-Road Diesel	1.2	19.0	0.7
Worker Trips	0.2	0.4	0.0
Maximum Daily Total, Unmitigated	*7.3*	*64.8*	*333.3*
Maximum Daily Total, Mitigated	*6.9*	*51,8*	*83.3*

Table 3.11-8
Summary of Daily Short-Term Construction-Related Emissions under Alternative 3[1]

Source	Project-Generated Emissions (pounds per day)		
	ROG	NO_X	PM_{10}
Phase 3 (May 2013–October 2013)			
Fugitive Dust			330.0
Off-Road Diesel	8.2	62.1	3.3
On-Road Diesel	1.1	16.4	0.7
Worker Trips	0.2	0.4	0.0
Maximum Daily Total, Unmitigated	*9.5*	*78.9*	*334.0*
Maximum Daily Total, Mitigated	*9.0*	*63.1*	*83.3*

Notes: NO_X = oxides of nitrogen; PM_{10} = respirable particulate matter; ROG = reactive organic gases.
See Appendix I, "Air Quality Modeling Results," for modeling results.
[1] On-site emissions from mobile equipment used for site grading were based on default emission factors and durations of URBEMIS 2007, Version 9.2.4. Construction activities that involve soil disturbance must occur between May 1 and October 15 to comply with Section 62.4.A of the Tahoe Regional Planning Agency (TRPA) Code of Ordinances unless special approval has been granted by TRPA.
Source: Modeling performed by EDAW (now AECOM) in 2009

Before compliance with TRPA-recommended mitigation measures, construction-related emissions of PM_{10} under Alternative 3, could violate or contribute substantially to an existing or projected air quality violation. Such emissions could expose sensitive receptors to substantial concentrations of pollutants, especially considering the nonattainment status of the LTAB with respect to the TRPA standards (e.g., the 1-hour ozone and visibility-reducing particulate standards). As a result, this impact would be significant.

Mitigation Measure 3.11-1 (Alt. 3): Reduce the Generation of Construction-Related Emissions of ROG, NO_X, and PM_{10}. This mitigation measure is identical to Mitigation Measure 3.11-1 (Alt. 2).

For the same reasons as described under Alternative 2, with implementation of Mitigation Measure 3.11-1 (Alt. 3), Impact 3.11-1 (Alt. 3) would be less than significant with mitigation.

IMPACT 3.11-2 (Alt. 3) Long-Term Operational (Regional) Emissions of Criteria Air Pollutants and Precursors. *Long-term operational emissions would not exceed TRPA's significance criteria for stationary sources or the EDCAQMD significance criterion for mass emissions of ROG and NO_X. Therefore, implementation of Alternative 3 would not violate an air quality standard, contribute substantially to an existing or projected air quality violation, expose sensitive receptors to substantial pollutant concentrations, or conflict with or obstruct implementation of the applicable air quality plan. This impact would be* **less than significant.**

This impact is identical to Impact 3.11-2 (Alt. 2). Alternative 3 would have vehicle trip levels similar to or less than existing conditions, area-source emissions from landscaping equipment similar to existing conditions (Table 3.11-7), and no stationary sources. Refer to Impact 3.11-2 (Alt. 2) and Table 3.11-7 for a more detailed discussion. This impact would be less than significant.

No mitigation is required.

IMPACT 3.11-3 (Alt. 3) Long-Term Operational (Local) Emissions of Carbon Monoxide by Mobile Sources. *Long-term local emissions of CO from mobile sources related to project operations under Alternative 3 would not violate an air quality standard (i.e., the 8-hour TRPA standard of 6 ppm), contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. This impact would be* ***less than significant****.*

This impact is similar to Impact 3.11-3 (Alt. 2), as in Alternative 2, Alternative 3 would not affect current LOS designations. Unlike Alternative 2, Alternative 3 would result in reduced vehicle trips compared with baseline conditions on the existing roadway network and would create even less CO emissions than Alternative 2. Refer to Impact 3.11-3 (Alt. 2) for a more detailed discussion. This impact would be less than significant.

No mitigation is required.

IMPACT 3.11-4 (Alt. 3) Exposure of Sensitive Receptors to Odors. *Neither construction nor operation of Alternative 3 would create objectionable odors affecting a substantial number of people. This impact would be* ***less than significant****.*

This impact is identical to Impact 3.11-4 (Alt. 2). Implementation of Alternative 3 would not result in any major sources of odor, and the project's proposed land use type is not one of the types commonly known to generate odors (e.g., landfill, coffee roaster, wastewater treatment plant). Emissions of diesel exhaust from the use of on-site construction equipment would be intermittent and temporary, and the exhaust would dissipate rapidly from the source. Thus, neither construction nor operation of Alternative 3 would create objectionable odors affecting a substantial number of people. As a result, this impact would be less than significant.

No mitigation is required.

IMPACT 3.11-5 (Alt. 3) Exposure of Sensitive Receptors to Emissions of Hazardous Air Pollutants. *Neither construction nor operation of Alternative 3 would result in the exposure of sensitive receptors to substantial emissions of HAPs (TACs). As a result, this impact would be* ***less than significant****.*

This impact is similar to Impact 3.11-5 (Alt. 2). Because off-road heavy-duty diesel equipment would be used only temporarily and because of the highly dispersive properties of diesel PM (Zhu et al. 2002) and future reductions in exhaust emissions, construction under Alternative 3 would not expose sensitive receptors to substantial emissions of HAPs. No major stationary sources of HAP emissions would be constructed or operated with long-term operation of Alternative 3, nor would implementing this alternative result in the generation of HAP emissions from on-site mobile sources (e.g., diesel truck traffic). Refer to Impact 3.11-5 (Alt. 2) for a more detailed discussion. This impact would be less than significant.

No mitigation is required.

Alternative 4: River Stabilization with Existing 18-Hole Regulation Golf Course

IMPACT 3.11-1 (Alt. 4) Short-Term Emissions of Criteria Air Pollutants and Precursors during Construction. *Construction-related emissions of criteria air pollutants and precursors under Alternative 4 could contribute substantially to an existing or projected air quality violation and expose sensitive receptors to substantial pollutant concentrations, especially considering the nonattainment status of the LTAB with respect to TRPA standards. This impact would be* ***significant****.*

As described under Impact 3.11-1 (Alt. 2), construction emissions of fugitive PM_{10} dust, ROG, and NO_X have the potential to represent a significant short-term impact with respect to air quality. Under Alternative 4, the restoration phases of construction would temporarily generate emissions of criteria air pollutants (e.g., PM_{10}) and

precursors (e.g., ROG and NO_X) from excavation, grading, and clearing; use of off-road equipment; import and export of materials; and workers traveling to and from the project site. Modeling was conducted using the same protocol as described under Alternative 2.

The modeled maximum daily construction-related emissions are summarized in Table 3.11-9 and described in more detail below and in Appendix I, "Air Quality Modeling Results."

Table 3.11-9
Summary of Daily Short-Term Construction-Related Emissions under Alternative 4[1]

Source	Project-Generated Emissions (pounds per day)		
	ROG	NO_X	PM_{10}
Phase 1 (May 2012–October 2012)			
Fugitive Dust	–	–	77.8
Off-Road Diesel	6.9	54.3	3.0
On-Road Diesel	2.8	45.2	1.6
Worker Trips	0.3	0.5	0.0
Maximum Daily Total, Unmitigated	*10.0*	*100.1*	*82.4*
Maximum Daily Total, Mitigated	*9.5*	*80.1*	*20.6*
Phase 2 (May 2013–October 2013)			
Fugitive Dust	–	–	85.2
Off-Road Diesel	5.3	41.7	2.1
On-Road Diesel	2.3	35.1	1.2
Worker Trips	0.2	0.4	0.0
Maximum Daily Total, Unmitigated	*7.8*	*77.1*	*88.5*
Maximum Daily Total, Mitigated	*7.4*	*61.7*	*22.1*

Notes: NO_X = oxides of nitrogen; PM_{10} = respirable particulate matter; ROG = reactive organic gases.
See Appendix I, "Air Quality Modeling Results," for modeling results.
[1] On-site emissions from mobile equipment used for site grading were based on default emission factors and durations of URBEMIS 2007, Version 9.2.4. Construction activities that involve soil disturbance must occur between May 1 and October 15 to comply with Section 62.4.A of the Tahoe Regional Planning Agency (TRPA) Code of Ordinances unless special approval has been granted by TRPA.
Source: Modeling performed by EDAW (now AECOM) in 2009

Based on the modeling conducted, construction of Alternative 4 would result in maximum unmitigated daily emissions of approximately 10 lb/day of ROG, 100 lb/day of NO_X, and 82 lb/day of PM_{10} (Table 3.11-9). Daily unmitigated, construction-related emissions would exceed EDCAQMD's short-term significance criterion of 82 lb/day for NO_X.

Construction-related emissions of PM_{10} under Alternative 4 could violate or contribute substantially to an existing or projected air quality violation. Such emissions could expose sensitive receptors to substantial pollutant concentrations, especially considering the nonattainment status of the LTAB with respect to the TRPA standards (e.g., the 1-hour ozone and visibility-reducing particulate standards). As a result, this impact would be significant.

Mitigation Measure 3.11-1 (Alt. 4): Reduce the Generation of Construction-Related Emissions of ROG, NO_X, and PM_{10}.

This mitigation measure is identical to Mitigation Measure 3.11-1 (Alt. 2). For the same reasons as described under Alternative 2, with implementation of Mitigation Measure 3.11-1 (Alt. 4), Impact 3.11-1 (Alt. 4) would be less than significant with mitigation.

IMPACT 3.11-2 (Alt. 4) **Long-Term Operational (Regional) Emissions of Criteria Air Pollutants and Precursors.** *Long-term operational emissions would not exceed TRPA's significance criteria for stationary sources or the EDCAQMD significance criterion for mass emissions of ROG and NO_X. Therefore, implementation of Alternative 4 would not violate an air quality standard, contribute substantially to an existing or projected air quality violation, expose sensitive receptors to substantial pollutant concentrations, or conflict with or obstruct implementation of the applicable air quality plan. This impact would be* ***less than significant****.*

This impact is identical to Impact 3.11-2 (Alt. 2). Alternative 4 would have vehicle trip levels similar to existing conditions, area-source emissions from landscaping equipment similar to existing conditions (Table 3.11-7), and no stationary sources. Refer to Impact 3.11-2 (Alt. 2) and Table 3.11-7 for a more detailed discussion. This impact would be less than significant.

No mitigation is required.

IMPACT 3.11-3 (Alt. 4) **Long-Term Operational (Local) Emissions of Carbon Monoxide by Mobile Sources.** *Long-term local emissions of CO from mobile sources related to project operation under Alternative 4 would not violate an air quality standard (i.e., the 8-hour TRPA standard of 6 ppm), contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. This impact would be* ***less than significant****.*

This impact is similar to Impact 3.11-3 (Alt. 2), as in Alternative 2, Alternative 4 would not affect current LOS designations. Unlike Alternative 2, Alternative 4 would result in reduced vehicle trips compared with baseline conditions on the existing roadway network and would create even less CO emissions than Alternative 2. Alternative 4 would have vehicle trip levels similar to existing conditions and would not affect current LOS designations on the existing roadway network. Refer to Impact 3.11-3 (Alt. 2) for a more detailed discussion. This impact would be less than significant.

No mitigation is required.

IMPACT 3.11-4 (Alt. 4) **Exposure of Sensitive Receptors to Odors.** *Neither construction nor operation of Alternative 4 would create objectionable odors affecting a substantial number of people. This impact would be* ***less than significant****.*

This impact is identical to Impact 3.11-4 (Alt. 2). Implementation of Alternative 4 would not result in any major sources of odor, and the project's proposed land use type is not one of the types commonly known to generate odors (e.g., landfill, coffee roaster, wastewater treatment plant). Emissions of diesel exhaust from the use of on-site construction equipment would be intermittent and temporary, and the exhaust would dissipate rapidly from the source. Thus, neither construction nor operation of Alternative 4 would create objectionable odors affecting a substantial number of people. As a result, this impact would be less than significant.

No mitigation is required.

IMPACT 3.11-5 (Alt. 4) **Exposure of Sensitive Receptors to Emissions of Hazardous Air Pollutants.** *Neither construction nor operation of Alternative 4 would result in the exposure of sensitive receptors to substantial emissions of HAPs (TACs). As a result, this impact would be* ***less than significant****.*

This impact is similar to Impact 3.11-5 (Alt. 2). Because off-road heavy-duty diesel equipment would be used only temporarily and because of the highly dispersive properties of diesel PM (Zhu et al. 2002) and future reductions in exhaust emissions, construction under Alternative 4 would not expose sensitive receptors to substantial emissions of HAPs. No major stationary sources of HAP emissions would be constructed or operated with long-term operation of Alternative 4, nor would implementing this alternative result in the generation of

HAP emissions from on-site mobile sources (e.g., diesel truck traffic). Refer to Impact 3.11-5 (Alt. 2) for a more detailed discussion. This impact would be less than significant.

No mitigation is required.

Alternative 5: River Ecosystem Restoration with Decommissioned Golf Course

IMPACT 3.11-1 (Alt. 5) Short-Term Emissions of Criteria Air Pollutants and Precursors during Construction. *Construction-related emissions of criteria air pollutants and precursors under Alternative 5 could contribute substantially to an existing or projected air quality violation and expose sensitive receptors to substantial pollutant concentrations, especially considering the nonattainment status of the LTAB with respect to TRPA standards. This impact would be* ***significant.***

As described under Impact 3.11-1 (Alt. 2), construction emissions of fugitive PM_{10} dust, ROG, and NO_X have the potential to represent a significant short-term impact with respect to air quality. Under Alternative 5, the initial site preparation and building phases of construction would temporarily generate emissions of criteria air pollutants (e.g., PM_{10}) and precursors (e.g., ROG and NO_X) from excavation, grading, and clearing; use of off-road equipment; import and export of materials; paving; application of architectural coatings; and workers traveling to and from the project site. Modeling was conducted using the same protocol as described under Alternative 2.

The modeled maximum daily construction-related emissions are summarized in Table 3.11-10 and described in more detail below and in Appendix I, "Air Quality Modeling Results."

Based on the modeling conducted, construction of Alternative 5 would result in maximum unmitigated daily emissions of approximately 7 lb/day of ROG, 58 lb/day of NO_X, and 318 lb/day of PM_{10} (Table 3.11-10).

Table 3.11-10
Summary of Daily Short-Term Construction-Related Emissions under Alternative 5[1]

Source	Project-Generated Emissions (pounds per day)		
	ROG	NO_X	PM_{10}
Phase 1 (May 2012–October 2012)			
Fugitive Dust	–	–	315.1
Off-Road Diesel	2.4	18.3	1.0
On-Road Diesel	1.1	17.8	0.6
Worker Trips	0.1	0.2	0.0
Maximum Daily Total, Unmitigated	*3.6*	*36.3*	*316.7*
Maximum Daily Total, Mitigated	*3.4*	*29.0*	*79.2*
Phase 2 (May 2013–October 2013)			
Fugitive Dust	–	–	315.1
Off-Road Diesel	5.4	41.7	2.3
On-Road Diesel	1.0	15.7	0.6
Worker Trips	0.2	0.4	0.0
Maximum Daily Total, Unmitigated	*6.6*	*57.8*	*318.0*
Maximum Daily Total, Mitigated	*6.3*	*46.2*	*79.5*

Table 3.11-10
Summary of Daily Short-Term Construction-Related Emissions under Alternative 5[1]

Source	Project-Generated Emissions (pounds per day)		
	ROG	NO_X	PM_{10}
Phase 3 (May 2014–October 2014)			
Fugitive Dust	–	–	192.9
Off-Road Diesel	4.6	35.0	1.8
On-Road Diesel	0.9	13.6	0.5
Worker Trips	0.1	0.3	0.0
Maximum Daily Total, Unmitigated	*5.6*	*48.9*	*195.2*
Maximum Daily Total, Mitigated	*5.3*	*39.1*	*48.8*

Notes: NO_X = oxides of nitrogen; PM_{10} = respirable particulate matter; ROG = reactive organic gases.
See Appendix I, "Air Quality Modeling Results," for modeling results.
[1] On-site emissions from mobile equipment used for site grading were based on default emission factors and durations of URBEMIS 2007, Version 9.2.4. Construction activities that involve soil disturbance must occur between May 1 and October 15 to comply with Section 62.4.A of the Tahoe Regional Planning Agency (TRPA) Code of Ordinances unless special approval has been granted by TRPA.
Source: Modeling performed by EDAW (now AECOM) in 2009

Construction-related emissions of PM_{10} under Alternative 5 could violate or contribute substantially to an existing or projected air quality violation. Such emissions could expose sensitive receptors to substantial pollutant concentrations, especially considering the nonattainment status of the LTAB with respect to the TRPA standards (e.g., the 1-hour ozone and visibility-reducing particulate standards). As a result, this impact would be significant.

Mitigation Measure 3.11-1 (Alt. 5): Reduce the Generation of Construction-Related Emissions of ROG, NO_X, and PM_{10}.

This mitigation measure is identical to Mitigation Measure 3.11-1 (Alt. 2).

This mitigation measure is identical to Mitigation Measure 3.11-1 (Alt. 2). For the same reasons as described under Alternative 2, with implementation of Mitigation Measure 3.11-1 (Alt. 5), Impact 3.11-1 (Alt. 5) would be less than significant with mitigation.

IMPACT 3.11-2 (Alt. 5) Long-Term Operational Emissions of Criteria Air Pollutants and Precursors. *Long-term operational emissions would not exceed TRPA's significance criteria for stationary sources or the EDCAQMD significance criterion for mass emissions of ROG and NO_X. Therefore, implementation of Alternative 5 would not violate an air quality standard, contribute substantially to an existing or projected air quality violation, expose sensitive receptors to substantial pollutant concentrations, or conflict with or obstruct implementation of the applicable air quality plan. This impact would be* ***less than significant.***

This impact is similar to Impact 3.11-2 (Alt. 3), as Alternative 3, no increase in vehicle trips or other operational emissions would occur. Alternative 5 would remove almost all vehicle trips associated with operation of the golf course and remove all area-source emissions from landscaping equipment (Table 3.11-7), and the alternative would have no stationary sources. Refer to Impact 3.11-2 (Alt. 2) and Table 3.11-7 for a more detailed discussion. This impact would be less than significant.

No mitigation is required.

IMPACT 3.11-3 (Alt. 5) **Long-Term Operational (Local) Emissions of Carbon Monoxide by Mobile Sources.** *Long-term local emissions of CO from mobile sources related to project operation under Alternative 5 would not violate an air quality standard (i.e., the 8-hour TRPA standard of 6 ppm), contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. This impact would be* ***less than significant****.*

This impact is similar to Impact 3.11-3 (Alt. 2), as in Alternative 2, Alternative 5 would not affect current LOS designations. Unlike Alternative 2, Alternative 5 would result in reduced vehicle trips compared with baseline conditions on the existing roadway network and would create even less CO emissions than Alternative 2. Refer to Impact 3.11-3 (Alt. 2) for a more detailed discussion. This impact would be less than significant.

No mitigation is required.

IMPACT 3.11-4 (Alt. 5) **Exposure of Sensitive Receptors to Odors.** *Neither construction nor operation of Alternative 5 would create objectionable odors affecting a substantial number of people. This impact would be* ***less than significant****.*

This impact is identical to Impact 3.11-4 (Alt. 2). Implementation of Alternative 5 would not result in any major sources of odor, and the project's proposed land use type is not one of the types commonly known to generate odors (e.g., landfill, coffee roaster, wastewater treatment plant). Emissions of diesel exhaust from the use of on-site construction equipment would be intermittent and temporary, and the exhaust would dissipate rapidly from the source. Thus, neither construction nor operation of Alternative 5 would create objectionable odors affecting a substantial number of people. As a result, this impact would be less than significant.

No mitigation is required.

IMPACT 3.11-5 (Alt. 5) **Exposure of Sensitive Receptors to Emissions of Hazardous Air Pollutants.** *Neither construction nor operation of Alternative 5 would result in the exposure of sensitive receptors to substantial emissions of HAPs (TACs). As a result, this impact would be* ***less than significant****.*

This impact is similar to Impact 3.11-5 (Alt. 2). Because off-road heavy-duty diesel equipment would be used only temporarily and because of the highly dispersive properties of diesel PM (Zhu et al. 2002) and future reductions in exhaust emissions, construction under Alternative 5 would not expose sensitive receptors to substantial emissions of HAPs. No major stationary sources of HAP emissions would be constructed or operated with long-term operation of Alternative 5, nor would implementing this alternative result in the generation of HAP emissions from on-site mobile sources (e.g., diesel truck traffic). Refer to Impact 3.11-5 (Alt. 2) for a more detailed discussion. This impact would be less than significant.

No mitigation is required.

3.12 NOISE

This section includes a description of applicable noise regulations acoustic fundamentals, existing ambient noise conditions, and an analysis of potential short- and long-term noise impacts associated with implementation of Alternatives 1–5. Mitigation measures are recommended, as necessary, to reduce potentially significant adverse noise impacts. The information contained in this section is based in part on documents prepared by TRPA and El Dorado County. Consistency with TRPA goals and policies is presented in Section 3.2, "Land Use," Table 3.2-1. Cumulative noise impacts are addressed in Section 3.16, "Cumulative Impacts." The project effects on thresholds are described in Chapter 4, Section 4.6, "Consequences for Environmental Threshold."

3.12.1 AFFECTED ENVIRONMENT

REGULATORY SETTING

Federal

U.S. Department of Transportation

To address the human response to groundborne vibration, the Federal Transit Administration (FTA) of the U.S. Department of Transportation (DOT) has set forth guidelines for maximum-acceptable vibration criteria for different types of land uses. Among these guidelines are the following (FTA 2006):

- 65 velocity decibels (VdB), referenced to 1 microinch per second (μin/sec) and based on the root mean square (RMS) velocity amplitude, for land uses where low ambient vibration is essential for interior operations (e.g., hospitals, high-tech manufacturing, laboratory facilities)
- 80 VdB for residential uses and buildings where people normally sleep
- 83 VdB for institutional land uses with primarily daytime operations (e.g., schools, churches, clinics, offices) (FTA 2006).

Standards have also been established to address the potential for groundborne vibration to cause structural damage to buildings. These standards were developed by the Committee of Hearing, Bio Acoustics, and Bio Mechanics (CHABA) at the request of the U.S. Environmental Protection Agency (EPA) (FTA 2006:Chapters 10 and 12). For fragile structures, a maximum limit of 0.25 inch per second (in/sec) peak particle velocity (PPV) is recommended (FTA 2006: Chapters 10 and 12).

State

The California Governor's Office of Planning and Research (OPR) published the *State of California General Plan Guidelines* (OPR 2003), which provides guidance for the acceptability of projects within specific community noise equivalent level (CNEL) contours (see "Noise Descriptors" in Section 3.12.2, "Affected Environment," below). Table 3.12-1 summarizes acceptable and unacceptable community-noise-exposure limits for various land use categories. Generally, residential uses are considered to be acceptable in areas where exterior noise levels do not exceed a CNEL of 60 A-weighted decibels (dBA). Residential uses are normally unacceptable in areas exceeding 70 dBA CNEL and conditionally acceptable within 55–70 dBA CNEL. Schools are normally acceptable in areas up to 70 dBA CNEL and normally unacceptable in areas exceeding 70 dBA CNEL. Commercial uses are normally acceptable in areas up to 70 dBA CNEL. Between 67.5 and 77.5 dBA CNEL, commercial uses are conditionally acceptable, depending on the noise insulation features and the noise reduction requirements. The guidelines also present adjustment factors that may be used to arrive at noise-acceptability standards that reflect the particular community's noise-control goals, sensitivity to noise, and assessment of the relative importance of noise issues.

Table 3.12-1
California Land Use Noise Compatibility Guidelines

Land Use Category	Community Noise Exposure (CNEL or L_{dn}, dBA)			
	Normally Acceptable[a]	Conditionally Acceptable[b]	Normally Unacceptable[c]	Clearly Unacceptable[d]
Residential—Low-Density Single-Family, Duplex, Mobile Home	< 60	55–70	70–75	75+
Residential—Multi-Family	< 65	60–70	70–75	75+
Transient Lodging—Motel, Hotel	< 65	60–70	70–80	80+
Schools, Libraries, Churches, Hospitals, Nursing Homes	< 70	60–70	70–80	80+
Auditoriums, Concert Halls, Amphitheaters		< 70	65+	
Sports Arena, Outdoor Spectator Sports		< 75	70+	
Playgrounds, Neighborhood Parks	< 70		67.5–75	72.5+
Golf Courses, Riding Stables, Water Recreation, Cemeteries	< 75		70–80	80+
Office Building, Business Commercial, and Professional	< 70	67.5–77.5	75+	
Industrial, Manufacturing, Utilities, Agriculture	< 75	70–80	75+	

Notes: CNEL = community noise equivalent level; dBA = A-weighted decibels; L_{dn} = day-night noise level

a Specified land use is satisfactory, based on the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

b New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.

c New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design. Outdoor areas must be shielded.

d New construction or development should generally not be undertaken.

Source: OPR 2003

Tahoe Regional Planning Agency

The Regional Plan for the Tahoe Basin is a progressive plan and includes the following provisions related to noise: Goals and Policies (i.e., noise subelement) (TRPA 2003), Plan Area Statements (PAS) (TRPA 2002a), and Code of Ordinances (i.e., Chapter 23, Noise Limitations) (TRPA 2004). These documents are described separately below. The Regional Plan also includes environmental threshold carrying capacities (thresholds) for noise (TRPA 2002b, 2007a), which are discussed below.

The 1987 Regional Plan had a 20-year scope and is currently being reviewed and updated through a collaborative effort led by TRPA. These agencies are working together to update several important environmental documents for the Tahoe Basin. These Regional Plan updates will guide land management, resource management, and environmental regulations in the Tahoe Basin over the next 20 years. The Regional Plan update is anticipated to be completed by 2011.

Regional Plan Goals and Policies

The Goals and Policies document presents the overall approach to meeting the thresholds for noise. Refer to Tables 3.12-2 and 3.12-3 for TRPA noise thresholds.

Table 3.12-2
TRPA Environmental Threshold Carrying Capacity
Noise Standards for Single Events (L_{max})

Single Event	Threshold
Aircraft	*Departures (all aircraft):* 80 dBA at 6,500 m from start to takeoff roll. 77.1 dBA at 6,500 m from start to takeoff roll between 8 p.m. and 8 a.m. *Arrivals:* 84 dBA at 2,000 m from the runway threshold approach (general aviation and commuter aircraft). 86 dBA at 2,000 m from the runway threshold approach (transport category aircraft). 77.1 dBA (all aircraft) 2,000 m from the runway threshold approach between 8 p.m. and 8 a.m.
Watercraft	82.0 dBA at 50 feet with the engine operating at 3,000 rotations per minute.
Motor Vehicles	< 6,000 lb GVW: 76.0 dBA at 50 feet (< 35 mph), 82.0 dBA at 50 feet (> 35 mph). > 6,000 lb GVW: 82.0 dBA at 50 feet (< 35 mph), 86.0 dBA at 50 feet (> 35 mph).
Motorcycles	77.0 dBA at 50 feet (< 35 mph). 86.0 dBA at 50 feet (> 35 mph).
Off-Road Vehicles	72.0 dBA at 50 feet (< 35 mph). 86.0 dBA at 50 feet (> 35 mph).
Over-Snow Vehicles (snowmobiles)	82.0 dBA at 50 feet.

Notes: dBA = A-weighted decibels; GVW = gross vehicle weight; lb = pounds; L_{max} = maximum noise level; m = meters; mph = miles per hour
Source: TRPA 2007a: 9-3,4

Table 3.12-3
TRPA Environmental Threshold Carrying Capacity Noise Standards

Land Use Category	Maximum Average Noise Level or CNEL Range for Background Noise Levels (dBA)
High Density Residential	55
Low Density Residential	50
Hotel	60
Commercial	60
Industrial	65
Urban Outdoor Recreation	55
Rural Outdoor Recreation	50
Wilderness and Roadless	45
Critical Wildlife Habitat	45

Notes: CNEL = community noise equivalent level; dBA = A-weighted decibels
Source: TRPA 2007a: 9-3,4

The noise subelement of the Goals and Policies document contains the following applicable goals and policies:

GOAL 1: Single Event Noise Standards Shall Be Attained and Maintained. People can be annoyed by a specific noise source. Thresholds were adopted that apply to aircraft, boats, motor vehicles, off-road vehicles, and snowmobiles to reduce impacts associated with single noise events.

- **Policies:**

    1. An ordinance and enforcement program shall be developed to permit only aircraft that meet the single event noise thresholds to use the airport.

    2. Boats will only be allowed to use Lake Tahoe if they comply with the single-event threshold.

    3. Motor vehicles and motorcycles shall comply with the appropriate noise thresholds.

    4. Off-road vehicle use is prohibited in the Lake Tahoe Basin except on specified roads, trails, or designated areas where the impacts can be mitigated.

    5. The use of snowmobiles will be restricted to designated areas.

    6. The plan will permit uses only if they are consistent with the noise standards. Sound proofing practices may be required on all structures containing uses that would otherwise adversely impact the prescribed noise levels.

GOAL 2: Community Noise Equivalent Levels Shall Be Attained and Maintained. CNEL thresholds were adopted to reduce the annoyance associated with cumulative noise events on people and wildlife. In the Lake Tahoe Basin, the main sources of noise are attributed to the major transportation corridors and the airport. Therefore, the policies are directed towards reducing the transmission of noise from those sources. The CNEL thresholds will be attained upon implementation of the following policies.

- **Policies:**

    1. Transmission of noise from transportation corridors shall be reduced.

        The noise associated with the transportation corridors can be decreased by reducing the number of trips and by installing mitigation measures. Trip reduction will be accomplished by the transit improvements identified in the Transportation Element. Ordinances will establish specific site design criteria for projects to help reduce the transmission of noise from the transportation corridors. The design criteria will also be incorporated into the water quality and transportation improvement programs. The mitigation measures may include set backs, earth berms, and barriers.

    2. Reduce noise-related impacts associated with the airport to acceptable levels.

    3. TRPA will further define CNELs for wilderness and roadless areas, and for critical wildlife habitat areas.

The noise subelement has also established the following CNEL values for transportation corridors:

- U.S. Highway 50 (U.S. 50)—65 dBA
- State Routes 89, 207, 28, 267, and 431—55 dBA
- South Lake Tahoe Airport—60 dBA

The highway CNEL values override the land use–based CNELs and are limited to an area within 300 feet from the edge of the road. The airport CNEL value applies to areas affected by the approved flight plans.

Code of Ordinances

Chapter 23, "Noise Limitations," of the TRPA Code of Ordinances establishes noise limitations for single noise events from aircraft, marine craft, motor vehicles, motorcycles, off-road vehicles, and oversnow vehicles (TRPA 2004). Section 23.2 states that TRPA shall use the maximum level recorded on a noise meter, L_{max} (see "Noise Descriptors" below), for measuring single noise events. The noise levels set forth in Subsection 23.2.A are the maximum permissible noise levels for the types of operations listed, unless specifically exempted under Section 23.8. Section 23.3 also states that TRPA shall use CNELs to measure community noise levels. The PASs shall set forth CNELs that shall not be exceeded by any one activity or combination of activities. In addition, CNELs shall not exceed levels existing on August 26, 1982, where such levels are known. The CNELs set forth in the PASs are based on the land use classification, the presence of transportation corridors, and the applicable threshold.

Chapter 23 also provides guidance on the measurement of noise levels (Section 23.4), noise monitoring (Section 23.5), and performance standards (Section 23.6). The noise limitations established in Chapter 23 of the TRPA Code of Ordinances do not apply to noise from TRPA-approved construction or maintenance projects, or the demolition of structures, provided that such activities are limited to the hours between 8:00 a.m. and 6:30 p.m.

Plan Area Statements

The lowest maximum CNEL included as the noise standard for the applicable PASs is 50 dBA CNEL (in PAS 120, 124, 132, 133, and 134, which cover the residential neighborhoods surrounding Washoe Meadows SP and Lake Valley SRA). The maximum CNEL for the study area is 55 dBA CNEL (PAS 119). The maximum CNEL for the U.S. 50 corridor is 65 dBA CNEL. The maximum CNEL from aircraft flight paths is 60 dBA CNEL in PAS 100.

Environmental Threshold Carrying Capacities

As required by the bi-State compact, TRPA has adopted thresholds for the Lake Tahoe region. The thresholds for noise are numerical CNEL values for various land use categories and transportation corridors, and single-event L_{max} standards for specific sources (motor vehicles, off-road vehicles, boats, snowmobiles, and aircraft). Table 3.12-2 above summarizes the thresholds for single events (L_{max}) and Table 3.12-3 above summarizes the thresholds for community noise events. In addition to these, the thresholds also contain the following policy statement:

> It shall be the policy of the TRPA Governing Board in the development of the Regional Plan to define, locate, and establish CNEL levels for transportation corridors.

El Dorado County

El Dorado County General Plan Noise Element

Although El Dorado County does not have authority over state lands, County policies and standards are important to understand for impact analysis. The Noise Element of the *El Dorado County General Plan* contains the following goals, objectives, policies, and criteria (El Dorado County 2004: Chapter 6):

GOAL 6.5: Acceptable Noise Levels. Ensure that County residents are not subjected to noise beyond acceptable levels.

Objective 6.5.1: Protection of Noise-Sensitive Development. Protect existing noise-sensitive developments (e.g., hospitals, schools, churches and residential) from new uses that would generate noise levels incompatible with those uses and, conversely, discourage noise-sensitive uses from locating near sources of high noise levels.

- **Policy 6.5.1.1:** Where noise-sensitive land uses are proposed in areas exposed to existing or projected exterior noise levels exceeding the levels specified in Table [3.12-4] or the performance standards of Table [3.12-5], an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design.

Table 3.12-4
Maximum Allowable Noise Exposure for Transportation Noise Sources

Land Use	Outdoor Activity Areas[a] L_{dn}/CNEL, dBA	Interior Spaces	
		L_{dn}/CNEL, dBA	L_{eq}, dB[b]
Residential	60[c]	45	–
Transient Lodging	60[c]	45	–
Hospitals, Nursing Homes	60[c]	45	–
Theaters, Auditoriums, Music Halls	–	–	35
Churches, Meeting Halls, Schools	60[c]	–	40
Office Buildings	–	–	45
Libraries, Museums	–	–	45
Playgrounds, Neighborhood Parks	70	–	45

Notes: CNEL = community noise equivalent level; dB = decibels; dBA = A-weighted decibels; L_{dn} = day-night noise level; L_{eq} = equivalent noise level

[a] In Communities and Rural Centers, where the location of outdoor activity areas is not clearly defined, the exterior noise level standard shall be applied to the property line of the receiving land use. For residential uses with front yards facing the identified noise source, an exterior noise level criterion of 65 dB L_{dn} shall be applied at the building façade, in addition to a 60 dB L_{dn} criterion at the outdoor activity area. In Rural Regions, an exterior noise level criterion of 60 dB L_{dn} shall be applied at a 100-foot radius from the residence unless it is within Platted Lands where the underlying land use designation is consistent with the Community Region densities in which case the 65 dB L_{dn} may apply. The 100-foot radius applies to properties which are five acres and larger; the balance will fall under the property line requirement.

[b] As determined for a typical worst-case hour during periods of use.

[c] Where it is not possible to reduce noise in outdoor activity areas to 60 dB L_{dn}/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB L_{dn}/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.

Source: El Dorado County 2004

- **Policy 6.5.1.2:** Where proposed non-residential land uses are likely to produce noise levels exceeding the performance standards of Table [3.12-4] at existing or planned noise-sensitive uses, an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design.

- **Policy 6.5.1.3:** Where noise mitigation measures are required to achieve the standards of Tables [3.12-4 and 3.12-5], the emphasis of such measures shall be placed upon site planning and project design. The use of noise barriers shall be considered a means of achieving the noise standards only after all other practical design-related noise mitigation measures have been integrated into the project and the noise barriers are not incompatible with the surroundings.

Table 3.12-5
Noise Level Performance Protection Standards for Noise-Sensitive Land Uses Affected by Nontransportation* Sources

Noise Level Descriptor	Daytime 7 a.m.–7 p.m.		Evening 7 p.m.–10 p.m.		Night 10 p.m.–7 a.m.	
	Community	Rural	Community	Rural	Community	Rural
Hourly L_{eq}, dBA	55	50	50	45	45	40
Maximum Level, dBA	70	60	60	55	55	50

Notes: dBA = A-weighted decibels; L_{eq} = equivalent noise level

Each of the noise levels specified above shall be lowered by five dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings).

The County can impose noise level standards up to 5 dB less than those specified above based upon determination of existing low ambient noise levels in the vicinity of the project site.

In Community areas the exterior noise level standard shall be applied to the property line of the receiving property. In Rural Areas the exterior noise level standard shall be applied at a point 100 feet away from the residence. The above standards shall be measured only on property containing a noise sensitive land use as defined in Objective 6.5.1. This measurement standard may be amended to provide for measurement at the boundary of a recorded noise easement between all affected property owners and approved by the County.

* For the purposes of the Noise Element, transportation noise sources are defined as traffic on public roadways, railroad line operations, and aircraft in flight. Control of noise from these sources is preempted by Federal and State regulations. Control of noise from facilities of regulated public facilities is preempted by California Public Utilities Commission (CPUC) regulations. All other noise sources are subject to local regulations. Nontransportation noise sources may include industrial operations; outdoor recreation facilities; heating, ventilation, and air conditioning (HVAC) units; schools; hospitals; commercial land uses; other outdoor land use, etc.

Source: El Dorado County 2004

- **Policy 6.5.1.4:** Existing dwellings and new single-family dwellings on legal lots of record, as of the date of adoption of this General Plan, are not subject to County review with respect to satisfaction of the standards of the Public Health, Safety, and Noise Element except in areas governed by the Comprehensive Land Use Plans for applicable airports. (See Objective 6.5.2.) As a consequence, such dwellings may be constructed in other areas where noise levels exceed the standards of the Public Health, Safety, and Noise Element. It is not the responsibility of the County to ensure that such dwellings meet the noise standards of the Public Health, Safety, and Noise Element, or the noise standards imposed by lending agencies such as HUD [U.S. Department of Housing and Urban Development], FHA [Federal Housing Administration], and Cal Vet [California Department of Veterans Affairs]. If homes are located and constructed in accordance with the Public Health, Safety, and Noise Element, it is expected that the resulting exterior and interior noise levels will conform to the HUD/FHA/Cal Vet noise standards.

- **Policy 6.5.1.5:** Setbacks shall be the preferred method of noise abatement for residential projects located along U.S. Highway 50. Noise walls shall be discouraged within the foreground viewshed of U.S. Highway 50 and shall be discouraged in favor of less intrusive noise mitigation (e.g., landscaped berms, setbacks) along other high volume roadways.

- **Policy 6.5.1.6:** New noise-sensitive uses shall not be allowed where the noise level, due to non-transportation noise sources, will exceed the noise level standards of Table [3.12-5] unless effective noise mitigation measures have been incorporated into the development design to achieve those standards.

- **Policy 6.5.1.7:** Noise created by new proposed non-transportation noise sources shall be mitigated so as not to exceed the noise level standards of Table [3.12-5] for noise-sensitive uses.

- **Policy 6.5.1.8:** New development of noise sensitive land uses will not be permitted in areas exposed to existing or projected levels of noise from transportation noise sources which exceed the levels specified in

Table [3.12-4] unless the project design includes effective mitigation measures to reduce exterior noise and noise levels in interior spaces to the levels specified in Table [3.12-5].

- **Policy 6.5.1.9:** Noise created by new transportation noise sources, excluding airport expansion but including roadway improvement projects, shall be mitigated so as not to exceed the levels specified in Table [3.12-4] at existing noise-sensitive land uses.

- **Policy 6.5.1.10:** To provide a comprehensive approach to noise control, the County shall:

  A. Develop and employ procedures to ensure that noise mitigation measures required pursuant to an acoustical analysis are implemented in the project review process and, as may be determined necessary, through the building permit process.

  B. Develop and employ procedures to monitor compliance with the standards of the Noise Element after completion of projects where noise mitigation measures were required.

  C. The zoning ordinance shall be amended to provide that noise standards will be applied to ministerial projects with the exception of single-family residential building permits if not in areas governed by the Airports Comprehensive Land Use Plans (CLUP). (See Objective 6.5.2.)

- **Policy 6.5.1.11:** The standards outlined in Tables [3.12-6, 3.12-7, and 3.12-8] shall apply to those activities associated with actual construction of a project as long as such construction occurs between the hours of 7 a.m. and 7 p.m., Monday through Friday, and 8 a.m. and 5 p.m. on weekends, and on Federally recognized holidays. Exceptions are allowed if it can be shown that construction beyond these times is necessary to alleviate traffic congestion and safety hazards.

Table 3.12-6
Maximum Allowable Noise Exposure for Nontransportation Noise Sources in Community Regions and Adopted Plan Areas—Construction Noise

Land Use Designation[1]	Time Period	Noise Level (dBA)	
		L_{eq}	L_{max}
Higher-Density Residential (MFR, HDR, MDR)	7 a.m.–7 p.m.	55	75
	7 p.m.–10 p.m.	50	65
	10 p.m.–7 a.m.	45	60
Commercial and Public Facilities (C, R&D, PF)	7 a.m.–7 p.m.	70	90
	7 p.m.–7 a.m.	65	75
Industrial (I)	Any Time	80	90

Notes: dBA = A-weighted decibels; L_{eq} = equivalent noise level; L_{max} = maximum noise level

[1] Adopted plan areas should refer to those land use designations that most closely correspond to the similar General Plan land use designations for similar development.

Source: El Dorado County 2004

- **Policy 6.5.1.12:** When determining the significance of impacts and appropriate mitigation for new development projects, the following criteria shall be taken into consideration.

  A. Where existing or projected future traffic noise levels are less than 60 dBA L_{dn} [day-night noise level] at the outdoor activity areas of residential uses, an increase of more than 5 dBA L_{dn} caused by a new transportation noise source will be considered significant;

Table 3.12-7
Maximum Allowable Noise Exposure for Nontransportation Noise Sources in Rural Centers—Construction Noise

Land Use Designation[1]	Time Period	Noise Level (dBA)	
		L_{eq}	L_{max}
Higher-Density Residential (MFR, HDR, MDR)	7 a.m.–7 p.m.	55	75
	7 p.m.–10 p.m.	50	65
	10 p.m.–7 a.m.	40	55
Commercial and Public Facilities (C, R&D, PF)	7 a.m.–7 p.m.	65	75
	7 p.m.–7 a.m.	60	70
Industrial (I)	Any Time	70	80
Open Space (OS)	7 a.m.–7 p.m.	55	75
	7 p.m.–7 a.m.	50	65

Note: dBA = A-weighted decibels; L_{eq} = equivalent noise level; L_{max} = maximum noise level

[1] Adopted plan areas should refer to those land use designations that most closely correspond to the similar General Plan land use designations for similar development.

Source: El Dorado County 2004

Table 3.12-8
Maximum Allowable Noise Exposure for Nontransportation Noise Sources in Rural Regions—Construction Noise

Land Use Designation[1]	Time Period	Noise Level (dBA)	
		L_{eq}	L_{max}
All Residential (LDR)	7 a.m.–7 p.m.	50	60
	7 p.m.–10 p.m.	45	55
	10 p.m.–7 a.m.	40	50
Commercial and Public Facilities (C, R&D, PF)	7 a.m.–7 p.m.	65	75
	7 p.m.–7 a.m.	60	70
Rural Land, Natural Resources, Open Space, and Agricultural Lands (RR, NR, OS, AL)	7 a.m.–7 p.m.	55	75
	7 p.m.–7 a.m.	50	65

Note: dBA = A-weighted decibels; L_{eq} = equivalent noise level; L_{max} = maximum noise level

[1] Adopted plan areas should refer to those land use designations that most closely correspond to the similar General Plan land use designations for similar development.

Source: El Dorado County 2004

B. Where existing or projected future traffic noise levels range between 60 and 65 dBA L_{dn} at the outdoor activity areas of residential uses, an increase of more than 3 dBA L_{dn} caused by a new transportation noise source will be considered significant; and

C. Where existing or projected future traffic noise levels are greater than 65 dBA L_{dn} at the outdoor activity areas of residential uses, an increase of more than 1.5 dBA L_{dn} caused by a new transportation noise will be considered significant.

- **Policy 6.5.1.13:** When determining the significance of impacts and appropriate mitigation to reduce those impacts for new development projects, including ministerial development, the following criteria shall be taken into consideration:

A. In areas in which ambient noise levels are in accordance with the standards in Table [3.12-5], increases in ambient noise levels caused by new non-transportation noise sources that exceed 5 dBA shall be considered significant; and

B. In areas in which ambient noise levels are not in accordance with the standards in Table [3.12-5], increases in ambient noise levels caused by new non-transportation noise sources that exceed 3 dBA shall be considered significant.

- **Policy 6.5.1.14:** The County will adopt a noise ordinance to resolve neighborhood conflicts and to control unnecessary noise in the County. Examples of the types of noise sources that can be controlled through the use of a quantitative noise ordinance include noisy mechanical equipment (e.g., swimming pool pumps, HVAC [heating, ventilation, air conditioning] units), and amplified music in commercial establishments.

- **Policy 6.5.1.15:** The County will establish and maintain coordination among city, county, and state agencies involved in noise abatement and other agencies to reduce noise generated from sources outside the County's jurisdiction.

Objective 6.5.2: Airport Noise Guidelines. The County shall recognize the CLUPs for the Placerville Airport, the Cameron Airpark Airport, the Georgetown Airport, and the City of South Lake Tahoe Airport as the applicable guidelines for development within the 55 dB L_{dn}/CNEL contour of these airports. Where there is a conflict between the County noise standards and the noise standards of the CLUP, the standards of the CLUP shall take precedence.

- **Policy 6.5.2.1:** All projects, including single-family residential, within the 55 dB/CNEL contour of a County airport shall be evaluated against the noise guidelines and policies in the applicable CLUP.

- **Policy 6.5.2.2:** The County shall develop and apply a combining zone district for areas located within the 55 dB/CNEL contour of airports.

- **Policy 6.5.2.3:** All airports which have not developed noise level contours consistent with the El Dorado County General Plan forecast year of 2025 should update the respective Master Plans and CLUP to reflect aircraft operation noise levels in the year 2025.

El Dorado County Noise Ordinance

The following section of Chapter 9.16, "Noise," of the El Dorado County Code (El Dorado County 1988: Chapter 9.16) is applicable to the project.

> **9.16.050 Loud and Raucous Noises—Prohibited.**
>
> Except as otherwise provided in this chapter, it is unlawful for any person to willfully make, emit, or transmit or cause to be made, emitted, or transmitted any loud and raucous noise upon or from any public highway or public thoroughfare or from any aircraft of any kind whatsoever, or from any public or private property to such an extent that it unreasonably interferes with the peace and quiet of another's private property. (Ord. 3189 Section 1(part), 1981: prior code Section 7582)

ACOUSTIC FUNDAMENTALS

Noise is generally defined as sound that is loud, disagreeable, unexpected, or unwanted. Sound, as described in more detail below, is mechanical energy transmitted in the form of a wave because of a disturbance or vibration, and as any pressure variation in air that the human ear can detect.

Sound Characteristics

Frequency, wavelength, and amplitude are characteristics typically used to describe sound. Sound is in the form of a sinusoidal longitudinal wave. Amplitude is defined as the maximum positive displacement from the undisturbed position of the medium to the top of the wave (crest). The amplitude of the wave determines the loudness of the sound. The frequency is determined by the number of wave cycles per second. The frequency is used to describe the pitch of the sound and is the reciprocal of the wave period, which is defined as the duration of one cycle. The wavelength is the distance between two successive crests. An inverse relationship exists between frequency and wavelength; thus, as frequency increases, wavelength shortens and vice versa (Caltrans 1998: N-2131).

Sound and the Human Ear

Because the human ear can detect a wide range of sound pressure fluctuations, sound pressure levels are expressed in logarithmic units called decibels (dB). The sound pressure level in decibels is calculated by taking the log of the ratio between the actual sound pressure and the reference sound pressure squared. The reference sound pressure is considered the absolute hearing threshold (Caltrans 1998: N-2132).

Because the human ear is not equally sensitive to all sound frequencies, a specific frequency-dependent rating scale was devised to relate noise to human sensitivity. An A-weighted decibel scale performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear. The basis for compensation is the faintest sound audible to the average ear at the frequency of maximum sensitivity. This dBA scale has been chosen by most authorities for regulation of the noise environment. Typical indoor and outdoor noise levels are presented in Exhibit 3.12-1.

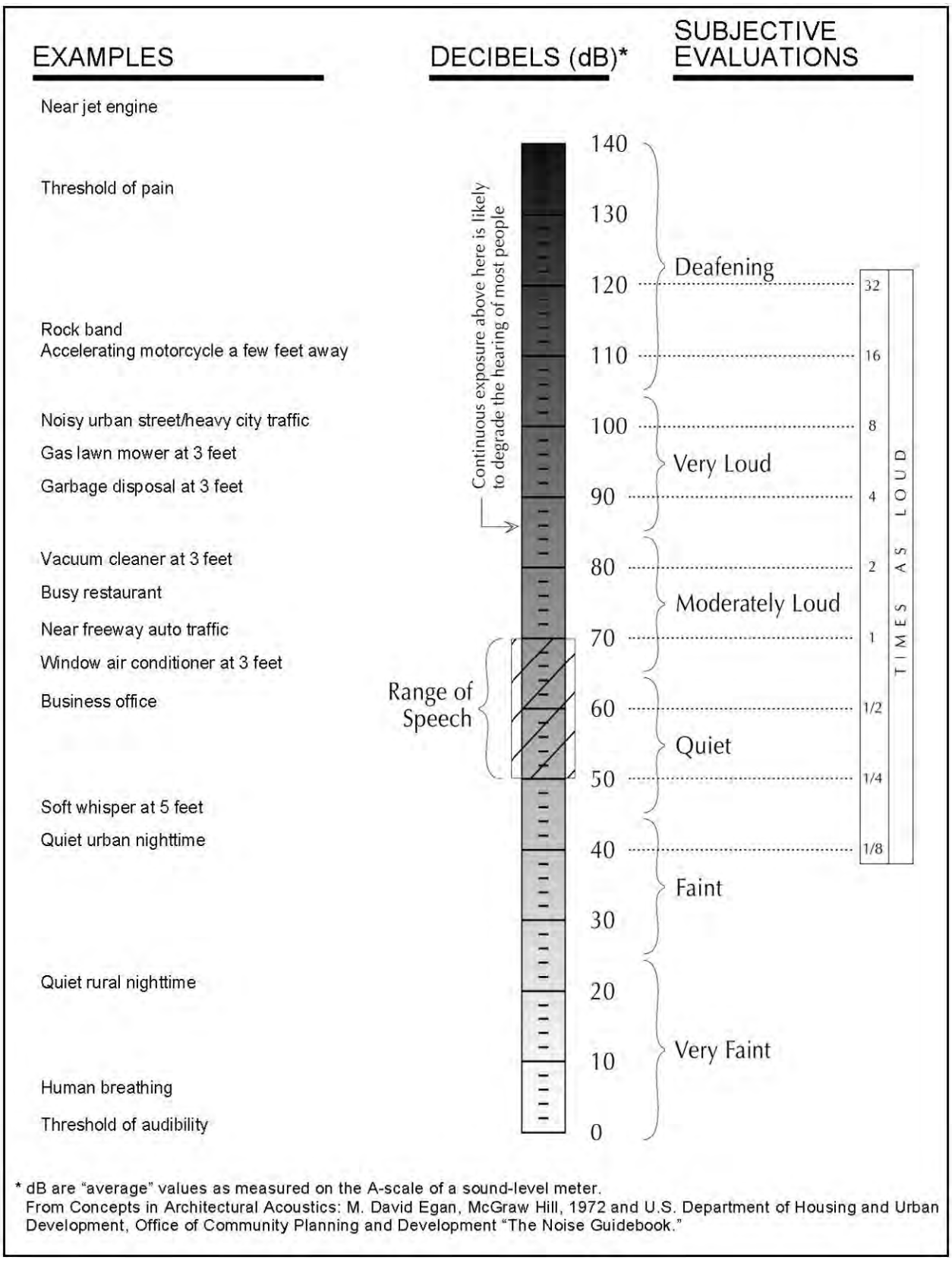
As indicated, typical sounds range from 40 dBA (very quiet) to 100 dBA (very loud). Conversation is roughly 60 dBA at 3–5 feet. As background noise levels exceed 60 dBA, speech becomes increasingly difficult to understand. Noise becomes physically discomforting at 110 dBA.

With respect to how humans perceive and react to changes in noise levels, a 1-dBA increase is imperceptible, a 3-dBA increase is barely perceptible, a 6-dBA increase is clearly noticeable, and a 10-dBA increase is subjectively perceived as approximately twice as loud (CalTrans 1998: N-2211), as presented in Table 3.12-9. Table 3.12-9 was developed on the basis of test subjects' reactions to changes in the levels of steady-state pure tones or broadband noise and to changes in levels of a given noise source. It is probably most applicable to noise levels in the range of 50–70 dBA, as this is the usual range of voice and interior noise levels.

Table 3.12-9
Subjective Reaction to Changes in Noise Levels of Similar Sources

Change in Level, dBA	Subjective Reaction	Factor Change in Acoustical Energy
1	Imperceptible (except for tones)	1.3
3	Just barely perceptible	2.0
6	Clearly noticeable	4.0
10	About twice (or half) as loud	10.0

Note: dBA = A-weighted decibels
Source: CalTrans 1998: N-2211



Source: Data compiled by EDAW (now AECOM) in 2006

Typical Noise Levels **Exhibit 3.12-1**

Sound Propagation and Attenuation

As sound (noise) propagates from the source to the receptor, the attenuation (manner of noise reduction in relation to distance) depends on surface characteristics, atmospheric conditions, and the presence of physical barriers. The inverse-square law describes the attenuation caused by the pattern in which sound travels from the source to the receptor. Sound travels uniformly outward from a point source in a spherical pattern with an attenuation rate of 6 dBA per doubling of distance. However, from a line source (e.g., a road), sound travels uniformly outward in a cylindrical pattern with an attenuation rate of 3 dBA. The surface characteristics between the source and the receptor may result in additional sound absorption and/or reflection. Atmospheric conditions such as wind speed, temperature, and humidity may affect noise levels. Furthermore, the presence of a barrier between the source and the receptor may also attenuate noise levels. The actual amount of attenuation depends on the size of the barrier and the frequency of the noise. A noise barrier may be any natural or human-made feature such as a hill, tree, building, wall, or berm (Caltrans 1998: N-2144).

All buildings provide some exterior-to-interior noise reduction. A building constructed with a wood frame and a stucco or wood sheathing exterior typically provides a minimum exterior-to-interior noise reduction of 25 dBA with its windows closed, whereas a building constructed of a steel or concrete frame, a curtain wall or masonry exterior wall, and fixed plate glass windows of one-quarter-inch thickness typically provides an exterior-to-interior noise reduction of 30–40 dBA with its windows closed (Veneklasen 1973, cited in Caltrans 2002: 7-37).

Noise Descriptors

The proper noise descriptor selected for a specific source depends on the spatial and temporal distribution, duration, and fluctuation of the noise. The noise descriptors most often encountered when dealing with traffic, community, and environmental noise are defined below (FTA 2006: 2-21).

- **L_{max} (maximum noise level):** The maximum instantaneous noise level during a specific period of time. The L_{max} may also be referred to as the "peak (noise) level."

- **L_{min} (minimum noise level):** The minimum instantaneous noise level during a specific period of time.

- **L_X (statistical descriptor):** The noise level exceeded X percent of a specific period of time.

- **L_{eq} (equivalent noise level):** The energy mean (average) noise level. The instantaneous noise levels during a specific period of time in dBA are converted to relative energy values. From the sum of the relative energy values, an average energy value is calculated, which is then converted back to dBA to determine the L_{eq}. In noise environments determined by major noise events, such as aircraft overflights, the L_{eq} value is heavily influenced by the magnitude and number of single events that produce the high noise levels.

- **L_{dn} (day-night noise level):** The 24-hour L_{eq} with a 10-dBA "penalty" for noise events that occur during the noise-sensitive hours between 10 p.m. and 7 a.m. In other words, 10 dBA is "added" to noise events that occur in the nighttime hours, and this generates a higher reported noise level when determining compliance with noise standards. The L_{dn} attempts to account for the fact that noise during this specific period of time is a potential source of disturbance with respect to normal sleeping hours.

- **CNEL (community noise equivalent level):** A noise level similar to the L_{dn} described above, but with an additional 5-dBA "penalty" added to noise events that occur during the noise-sensitive hours between 7 p.m. and 10 p.m., which are typically reserved for relaxation, conversation, reading, and television. When the same 24-hour noise data are used, the reported CNEL is typically approximately 0.5 dBA higher than the L_{dn}.

- **SENL (single-event [impulsive] noise level):** A receiver's cumulative noise exposure from a single impulsive noise event, which is defined as an acoustical event that is of short duration and involves a change

in sound pressure above some reference value. SENLs typically represent the noise events used to calculate the L_{eq}, L_{dn}, and CNEL.

Negative Effects of Noise on Humans

Negative effects of noise exposure include physical damage to the human auditory system, interference, and disease. Exposure to noise may result in physical damage to the auditory system, which may lead to gradual or traumatic hearing loss. Gradual hearing loss is caused by sustained exposure to moderately high noise levels over a period of time; traumatic hearing loss is caused by sudden exposure to extremely high noise levels over a short period. Gradual and traumatic hearing loss both may result in permanent hearing damage. In addition, noise may interfere with or interrupt sleep, relaxation, recreation, and communication. Although most interference may be classified as annoying, the inability to hear a warning signal may be considered dangerous. Noise may also be a contributor to diseases associated with stress, such as hypertension, anxiety, and heart disease. The degree to which noise contributes to such diseases depends on the frequency, bandwidth, and level of the noise, and the exposure time (Caltrans 1998: N-2200).

ENVIRONMENTAL SETTING

The study area consists of sections of Washoe Meadows SP and Lake Valley SRA. Washoe Meadows SP consists of a natural area with casual or volunteer trails and unpaved service access roads. Lake Valley SRA is made up of the Lake Tahoe Golf Course and its structures, parking lots, and roadways.

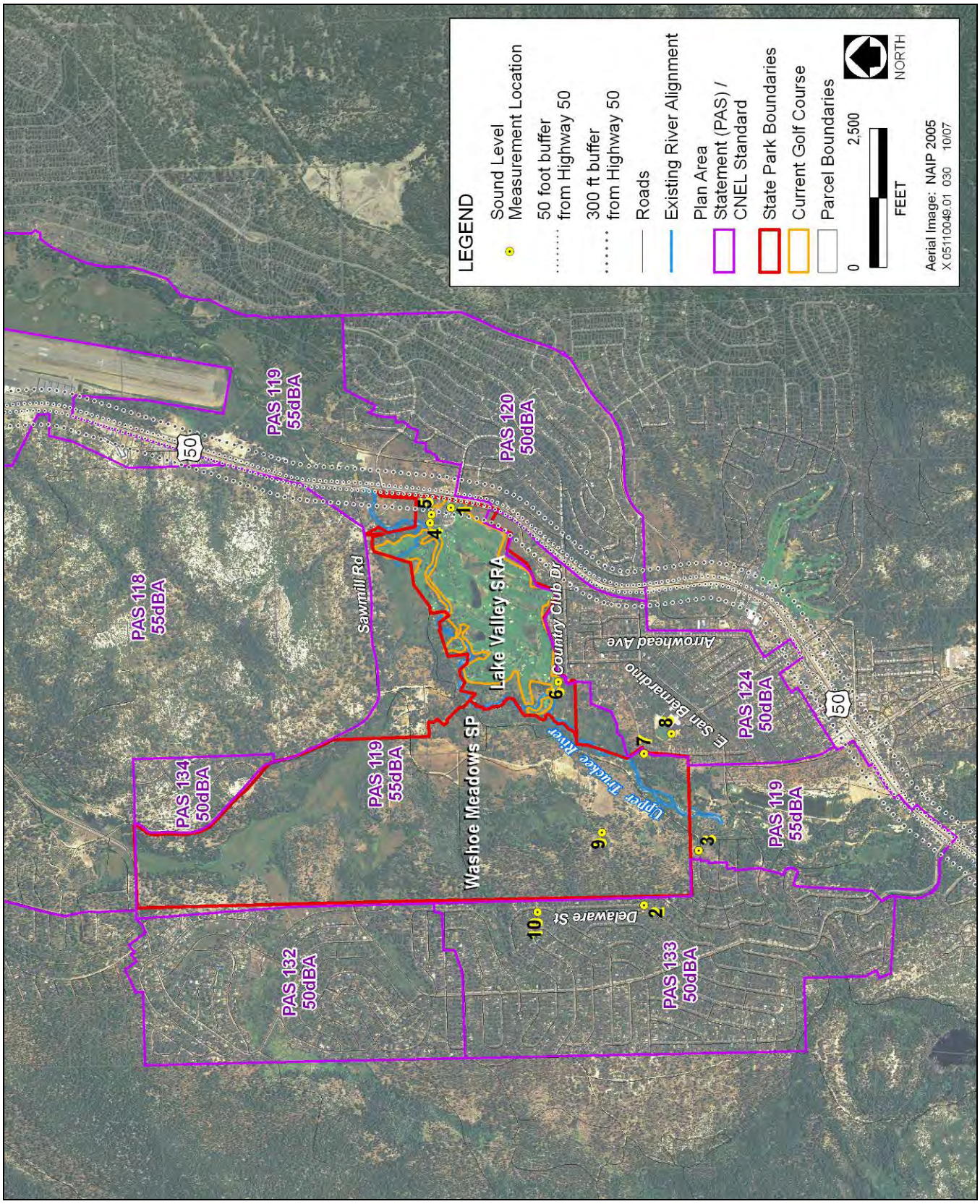
Existing Ambient Noise Survey

Ambient-noise measurements were conducted by EDAW (now AECOM) on October 12, 2006 and November 15, 2008, to document the existing noise environment at various locations within the study area. Refer to Exhibit 3.12-2 for locations of noise level measurements. Short-term noise-level measurements were taken in accordance with the American National Standards Institute's acoustic standards at four locations using a Larson Davis model 820 sound-level meter. The short-term L_{eq}, and L_{max} values for each ambient-noise-measurement location are presented in Table 3.12-10 along with a description of the major noise sources present. Based on the measurements conducted, average daytime noise levels within the study area range in the mid-40s.

As stated above, one of the noise sources within the study area is vehicle traffic on area roadways. Existing traffic noise levels were modeled for U.S. 50 using the Federal Highway Administration's (FHWA) Traffic Noise Prediction Model (FHWA-RD-77-108), based on data obtained from the California Department of Transportation (Caltrans). Additional input data included day/evening/night percentages and auto/medium/heavy truck percentages, vehicle speeds, ground attenuation factors, and roadway widths. Table 3.12-11 presents the modeled CNEL noise levels at 50 feet from the edge of the roadway and the distance from the roadway edge to the 55-, 60-, 65-, and 70-dBA CNEL contours for existing average-daily-traffic (ADT) volumes. Actual noise levels vary from day to day, depending on factors such as local traffic volumes, shielding from existing structures, variations in attenuation rates attributable to changes in surface parameters, and meteorological conditions.

Study Area Noise Environment

The study area is surrounded by the community of Meyers, residential neighborhoods in the vicinity of North Upper Truckee Road, other land within Washoe Meadows SP, and the Sawmill Road area. Generally, low-density residential land uses abut the study area on two sides (west and south).



Source: Data provided by EDAW (now AECOM) in 2006

Locations of Sound Level Measurements and Locations of Receptors **Exhibit 3.12-2**

Table 3.12-10
Summary of Ambient Noise Measurements

Measurement	Location[a]	Time	A-Weighted Sound Level (dBA)		
			L_{eq}	L_{max}	Sources
1[b]	Clubhouse Parking Lot	1:13–1:28 p.m.	60.2	67.4	U.S. 50, golfers, parking lot noise
2[b]	Delaware Street, Western Edge	2:01–2:16 p.m.	43.6	64.3	Vehicles, birds, neighborhood noise[c], aircraft
3[b]	Trail Extended from Chilicothe Street	2:26–2:41 p.m.	37.4	49.5	Neighborhood noise[c], birds, vehicles, aircraft
4[b]	Single-Event Test of Lawn Mower	1:41–1:43 p.m.	73.8	80.4	lawn mower
5[b]	Single-Event Test of Lawn Mower	1:44–1:46 p.m.	74.0	82.7	lawn mower
6[d]	Hole 6 Tee box, Country Club Drive	8:45-9:00 a.m.	46.3	61.9	U.S. 50, neighborhood noise[c], vehicles
7[d]	Bakersfield Street Curve	9:15-9:30 a.m.	41.3	59.7	U.S. 50, neighborhood noise[c], vehicles, birds
8[d]	Meyers Elementary Playground	9:35-9:50 a.m.	38.5	53.0	Vehicles, car honk, school HVAC system
9[d]	Central Study Area, west of river	1:10-1:25 p.m.	36.6	54.2	U.S. 50, aircraft, birds
10[d]	Intersection of Seneca Drive and Kiowa Street	1:35-1:50 p.m.	44.7	51.8	Vehicles, aircraft, birds, neighborhood noise[c]

Notes: dBA = A-weighted decibels; L_{eq} = equivalent noise level; L_{max} = maximum noise level; L_{min} = minimum noise level; U.S. 50 = U.S. Highway 50; HVAC = heating ventilation air conditioning

a Ambient noise level measurement locations are shown in Exhibit 3.12-2.

b Measurement conducted on October 12, 2006

c Neighborhood noise refers to typical residential noises such as home and yard maintenance, doors closing, kids playing, music, dogs barking, and people talking.

d Measurement conducted on November 15, 2008

Source: Data monitored by EDAW (now AECOM) on October 12, 2006 and November 15, 2008

Table 3.12-11
Existing Traffic Noise Levels[1]

Roadway Segment	Distance (feet) from Roadway Edge to CNEL/ L_{dn} (dBA)				CNEL/ L_{dn} (dBA) 50 Feet from Roadway Edge
	70 CNEL	65 CNEL	60 CNEL	55 CNEL	
U.S. 50, Sawmill Road to Pioneer Trail	39	84	181	390	66.4
U.S. 50, Pioneer Trail to SR 89	39	84	180	388	65.6

Notes: CNEL = community noise equivalent level; dBA = A-weighted decibels; L_{dn} = day-night noise level; SR = State Route; U.S. 50 = U.S. Highway 50

1 Traffic noise levels were modeled using the Federal Highway Administration's Traffic Noise Prediction Model based on data obtained from the traffic analysis prepared for this project (see Section 3.10, "Transportation and Circulation"). Modeling assumes no natural or human-made shielding (e.g., vegetation, berms, walls, buildings). Refer to Appendix J for traffic noise modeling results.

Source: Modeling performed by EDAW (now AECOM) in 2008

The existing noise environment within the study area on the west side of the Upper Truckee River is influenced by service and maintenance crews, recreationists, and natural sources, such as birds, rustling leaves, and wind. Maintenance crews working on public utilities and forest fuels reduction programs are also present periodically throughout the summer season. Work crews would typically include small pieces of heavy equipment and other power tools, such as chainsaws and chippers. Fuels reduction programs may include thinning, pruning, prescribed burning, and chipping. Utility work would include routine line maintenance and repair. Other sources include transportation noise emanating from vehicular traffic on nearby roadways (U.S. 50), aircraft flyovers, snowmobiles in winter, and maintenance equipment from STPUD and Washoe Meadows SP.

The existing noise environment within the study area on the east side of the Upper Truckee River is influenced by activities at the Lake Tahoe Golf Course. This includes golfers and intermittent noise from other outdoor activities (e.g., people talking, golf carts, dogs barking, golfers at the driving range, golf course tee announcements, snowmobiles, lawn mowers, maintenance equipment, and car doors). Noise levels resulting from the Lake Tahoe Golf Course lawn mowers were measured at 74 dBA L_{eq} at 6 feet (See Table 3.12-10). Lawn mowers would have the highest noise levels of equipment used on the golf course.

Surrounding Area Noise Environment and Noise-Sensitive Receptors

Noise-sensitive land uses generally include those uses where exposure to excessive noise would result in adverse effects, as well as uses where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Residential streets located adjacent to the study area (within 500 feet) are on Bakersfield Street, East San Bernardino Avenue, Country Club Drive, and San Diego Street to the east, and West San Bernardino Avenue, Cholula Street, Chilicothe Street, Mushogee Street, Ulmeca Street, Normuk Street, Delaware Street, Kiowa Street, and Seneca Street to the west. The majority of the residences in these two areas consist of single-family homes on ¼-acre to 1-acre lots, including decks, backyards, driveways, and garages. Noise in these areas was characterized by Measurements 2, 6, 7, and 10 in Table 3.12-10 above. Noise levels in these areas were measured at approximately 41–46 dBA L_{eq} with the predominant noise sources being typical neighborhood noise (e.g. dogs barking, doors closing, yard and home maintenance, people talking), and vehicle traffic from U.S.50 and nearby residential streets. Other types of noise-sensitive land uses include schools, hospitals, convalescent facilities, parks, hotels, offices, places of worship, libraries, and other uses where low interior noise levels are essential. Noise-sensitive receptors in the project vicinity consist of dispersed outdoor recreationists in Washoe Meadows SP (surrounding and including the study area), and the Lake Tahoe Environmental Science Magnet School (approximately 1,200 feet east). Noise levels within the Washoe Meadows SP were measured by Measurements 3 and 9 with recorded levels of 37.4 and 36.6 dBA L_{eq}, respectively. Noise levels at Lake Tahoe Environmental Science Magnet School were measured by Measurement 8 with a recorded level of 38.5 L_{eq}. Because there were no school activities occurring at the time of the measurement, it would be expected that during outdoor school activities (e.g., recess or sporting events) noise levels would be much higher. The nearest sensitive receptors (private homes) to the study area west of the Upper Truckee River are on Chilicothe Street, approximately 200 feet from the edge of the proposed golf course relocation area and 100 feet from proposed utility connections (electrical, water, sewer, for the proposed restroom facility). Sensitive receptors east of the Upper Truckee River are on Bakersfield Street, approximately 600 feet from the study area and on Country Club Drive approximately 70-100 feet from existing and proposed golf holes.

3.12.2 ENVIRONMENTAL CONSEQUENCES

SIGNIFICANCE CRITERIA

For this analysis, significance criteria are based on the checklist presented in Appendix G of the State CEQA Guidelines; the TRPA Initial Environmental Checklist; factual information; scientific data; and regulatory standards of Federal and State agencies and El Dorado County. Federal law defers to State and local regulations for the purposes of assessing noise impacts. TRPA has not set any criteria for vibration, so the State standards are

applied in absence of a local standard. In development of mitigation measures for significant impacts of the project, effects on environmental thresholds of the Compact were considered. The project's effects on thresholds are further described in Chapter 4, Section 4.6, "Consequences for Environmental Threshold Carrying Capacities."

CEQA Criteria

A noise impact is considered significant if implementation of the proposed project would result in any of the following:

- short-term construction-generated noise levels that exceed the relevant El Dorado County standards (Tables 3.12-5, 3.12-6, 3.12-7, and 3.12-8) or a substantial increase (greater than 3 dBA) in ambient noise at nearby existing noise-sensitive receptors during the more sensitive early morning, evening, and nighttime hours of the day (i.e., outside the hours considered exempt by the Noise Element of the *El Dorado County General Plan*—7 a.m. and 7 p.m., Monday through Friday, and 8 a.m. and 5 p.m. on weekends, and on Federally recognized holidays);

- long-term (operational) stationary- or area-source noise levels that exceed applicable noise standards (Table 3.12-3) or a substantial increase (greater than 3 dBA) in ambient noise at nearby existing noise-sensitive receptors;

- short- or long-term (operational) traffic-generated noise levels that exceed the relevant El Dorado County noise standards for transportation noise sources (Table 3.12-4) or a substantial increase (greater than 3 dBA) in ambient noise levels at nearby existing noise-sensitive receptors;

- increases in existing CNELs beyond those permitted in the applicable PAS, community plan, or master plan; or

- exposure of persons to or generation of excessive groundborne vibration or noise levels that exceed Caltrans's recommended standard with respect to the prevention of structural building damage (0.2 in/sec PPV and 0.08 in/sec PPV, respectively, for normal and historical buildings) or FTA's maximum-acceptable vibration standard with respect to human response (80 VdB for residential structures) at nearby existing or proposed vibration-sensitive land uses (e.g., residences).

NEPA Criteria

An environmental document prepared to comply with NEPA must consider the context and intensity of the environmental effects that would be caused by or result from the proposed action. Under NEPA, the significance of an effect is used solely to determine whether an EIS must be prepared. The factors that are taken into account under NEPA to determine the significance of an action in terms of the context and the intensity of its effects are encompassed by the CEQA criteria used for this analysis.

TRPA Criteria

Based on TRPA's Initial Environmental Checklist, an alternative would result in a significant impact on noise if it would result in any of the following:

- increases in existing CNELs beyond those permitted in the applicable PAS, community plan, or master plan;

- the exposure of people to severe noise levels; or

- single-event noise levels greater than those set forth in the TRPA Noise Environmental Threshold (Table 3.12-2).

METHODS AND ASSUMPTIONS

To assess potential noise impacts from construction, stationary sources, and area sources, noise-sensitive receptors and their relative exposure levels were identified. Noise and vibration levels of specific equipment anticipated to be used in project construction or operation were determined, and resultant noise levels at sensitive receptors were modeled assuming documented noise (vibration) attenuation rates.

The FHWA Traffic Noise Prediction Model was used to model traffic noise levels along affected roadways, based on daily volumes and the distribution thereof from the traffic analysis prepared for this project (which is described in Section 3.10, "Transportation, Parking, and Circulation"). The project's contribution to the existing traffic-source noise levels along area roadways was determined by comparing the modeled noise levels at 50 feet from the roadway edge under existing no-project and existing plus-project conditions. The project's land use compatibility with future (2030) traffic-source noise levels was determined by comparing modeled noise levels at noise-sensitive receptors under plus-project conditions.

The standards of significance applied in this analysis address the exterior noise standards established by El Dorado County. Unless otherwise stated, standards for interior noise levels would not be exceeded if exterior noise-level standards are achieved, because standard construction of buildings would provide sufficient exterior-to-interior noise reduction.

IMPACTS FOUND TO BE LESS THAN SIGNIFICANT AND NOT DISCUSSED FURTHER

Exceedance of Single-Event Noise Level Thresholds – No alternative would result in increasing or creating single-event noise level sources (aircraft, watercraft, motor vehicles, motorcycles, off-road vehicles, and over-snow vehicles) regulated by TRPA (Table 3.12-2). Haul trucks related to construction under all action alternatives would not exceed single-event noise standards (see Table 3.12-12); and they would operate only during exempted hours (see Chapter 2, "Project Alternatives") and therefore would not violate single-event noise standards when applicable. None of the alternatives would create significant single-event noise impacts.

IMPACT ANALYSIS AND MITIGATION MEASURES

Alternative 1: No Project/No Action: Existing River and 18-Hole Regulation Golf Course

IMPACT 3.12-1 (Alt. 1) Short-Term Project Construction Noise Levels Exceeding Applicable Standards. *Short-term construction activities would not occur under Alternative 1. No impact would occur.*

Under Alternative 1, standards for construction noise would not be exceeded because no short-term construction activities would occur. On-site construction equipment would continue to operate as it does today (i.e., fuels management) thus, noise levels would remain comparable to the current conditions. Potential emergency construction may be conducted, as necessary, but this potential for emergencies would be the same as current conditions. The nature and extent of these unforeseeable activities are unknown and would not be a direct result of implementing Alternative 1. No impact would occur.

No mitigation is required.

IMPACT 3.12-2 (Alt. 1) Long-Term Project-Related Generation of Stationary- and Area-Source Noise. *Alternative 1 would not include any new long-term stationary and area noise sources and, thus, would not generate additional noise from such sources. No impact would occur.*

Alternative 1 would not include any new long-term stationary and area-noise sources. Use of the study area (e.g., golf course and passive recreation areas) would remain comparable to existing use. Heavy equipment and

power tools (e.g., chainsaws, wood chippers) would continue to be used for public utility maintenance and fuels reduction programs. Lawn mowing, golfing activities, recreation, and other miscellaneous activities would continue as they do today and would generate noise levels consistent with those presented above. Thus, ambient noise and noise from pedestrian activity would not change and would remain comparable to existing levels. No impact would occur.

No mitigation is required.

IMPACT 3.12-3 (Alt. 1) Long-Term Generation of Project-Related Traffic Noise. *There would be no long-term change in traffic caused by activities in the study area; therefore, Alternative 1 would not increase ambient noise levels on nearby local roadways or highways. No impact would occur.*

Implementing Alternative 1 would not result in a long-term change in traffic caused by activities in the study area. No increase in patronage, employees, parking, or trip generation would be created under Alternative 1. Traffic noise would, therefore, be consistent with the modeling conducted for existing traffic on U.S. 50. As a result, implementing this alternative would not change ambient noise levels on nearby local roadways or highways. No impact would occur.

No mitigation is required.

IMPACT 3.12-4 (Alt. 1) Land Use Compatibility of Study Area Noise Levels and Surrounding Land Uses. *Noise from surrounding land uses would not cause applicable standards to be exceeded within the study area, and no new noise sources would be created that would increase noise levels at surrounding land uses. No impact would occur.*

Implementing Alternative 1 would not result in a long-term change in ambient noise levels in and around the study area. No increase in patronage, recreation activities, employees, parking, or trip generation would be created under Alternative 1. In addition, no new sources would be introduced to the study area under this alternative, so noise levels at surrounding land uses would not increase. Traffic noise would be consistent with the modeling conducted for existing traffic on U.S. 50. Implementing this alternative would not change ambient noise levels from area, stationary, or mobile sources and therefore no change or project-related land-use compatibility conflicts would occur. There would be no impact.

No mitigation is required.

IMPACT 3.12-5 (Alt. 1) Short- and Long-Term Increases in Groundborne Vibration Levels. *Alternative 1 would not generate groundborne vibration, so human activities, including sleep, would not be disrupted, and structures would not be damaged. No impact would occur.*

Under Alternative 1, no construction or any other sources of vibration would occur. In addition, no existing vibration sources exist. As a result, this alternative would not generate groundborne vibration, so human activity would not be disrupted and structures would not be damaged. No impact would occur.

No mitigation is required.

Alternative 2: River Ecosystem Restoration with Reconfigured 18-Hole Regulation Golf Course

IMPACT 3.12-1 (Alt. 2) **Short-Term Project Construction Noise Levels Exceeding Applicable Standards.** *Noise-generating construction activities related to implementation of Alternative 2 would be limited to the hours during which construction noise is exempt from the provisions of the applicable standards, would not exceed the applicable standards during nonexempt hours, and would not increase traffic noise by a substantial amount (+3 dB or more). Therefore, this impact would be* ***less than significant****.*

The construction activities required for Alternative 2 include tree removal, excavating, grading, removing and replacing vegetation (including sod), clearing, bridge removal and installation, pile driving, utility connections, finishing, cleaning up the construction site, building construction, transporting materials, winterizing the site, and paving cart paths and additional parking areas.

The specific construction equipment required for the above-mentioned activities is included in Table 2-4 of Chapter 2, "Project Alternatives." According to FTA and FHWA, and as shown in Table 3.12-12, maximum noise levels for these types of equipment can range from 77 to 101 dBA L_{max} at 50 feet when used without feasible noise control. For all but 1 week of the construction schedule the equipment-generated maximum combined noise levels would be approximately 85 dBA L_{eq} at 50 feet (FTA 2006:12-6, 12-7). Based on a noise level of 85 dBA L_{eq}, a typical noise-attenuation rate of 6 dBA/DD, and no intervening shielding or topographic interference, exterior noise levels at noise-sensitive receptors located within 1,700 feet could experience noise levels that would exceed the minimum local PAS standard: 50 dBA CNEL.

Table 3.12-12
Typical Equipment Noise Levels

Type of Equipment	Noise Level (dBA) at 50 feet	
	Manufacturer's Specifications (L_{max})	Actual (L_{max})
Backhoe	80	77.6
Grader	85	NA
Dozer	85	81.7
Backhoe	80	77.6
Pickup truck	55	75
Dump truck	84	76.5
Excavator	85	80.7
Pumps	77	80.9
Trenching machine	82	80.4
Impact pile driver	95	101.3
Paver	85	77.2

Notes: dBA = A-weighted decibels; L_{max} = maximum noise level; NA = not available.
Sources: FTA 2006:Table 12-1, FHWA 2006

Pile driving would occur for approximately 1 week in the first year of construction to install bridge footings (Table 2-4). Additional pile driving would occur for short periods of time during sewer line rerouting and stabilization. Noise levels associated with pile driving and other ongoing activities would result in a maximum combined noise level of approximately 95 dBA L_{eq} at 50 feet (FTA 2006:12-6, 7). Based on a noise level of 95 dBA L_{eq}, a typical noise-attenuation rate of 6 dBA/DD, and no intervening shielding or topographic interference,

exterior noise levels at noise-sensitive receptors located within 1 mile could exceed the minimum local PAS standard: 50 dBA CNEL and within 800 feet could exceed El Dorado County L_{max} standards. See Appendix J for construction-generated noise modeling calculations.

In addition, project construction under Alternative 2 would result in a short-term increase in traffic on the local roadway network. It is expected that up to 21 daily haul truck round trips would occur during the periods of maximum construction activity. Construction-related traffic would be distributed over the roadway network identified in Section 3.10, "Transportation, Parking, and Circulation" (e.g., access points include Sawmill Road, Lake Tahoe Golf Course driveway, Country Club Drive, and Chilicothe Street). A maximum of 21 daily haul-truck round trips would traverse the haul routes designated in Section 3.10. Typically, traffic must double to create an increase in perceptible traffic noise (+3 dB or more) (Caltrans 1998:N-96). Because all affected roadways, except Chilicothe Street, have a peak-month minimum of at least 100 ADT, an increase of 21 trips would not double the current traffic level and consequently would not result in a substantial increase in average daily traffic noise. Seven daily haul trips are expected on Chilicothe Street; these trips would not represent a substantial increase in traffic or associated traffic noise levels. Single event noise from truck pass-bys would not exceed the TRPA standard of 82 dBA at 50 feet or the El Dorado County standard of 75 dBA at 60 feet (see Tables 3.12-2, 3.12-7, and 3.12-12). Therefore, construction-related traffic on affected segments would not increase traffic noise levels.

Noise from construction activity that occurs between 8 a.m. and 6:30 p.m. each day is exempt from the provisions of the applicable TRPA regulations. Noise from construction activity that occurs between 7 a.m. and 7 p.m. on weekdays (or between 8 a.m. and 5 p.m. on weekends and Federal holidays) is exempt from the provisions of the applicable El Dorado County regulations. In addition, construction activities would be temporary, and as described in Chapter 2, "Project Alternatives," noise-generating construction activities would not occur during the more noise-sensitive hours (i.e., before 8 a.m. and after 6:30 p.m. on weekdays or after 5 p.m. on weekends or Federal holidays). Additionally, project-generated construction traffic would not create a substantial increase in average local traffic noise levels. Because noise from project construction sources would be exempt, would not exceed the applicable standards during nonexempt hours, and would not increase traffic noise by a substantial amount (+3 dB or more), this impact would be less than significant.

No mitigation is required.

IMPACT 3.12-2 (Alt. 2) Long-Term Project-Related Generation of Stationary- and Area-Source Noise. *Alternative 2 would not include any new long-term project-generated stationary- or area-source noise. Existing noise sources related to golf course users and golf course maintenance would be relocated to the west side of the Upper Truckee River. While golf course related-activity would be closer to residential uses in the vicinity of North Upper Truckee Road, noise from relocated golf course sources would not exceed applicable standards for any residential areas in the project vicinity. This impact would be* ***less than significant****.*

Under Alternative 2, the restoration features along the Upper Truckee River would not create new stationary- or area-source noise. Heavy equipment and power tools (e.g. chainsaws, wood chippers) would continue to be used as they are today for public utility maintenance and fuels reduction programs.

In addition to river restoration features, Alternative 2 includes the relocation of 7 complete and 2 partial golf holes to the west side of the Upper Truckee River. Noise sources associated with the relocated holes would be from lawn mowers, golf carts, people talking, and other noises associated with playing golf (e.g. golf ball strikes). Noise emanating from lawn mowers would be the loudest source; during noise monitoring on the existing golf course, lawn mower noise was measured at 74.0 dBA L_{eq} at 6 feet (Table 3.12-10). The maximum duration that lawn mowers would operate at the proposed hole (hole 10) nearest to sensitive receptors (Chilicothe Street residences) would be approximately 2 hours per day (Stanowski, pers. comm., 2009). Based on a noise level of 74 dBA L_{eq}, a typical noise-attenuation rate of 6 dBA/DD, and no intervening shielding or topographic interference, noise levels from the lawn mowers would be less than 50 dBA L_{eq} (the most stringent applicable standard for

residential areas) at 90 feet, no lawn mowing operations would occur within 90 feet of sensitive receptors, and all other noise sources associated with the relocated golf holes would be quieter than lawn mowers; no violation of noise standards for residential areas would occur under Alternative 2.

In regards to PAS standards, the noise survey conducted for this project measured existing noise levels in the meadow at 36.6 dBA L_{eq} near Seneca Drive (Table 3.12-10). This equates to 43.3 dBA CNEL. The addition of noise from lawn mowers for 2 hours per day increases this noise level to 44.4 dBA CNEL, a 1.1-dBA-CNEL increase from existing conditions. Noise from people talking, golf carts, and other golfing-related activities would be lower in magnitude than noise from lawn mowers but would occur throughout daytime hours during the seasonal periods of operation of the golf course (approximately April 15 to November 1 from dawn until dusk). As stated in the acoustical fundamentals section, typical conversation of a human being is approximately 60 dBA L_{eq} at 3 feet. Assuming four people in a golf group and, during peak season, a continuous stream of golfers playing on a weekend day, noise levels, including lawn mowing and nongolfing hours, worst-case noise levels would be approximately 44.6 dBA CNEL, an increase of approximately 1.3 dBA CNEL above baseline conditions. See Appendix J for detailed area-source noise modeling calculations. This level, which would include the golf course-related noise in the golf hole relocation area of Washoe Meadows SP, would be well below the most stringent noise standards for land uses in the vicinity, i.e., 50 dBA CNEL. The addition of the golf course-related noise west of the river would not result in significant noise impacts.

Noise measurements taken on the east side of the river measured noise levels between 38.5 and 46.3 dBA L_{eq} (see Table 3.12-10). Golfing activities and associated noise currently occur on the east side of the golf course and would remain the same for residences along Bakersfield Street and Country Club Drive and would be reduced for residences along Sawmill Road. Therefore, noise levels would remain the same as or less than under baseline conditions. The addition of the golf course-related noise east of the river would not result in significant noise impacts.

Because noise would not increase by a substantial amount (i.e., +3 dBA) at any nearby sensitive receptors or exceed any applicable standards (i.e., 50 dBA L_{eq} El Dorado County Open Space standard and 50 dBA CNEL PAS standard), implementation of Alternative 2 would not violate applicable significance criteria for the surrounding noise-sensitive receptors and study area. Therefore, this impact would be less than significant.

No mitigation is required.

IMPACT 3.12-3 (Alt. 2) Long-Term Generation of Project-Related Traffic Noise. *Long-term project-generated traffic would not result in a perceptible increase in ambient noise levels on nearby local roadways or highways, because traffic generating uses and access to the golf course would not change substantially. This impact would be less than significant.*

Operation of Alternative 2 would not result in an increase in local traffic. After project completion, the study area would return to use as a golf course and passive recreation area, similar to its existing condition. No increase in patrons is expected, employee levels would increase by four employees, and although paved parking would increase by 89 spaces, this area is already being used to park vehicles, so no parking capacity beyond existing conditions would be created. Therefore, no substantial increase in vehicle traffic would occur, and traffic noise levels would be approximately the same as under existing conditions. This impact would be less than significant.

No mitigation is required.

IMPACT 3.12-4 (Alt. 2) **Land Use Compatibility of Study Area Noise Levels and Surrounding Land Uses.** *Noise from surrounding land uses would not cause applicable standards to be exceeded within the study area, and no new noise sources would be created by the project that would increase noise levels at surrounding land uses. This impact would be* ***less than significant****.*

After project completion, the study area would include a golf course and passive recreation area, similar to its existing condition, although the location of golfing activity would change. No major sound sources would be created by the project under Alternative 2. The relocated golf holes would increase noise levels on the west side of the Upper Truckee River. However, as stated above in the discussion of Impact 3.12-2 (Alt. 2), noise from the relocated golf activities and maintenance would not violate noise standards at the nearest sensitive receptors (including residences and recreationists). Based on noise measurements taken in the project vicinity, noise levels are in compliance with the applicable standards: 50 dBA CNEL for residential neighborhoods surrounding the study area and 55 dBA CNEL within the study area as well as the 50 dBA L_{eq} El Dorado County standard for Open Spaces (Tables 3.12-7 and 3.12-10). Additionally, no increase in traffic is expected to occur. Therefore, traffic noise levels would remain similar to current levels.

After completion of construction, noise levels would return to their preproject levels. Because no applicable standards would be exceeded within the study area or at nearby sensitive receptors as a result of implementing Alternative 2, no increases in existing CNELs beyond those permitted in the applicable PAS would occur. This impact would be less than significant.

No mitigation is required.

IMPACT 3.12-5 (Alt. 2) **Short- and Long-Term Increases in Groundborne Vibration Levels.** *Project-generated groundborne vibration would not cause disruption to humans or damage to structures. This impact would be* ***less than significant****.*

Long-term project operation under Alternative 2 would not include any major sources of vibration. However, construction activities could result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and activities involved. Vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. Table 3.12-13 displays vibration levels for typical construction equipment.

As discussed above, on-site construction equipment would include graders, dozers, excavators, haul trucks, water trucks, and pile drivers (pile driving would occur at the center of the site and for 1 week). According to FTA, vibration levels associated with the use of bulldozers range from approximately 0.003 to 0.089 in/sec PPV and from 58 to 87 vibration decibels (VdB referenced to 1 μin/sec and based on the RMS velocity amplitude) at 25 feet, as shown in Table 3.12-13. Using FTA's recommended procedure for applying a propagation adjustment to these reference levels, vibration levels would exceed recommended thresholds (0.2 PPV, 80 VdB) within 45 feet of bulldozers and 40 feet of trucks. The residences nearest to these activities are approximately 70 feet away on Country Club Drive and 100 feet away on Chilicothe Street. Because sensitive receptors are not within 45 feet, vibration levels would not exceed Caltrans's recommended standard of 0.2 in/sec PPV (Caltrans 2002:11) with respect to the prevention of structural damage for normal buildings or FTA's maximum-acceptable vibration standard of 80 VdB (FTA 2006) with respect to human annoyance for residential uses.

Table 3.12-13
Typical Construction-Equipment Vibration Levels

Equipment		PPV at 25 feet (in/sec)[1]	Approximate L_v at 25 feet[2]
Pile driver (impact)	Upper range	1.518	112
	Typical	0.644	104
Pile driver (sonic)	Upper range	0.734	105
	Typical	0.170	93
Large bulldozer		0.089	87
Trucks		0.076	86
Jackhammer		0.035	79
Small bulldozer		0.003	58

1 Where PPV is the peak particle velocity

2 Where L_v is the velocity level in decibels (VdB) referenced to 1 microinch/second and based on the root mean square velocity amplitude.

Source: FTA 2006

During pile-driving activities, vibration levels associated with the use of pile drivers range from approximately 0.644 to 1.518 in/sec PPV and from 104 to 112 VdB at 25 feet, as shown in Table 3.12-13. Using FTA's recommended procedure for applying a propagation adjustment to these reference levels, predicted worst-case vibration levels of approximately 0.01 in/sec PPV and 70 VdB would occur at 600 feet (the residence nearest to the location of pile-driving activities for new bridge footings). These vibration levels would not be well below Caltrans's recommended standard of 0.2 in/sec PPV (Caltrans 2002) with respect to the prevention of structural damage for normal buildings or FTA's maximum-acceptable vibration standard of 80 VdB (FTA 2006) with respect to human annoyance for residential uses.

As stated in the discussion of Impact 3.12-1 (Alt. 2), project construction and thus vibration levels associated with Alternative 2 would be limited to the daytime hours of 8 a.m. to 6:30 p.m. on weekdays and 8 a.m. to 5 p.m. on weekends/holidays, as required by TRPA and El Dorado County regulations. Additionally, as stated above, vibration levels would exceed recommended thresholds only within 45 feet of construction activities, and the nearest receptors are a minimum of 70 feet from proposed actions. Therefore, because no recommended standards would be exceeded at nearby sensitive receptors as a result of implementing Alternative 2, the project is not anticipated to result in the exposure of sensitive receptors to excessive vibration levels. This impact would be less than significant.

No mitigation is required.

Alternative 3: River Ecosystem Restoration with Reduced Play Golf Course

IMPACT 3.12-1 (Alt. 3) Short-Term Project Construction Noise Levels Exceeding Applicable Standards. *Noise-generating construction activities related to implementation of Alternative 3 would be limited to the hours during which construction noise is exempt from the provisions of the applicable standards, would not exceed the applicable standards during nonexempt hours, and would not increase traffic noise by a substantial amount (+3 dB or more). Therefore, this impact would be* ***less than significant****.*

Construction activities under Alternative 3 would be similar to those under Alternative 2, but would not include any activities on the west side of the Upper Truckee River, new structures, or parking lots.

The specific construction equipment required for the above-mentioned activities is identified in Table 2-6 of Chapter 2, "Project Alternatives." According to FTA and FHWA, maximum noise levels for these types of equipment can range from 78 to 85 dBA at 50 feet when used without feasible noise control (Table 3.12-12). The noise levels from equipment operations would result in a maximum combined noise level of 85 dBA L_{eq} at 50 feet (FHWA 2006:12-6, 7). Based on a noise level of 85 dBA L_{eq}, a typical noise-attenuation rate of 6 dBA/DD, and no intervening shielding or topographic interference, exterior noise levels at noise-sensitive receptors located within 1,700 feet could exceed the minimum local PAS standard: 50 dBA CNEL.

Pile driving would occur for short periods of time during sewer line rerouting and stabilization. Noise levels associated with pile driving and other ongoing activities would result in a maximum combined noise level of approximately 95 dBA L_{eq} at 50 feet (FTA 2006:12-6, 7). Noise levels associated with pile driving and other ongoing activities would result in a maximum combined noise level of approximately 95 dBA L_{eq} at 50 feet (FTA 2006:12-6, 7). Based on a noise level of 95 dBA L_{eq}, a typical noise-attenuation rate of 6 dBA/DD, and no intervening shielding or topographic interference, exterior noise levels at noise-sensitive receptors located within 1 mile could exceed the minimum local PAS standard: 50 dBA CNEL and within 800 feet could exceed El Dorado County L_{max} standards. See Appendix J for construction-generated noise modeling calculations.

In addition, project construction under Alternative 3 would result in a short-term increase in traffic on the local roadway network. It is expected that up to 37 daily haul round trips would occur during the periods of maximum construction activity. As under Alternative 2, construction-related traffic would be distributed over the roadway network identified in Section 3.10, "Transportation, Parking, and Circulation." The daily haul-truck trips would traverse haul routes designated in Section 3.10 (e.g., access points include Sawmill Road, Lake Tahoe Golf Course driveway, Country Club Drive, and Chilicothe Street). Typically, traffic must double to create an increase in perceptible traffic noise (Caltrans 1998:N-96). Because all affected roadways, except Chilicothe Street, have a peak-month minimum of at least 100 ADT, an increase of 37 round trips would not double the current traffic level and subsequently not result in a substantial increase in traffic noise. Less than one daily haul trip is expected on Chilicothe Street. This trip would not represent a substantial increase in traffic or traffic noise levels. Therefore, construction-related traffic on affected roadway segments would not substantially increase traffic noise levels.

Noise from construction activity that occurs between 8 a.m. and 6:30 p.m. each day is exempt from the provisions of the applicable TRPA regulations. Noise from construction activity that occurs between 7 a.m. and 7 p.m. on weekdays (or between 8 a.m. and 5 p.m. on weekends and Federal holidays) is exempt from the provisions of the applicable El Dorado County regulations. In addition, construction activities would be temporary, and, as described in Chapter 2, "Project Alternatives," noise-generating construction activities would not occur during the more noise-sensitive hours (i.e., before 8 a.m. and after 6:30 p.m. on weekdays or after 5 p.m. on weekends or Federal holidays). As discussed above, project-generated construction traffic would not create a substantial increase in local traffic-noise levels. Because noise from project construction sources would be exempt, would not exceed the applicable standards during nonexempt hours, and would not increase noise by a substantial amount (+3 dB or more), this impact would be less than significant.

No mitigation is required.

IMPACT 3.12-2 (Alt. 3) Long-Term Project-Related Generation of Stationary- and Area-Source Noise. *Alternative 3 would not include any new long-term stationary or area noise sources. Noise sources related to golfing and maintenance would be similar to or less than under existing conditions as a result of the reduced play golf course. Noise from the reduced play golf course would not exceed applicable standards in the project vicinity. This impact would be* ***less than significant.***

Under Alternative 3, the restoration features along the Upper Truckee River would not create new stationary- or area-source noise. Heavy equipment and power tools (e.g., chainsaws, wood chippers) would continue to be used as they are today for public utility maintenance and fuels reduction programs.

In addition to river restoration features, Alternative 3 includes the reduction of the existing golf course to a reduced play golf course. The footprint of the reduced play golf course would be less than the existing course and would include existing golf holes. No new golf holes nor any noise sources would be created or relocated to the west side of the river or other parts of the study area. Noise sources would either remain in their existing locations or be removed as a result of a reduced course. Because golfing activities and maintenance would not occur in any new locations and would be reduced from existing conditions, noise resulting from long-term operation of the project would be similar to or less than under existing conditions.

Because noise would not increase by a substantial amount (i.e., +3 dBA) at any nearby sensitive receptors or exceed any applicable standards (i.e., 50 dBA L_{eq} and 50 dBA CNEL), implementation of Alternative 3 would not violate applicable significance criteria for the surrounding noise-sensitive receptors and study area. Therefore, this impact would be less than significant.

No mitigation is required.

IMPACT 3.12-3 (Alt. 3) Long-Term Generation of Project-Related Traffic Noise. *Long-term project-generated traffic would not result in a perceptible increase in ambient noise levels on the affected roadway network. This impact would be* ***less than significant****.*

Impact 3.12-3 (Alt. 3) would be similar to Impact 3.12-3 (Alt. 2). Alternative 3 is different from Alternative 2 in that employee levels would be reduced by approximately 11–16 employees and the paving of an additional 89 parking spaces would not be included under Alternative 3. As a result, traffic levels would be similar to or less than under existing conditions. Subsequently, traffic noise related to the golf course would also be similar to or less than under existing conditions. Therefore, no substantial increase in vehicle traffic would occur, and traffic noise levels would be approximately the same as under existing conditions. This impact would be less than significant.

No mitigation is required.

IMPACT 3.12-4 (Alt. 3) Land Use Compatibility of Study Area Noise Levels and Surrounding Land Uses. *Noise from surrounding land uses would not cause applicable standards to be exceeded within the study area, and no new noise sources would be created that would increase noise levels at surrounding land uses. Therefore, no substantial changes to land use compatibility related to noise would occur. This impact would be* ***less than significant****.*

Impact 3.12-4 (Alt. 3) would be similar to Impact 3.12-4 (Alt. 2). Alternative 3 is different from Alternative 2 in that noise sources would not be relocated to the west side of the Upper Truckee River and area-source noise would be similar to or decreased as a result of the reduced play golf course under Alternative 3. Subsequently, no applicable noise standards would be exceeded, and no new noise sources would be created or relocated. Because no applicable standards would be exceeded within the study area or at nearby sensitive receptors as a result of implementing Alternative 3, no increases in existing CNELs beyond those permitted in the applicable PAS would occur. Refer to the discussion of Impact 3.12-4 (Alt. 2) for a more detailed discussion of land use compatibility of the study area and surrounding areas. This impact would be less than significant.

No mitigation is required.

IMPACT 3.12-5 (Alt. 3) Short- and Long-Term Increases in Groundborne Vibration Levels. *Project-generated groundborne vibration would not disrupt humans' activities, including sleep, or damage structures. This impact would be less than significant.*

Impact 3.12-5 (Alt. 3) would be similar to Impact 3.12-5 (Alt. 2). No long-term vibration sources would be created, and construction activities would be restricted to 8 a.m. to 6:30 p.m. on weekdays (and to 5 p.m. on weekends and Federal holidays). Because no recommended standards would be exceeded at nearby sensitive receptors as a result of implementing Alternative 3, the project is not anticipated to result in the exposure of sensitive receptors to excessive vibration levels. Refer to the discussion of Impact 3.12-5 (Alt. 2) for a more detailed discussion of project-generated groundborne vibration. This impact would be less than significant.

No mitigation is required.

Alternative 4: River Stabilization with Existing 18-Hole Regulation Golf Course

IMPACT 3.12-1 (Alt. 4) Short-Term Project Construction Noise Levels Exceeding Applicable Standards. *Noise-generating construction activities related to implementation of Alternative 4 would be limited to the hours during which construction noise is exempt from the provisions of the applicable standards, would not exceed the applicable standards during nonexempt hours, and would not increase traffic noise by a substantial amount (+3 dB or more). Therefore, this impact would be less than significant.*

Golf course related construction activities under Alternative 4 would be lesser in magnitude than those under Alternative 2 and would not include any activities on the west side of the Upper Truckee River, other than along the river corridor. However, Alternative 4 would include additional in channel stabilization work while under Alternative 2 the river would be rerouted to a more meandering route. In addition, two bridges would be replaced and three would remain, and grading and vegetation removal would be less than Alternative 2. Materials delivered for Alternative 4 would differ in that more rock would be brought in. Less sod and asphalt would be required than in Alternative 2.

The specific construction equipment required for the above-mentioned activities is identified in Table 2-8 of Chapter 2, "Project Alternatives." According to FTA and FHWA, maximum noise levels for these types of equipment can range from 78 to 85 dBA at 50 feet when used without feasible noise control (Table 3.12-12). The noise levels from equipment operations would equate to a maximum combined noise level of 85 dBA L_{eq} at 50 feet (FHWA 2006:12-6, 12-7). Based on a noise level of 85 dBA L_{eq}, a typical noise-attenuation rate of 6 dBA/DD, and no intervening shielding or topographic interference, exterior noise levels at noise-sensitive receptors located within 1,700 feet could exceed the minimum local PAS standard: 50 dBA CNEL.

Pile driving would occur for approximately 1 week in the first year of construction to install bridge footings (Table 2-8). Noise levels associated with pile driving and other ongoing activities would result in a maximum combined noise level of approximately 95 dBA L_{eq} at 50 feet (FTA 2006:12-6, 12-7). Based on a noise level of 95 dBA L_{eq}, a typical noise-attenuation rate of 6 dBA/DD, and no intervening shielding or topographic interference, exterior noise levels at noise-sensitive receptors located within 1 mile could exceed the minimum local PAS standard: 50 dBA CNEL. See Appendix J for construction-generated noise modeling calculations.

In addition, project construction under Alternative 4 would result in a short-term increase in traffic on the local roadway network. It is expected that up to 49 daily round haul trips would occur during the periods of maximum construction activity. As under Alternative 2, construction-related traffic would be distributed over the roadway network identified in Section 3.10, "Transportation, Parking, and Circulation." The daily haul-truck trips would traverse haul routes designated in Section 3.10 (e.g., access points include Sawmill Road, Lake Tahoe Golf Course driveway, Country Club Drive, and Chilicothe Street). Typically, traffic must double to create an increase in perceptible traffic noise (Caltrans 1998:N-96). Because all affected roadways except Chilicothe Street have a peak-month minimum of at least 100 ADT, an increase of 49 round trips would not double the current traffic level

and subsequently would not result in a substantial increase in traffic noise levels. Six daily haul trips are expected on Chilicothe Street. These trips would not represent a substantial increase in traffic or traffic noise levels. Therefore, construction-related traffic on affected roadway segments would not increase traffic noise levels.

Noise from construction activity that occurs between 8 a.m. and 6:30 p.m. each day is exempt from the provisions of the applicable TRPA regulations. Noise from construction activity that occurs between 7 a.m. and 7 p.m. on weekdays (or between 8 a.m. and 5 p.m. on weekends and Federal holidays) is exempt from the provisions of the applicable El Dorado County regulations. In addition, construction activities would be temporary, and, as described in Chapter 2, "Project Alternatives," noise-generating construction activities would not occur during the more noise-sensitive hours (i.e., before 8 a.m. and after 6:30 p.m. on weekdays or after 5 p.m. on weekends or Federal holidays). Additionally, project-generated construction traffic would not create an increase in local traffic noise levels. Because noise from project construction sources would be exempt, would not exceed the applicable standards during nonexempt hours, and would not increase noise by a substantial amount (+3 dB or more), this impact would be less than significant.

No mitigation is required.

IMPACT 3.12-2 (Alt. 4) Long-Term Project-Related Generation of Stationary- and Area-Source Noise. *Alternative 4 would not include any new long-term stationary or area noise sources. Noise sources related to golfing and maintenance would be similar to existing conditions as a result of keeping the existing golf course. Noise from the golf course sources would not exceed applicable standards in the project vicinity. This impact would be* ***less than significant.***

Under Alternative 4, the restoration features along the Upper Truckee River would not create new stationary- or area- source noise. Heavy equipment and power tools (e.g., chainsaws, wood chippers) would continue to be used as they are today for public utility maintenance and fuels reduction programs.

In addition to restoration activities, Alternative 4 involves replacing cart bridges, redesigning holes 6 and 7, and building a restroom facility adjacent to hole 5. No new golf holes would be created, nor would any noise sources be created or relocated to the west side of the river or other portions of the study area. Noise sources would remain in their existing locations. Because golfing activities and maintenance would not occur in any new locations and would be similar to existing conditions, noise resulting from long-term operation of the project would be similar to existing conditions.

Because noise would not increase by a substantial amount (i.e., +3 dBA) at any nearby sensitive receptors or exceed any applicable standards (i.e., 50 dBA L_{eq} and 50 dBA CNEL), implementation of Alternative 4 would not violate applicable significance criteria for the surrounding noise-sensitive receptors and study area. Therefore, this impact would be less than significant.

No mitigation is required.

IMPACT 3.12-3 (Alt. 4) Long-Term Generation of Project-Related Traffic Noise. *Long-term project-generated traffic would not result in a perceptible increase in ambient noise levels on the affected roadway network. This impact would be* ***less than significant.***

Impact 3.12-3 (Alt. 4) would be similar to Impact 3.12-3 (Alt. 2). Alternative 4 is different from Alternative 2 in that the number of employees would remain the same as under existing conditions. As result, traffic volumes and the associated traffic noise would not increase. However, as under Alternative 2, Alternative 4 would include the paving of an additional 89 parking spaces. The additional parking area, as discussed above, is not expected to increase demand but is meant to reduce the need for parking on nonpaved surfaces. As a result, traffic levels would remain similar to existing conditions. Therefore, no substantial increase in vehicle traffic would occur, and

traffic noise levels would be approximately the same as under existing conditions. This impact would be less than significant.

No mitigation is required.

IMPACT 3.12-4 (Alt. 4) Land Use Compatibility of Study Area Noise Levels and Surrounding Land Uses. *Noise from surrounding land uses would not cause applicable standards to be exceeded within the study area, and no new noise sources would be created that would increase noise levels at surrounding land uses. Therefore, no substantial changes to land use compatibility related to noise would occur. This impact would be* ***less than significant****.*

Impact 3.12-4 (Alt. 4) would be similar to Impact 3.12-4 (Alt. 2). Alternative 4 is different from Alternative 2 in that noise sources would not be relocated to the west side of the Upper Truckee River under Alternative 4, so noise levels would be similar to existing conditions. Subsequently, no noise standards would be exceeded, and no new sources would be created or relocated. Because no applicable standards would be exceeded within the study area or at nearby sensitive receptors as a result of implementing Alternative 4, no increases in existing CNELs beyond those permitted in the applicable PAS would occur. Refer to the discussion of Impact 3.12-4 (Alt. 2) for a more detailed discussion of land use compatibility of the study area and surrounding areas. This impact would be less than significant.

No mitigation is required.

IMPACT 3.12-5 (Alt. 4) Short- and Long-Term Increases in Groundborne Vibration Levels. *Project-generated groundborne vibration would not disrupt humans' activities, including sleep, or damage structures. This impact would be* ***less than significant****.*

Impact 3.12-5 (Alt. 4) would be similar to Impact 3.12-5 (Alt. 2). Vibration generating activities from Alternative 4 would include a reduction in pile driving activities as, such as those under Alternative 2. No long-term vibration sources would be created, and construction activities would be restricted to 8 a.m. to 6:30 p.m. on weekdays (and to 5 p.m. on weekends and Federal holidays). Because no recommended standards would be exceeded at nearby sensitive receptors as a result of implementing Alternative 4, the project is not anticipated to result in the exposure of sensitive receptors to excessive vibration levels. Refer to the discussion of Impact 3.12-5 (Alt. 2) for a more detailed discussion of project-generated groundborne vibration. This impact would be less than significant.

No mitigation is required.

Alternative 5: River Ecosystem Restoration with Decommissioned Golf Course

IMPACT 3.12-1 (Alt. 5) Short-Term Project Construction Noise Levels Exceeding Applicable Standards. *Noise-generating construction activities related to implementation of Alternative 5 would be limited to the hours during which construction noise is exempt from the provisions of the applicable standards, would not exceed the applicable standards during nonexempt hours, and would not increase traffic noise by a substantial amount (+3 dB or more). Therefore, this impact would be* ***less than significant****.*

Construction activities under Alternative 5 would be lesser in magnitude than those under Alternative 2 and would not include any activities on the west side of the Upper Truckee River (except along river corridor), new structures, or paving of parking lots. Construction activities would be concentrated in the existing golf course area and along the river. Unlike Alternative 2, less material hauling would occur. The specific construction equipment required for the above-mentioned activities is included in Table 2-10 of Chapter 2, "Project Alternatives." According to FTA and FHWA, maximum noise levels for these types of equipment can range from 78 to 85 dBA at 50 feet when used without feasible noise control (Table 3.12-12). The noise levels from equipment operations

would equate to a maximum combined noise level of 85 dBA L_{eq} at 50 feet (FHWA 2006:12-6, 12-7). Based on a noise level of 85 dBA L_{eq}, a typical noise-attenuation rate of 6 dBA/DD, and no intervening shielding or topographic interference, exterior noise levels at noise-sensitive receptors located within 1,700 feet could exceed the minimum local PAS standard: 50 dBA CNEL.

Pile driving would occur for short periods of time during sewer line rerouting and stabilization. Noise levels associated with pile driving and other ongoing activities would result in a maximum combined noise level of approximately 95 dBA L_{eq} at 50 feet (FTA 2006:12-6, 7). Noise levels associated with pile driving and other ongoing activities would result in a maximum combined noise level of approximately 95 dBA L_{eq} at 50 feet (FTA 2006:12-6, 7). Based on a noise level of 95 dBA L_{eq}, a typical noise-attenuation rate of 6 dBA/DD, and no intervening shielding or topographic interference, exterior noise levels at noise-sensitive receptors located within 1 mile could exceed the minimum local PAS standard: 50 dBA CNEL and within 800 feet could exceed El Dorado County L_{max} standards. See Appendix J for construction-generated noise modeling calculations.

In addition, project construction under Alternative 5 would result in a short-term increase in traffic on the local roadway network. It is expected that up to 22 daily haul trips would occur during the periods of maximum construction activity. As under Alternative 2, construction-related traffic would be distributed over the roadway network identified in Section 3.10, "Transportation, Parking, and Circulation." The daily haul-truck trips would traverse haul routes designated in Section 3.10 (e.g., access points include Sawmill Road, Lake Tahoe Golf Course driveway, Country Club Drive, and Chilicothe Street). Typically, traffic must double to create an increase in perceptible traffic noise (Caltrans 1998:N-96). Because all affected roadways except Chilicothe Street have a peak-month minimum of at least 100 ADT, an increase of 22 trips would not double the current traffic levels and subsequently would not result in a substantial increase in traffic noise levels. Less than one daily haul trip is expected on Chilicothe Street. This trip would not represent a substantial increase in traffic or traffic noise levels. Therefore, construction-related traffic on affected segments would not increase traffic noise levels.

Noise from construction activity that occurs between 8 a.m. and 6:30 p.m. each day is exempt from the provisions of the applicable TRPA regulations. Noise from construction activity that occurs between 7 a.m. and 7 p.m. on weekdays (or between 8 a.m. and 5 p.m. on weekends and Federal holidays) is exempt from the provisions of the applicable El Dorado County regulations. In addition, construction activities would be temporary, and, as described in Chapter 2, "Project Alternatives," noise-generating construction activities would not occur during the more noise-sensitive hours (i.e., before 8 a.m. and after 6:30 p.m. on weekdays or after 5 p.m. on weekends or Federal holidays). Additionally, project-generated construction traffic would not create an increase in local traffic noise levels. Because noise from project construction sources would be exempt, would not exceed the applicable standards during nonexempt hours, and would not increase noise by a substantial amount (+3 dB or more), this impact would be less than significant.

No mitigation is required.

IMPACT 3.12-2 (Alt. 5) Long-Term Project-Related Generation of Stationary- and Area-Source Noise. *Alternative 5 would not include any new long-term stationary or area noise sources. Existing noise sources related to golfing and maintenance would be reduced or eliminated as a result of the partial removal of the golf course. Noise from the remaining golf holes or other sources would not exceed applicable standards in the project vicinity. This impact would be* ***less than significant****.*

Under Alternative 5, the restoration features along the Upper Truckee River would not create new stationary- or area-source noise. Heavy equipment and power tools (e.g., chainsaws, wood chippers) would continue to be used as they are today for public utility maintenance and fuels reduction programs.

In addition to restoration features, Alternative 5 in the long-term includes the removal of existing bridges and the golf course. The golf course would be removed and restored as a floodplain and meadow. In the interim the golf course may operate as a nine-hole facility until restoration is complete. Future uses of the SRA and the entirety of

Washoe Meadows SP would be evaluated as a separate planning process. No new noise sources would be created or relocated to different portions of the study area as part of the proposed alternative. Existing noise from golfers, golf carts, lawn mowing, and other miscellaneous sources related to golf course operations would no longer exist. The clubhouse, maintenance yard, and parking areas would remain in their existing locations and their use would be evaluated during a separate planning process. The maintenance yard would provide a place to store maintenance equipment and supplies for the restored river and meadow. Because golfing activities and maintenance would not occur in any new locations and would be removed from existing locations, noise resulting from long-term operation of the project would be less than under existing conditions.

Because noise would not increase by a substantial amount (i.e., +3 dBA) at any nearby sensitive receptors or exceed any applicable standards (i.e., 50 dBA L_{eq} and 50 dBA CNEL), implementation of Alternative 5 would not violate applicable significance criteria for the surrounding noise-sensitive receptors and study area. Therefore, this impact would be less than significant.

No mitigation is required.

IMPACT 3.12-3 (Alt. 5) Long-Term Generation of Project-Related Traffic Noise. *Long-term project-generated traffic would not result in a perceptible increase in ambient noise levels on the affected roadway network. This impact would be less than significant.*

Impact 3.12-3 (Alt. 5) would be less than the analogous long-term traffic noise effects of other alternatives. Alternative 5 is different from Alternatives 2, 3, and 4 in that employee and patron vehicle trips related to golf course operations would be eliminated and the paving of an additional 89 parking spaces would not occur. As a result, traffic levels would be less than under existing conditions or any of the other alternatives. Subsequently, traffic noise related to the golf course would also be less than under existing conditions or those of the other alternatives. Therefore, no substantial increase in vehicle traffic would occur, and traffic noise levels would be less than under existing conditions or other alternatives. This impact would be less than significant.

No mitigation is required.

IMPACT 3.12-4 (Alt. 5) Land Use Compatibility of Study Area Noise Levels and Surrounding Land Uses. *Noise from surrounding land uses would not cause applicable standards to be exceeded within the study area, and no new noise sources would be created that would increase noise levels at surrounding land uses. Therefore, no substantial changes to land use compatibility related to noise would occur. This impact would be less than significant.*

Alternative 5 is different from Alternatives 2, 3 and 4 in that the golf course and its associated noise sources would be removed from the Lake Valley SRA. Noise levels in the project vicinity under Alternative 5 would be less than under all other alternatives. Subsequently, no standards would be exceeded, and no new sources would be created or relocated. Because no applicable standards would be exceeded within the study area or at nearby sensitive receptors as a result of implementing Alternative 5, no increases in existing CNELs beyond those permitted in the applicable PAS would occur. Refer to the discussion of Impact 3.12-4 (Alt. 2) for a more detailed discussion of land use compatibility of the study area and surrounding areas. This impact would be less than significant.

No mitigation is required.

IMPACT 3.12-5 (Alt. 5) Short- and Long-Term Increases in Groundborne Vibration Levels. *Project-generated groundborne vibration would not disrupt humans' activities, including sleep, or damage structures. This impact would be less than significant.*

Impact 3.12-5 (Alt. 5) would be similar to Impact 3.12-5 (Alt. 2). No long-term vibration sources would be created, and construction activities would be restricted to 8 a.m. to 6:30 p.m. on weekdays (and to 5 p.m. on weekends and Federal holidays). Because no recommended standards would be exceeded at nearby sensitive receptors as a result of implementing Alternative 5, the project is not anticipated to result in the exposure of sensitive receptors to excessive vibration levels. Refer to the discussion of Impact 3.12-5 (Alt. 2) for a more detailed discussion of project-generated groundborne vibration. This impact would be less than significant.

No mitigation is required.

This page intentionally left blank.

3.13 PUBLIC SERVICES AND UTILITIES

This section describes existing public services and utilities in the project vicinity, presents an analysis of potential project impacts, and identifies mitigation measures for those impacts determined to be significant. Utilities of potential relevance are water distribution, wastewater treatment and disposal, electrical and natural gas supply and distribution, and solid-waste collection and disposal. Public services potentially relevant to the project include law enforcement and fire protection services. Consistency with TRPA goals and policies is presented in Section 3.2, "Land Use," Table 3.2-1. Project effects on recreational services are addressed in Section 3.8, "Recreation." Effects on water drainage, including the construction of any stormwater drainage facilities, are addressed in Sections 3.3, "Hydrology and Flooding" and 3.4, "Geomorphology and Water Quality." Cumulative public service and utility impacts are addressed in Section 3.16, "Cumulative Impacts."

The information presented in this section was obtained from TRPA and El Dorado County planning documents, goals, and policies; and through consultation with representatives of the various public service and utility providers.

3.13.1 AFFECTED ENVIRONMENT

REGULATORY SETTING

Federal

No Federal plans, policies, regulations, or laws related to public services and utilities are applicable.

State

State Responsibility Areas

Fire Protection

The California Department of Forestry and Fire Protection (CAL FIRE) implements statewide laws aimed at reducing wildfire hazards in wildland-urban interface areas. The laws are based on fire hazard assessment and zoning. The laws apply to State responsibility areas, including the study area, which are defined as areas of the state in which the State has primary financial responsibility for preventing and suppressing fires, as determined by the State Board of Forestry pursuant to Sections 4125 and 4102 of the California Public Resources Code. Fire protection outside State responsibility areas is the responsibility of Federal or local jurisdictions. These areas are referred to by CAL FIRE as Federal responsibility areas and local responsibility areas.

No other state plans, policies, regulations, or laws related to public services and utilities are applicable.

Tahoe Regional Planning Agency

1987 Regional Plan

The 1987 Regional Plan had a 20-year scope and is currently being reviewed and updated through a collaborative effort led by TRPA. These agencies are working together to update several important environmental documents for the Tahoe Basin. These Regional Plan updates will guide land management, resource management, and environmental regulations in the Tahoe Basin over the next 20 years. The Regional Plan update is anticipated to be completed by 2011.

Code of Ordinances

Chapter 27 of the TRPA Code of Ordinances establishes standards for water, electrical, and wastewater treatment services for projects proposing a new structure, reconstruction, or expansion of an existing structure, designed or intended for human occupancy. These regulations would be applicable to those alternatives that propose to construct new structures (i.e., restrooms). Additional regulatory guidelines specific to identified public services and utilities are described below.

Water Service

Ordinance 27.3 of the TRPA Code of Ordinances contains basic water-service requirements for projects proposing a new structure, reconstruction, or expansion of an existing structure, designed or intended for human occupancy. Specifically, such projects must have adequate water rights and water supply systems. According to Ordinance 27.3B, except in specific circumstances, an adequate fire flow of 250 gallons of water per minute at 20 pounds per square inch (psi) residual pressure would be required to be available to the study area, which is classified as a conservation and recreation area by TRPA in Plan Area Statement (PAS) 119, Country Club Meadow (TRPA 2002).

Wastewater Service

Regulation 27.4 of TRPA's Code of Ordinances contains a basic wastewater-service requirement for projects proposing a new structure, or reconstruction or expansion of an existing structure, designed or intended for human occupancy. The code specifically directs that such projects that would generate wastewater be served by facilities for the treatment and export of wastewater from the Tahoe Basin. To be considered served by a facility, a service connection shall be required to transport wastewater from the parcel to a treatment plant.

To support Federal and State laws such as the Clean Water Act, Regulation 81.2C of TRPA's Code of Ordinances prohibits the discharge of domestic, municipal, or industrial wastewater to any tributary of Lake Tahoe, including the Truckee River, or to any groundwater within the region.

Electrical and Gas Service

Although TRPA does not specifically regulate the provision of electrical services in the Tahoe Basin, Chapter 27.5 of the Code of Ordinances directs that projects proposing a new structure, or reconstruction or expansion of an existing structure, designed or intended for human occupancy be served by facilities that provide adequate electrical supply. The TRPA Code of Ordinances does not include regulations specific to gas service.

Solid Waste Service

TRPA's *Regional Plan for the Lake Tahoe Basin* (Regional Plan) mandates garbage pickup service through the region and requires all solid wastes to be exported from the region (TRPA 1986: VI-3).

Fire Protection

The following goal and policy from the Natural Hazards section of TRPA Goals and Policies (TRPA 1986: II-25) related to fire risk are applicable:

GOAL 1: Risks from natural hazards (e.g., flood, fire, avalanche, earthquake) will be minimized.

- **Policy 3:** Inform residents and visitors of the wildfire hazards associated with occupancy in the basin. Encourage use of fire resistant materials and fire preventative techniques when constructing structures, especially in the highest fire hazard areas. Manage forest fuels to be consistent with state laws and other goals and policies of [the Regional] plan.

The Emergency California-Nevada Tahoe Basin Fire Commission Report (Report) was released in May 2008. In the Report there are thirty recommendations that are specific to TRPA. Within the recommendations there are 57 action items that TRPA is being encouraged to address (TBFC 2008: 73, TRPA 2008: 1). In September 2008, TRPA responded to the Report with a list of how they are implementing the 57 action items. Currently, TRPA has implemented 20 items, 15 are under implementation, and 22 under development with partner groups (TRPA 2008: 2). Action items include code changes to increase the tree removal diameter requiring a permit from 6 inches to 14 inches (diameter at breast height) and creating a "Defensible Space Assessor" definition and training program to allow fire districts to have more personnel involved in defensible space assessments. Other actions include integrating erosion control with Defensible Space requirements, developing clear, concise public messages and revised "Living With Fire" guidelines, creation of a new MOU identifying TRPA as the lead agency for vegetation management activities in the basin, creation of an MOU between TRPA and USFS to streamline forest fuels permitting, and dedicate staff to work with the Tahoe Fire and Fuels Team for expeditious permitting and public information.

Beginning April 14, 2008 all permit applications and qualified exempt declarations requiring TRPA review which involve construction must receive pre-approval from the appropriate Lake Tahoe fire protection district or department. The State lands under this project are exempt from this approval process.

TRPA Environmental Threshold Carrying Capacities

TRPA has not established any environmental threshold carrying capacities (thresholds) related to public services and utilities.

El Dorado County

El Dorado County General Plan

Chapter 5 of the *El Dorado County General Plan* stipulates that the County shall ensure that adequate public facilities and services are available to serve new development (Goal 5.1, Objective 5.1.2). The general plan also includes the provision that new development shall be required to pay its proportionate share of the costs of infrastructure improvements required to serve the project to the extent permitted by State law (El Dorado County 2004). Additional regulatory guidelines specific to identified public services and utilities are described below.

Water Service

The following policies of the *El Dorado County General Plan* related to water service are applicable:

- **Policy 5.2.1.2:** An adequate quantity and quality of water for all uses, including fire protection, shall be provided for with discretionary development.

- **Policy 5.2.3.4:** All applications for divisions of land and other discretionary or ministerial land uses which rely on groundwater for domestic use, or any other type of use, shall demonstrate that groundwater is adequate as part of the review and approval process. The County shall not approve any discretionary or ministerial projects unless the County finds, based on evidence provided by the applicant, or other evidence that may be provided, that the groundwater supply for the project in question is adequate to meet the highest demand associated with the approval in question.

Wastewater Service

The following policies of the *El Dorado County General Plan* related to wastewater service are applicable:

- **Policy 5.3.1.6:** The County shall encourage the wastewater treatment operators to design and implement future wastewater treatment capacity expansions in a manner that avoids or minimizes associated environmental impacts to the extent feasible.

- **Policy 5.3.1.7:** In Community Regions (defined as Camino/Pollock Pines, El Dorado Hills, Cameron Park, El Dorado, Diamond Springs, Shingle Springs, Georgetown, the City of Placerville and immediate surroundings, the City of South Lake Tahoe and immediate surroundings, and Meyers, Camp Richardson, Meeks Bay, and Tahoma), all new development shall connect to public wastewater treatment facilities. In Community Regions where public wastewater collection facilities do not exist project applicants must demonstrate that the proposed wastewater disposal system can accommodate the highest possible demand of the project.

Electrical and Gas Service

El Dorado County's objective in regard to electrical and gas service is to provide adequate and reliable utility services (Objective 5.6.1). Included under this objective is the goal to encourage the development of energy-efficient buildings, subdivisions, developments, and landscape designs (Objective 5.6.2). The following policies related to electrical and gas service are applicable:

- **Policy 5.6.1.1:** Promote and coordinate efforts with utilities for the undergrounding of existing and new utility distribution lines in accordance with current rules and regulations of the California Public Utility Commission and existing overhead power lines within scenic areas and existing Community Regions (see above for list of Community Regions in El Dorado County) and Rural Centers (Coloma, Cool, Fairplay, Garden Valley, Greenwood, Georgetown, Grey's Corner, Grizzly Flat, Kelsey, Kyburz, Latrobe, Little Norway, Lotus, Mosquito, Mount Ralston, Mt. Aukum, Nashville, Oak Hill, Phillips, Pilot Hill, Pleasant Valley, Quintette, Rescue, Somerset, Strawberry, and Chrome Ridge).

- **Policy 5.6.1.2:** Reserve adequate rights-of-way to facilitate expansion of services in a timely manner.

Solid Waste Service

The California Integrated Waste Management Act (Assembly Bill 939, Chapter 1095, Statutes of 1989), mandates that every city and county divert 50 percent of its waste from landfills (California Public Resources Code Section 41780). El Dorado County, in an effort to achieve this required diversion rate, has instituted the *El Dorado County Integrated Waste Management Plan.*

The following objective and policies of the *El Dorado County General Plan* related to solid waste service are applicable:

Objective 5.5.2: Recycling, Transformation, and Disposal Facilities. Ensure that there is adequate capacity for solid waste processing, recycling, transformation, and disposal to serve existing and future users in the County.

- **Policy 5.5.2.1:** Concurrent with the approval of new development, evidence will be required to show that capacity exists within the solid waste system for the processing, recycling, transformation, and disposal of solid waste.

- **Policy 5.5.2.3:** The County shall adopt a Construction and Demolition Debris Diversion Ordinance requiring that a minimum of 50 percent of the debris from construction and demolition projects be reused or recycled. The County shall encourage a higher rate of diversion.

Effective since September 2003, Chapter 8.43 of the El Dorado County Ordinance Code requires individuals or businesses demolishing or constructing projects to recycle at least half of the construction and demolition debris created.

Law Enforcement

The following policies in the Public Services and Utilities Element of the *El Dorado County General Plan* related to law enforcement are applicable:

- **Policy 5.7.3.1:** Prior to approval of new development, the Sheriff's Department shall be requested to review all applications to determine the ability of the department to provide protection services. The ability to provide protection to existing development shall not be reduced below acceptable levels as a consequence of new development. Recommendations such as the need for additional equipment, facilities, and adequate access may be incorporated as conditions of approval.

Fire Protection

The following objectives and policies of the *El Dorado County General Plan* related to public services and utilities standards are applicable:

Objective 5.7.1: Fire Protection (Community Regions). Ensure sufficient emergency water supply, storage, and conveyance facilities are available, and that adequate access is provided for, concurrent with development.

- **Policy 5.7.1.1:** Prior to approval of new development, the applicant will be required to demonstrate that adequate emergency water supply, storage, conveyance facilities, and access for fire protection either are or will be provided concurrent with development.

South Tahoe Public Utility District

South Tahoe Public Utility District (STPUD) is the utility district responsible for water and wastewater service to the study area.

Water Service

Section 3 of STPUD's administrative code specifies requirements for water service, water rates, operations, enforcement, water conservation, groundwater levels, and waterline repair.

Wastewater Service

Section 4 of STPUD's administrative code contains general provisions regarding sewer management, as well as regulations related to sewer permits; sewer type, use, and capacity specifications; sewer construction; sewer fees, rates, and schedules; and maintenance and repair of sewers. The following specifications are among those regulations that are applicable:

- **4.1.6 Right of Entry by District.** Authorized representatives of the District shall have the right of ingress to and egress from a customer's property at reasonable hours for any purpose reasonably related to this Section 4, and all Ordinances, rules, regulations, and specifications of the District duly adopted or amended.

- **4.3.10 and 4.3.11 New Construction and Remodeling, Additions and Changes of Use.** Low Water Use Plumbing Fixtures are mandatory for all new construction and for all new plumbing fixtures installed at the time of remodeling.

- **4.3.4 Control Manholes.** When required by the District, the owner of any property served by a sewer lateral carrying industrial wastes shall install a suitable control manhole to facilitate observation, sampling and measurement of wastes. Such manhole, when required, shall be accessible and safely located, and shall be constructed in accordance with plans approved by the District. The manhole shall be installed by the owner at his expense and shall be maintained by the owner so as to be safe and accessible at all times.

- **4.6.16 Construction or Location of Improvements.** Except as expressly reserved or permitted in any grant of easement or judgment in eminent domain, it shall be unlawful for any person to construct or locate improvements of any kind or type in, on or over the surface of any easement owned or acquired by the District.

ENVIRONMENTAL SETTING

Water and Wastewater Service

STPUD provides water and wastewater service to portions of El Dorado County within the Tahoe Basin, including the communities around the study area. STPUD's service area extends from U.S. Highway 89 (U.S. 89) north to Cascade Lake, from U.S. 89 south to Luther Pass, from U.S. Highway 50 (U.S. 50) east to the Nevada state line, and from U.S. 50 west to Echo Lake.

Water

STPUD's area is organized into 16 pressure zones serving more than 2.4 billion gallons annually to more than 14,000 homes and businesses. All of the water used by STPUD comes from underground aquifers. The district operates 13 active wells, and no water is taken from Lake Tahoe or any other surface-water source. There are no STPUD water lines within the study area. STPUD is funded from a variety of sources: user charges, water/sewer billings, connection fees, property tax receipts, grant monies, reimbursements from the Federal Emergency Management Agency (FEMA), and interest income.

Wastewater

STPUD operates 420 miles of sewer lines and 39 lift stations and maintains approximately 17,000 connections. Its treatment plant has a service capacity of 7.7 million gallons per day (mgd) and averages a flow of 5.0 mgd. STPUD treats approximately 1.8 billion gallons of wastewater annually.

STPUD Sewer Grid Sheets I-35–L35, I-36–K-36, and I-37–K37 show sewer lines within the study area, adjacent to the Upper Truckee River, and beneath the golf course. These sewer lines serve the Upper Truckee River and Sawmill Road neighborhoods. These lines feed into a main transport line that runs through the study area in numerous locations, crossing the Upper Truckee River at RS 1400 is an inverted siphon that has approximately 1 foot of cover, the upstream crossing at RS 8800 is an exposed concrete encasement, both of which are inspected by STPUD twice per year (Adams, pers. comm., 2009). Additionally, a few hundred feet of sewer pipeline is located parallel to and within 25 feet of the eroding streambank on the Upper Truckee River between RS 6500 and 5900 and an existing sewer pipeline crossing of an unknown depth is located within Angora Creek. The main line goes under U.S. 50 near Elks Club Road and combines with other sewer lines from the Meyers area for transport to the treatment plant near Al Tahoe Boulevard in the City of South Lake Tahoe.

STPUD inspects manholes and flows in the area through vehicle and walk-in inspections of manholes. STPUD currently has easements to access all manholes in the system within the study area. STPUD control manholes UT 252 and UT 253 are located on either side of the river off U.S. 50 across from Elks Club Drive and are inspected monthly as part of a list of manholes that could have consequences to public health and welfare should they fail. STPUD has stated that heavy equipment of up to 1.5 tons must be able to access these manholes as often as once per year. The other manholes in the study area must also be accessible for inspection, as described per STPUD wastewater regulations (Hammond, pers. comm., 2008).

Electricity

The study area vicinity is currently served by NV Energy (NVE), which would continue to provide electric service with implementation of any of the alternatives. As a regulated utility based in Nevada, NVE is required to serve projects within its designated service area, which includes 54,500 square miles in western, central, and northeastern Nevada and northeastern California, including the Lake Tahoe area (NV Energy 2007). SPPC generates approximately 57 percent of the power it supplies. The remaining supplies are purchased on an as-needed basis.

The NVE substation nearest the study area is at the terminus of Garbage Dump Road, off Pioneer Trail. There are several access points to NVE facilities on the west side of the Upper Truckee River. Electrical line extensions exist at the ends of Cholula Street, Mushogee Street, Chilicothe Street, Ulmeca Street, Normuk Street, and West San Bernardino Drive (Matthews, pers. comm., 2006). There are no major electrical transmission lines within the study area.

Natural Gas Service

Natural gas service is proved to the communities around the study area by Southwest Gas Corporation, which purchases, transports, and distributes natural gas to residential, commercial, and industrial customers in Arizona, Nevada, and portions of California (Southwest Gas Corporation 2008). Two gas lines exist in the project vicinity. The first is a gas main that runs within the right-of-way easement of Sawmill Road, north of the study area. The second is a 2-inch gas line that runs from U.S. 50 to the golf course clubhouse on the eastern side of the study area.

Solid Waste Service

South Tahoe Refuse (STR) provides waste removal services for the South Lake Tahoe area, including the golf course. STR collects more than 100,000 tons of waste each year. This waste is collected and sorted for recycling at a material recovery facility located at the STR Transfer Station. This station has been in operation since 1995.

In 2007 STR recycled approximately 50 percent of its waste stream (58,000 tons of 130,000 tons total) though this sorting process. When applied to the State formula for diversion, the STR service area is credited with diverting more than 50 percent of solid waste from the landfill. The recycling process targets the removal of aluminum, glass, plastic, mixed paper, cardboard, wood and metals from the waste stream. Other recycling programs run by STR are the Wood Diversion Program, Construction and Demolition Program, Cardboard and Office Paper Collection Routes, and the Household Hazardous and Universal Waste Programs. STR's recycling programs were initiated in part to encourage compliance with California's solid-waste diversion goal of 50 percent (STR 2007).

The regional landfill utilized by STR is Lockwood Landfill, a 1,535-square-acre municipal solid-waste facility located off Interstate 80 in Storey County, Nevada, east of Sparks. The current capacity of this facility is 100+ years. Lockwood Landfill has adequate capacity to serve the project.

Telecommunications Service

AT&T provides telecommunications services including local, long distance, DSL, ISDN and T-1 lines to the Meyers area. Cable service is provided to the area by Charter Communications. These services would also be available to the study area.

Law Enforcement

California State Park Rangers

State Park Rangers are peace officers under state law with authority similar to city police or county sheriff personnel. The Rangers primary responsibility is to enforce park policies and regulations within Washoe Meadows SP and the Lake Valley SRA. The district office is located at 7360 West Lake Boulevard in Tahoma. Seven Rangers are assigned to the Sierra District, which includes several other park units; however, currently only 5 positions are filled. Response times vary due to the distance of the patrolling Ranger(s), potential road closures, and employee shortages. As of winter 2008 the State Park Rangers have added a bi-monthly patrol plan to oversee illegal winter activities occurring in the study area on top of patrolling that occurs on an as-needed or as-reported basis. Further regulatory activities have recently included an inventory of park signs and a request for additional signage to deter illegal snowmobiling within the study area. New signage will include phone numbers for reporting of illegal activities. Additionally, Rangers from Grover Hot Springs SP began assisting in patrols of the area in 2009 (Grove, pers. comm., 2008).

El Dorado County Sheriff's Department

The El Dorado County Sheriff's Department is the primary agency responsible for service calls and general crime suppression in the study area vicinity, with the exception of land owned by State Parks. The main office of the sheriff's department is located at 1356 Johnson Boulevard, South Lake Tahoe. All sheriff's department personnel serving the El Dorado County portion of the Tahoe Basin, except one resident deputy assigned to the Meeks Bay area, work out of the Johnson Boulevard location. In total, the staff at this location consists of 19 deputy sheriffs, five sergeants, and one lieutenant, for an estimated 2.5 deputies per 1,000 residents. This staffing level is greater than the service-ratio goal for the Lake Tahoe area of one officer for every 1,000 residents. This ratio is greater than the overall ratio for the El Dorado County Sheriff's Department because of the large volume of visitors that increase the population during summer and winter months or on any holiday weekend. Estimated response time to the Meyers area from a field unit is 5 minutes. A response from the Johnson Boulevard sheriff's office would take approximately 10 minutes (Lovell, pers. comm., 2006).

When contacted about the project, the Sheriff's Department expressed interest in assuring that emergency access routes (e.g., U.S. 50, North Upper Truckee Road, Apache Avenue) would be maintained during construction of any of the project alternatives. Emergency access includes creating sufficient ingress, egress, and turning angles for emergency vehicles (Lovell, pers. comm., 2008).

California Highway Patrol

The California Highway Patrol has primary jurisdiction on traffic-related matters on all roadways in the unincorporated county and on all state highways in California, including those in unincorporated areas of El Dorado County, such as U.S. 50. The highway patrol has a substation at 2063 Hopi Avenue in South Lake Tahoe, within 1 mile of the study area.

Fire Protection and Response

The Tahoe Basin is considered at high risk for catastrophic wildfire by TRPA and the area's other land use agencies (TRPA 2007: E-1). The 2007 Angora Fire burned parts of the adjacent Upper Truckee North/Tahoe Paradise neighborhood and the adjacent ridge west and north of the study area. The Angora Fire started on the afternoon of June 24, 2007 from an unattended campfire. The fire occurred during some of the most severe fire danger conditions experienced in this Basin over the last 20 years. The fire initially spread four miles in three hours and burned over 250 structures on private property, including over 200 homes. Containment required several days. Most of the 3,072 acres within the fire perimeter involved National Forest System lands; however, about 300 urban lots owned by the U.S. Forest Service (USFS), California Tahoe Conservancy, State Parks, and Eldorado County, and 231 acres of private property also burned (USFS 2007).

The fire protection districts on the California side of the Tahoe Basin have prepared a joint community wildfire protection plan (CWPP) with individual programs for each district (TBFSC 2004: I-i). In addition, in 2007 the final fuel reduction and forest restoration plan (FRFRP) was released by TRPA (TRPA 2007: E-1). This document is an example of the high priority that land use agencies in the Tahoe Basin place on wildfire protection. Both the CWPP and the FRFRP stress the high risk of wildfire, particularly high-intensity wildfire, in the Tahoe Basin and identify fuel reduction treatments as a component for reducing fire risk.

The study area is in the center of the Lake Valley Fire Protection District's (LVFPD) service area. LVFPD provides fire protection, rescue, and emergency medical services to the community of Meyers and the surrounding area, serving approximately 11,000 permanent residents, with seasonal tourist fluctuations that can increase the population to more than 40,000 persons. LVFPD employs 23 full-time and 10 volunteer personnel. LVFPD operates from three fire stations. The closest fire station to the study area is located at 2211 Keetak Street in the community of Meyers, approximately 2 miles from the study area. LVFPD maintains four Type I fire engines, two Type III fire engines, two ambulances, a rescue squad, a 3,500 gallon water tender and various other staff and utility vehicles, including a backhoe (LAFCO 2006: 144-156).

LVFPD's 2004 CWPP is part of the *Community Wildfire Protection Plan for the California Portion of the Tahoe Basin*. The CWPP for the LVFPD includes defensible-space treatments proposed for neighborhoods along North Upper Truckee Road, Meyers Community, Sawmill Road, and U.S. 50. The existing fire behavior level in the North Upper Truckee area is a National Forest Fire Laboratory (NFFL) fuel model 10. A fuel model 10 means that a fire in this area is expected to spread 300–600 feet per hour with flames 3–6 feet long. The existing predicted fire behavior in the Sawmill Road and U.S. 50 area is a NFFL fuel model 2. A fuel model 2 means that a fire in this area is expected to spread 1,300–1,700 feet per hour with flames 4–8 feet long (TBFSC et al. 2004: Chapter 2, P. 94).

Wildfire Management Plan

As mandated by the fire prevention and suppression policy in the *Lake Valley State Recreation Area General Plan*, a wildfire management plan has been implemented for Lake Valley SRA and Washoe Meadows SP. The plan identifies modified fire suppression methods that preserve sensitive unit resources while protecting human lives and property specific to these areas (State Parks 2006). The Lake Tahoe Golf Course is responsible for general vegetation maintenance and relies on State Parks to remove hazardous trees. Crews regularly assemble dead, fallen, and otherwise hazardous vegetation for removal (Stanowski, pers comm., 2008).

Riparian Hardwood Restoration Project

State Parks is currently implementing a Riparian Hardwood Restoration Project funded through a grant from the Reclamation on State Park land, including Washoe Meadows SP and Lake Valley SRA. The Riparian Hardwood Restoration Project involves removal of lodgepole pines along the maintenance road and adjacent to the Upper Truckee River to improve willow-alder stands; it should be completed within the study area prior to implementation of the proposed project.

3.13.2 ENVIRONMENTAL CONSEQUENCES

SIGNIFICANCE CRITERIA

For this analysis, significance criteria are based on the checklist presented in Appendix G of the State CEQA Guidelines; the TRPA Initial Environmental Checklist; factual information; scientific data; and regulatory standards of Federal, State, and local agencies.

CEQA

Based on Appendix G of the State CEQA Guidelines, a public services and utilities impact is considered significant if implementation of the project would do any of the following:

- result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for fire protection, police protection, or emergency medical services;

- have an unplanned effect upon or result in a need for new or altered governmental services in fire protection, police protection, schools, or parks or other recreational facilities, or maintenance of public facilities, including roads, or other governmental services; or

- result in a need for new systems or substantial alterations to the power or natural gas or communication systems, use of additional water beyond permitted capacity, use of the existing sewer system beyond permitted capacity, stormwater drainage, or solid waste disposal.

NEPA

An environmental document prepared to comply with NEPA must consider the context and intensity of the environmental effects that would be caused by or result from the proposed action. Under NEPA, the significance of an effect is used solely to determine whether an EIS must be prepared. The factors that are taken into account under NEPA to determine the significance of an action in terms of the context and the intensity of its effects are encompassed by the CEQA criteria used for this analysis.

TRPA

Based on TRPA's Initial Environmental Checklist, an alternative would result in a significant impact on public services and utilities if it would:

- have an unplanned effect upon, or result in a need for new or altered governmental services in fire protection, police protection, schools, parks or other recreational facilities, or maintenance of public facilities, including roads, or other governmental services or

- result in a need for new systems or substantial alterations to the power or natural gas or communication systems, use of additional water beyond permitted capacity, use of the existing sewer beyond permitted capacity, stormwater drainage, or solid waste disposal.

METHODS AND ASSUMPTIONS

Impacts on public services and utilities that would result from implementing any of the alternatives were identified by considering if and how existing levels of service would be affected by project implementation. Evaluation of potential public service and utilities impacts was based on a review of documents pertaining to the study area, including TRPA's Code of Ordinances and the El Dorado County Code. Additional background information on current services, staffing, and equipment was obtained through consultation with appropriate agencies—specifically, Lake Valley Fire Department, El Dorado County Sheriff's Department, and California State Parks. The proposed project would comply with all applicable state and local laws.

Please refer to Section 3.14, "Human Health and Risk of Upset" for a discussion of wildfire hazard issues.

IMPACTS FOUND TO BE LESS THAN SIGNIFICANT AND NOT DISCUSSED FURTHER

Increased Demand on Public Services – Population growth would not result with implementation of any of the alternatives. Also, the proposed types of land uses associated with the alternatives (i.e., golf course, open space with dispersed outdoor recreation) would be the same as existing conditions, with some change in location internal to State Park property. Therefore, implementing the proposed project would not increase overall demand for public services, including fire protection, law enforcement, schools, or maintenance, that would necessitate the construction of new or altered government service facilities. No further discussion of such effects is included here; however, fire and law enforcement services are discussed in this section to the extent that implementing project alternatives could temporarily disrupt emergency access or temporarily create additional service calls related to construction. Park impacts are discussed in Section 3.8, "Recreation." Finally, no other public services, including schools, are anticipated to be affected by implementing the proposed project, because no population changes would result from any of the alternatives.

Public Utilities – Natural Gas, and Communications Systems – No changes to the natural gas or communication systems would result with implementation of any of the alternatives; therefore, these utilities are not discussed further. Effects on water, wastewater, and electrical services are discussed below. As stated in the introduction to this section, effects on water drainage, including the construction of any stormwater drainage facilities, are addressed in Section 3.4, "Geomorphology and Water Quality."

IMPACT ANALYSIS AND MITIGATION MEASURES

Alternative 1: No Project/No Action: Existing River and 18-Hole Regulation Golf Course

IMPACT 3.13-1 (Alt. 1) Temporary Disruption of Public Services during Construction. *No construction activities or other actions that would disrupt public services would take place under Alternative 1. There would be* ***no impact****.*

Under Alternative 1, no project-related construction actions would take place, and the golf course would continue to operate as it operates today. Because no disruption would occur and no changes in demand for public services would occur, there would be no impact.

No mitigation is required.

IMPACT 3.13-2 (Alt. 1) Temporary Disruption or Damage of Utility Services during Construction and Risk of Damage to Sewer Pipelines. *No construction activities are proposed under Alternative 1 that would disrupt utility services. However, natural geomorphic adjustments to past disturbances will increase the risk of sewer pipeline damage from continued river bed and bank erosion that could potentially damage the STPUD sewer line and release untreated wastewater to the river. Such a release could eventually reach Lake Tahoe. Implementing Alternative 1 would allow this adverse condition to persist, but it is not a change from existing conditions. Therefore, this impact would be* ***less than significant****.*

Although no construction-related disruptions of utilities would occur under Alternative 1, natural geomorphic adjustments of the Upper Truckee River to past land use disturbances would continue. The existing sewer pipeline crossing the Upper Truckee River at RS 1400 is an inverted siphon that has approximately 1 foot of cover, and the upstream crossing at RS 8800 is an exposed concrete encasement. An existing sewer pipeline crossing is also located within Angora Creek. All of these crossings are inspected by South Tahoe Public Utility District twice per year (Adams, pers. comm., 2009). Continuation of existing channel dynamics, particularly any additional channel bed erosion in the future, may further diminish the remaining protective cover at RS 1400, potentially undercut the concrete casing at RS 8800 or the concrete casing along Angora Creek, increasing the risk of damaging effects

during a major flood flow. If the sewer pipeline is damaged during a major flood, untreated wastewater could be released into the river and potentially reach Lake Tahoe.

Additionally, a few hundred feet of sewer pipeline is located parallel to and within 25 feet of the eroding streambank on the Upper Truckee River between RS 6500 and 5900. Continuation of existing channel dynamics, particularly any additional channel widening in the future, may undermine and/or expose this section of the sewer pipeline and increase the risk of damaging effects during a major flood flow. If the sewer pipeline is damaged during a major flood, untreated wastewater could be released into the river and potentially reach Lake Tahoe.

Under Alternative 1, no change to the adverse existing conditions would be made, and risk of damage to the sewer pipelines would continue. The adverse condition would not be an effect of State Parks' implementation of Alternative 1 but would instead be related to ongoing geomorphic adjustments attributable to past human activity and land use modifications. STPUD would continue to monitor the sewer crossings twice per year and, if deemed necessary, would take protective measures and/or make repairs. While this is an adverse condition, it is no different than existing conditions and is not the result of a project action by State Parks. Therefore, this impact would be less than significant.

No mitigation is required.

IMPACT 3.13-3 (Alt. 1) Increased Demand for Electrical and Wastewater Service and Water Supply, Treatment, Distribution, and Storage. *Implementation of Alternative 1 would not result in increased demand for electrical, wastewater, or other water services. There would be* no impact.

Under Alternative 1, no new facilities or need for additional electrical, wastewater, or other water demands would be created. The golf course would continue to operate as it does today, and no restoration activities would occur. Because no change in demand for utility services would occur, there would be no impact.

No mitigation is required.

Alternative 2: River Ecosystem Restoration with Reconfigured 18-Hole Regulation Golf Course

IMPACT 3.13-1 (Alt. 2) Temporary Disruption of Public Services during Construction. *Construction activities and construction-related traffic could temporarily interfere with the ability of law enforcement, fire protection, and emergency medical service providers to provide emergency services to the project vicinity. This impact would be potentially significant.*

As discussed in Section 3.10, "Transportation, Parking, and Circulation," project-related operational traffic would not substantially increase. For Alternative 2, construction-period traffic, including heavy trucks, would need to use local roads to access the project from U.S. 50. Surrounding neighborhoods, golfers, and recreationists in Washoe Meadows SP and Lake Valley SRA could be in need of public services during construction. Construction operations and off-site construction traffic could potentially interfere with the ability of public service providers, including law enforcement, fire protection, and emergency medical service providers, to reach call locations as quickly as their typical response times, because of the presence of construction vehicles on local streets and at study area access points. This impact would be potentially significant.

Mitigation Measure 3.13-1 (Alt. 2): Incorporate Public Service and Emergency Access Provisions in the Construction Traffic Management Plan.

As part of the Construction Traffic Management Plan, prepared pursuant to Mitigation Measure 3.10-3, State Parks will coordinate with the appropriate public service agencies, providing construction-related traffic details and evaluating the need for specific actions to maintain adequate public service access to the study area and surrounding vicinity during construction. The plan will include measures to inform public service agencies of

access conditions, create and maintain emergency access routes for the study area and vicinity affected by project access routes, and instruct construction personnel about providing priority for public service emergency response.

Implementation of this mitigation measure would reduce impacts associated with the potential temporary disruption of public services during construction to a less-than-significant level, because adequate public service and emergency access would be maintained and public service providers would be notified about access conditions and routes.

IMPACT 3.13-2 (Alt. 2) **Temporary Disruption or Damage of Underground Utility Services during Construction and Ongoing Risk of Damage to Sewer Pipelines.** *Under Alternative 2, project excavation and grading and the potential need for relocation of or hookup to underground pipelines could disrupt existing known or unknown underground utilities. Furthermore, although the risk of damage to the sewer pipelines would be reduced relative to the No Project/No Action Alternative for some locations, it would be increased in other portions of the study area. This impact would be* ***potentially significant****.*

Underground sewer and natural gas lines are located in the study area. Alternative 2 would involve excavation and grading in areas where these lines are buried and connection to electrical, sewer, and water services located in the public right-of-way for the proposed restroom. Although the probability that project construction would affect the electrical, water, and gas lines is low, the potential exists that the sewer pipeline or other unknown underground utilities would be disrupted both within the study area and within the public right-of-way. Project construction activities, including grading and excavation, could damage identified and unidentified utility equipment and facilities. Sewer lines run through several areas where grading and excavation are expected to occur for both restoration and golf course reconfiguration. Some of these lines could require relocation for project implementation.

The existing sewer pipeline crossing under the Upper Truckee River at RS 1400 is an inverted siphon that has approximately 1 foot of cover, the upstream crossing at RS 8800 is an exposed concrete encasement, and the depth of the crossing along Angora Creek is currently not known, but is not exposed. All of these crossings are inspected by STPUD twice per year (Adams, pers. comm., 2009). Alternative 2 involves installing hard grade control that increases the thickness and resistance of the channel bed over these crossings and for some distances upstream and downstream, diminishing the risk of damaging effects during a major flood flow. This would be a beneficial effect relative to existing conditions and the No Project/No Action Alternative.

With the proposed new channel alignment, the active channel would be located away from a vulnerable section of pipeline near the existing bank between RS 6500 and 5900, but it would be located near different sections of buried pipeline in two other locations. A few hundred feet of the existing sewer pipeline would be parallel to and within 25 feet of the new streambank in each of two proposed reconnected meanders, upstream of existing RS 4100 and downstream of existing RS 7900. Channel dynamics following construction, particularly any channel widening in the future, may undermine and/or expose these sections of the sewer pipeline and increase the risk of damaging effects during a major flood flow. The proposed project involves implementing bank stabilization measures, potentially using buried sheet pile between the pipeline and the river, or adjusting streambank stabilization methods, and/or relocating the reconnected channel, to prevent lateral channel migration (bank erosion) from reaching and/or undermining the existing buried pipeline. However, flood event design standards have not been established. Furthermore, changes at the mouth of Angora Creek could potentially modify the channel slope and erosive forces in the vicinity of the existing sewer crossing, particularly if streambed and streambank treatments within lower Angora Creek are not designed specifically to prevent potential headcutting that could erode the bed upstream and destabilize or threaten the existing pipelines. If the sewer pipeline is damaged during a major flood or from potential headcutting, untreated wastewater could be released into the river and potentially reach Lake Tahoe. Potential water quality effects are discussed in Section 3.4, “Geomorphology and Water Quality.”

Under Alternative 2, construction and relocation of underground pipelines has the potential to disrupt existing known or unknown underground utilities. Furthermore, although the risk of damage to the sewer pipelines would be reduced relative to the No Project/No Action Alternative for some locations, it would be increased in other portions of the study area. This impact would be potentially significant.

Mitigation Measure 3.13-2a (Alt. 2): Verify Utility Locations, Coordinate with Utility Providers, Prepare and Implement a Response Plan, and Conduct Worker Training with Respect to Accidental Utility Damage.

As part of detailed design development, State Parks will consult with applicable utility providers to determine the exact location of underground facilities in the project area, including the public right-of-way, and design the final grading plans to avoid existing utilities where possible. If these utilities cannot be avoided, State Parks shall coordinate with the applicable utility to determine the best possible course of action to minimize potential disturbance.

Before the start of construction, utility locations will be verified through field surveys and the use of the Underground Service Alert services. Any buried utility lines shall be clearly marked in the area of construction on the construction specifications in advance of any earthmoving activities.

Before construction begins, State Parks will provide advance notification of any needed disturbance to area businesses and residents. Utility service provider consultation will continue during construction to ensure that facilities are avoided and protected and that utility service disruptions are avoided as construction proceeds.

Before the start of construction, a response plan will be prepared to address potential accidental damage to a utility line. The plan will identify chain-of-command rules for notifying authorities and appropriate actions and responsibilities to ensure the safety of the public and workers. Worker education training in response to such situations will be conducted by the contractor. The response plan will be implemented by State Parks and its contractors during construction activities.

Mitigation Measure 3.13-2b (Alt. 2): Protect Vulnerable Portions of the Sewer Pipeline from the 100-Year Flood Event.

This mitigation measure is additional to Mitigation Measure 3.4-2a. During detailed design development and in coordination with STPUD, State Parks will design protections for the buried sewer pipeline north and west of the proposed reconnected meanders on the Upper Truckee River upstream of existing RS 4100 and downstream of RS 7900. Final design will include actions to prevent channel adjustments resulting from the 100-year peak event from exposing/undermining sewer pipelines. Examples of potential protective actions could include bank protection, sheet pile, or relocation of sewer pipelines. Final design schematics will be reviewed and approved by STPUD Engineering Department and the actions will be installed during project construction.

With implementation of Mitigation Measure 3.13-2a (Alt. 2) and Mitigation Measure 3.13-2b (Alt. 2) as described above, Impact 3.13-2, the potential to disrupt or damage existing utilities, would be less than significant because the project would be designed to protect utilities; utilities would be relocated with notification to neighbors; and workers would receive safety training.

IMPACT 3.13-3 (Alt. 2) Increased Demand for Electrical and Wastewater Service and Water Supply, Treatment, Distribution, and Storage. *Implementation of Alternative 2 would result in a minor increase in demand for electrical and water services from the new restroom facility. However, irrigation demand is not expected to change. This impact would be* ***less than significant****.*

Implementation of Alternative 2, which includes a restroom facility on the west side of the Upper Truckee River and lighting for the parking area improvements, would result in a minor increase in electrical, water, and wastewater service. The restroom building would have one men's and one women's bathroom and would require an electrical, sewer, and water connection. Between six and nine lights would be added to the parking area and

would be used primarily for clubhouse events. The services needed for one restroom facility and the improved parking area are minimal and would not create supply, treatment, distribution, or storage issues on the local water or electrical systems. Additionally, water needs for irrigation and other relocated facilities would be approximately the same as existing conditions through the use of improved and more efficient irrigation practices and equipment. Water supply related to irrigation is discussed in further detail in Section 3.4, "Geomorphology and Water Quality." Irrigation use would not increase water demand above current golf course use levels. Restored floodplain and riparian vegetation would need temporary irrigation; however, this use would be seasonal, short term, and not sufficient enough to increase water demand beyond that available. This impact would be less than significant.

No mitigation is required.

Alternative 3: River Ecosystem Restoration with Reduced Play Golf Course

IMPACT 3.13-1 (Alt. 3) Temporary Disruption of Public Services during Construction. *Construction activities and construction-related traffic could temporarily interfere with the ability of law enforcement, fire protection, and emergency medical service providers to provide emergency services to the project vicinity. This impact would be potentially significant.*

This impact is identical to Impact 3.13-1 (Alt. 2). For the same reasons as described for Alternative 2, this impact would be potentially significant.

Mitigation Measure 3.13-1 (Alt. 3): Incorporate Public Service and Emergency Access Provisions in the Construction Traffic Management Plan.

This mitigation measure is identical to Mitigation Measure 3.13-1 (Alt. 2).

Implementation of this mitigation measure would reduce impacts associated with temporary disruption of public services during construction to a less-than-significant level because public service providers would be notified and detours would be provided where potential access issues may occur.

IMPACT 3.13-2 (Alt. 3) Temporary Disruption or Damage of Underground Utility Services during Construction and Ongoing Risk of Damage to Sewer Pipelines. *Under Alternative 3, project excavation and grading and the potential need for relocation of underground pipelines could disrupt existing known or unknown underground utilities. Furthermore, although the risk of damage to the sewer pipelines would be reduced relative to the No Project/No Action Alternative for some locations, it would be increased in other portions of the study area. This impact would be potentially significant.*

This impact is similar to Impact 3.13-2 (Alt. 2) because both alternatives involve construction activities that could affect the provision of utility services to the project vicinity. However, no new restroom facility, parking upgrades, or grading on the west side of the river is proposed under Alternative 3, so there would be no need for utility connections. Sewer lines could potentially need to be relocated because of restoration grading, and the risk of damage to the sewer lines during large flood events still exists. Therefore, this impact would be potentially significant.

Mitigation Measure 3.13-2a (Alt. 3): Verify Utility Locations, Coordinate with Utility Providers, Prepare and Implement a Response Plan, and Conduct Worker Training with Respect to Accidental Utility Damage.

This mitigation measure is identical to Mitigation Measure 3.13-2a (Alt. 2).

Mitigation Measure 3.13-2b (Alt. 3): Protect Vulnerable Portions of the Sewer Pipeline from the 100-Year Flood Event.

This mitigation measure is identical to Mitigation Measure 3.13-2b (Alt. 2).

For the same reasons as described for Alternative 2, with implementation of Mitigation Measure 3.13-2a (Alt. 3) and Mitigation Measure 3.13-2b (Alt. 3), Impact 3.13-2 (Alt. 3), the potential to disrupt or damage existing utilities, would be less than significant because the project would be designed to avoid or protect utilities, utilities would be relocated with notification to neighbors, and workers would receive safety training.

IMPACT 3.13-3 (Alt. 3) Increased Demand for Electrical and Wastewater Service and Water Supply, Treatment, Distribution, and Storage. *Implementation of Alternative 3 would result in a minor decrease in water demand and would have no effect on electrical or water services. This impact would be* ***less than significant****.*

Implementation of Alternative 3, at buildout, would result in a minor decrease in water demand because the proposed project includes an upgraded and more efficient irrigation system and because the extent of intensively managed areas that are regularly irrigated would decrease and the extent of minimally managed areas that are not irrigated would increase. There would be no effect on electrical, water, or wastewater services as a result of implementing Alternative 3 because a restroom facility and lighting for the improved parking area are not proposed. Water supply related to irrigation is discussed in further detail in Section 3.4, "Geomorphology and Water Quality." Restored floodplain and riparian vegetation would need temporary irrigation; however, this use would be seasonal, short term, and not sufficient enough to increase water demand beyond that available. This impact would be less than significant.

No mitigation is required.

Alternative 4: River Stabilization with Existing 18-Hole Regulation Golf Course

IMPACT 3.13-1 (Alt. 4) Temporary Disruption of Public Services during Construction. *Construction activities and construction-related traffic could temporarily interfere with the ability of law enforcement, fire protection, and emergency medical service providers to provide emergency services to the project vicinity. This impact would be* ***potentially significant****.*

This impact is identical to Impact 3.13-1 (Alt. 2). For the same reasons as described for Alternative 2, this impact would be potentially significant.

Mitigation Measure 3.13-1 (Alt. 4): Incorporate Public Service and Emergency Access Provisions in the Construction Traffic Management Plan.

This mitigation measure is identical to Mitigation Measure 3.13-1 (Alt. 2).

Implementation of this mitigation measure would reduce impacts associated with temporary disruption of public services during construction to a less-than-significant level because public service providers would be notified and detours would be provided where potential access issues may occur.

IMPACT 3.13-2 (Alt. 4) Temporary Disruption or Damage of Underground Utility Services during Construction and Ongoing Risk of Damage to Sewer Pipelines. *Implementing Alternative 4 would improve existing protective cover over sewer pipelines crossing the Upper Truckee River, and where lines are located within 25 feet of the existing banks, banks would be stabilized to reduce future erosion toward those lines. However, under Alternative 4, project excavation and grading and the potential need for relocation of underground pipelines could disrupt existing known or unknown underground utilities. This impact would be* ***potentially significant****.*

This impact is similar to Impact 3.13-2 (Alt. 2) because both alternatives involve construction activities that could affect the provision of utility services to the project vicinity, including construction of a new restroom facility and paving and lighting of the parking area. However, under Alternative 4, project grading would be much less than under Alternative 2 because no grading would occur on the west side of the river and because the floodplain would not be modified, new channel sections would not be created, and former meanders would not be incorporated under this alternative; therefore, the probability of damaging or needing to relocate utilities is lower. River stabilization measures implemented under this alternative would improve cover over the existing sewer line crossings and reduce potential damage to the sewer lines both at the crossings and adjacent to the river. River stabilization measures would have a beneficial effect on existing sewer lines across and adjacent to the Upper Truckee River.

Although grading and excavation would be much less than under the other action alternatives, the potential to damage existing sewer lines would still exist. Under Alternative 4, the restroom facility would be connected to the existing sewer, electrical, and water lines located in the public right-of-way, as well as electrical hookup for parking lot improvements. Therefore, this impact would be potentially significant.

Mitigation Measure 3.13-2a (Alt. 4): Verify Utility Locations, Coordinate with Utility Providers, Prepare and Implement a Response Plan, and Conduct Worker Training with Respect to Accidental Utility Damage.

This mitigation measure is identical to Mitigation Measure 3.13-2a (Alt. 2).

Mitigation Measure 3.13-2b (Alt. 4): Protect Vulnerable Portions of the Sewer Pipeline from the 100-Year Flood Event.

This mitigation measure is identical to Mitigation Measure 3.13-2b (Alt. 2).

For the same reasons as described for Alternative 2, with implementation of Mitigation Measure 3.13-2a (Alt. 4) and Mitigation Measure 3.13-2b (Alt. 4), Impact 3.13-2 (Alt. 4), the potential to disrupt or damage existing utilities, would be less than significant because the project would be designed to avoid or protect utilities, utilities would be relocated with notification to neighbors, and workers would receive safety training.

IMPACT 3.13-3 (Alt. 4) Increased Demand for Electrical and Wastewater Service and Water Supply, Treatment, Distribution, and Storage. *Implementation of Alternative 4 would result in a minor increase in demand for electrical and water services from the new restroom facility and the parking area improvements. However, irrigation demand is not expected to change. This impact would be* ***less than significant****.*

Implementation of Alternative 4, which includes the proposed restroom facility near hole 5 and lighting for the parking area improvements, would result in a minor increase in electrical, water, and wastewater service. The restroom building would have one men's and one women's bathroom and would require an electrical, sewer, and water connection. Between six and nine additional lights would be added to the parking area and would be used primarily for clubhouse events. The services needed for one restroom facility and the parking area improvements are minimal and would not create supply, treatment, distribution, or storage issues on the local water or electrical systems.

Under Alternative 4, irrigation equipment would not be upgraded, and water needs for irrigation would be approximately the same as under existing conditions. Water supply related to irrigation is discussed in further detail in Section 3.4, "Geomorphology and Water Quality." Restored floodplain and riparian vegetation would need temporary irrigation; however, this use would be seasonal, short term, and not sufficient enough to increase water demand beyond that available. This impact would be less than significant.

No mitigation is required.

Alternative 5: River Ecosystem Restoration with Decommissioned Golf Course

IMPACT 3.13-1 (Alt. 5) Temporary Disruption of Public Services during Construction. *Construction activities and construction-related traffic could temporarily interfere with the ability of law enforcement, fire protection, and emergency medical service providers to provide emergency services to the project vicinity. This impact would be potentially significant.*

This impact is identical to Impact 3.13-1 (Alt. 2). For the same reasons as described for Alternative 2, this impact would be potentially significant.

Mitigation Measure 3.13-1 (Alt. 5): Incorporate Public Service and Emergency Access Provisions in the Construction Traffic Management Plan.

This mitigation measure is identical to Mitigation Measure 3.13-1 (Alt. 2).

Implementation of this mitigation measure would reduce impacts associated with temporary disruption of public services during construction to a less-than-significant level because public service providers would be notified and detours would be provided where potential access issues may occur.

IMPACT 3.13-2 (Alt. 5) Temporary Disruption or Damage of Underground Utility Services during Construction and Ongoing Risk of Damage to Sewer Pipelines. *Under Alternative 5, project excavation and grading and the potential need for relocation of underground pipelines could disrupt existing known or unknown underground utilities if not properly coordinated with service providers. Furthermore, although the risk of damage to the sewer pipelines would be reduced relative to the No Project/No Action Alternative for some locations, it would be increased in other portions of the study area. This impact would be potentially significant.*

This impact is similar to Impact 3.13-2 (Alt. 2) because both alternatives involve construction activities that could affect the provision of utility services to the project vicinity. However, no new restroom facility or grading on the west side of the river is proposed under this alternative, so there would be no need for utility connections, and the existing golf course would be decommissioned. Sewer lines could potentially need to be relocated because of restoration grading, and the risk of damage to the sewer lines during large flood events would still exist. Therefore, this impact would be potentially significant.

Mitigation Measure 3.13-2a (Alt. 5): Verify Utility Locations, Coordinate with Utility Providers, Prepare and Implement a Response Plan, and Conduct Worker Training with Respect to Accidental Utility Damage.

This mitigation measure is identical to Mitigation Measure 3.13-2a (Alt. 2).

Mitigation Measure 3.13-2b (Alt. 5): Protect Vulnerable Portions of the Sewer Pipeline from the 100-Year Flood Event.

This mitigation measure is identical to Mitigation Measure 3.13-2b (Alt. 2).

For the same reasons as described for Alternative 2, with implementation of Mitigation Measure 3.13-2a (Alt. 5) and Mitigation Measure 3.13-2b (Alt. 5), Impact 3.13-2 (Alt. 5), the potential to disrupt or damage existing utilities, would be less than significant because the project would be designed to avoid or protect utilities, utilities would be relocated with notification to neighbors, and workers would receive safety training.

IMPACT 3.13-3 (Alt. 5) Increased Demand for Electrical and Wastewater Service and Water Supply, Treatment, Distribution, and Storage. *Implementation of Alternative 5 would result in a decrease in water demand and would have no effect on electrical or other water services. This impact would be less than significant.*

Implementation of Alternative 5, at buildout, would likely result in a decrease in water demand because the proposed project includes removing golf course infrastructure, including golf course irrigation equipment, and replacing it with native vegetation. After initial native vegetation is established, these vegetated areas would no longer be irrigated; therefore, implementing Alternative 5 would result in a decreased demand on water supply. However, State Parks plans to evaluate alternative land uses within the Washoe Meadows State Park and the SRA in a separate planning process. Demand needs, use of the well, and storage facilities will be evaluated at that time. It is not expected that any increase in water supply, treatment, distribution, or storage would be required. Water would still be used at the clubhouse in a manner similar to its use today for landscaping, restrooms, and other clubhouse facilities. This impact would be less than significant.

No mitigation is required.

This page intentionally left blank.

3.14 HUMAN HEALTH AND RISK OF UPSET

This section evaluates the potential risks to human health and the risk of upset from hazardous materials, fire hazards, hazards to aviation, and public health impacts associated with implementation of the Upper Truckee River Restoration and Golf Course Reconfiguration Project. This section describes the regulatory background and existing environmental conditions in the study area and identifies potential impacts of the proposed alternatives and mitigation measures that would reduce those impacts to less-than-significant levels. Consistency with TRPA goals and policies is presented in Section 3.2, "Land Use," Table 3.2-1. Cumulative human health and risk of upset impacts are addressed in Section 3.16, "Cumulative Impacts."

3.14.1 AFFECTED ENVIRONMENT

REGULATORY SETTING

Numerous Federal, State, and regional laws, rules, regulations, plans, and policies define the framework for regulating human health and risk of upset, including hazardous materials, in the Tahoe Basin. The following discussion summarizes hazardous materials and other public health and safety requirements applicable to this project.

Federal

Management of Hazardous Materials

Federal laws require planning to ensure that hazardous materials are properly handled, used, stored, and disposed of, and if such materials are accidentally released, to prevent or mitigate injury to health or the environment. The U.S. Environmental Protection Agency (EPA) is the agency primarily responsible for enforcement and implementation of Federal laws and regulations pertaining to hazardous materials. Applicable Federal regulations pertaining to hazardous materials are contained mainly in Code of Federal Regulations (CFR) Titles 29, 40, and 49. Hazardous materials, as defined in the code, are listed in 49 CFR 172.101. Management of hazardous materials is governed by the following laws:

- The Resource Conservation and Recovery Act of 1976 (RCRA) (42 United States Code [USC] 6901 et seq.) is the law under which EPA regulates hazardous waste from the time the waste is generated until its final disposal ("cradle to grave").

- The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (also called the Superfund Act) (42 USC 9601 et seq.) gives EPA authority to seek out parties responsible for releases of hazardous substances and ensure their cooperation in site remediation.

- The Superfund Amendments and Reauthorization Act (SARA) of 1986 (Public Law 99-499; USC Title 42, Chapter 116), also known as SARA Title III or the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), imposes hazardous materials planning requirements to help protect local communities in the event of accidental release.

Transport of Hazardous Materials

The U.S. Department of Transportation regulates transport of hazardous materials between states and is responsible for protecting the public from dangers associated with such transport. The Federal hazardous materials transportation law, 49 USC 5101 et seq. (formerly the Hazardous Materials Transportation Act, 49 USC 1801 et seq.), is the basic statute regulating transport of hazardous materials in the United States. Hazardous materials regulations are enforced by the Federal Highway Administration, the U.S. Coast Guard, the Federal Railroad Administration, and the Federal Aviation Administration (FAA).

Hazardous Waste Management

The RCRA (EPA 2006) requires a comprehensive regulatory system for handling hazardous waste in a manner that protects human health and the environment. This regulatory system includes tracking all generators of hazardous waste.

Worker Safety

The Federal Occupational Safety and Health Administration (OSHA) is the agency responsible for assuring worker safety in the handling and use of chemicals identified in the Occupational Safety and Health Act of 1970 (Public Law 91-596, 9 USC 651 et seq.). OSHA has adopted numerous regulations pertaining to worker safety, contained in CFR Title 29. These regulations set standards for safe workplaces and work practices, including standards relating to the handling of hazardous materials.

Airspace Safety

Part 77 of the Federal Aviation Regulations (FAR), "Objects Affecting Navigable Airspace," has been adopted to help ensure that the airspace required for safe operation of aircraft and airports is monitored and protected. Objects that exceed certain specified height limits constitute airspace obstructions. FAR Section 77.13 requires that FAA be notified of proposed construction or alteration of certain objects within a specified vicinity of an airport, including the following:

(1) Any construction or alteration of more than 200 feet in height above the ground level at its site.

(2) Any construction or alteration of greater height than an imaginary surface extending outward and upward at a slope of 100 to 1 for a horizontal distance of 20,000 feet from the nearest point of the nearest runway of each public-use airport, public-use airport under construction, or military airport, with at least one runway more than 3,200 feet in actual length, excluding heliports.

Wildlife Hazards

Collisions between aircraft and wildlife compromise the safety of passengers and flight crews. Damage to an aircraft resulting from a wildlife collision can range from a small dent in the wing to catastrophic engine failure and destruction of the aircraft, along with potential loss of life.

FAA is responsible for enforcing 14 CFR 139, which prescribes rules regarding operation of airports used by aircraft with seating capacity of more than 30 passengers. FAA roles and responsibilities relating to wildlife hazards and their associated human health and safety concerns are addressed in 14 CFR 139.337, Wildlife Hazard Management. An ecological study must be prepared by the airport operator and submitted to FAA when multiple birds or other wildlife are struck by aircraft or ingested into aircraft engines, or if sufficient birds or other wildlife are present in an airport flight pattern as to result in such hazards. FAA determines whether a wildlife hazard management plan is needed. FAA's Office of Airport Safety and Standards has published advisory circulars and program policy and guidance directives that further clarify this information. An advisory circular dated July 27, 2004, titled "Hazardous Wildlife Attractants on or Near Airports" (AC 150/5200-33A), provides guidance on locating certain land uses having the potential to attract hazardous wildlife to or in the vicinity of public-use airports. FAA recommends the following separations when siting facilities that would increase wildlife attractants (e.g., municipal landfills, wastewater treatment facilities, or constructed wetlands) (FAA 2004):

- 5,000 feet from airports serving piston-powered aircraft,
- 10,000 feet from airports serving turbine-powered aircraft, and

- 5 miles from airports where the wildlife attractant may cause hazardous wildlife movement into or across the approach or departure airspace.

FAA recommends a distance of 10,000 feet (critical zone) separating wildlife attractants and aircraft movement areas. Table 3.14-1 lists wildlife groups ranked by FAA based on the hazard they pose to aircraft and flight (FAA 2007). Hazard ranking of species groups is based on the sum of three criteria, each given a value: the incident of a wildlife strike, the extent of the damage, and effect to the flight associated with the wildlife strike. Deer are the most damaging species group, and thus are given a relative hazard score of 100. The remaining hazardous species group's relative hazard score is a percentage of the deer's total score.

Table 3.14-1
Species Group and Federal Aviation Administration Hazard Ranking

Species Group	Rank	Relative Hazard Score
Deer	1	100
Vultures	2	64
Geese	3	55
Cormorants/pelicans	4	54
Cranes	5	47
Eagles	6	41
Ducks	7	39
Osprey	8	39
Turkey/pheasants	9	33
Herons	10	27
Hawks (buteos)	11	25
Gulls	12	24
Rock pigeons	13	23
Owls	14	23
Horned lark	15	17
Crows/ravens	16	16
Coyote	17	14
Mourning dove	18	14
Shorebirds	19	10
Blackbirds/starling	20	10
American kestrel	21	9
Meadowlarks	22	7
Swallows	23	4
Sparrows	24	4
Nighthawks	25	1

Source: FAA 2007

State

Management of Hazardous Materials

In California, both Federal and State community right-to-know laws are coordinated through the Governor's Office of Emergency Services. The Federal law, SARA Title III or EPCRA, is described above under the listing of Federal regulations. The corresponding State law is Chapter 6.95 of the California Health and Safety Code.

The purpose of EPCRA is to encourage and support emergency planning efforts at the State and local levels and to provide local governments and the public with information about potential chemical hazards in the communities. Because of the community right-to-know laws, information is collected from facilities that handle (e.g., produce, use, store) hazardous materials above certain quantities. The provisions of EPCRA apply to four major categories:

- emergency planning,
- emergency release notification,
- reporting of hazardous chemical storage, and
- inventory of toxic chemical releases.

Information gathered in these four categories help Federal, State, and local agencies and communities get an idea of the chemical hazards in a particular location or area and what chemicals individual facilities are using, storing, or producing on-site.

The California Department of Toxic Substances Control (DTSC), a division of the California Environmental Protection Agency, has primary regulatory responsibility over hazardous materials in California, working in conjunction with EPA to enforce and implement hazardous-materials laws and regulations. As required by Section 65962.5 of the California Government Code, DTSC maintains a hazardous waste and substances site list for the State, called the Cortese List.

Transport of Hazardous Materials and Hazardous Materials Emergency Response Plan

State agencies with primary responsibility for enforcing State regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol and the California Department of Transportation (Caltrans). Together, these agencies determine container types used and license hazardous-waste haulers for to transport hazardous waste on public roads.

California has developed an emergency response plan to coordinate emergency services provided by Federal, State, and local governments and private agencies. Response to hazardous materials incidents is one part of this plan. The plan is managed by the Governor's Office of Emergency Services, which coordinates the responses of other agencies—in the study area, the California Environmental Protection Agency, the California Highway Patrol, the California Department of Fish and Game, the Lahontan Regional Water Quality Control Board (Lahontan RWQCB), the El Dorado County Environmental Management Department, the El Dorado County Sheriff's Department, and the Lake Valley Fire Protection District.

Worker Safety

The California Occupational Safety and Health Administration (Cal/OSHA) assumes primary responsibility for developing and enforcing workplace safety regulations within the state. Cal/OSHA standards are more stringent than Federal OSHA regulations and are presented in Title 8 of the California Code of Regulations. Cal/OSHA conducts on-site evaluations and issues notices of violation to enforce necessary improvements to health and safety practices.

Airspace Safety

The State regulates airports under the authority of the Airport Land Use Commission Law, Section 21670 et seq. of the California Public Utilities Code. The *California Airport Land Use Planning Handbook* published by the Caltrans Division of Aeronautics (Caltrans 2002) supports this law by providing compatibility planning guidance to airport land use commissions (ALUCs), counties and cities that have jurisdiction over airport area land uses, and airport proprietors.

The Airport Land Use Commission Law is implemented through ALUCs, which are required in every county with a public-use airport or with an airport served by a scheduled airline. Under the provisions of the law, the ALUC has certain responsibilities and specific duties. Among these are preparing airport land use plans for each of the airports within its jurisdiction (California Public Utilities Code, Sections 21674[c] and 21675[a]). El Dorado County has designated TRPA as the ALUC for the Lake Tahoe Airport.

Wildfire Hazard Management

State Responsibility Areas

The California Department of Forestry and Fire Protection (CAL FIRE) implements statewide laws aimed at reducing wildfire hazards in wildland-urban interface areas. The laws are based on fire hazard assessment and zoning. The laws apply to State responsibility areas, including the study area, which are defined as areas of the state in which the State has primary financial responsibility for preventing and suppressing fires, as determined by the State Board of Forestry pursuant to Sections 4125 and 4102 of the California Public Resources Code. Fire protection outside State responsibility areas is the responsibility of Federal or local jurisdictions. These areas are referred to by CAL FIRE as Federal responsibility areas and local responsibility areas.

Wildfire Management Plan

As mandated by the fire prevention and suppression policy in the *Lake Valley State Recreation Area General Plan*, a wildfire management plan has been implemented for Lake Valley SRA (H. Lake Valley State Recreation Area) and Washoe Meadows SP (G. Washoe Meadows State Park). The plan identifies modified fire suppression methods that preserve sensitive unit resources while protecting human lives and property specific to these areas (State Parks 2006). The Lake Tahoe Golf Course is responsible for general vegetation maintenance and relies on State Parks to remove hazardous trees. Crews regularly collect dead, fallen, and otherwise hazardous vegetation for removal (Stanowski, pers. comm., 2008).

Tahoe Regional Planning Agency

1987 Regional Plan

TRPA implements its authority to regulate growth and development in the Lake Tahoe region through the *Regional Plan for the Lake Tahoe Basin* (Regional Plan). TRPA's Regional Plan, adopted in 1987, consists of several documents: Goals and Policies, Code of Ordinances, Water Quality Management Plan, Regional Transportation Plan—Air Quality Plan, Plan Area Statements, and Scenic Quality Improvement Plan.

The 1987 Regional Plan had a 20-year scope and is currently being reviewed and updated through a collaborative effort led by TRPA. These agencies are working together to update several important environmental documents for the Tahoe Basin. These Regional Plan updates will guide land management, resource management, and environmental regulations in the Tahoe Basin over the next 20 years. The Regional Plan update is anticipated to be completed by 2011.

The following policy in Chapter II (Land Use Element) of TRPA's Goals and Policies related to hazards and hazardous materials is applicable to this project:

> **Natural Hazards, Goal 1, Policy 3:** Inform residents and visitors of the wildfire hazard associated with occupancy in the Basin. Encourage use of fire resistant materials and fire preventative techniques when constructing structures, especially in the highest fire hazard areas. Manage forest fuels to be consistent with state laws and other goals and policies of this plan.

Code of Ordinances

Section IX, Chapter 75, Section 75.3 of the TRPA Code of Ordinances (TRPA 2008) provides the following guidance applicable to the proposed alternatives related to hazards and hazardous materials:

> **Vegetation Management to Prevent the Spread of Wildfire:** Within areas of significant fire hazard, as determined by local, state, or federal fire agencies, flammable or other combustible vegetation may be removed, thinned, or manipulated up to 30 feet from any structure to prevent the spread of wildfire. Sufficient quantities of residual vegetation should remain in this 30-foot-wide zone to stabilize the soil and prevent erosion. Whenever possible, vegetation in this zone should be thinned, tapered, cut back, or otherwise selectively manipulated, rather than removed entirely. Revegetation with approved species may be required where vegetative ground cover has been eliminated or where erosion problems may occur.

The Emergency California-Nevada Tahoe Basin Fire Commission Report (Report) was released in May 2008. In the Report there are thirty recommendations that are specific to TRPA. Within the recommendations there are 57 action items that TRPA is being encouraged to address (TBFC 2008: 73, TRPA 2008: 1). In September 2008, TRPA responded to the Report with a list of how they are implementing the 57 action items. Currently, TRPA has implemented 20 items, 15 are under implementation, and 22 under development with partner groups (TRPA 2008: 2). Action items include code changes to increase the tree removal diameter requiring a permit from 6 inches to 14 inches (diameter at breast height) and creating a "Defensible Space Assessor" definition and training program to allow fire districts to have more personnel involved in defensible space assessments. Other actions include integrating erosion control with Defensible Space requirements, developing clear, concise public messages and revised "Living With Fire" guidelines, creation of a new MOU identifying TRPA as the lead agency for vegetation management activities in the basin, creation of an MOU between TRPA and USFS to streamline forest fuels permitting, and dedicate staff to work with the Tahoe Fire and Fuels Team for expeditious permitting and public information.

Beginning April 14, 2008, all permit applications and qualified exempt declarations requiring TRPA review which involve construction must receive pre-approval from the appropriate Lake Tahoe fire protection district or department. State lands, including those within the study area are exempt from this approval process.

TRPA Environmental Threshold Carrying Capacities

TRPA has not established any environmental threshold carrying capacities (thresholds) related to human health/risk of upset.

El Dorado County Vector Control District

In 1915, the California Legislature adopted the Mosquito Abatement Act (now incorporated into Division 3, Chapter 5 of the Health and Safety Code), which formed the basis for the creation, function, and governing powers of mosquito abatement districts. The El Dorado County Vector Control District (EDCVCD) was formed in 1963. EDCVCD is a division of the El Dorado County Environmental Management Department. EDCVCD's

service area encompasses 195 square miles, including the study area, and its mission is to provide vector control services and protect public health and safety with minimal impact on the environment (El Dorado County 2008).

Mosquito abatement/vector control districts are governmental organizations formed at the local level that are responsible for controlling specific disease vectors within their jurisdiction. They have the authority to conduct surveillance for, prevent the occurrence of, and abate production of vectors on both public and private properties. Vector control districts also have the authority to participate in review, comment, and make recommendations regarding Federal, State, or local land use planning and environmental quality processes, documents, permits, licenses, and entitlements for projects and their potential effects on vector production. These districts receive most of their revenue from property taxes and are primarily responsible for controlling mosquitoes as pest species and as disease vectors. California law requires that if a problem source of mosquito production exists as a result of human-made conditions, the party responsible for those conditions is liable for the cost of abatement.

City of South Lake Tahoe

The *Lake Tahoe Airport Comprehensive Land Use Plan* (CLUP) establishes planning boundaries for the Lake Tahoe Airport and defines compatible types and patterns of future land uses that might occur in the area surrounding the airport (City of South Lake Tahoe 2007). The purpose of the CLUP is to provide the Lake Tahoe Airport area with compatibility guidelines for height, noise, and safety.

The CLUP designates airport safety zones to the land surrounding the airport. To minimize the number of people exposed to aircraft crash hazards, land use restrictions are enforced in these safety zones. The CLUP designates three safety zones:

- the clear zone, which is near the runway and is the most restrictive;
- the approach/departure zone, which is located under the takeoff and landing slopes for each runway, extends outward for 5,000 feet from Runway 36 (with a width of 500–1,500 feet) and 10,000 feet from Runway 18 (with a width of 1,010–3,500 feet), and is less restrictive than the clear zone; and
- the overflight zone, which is the area overflown by aircraft during the normal traffic pattern, extends in all directions 5,000 feet from the center of each end of each runway, and is the least restrictive.

A small portion of the northeast corner of the study area, adjacent to Sawmill Road and U.S. 50 (RM 1000 to U.S. 50) is within the overflight zone.

ENVIRONMENTAL SETTING

Definitions

For purposes of this section, the term “hazardous materials” refers to both hazardous substances and hazardous wastes. A “hazardous material” is defined by Federal regulations as “a substance or material that…is capable of posing an unreasonable risk to health, safety, and property when transported in commerce” (49 CFR 171.8). Section 25501 of the California Health and Safety Code defines a hazardous material as follows:

> Hazardous material means any material that, because of its quantity, concentration, or physical, or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. Hazardous materials include, but are not limited to, hazardous substances, hazardous waste, and any material which a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

Hazardous wastes are defined in Section 25141(b) of the Health and Safety Code as wastes that:

> …because of their quantity, concentration, or physical, chemical, or infectious characteristics, [may either] cause, or significantly contribute to an increase in mortality or an increase in serious illness[, or] pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

Land Uses and Site Conditions

Potential Sources of Hazardous Materials in the Vicinity of the Study Area

The study area has been altered from its original condition as a result of human activities: logging, livestock grazing, road construction, a rock quarry, and residential and commercial developments. Therefore, human-generated hazardous wastes could exist within the study area. A former quarry site is located on the west side of the Upper Truckee River within the SP, within the area proposed as golf course under Alternative 2. Most of the viable sand and gravel was excavated from the site prior to State Parks ownership. The north and south lobe both contain concrete, brick, and asphalt waste, while the middle lobe has been restored. No leaking underground storage tanks or other designated cleanup sites were identified within or near the study area (SWRCB 2008). There are no known Superfund sites within the Lake Tahoe Basin. According to EPA's Envirofacts database, EnviroMapper, and a 2007 survey of the study area, four small-quantity generators are located near the study area (EPA 2005, 2007). Such entities produce between 220 and 2,200 pounds of hazardous waste per month. The following locations have been designated as small-quantity generators:

- Sierra Ready Mix, 1526 Emerald Bay Road
- 5 Star Texaco, 2037 U.S. 50
- Shell Service Station, U.S. 50 at Santa Fe
- Executive Aero Systems, U.S. 50 at Apache Avenue

Potential Sources of Hazardous Materials in the Study Area

Maintained Hazardous Materials

The Lake Tahoe Golf Course is enrolled in a hazardous waste generator and hazardous materials management plan program with the El Dorado County Environmental Management Department. This program includes a hazardous materials business plan and annual hazardous materials safety training for golf course staff members. The El Dorado County Environmental Management Department performs inspections that include photographic documentation and materials sampling.

The following hazardous materials are maintained on-site at the golf course:

- fertilizer;
- herbicide;
- fungicide;
- vehicle maintenance and fueling chemicals:
    - one 55-gallon drum containing used oil filters;
    - two 500-gallon aboveground storage tanks, one containing unleaded gasoline and one containing diesel fuel; and
    - up to two 55-gallon drums of oil for snowmobile use is on-site.

Existing golf course operations are conducted under an updated waste discharge permit and associated monitoring and reporting program from Lahontan RWQCB (Lahontan RWQCB 2000a, 2000b). For the purposes of Board Order No. 6-00-48, State Parks (as landowner) and American Golf (as lease holder) are considered as "the discharger," and the golf course and its routine operation and maintenance are referred to as "the facility." Before the 2000 update, the facility operated under Board Order No. 6-89-9, which was adopted on January 12, 1989. The waste discharge requirements for the facility include compliance with discharge limitations and receiving water limitations consistent with the Basin Plan. In compliance with the updated permit, the golf course prepared a maintenance plan that included a "chemical plan, an irrigation plan, an agronomic plan, an erosion control plan, and reporting requirements" (Lake Tahoe Golf Course and Restaurant 2000). Potential pollutants from the facility consists of nutrients from fertilizers and toxic compounds from the use of pesticides, products of erosion, construction waste materials, and small amounts of oil and grease contained in stormwater runoff from impervious surfaces, diesel fuel, and gasoline fuel from the two aboveground fuel tanks and the former underground tanks (Lahontan RWQCB 2000a).

A review of the Lahontan RWQCB's files identified the closure of an underground storage tank, case number 6T0113A (Lahontan RWQCB 1993). The underground storage tank was located where the existing maintenance building currently stands and was removed before the building was constructed. A letter dated September 9, 1993, from the Lahontan RWQCB to golf course superintendent John Stanowski stated that lab results showed no detectable contaminants in soil samples, monitoring wells, or purge water. The letter stated that the case was closed.

Violations and Notices

During the winter months, the Lake Tahoe Winter Sports Center operates a snowmobile rental company at the Lake Tahoe Golf Course. Complaint number 6-99-20 was filed by the Lahontan RWQCB against Lake Tahoe Winter Sports Center in 1999. A discharge occurred on or about February 22, 1999, when a fuel line on a snowcat at the site was damaged and an unknown quantity of diesel fuel (less than 30 gallons) was discharged to the snow adjacent to the maintenance building. Diesel fuel was observed entering the stormwater detention pond on April 19, 1999, and to the Upper Truckee River on April 20, 1999. It is noted that diesel fuel may have also discharged as overland flow to the Upper Truckee River for an unknown period of time. The soil was excavated and confirmation soil samples were evaluated for diesel and other potential constituents of concern. The May 12, 1999, sampling results were nondetect for TPDd (diesel). Excavated soil was disposed of at Forward Landfill in Manteca, California (Avalex Inc. 1999:1). Since the spill, the El Dorado County Environmental Management Department has determined that the spill has been remediated, and no further action is required (Morgan, pers. comm., 2002).

The Lake Tahoe Golf Course received a notice of correction from the El Dorado County Environmental Management Department for spills of used oil on soil near its golf cart/vehicle maintenance and fueling facility on April 26, 2005. On May 31, 2005, an inspection report noted that the contaminated soil was cleaned and required no further action (Martin, 2005a, 2005b).

Schools within One-Quarter Mile of the Study Area

Appendix G of the State CEQA Guidelines recommends that an EIR consider whether a project might emit or handle hazardous materials within one-quarter mile of an existing or proposed school.

One school, Lake Tahoe Environmental Science Magnet School, exists within one-quarter mile of the study area. No additional schools are proposed within one-quarter mile of the study area.

Wildlife Hazards to Aviation

The Lake Tahoe Airport, owned and operated by the City of South Lake Tahoe, is located approximately 1 mile northeast of the northeast corner of the study area. The airport is equipped to serve as a commercial air

carrier/general aviation airport, although it does not currently support commercial flights and there is no commercial operator at the airport. The airport has one north-south asphalt runaway, which is 8,544 feet long by 150 feet wide.

The Lake Tahoe Airport is adjacent to the Upper Truckee River and to the corridor of aquatic, wetland, riparian, and upland habitats that extends from upstream of the airport through South Lake Tahoe to the lake. The airport's location in this corridor, its proximity to Lake Tahoe, and the extensive areas of natural vegetation nearby create the potential for hazardous wildlife to move through the airport's clear, approach/departure, and overflight zones.

The study area provides habitat for several species groups that can be hazardous to aviation (FAA 2007). Section 3.5, "Biological Resources (Fisheries and Aquatic Resources, Vegetation and Wildlife)," provides additional information on the wildlife within the study area. Habitat for these species groups is provided not only in the study area, but also outside of the study area in a large portion of the clear, approach/departure, and overflight zones, and in most of the 10,000-foot wide critical zone (within which FAA recommends minimizing attractants of hazardous wildlife). Despite the presence of extensive habitat for hazardous wildlife in its vicinity, bird-plane collisions (i.e., bird strikes) have not been a problem at the Lake Tahoe Airport. There are no records of bird strikes at the Lake Tahoe Airport in the FAA Birdstrike Database or within the memory of airport staff members (CDM 2007).

Wildland Fire Hazards

The Tahoe Basin is considered at high risk for catastrophic wildfire by TRPA and the area's other land use agencies (TRPA 2007: E-1). The 2007 Angora Fire burned parts of the adjacent Upper Truckee North/Tahoe Paradise neighborhood and the adjacent ridge west and north of the study area. The Angora Fire started on the afternoon of June 24, 2007 from an unattended campfire. The fire occurred during some of the most severe fire danger conditions experienced in this Basin over the last 20 years. The fire initially spread 4 miles in 3 hours and burned over 250 structures on private property, including over 200 homes. Containment required several days. Most of the 3,072 acres within the fire perimeter involved USFS lands; however, about 300 urban lots owned by the USFS, Conservancy, State Parks, and Eldorado County, and 231 acres of private property also burned (USFS 2007).

The fire protection districts on the California side of the Tahoe Basin have prepared a joint community wildfire prevention plan (CWPP) with individual programs for each district (TBFSC 2004: I-i). In addition, in 2007 the final fuel reduction and forest restoration plan (FRFRP) was released by TRPA (TRPA 2007: E-1). This document is an example of the high priority that land use agencies in the Tahoe Basin place on wildfire prevention. Both the CWPP and the FRFRP stress the high risk of wildfire, particularly high-intensity wildfire, in the Tahoe Basin and identify fuel reduction treatments as a component for reducing fire risk.

The Emergency California-Nevada Tahoe Basin Fire Commission Report was released in May 2008. Beginning April 14, 2008, all permit applications and qualified exempt declarations requiring TRPA review which involve construction must receive pre-approval from the appropriate Lake Tahoe fire protection district or department. The State lands of the study area are exempt from this approval process. The study area is in the center of the Lake Valley Fire Protection District's (LVFPD) service area. LVFPD provides fire protection, rescue, and emergency medical services to the community of Meyers and the surrounding area, serving approximately 11,000 permanent residents, with seasonal tourist fluctuations that can increase the population to more than 40,000 persons. LVFPD employs 23 full-time and 10 volunteer personnel. LVFPD operates from three fire stations. The closest fire station to the study area is located at 2211 Keetak Street in the community of Meyers, approximately 2 miles from the study area. LVFPD maintains four Type I fire engines, two Type III fire engines, two ambulances, a rescue squad, a 3500 gallon water tender and various other staff and utility vehicles, including a backhoe (LAFCO 2006: 144-156).

LVFPD's 2004 CWPP is part of the *Community Wildfire Protection Plan for the California Portion of the Tahoe Basin*. The CWPP for the LVFPD includes defensible-space treatments proposed for neighborhoods along North Upper Truckee Road, Meyers Community, Sawmill Road, and U.S. 50. The existing fire behavior level in the North Upper Truckee area is a National Forest Fire Laboratory (NFFL) fuel model 10. A fuel model 10 means that a fire in this area is expected to spread 300–600 feet per hour with flames 3–6 feet long. The existing predicted fire behavior in the Sawmill Road and U.S. 50 area is a NFFL fuel model 2. A fuel model 2 means that a fire in this area is expected to spread 1,300–1,700 feet per hour with flames 4–8 feet long (TBFSC et al. 2004: Chapter 2, P. 94).

As mandated by the fire prevention and suppression policy in the *Lake Valley State Recreation Area General Plan*, a wildfire management plan has been implemented for Lake Valley SRA and Washoe Meadows SP. The plan identifies modified fire suppression methods that preserve sensitive unit resources while protecting human lives and property specific to these areas. The *Lake Sector Wildfire Management Plan* provides resource information and fire suppression tactics for both Washoe Meadows SP and Lake Valley SRA (Table 3.14-2). In general, the Lake Tahoe Golf Course relies on staff members and visitors to make management aware of vegetation that requires removal. State Parks removes trees within the golf course that are determined to be hazardous (Stanowski, pers. comm., 2008). Formal tree hazard inspections are performed on a 2-year return interval by the State Parks Forester, following state-wide protocol.

Table 3.14-2
Lake Sector Wildfire Management Plan

Location	Potential Safe Areas	Defensive Fuel Profile Zones/Prescribed Burn History	Sensitive Resources to Protect	Suppression Tactics
Washoe Meadows State Park	Wet meadows with green vegetation; along the Upper Truckee River	Defensive Fuel Profile Zone along the western boundary of the park	Meadow, fen, riparian areas	Minimum impact suppression tactics
Lake Valley State Recreation Area	Golf course greens; wet meadows with green vegetation	Vegetation maintenance (completed by golf course)	Meadow, riparian areas	Minimum impact suppression tactics

Notes: Minimum impact suppression tactics include hand crews and handlines only if absolutely necessary. Bulldozers/vehicles and drops of fire retardant in the meadows, fen, and riparian areas are not permitted.
Source: State Parks 2006

State Parks is currently implementing a Riparian Hardwood Restoration Project funded through a grant from the Reclamation on State Park land, including Washoe Meadows SP and Lake Valley SRA. The Riparian Hardwood Restoration Project should be completed within the study area prior to implementation of the proposed project. It involves removal of lodgepole pines along the maintenance road and adjacent to the Upper Truckee River to improve alder, aspen, and willow stands.

Mosquito Hazards

Mosquito Ecology

The life cycle of the mosquito consists of four stages: egg, larva, pupa, and adult (CDPH 2008:5–8). The egg, larva, and pupa stages are completed in calm, standing water in permanent, seasonal, or intermittent waters, including seasonal and permanent wetlands, and even small isolated waters such as drying pools of ephemeral drainages, tire ruts, and artificial containers. Larvae hatch from eggs in water and feed on organic matter and microorganisms, such as bacteria. Fish and predatory insects feed on mosquito larva, and greatly reduce their abundance in permanent bodies of water. The pupa stage lasts several days, during which the larva changes into

an adult. Seasonal and environmental conditions determine the length of time it takes for larval mosquitoes to complete their development; some species develop faster than others under the same conditions. Depending on average temperatures, it may take from 4 days to a month for the mosquito to mature from egg to adult; with warmer temperatures, development accelerates.

Adults may remain close to where they hatched or may disperse from several hundred yards to several miles, depending on the species (Walton 2003:2, ACMAD 2000:1). Most adult females live for about 2 weeks, although some may survive longer, and those that emerge late in the season may hibernate through the winter to begin laying eggs in the spring. Female mosquitoes require meals of blood for protein, so that they can produce eggs (CDPH 2008:5). Hosts that can supply blood include reptiles, amphibians, mammals (including humans), and birds. Predators of adult mosquitoes include a variety of bird and bat species, and invertebrates such as dragonflies will also prey on adult mosquitoes. Various fish species or predatory aquatic macroinvertebrates will prey on mosquito eggs and larvae. Wildlife species and their habitats, including predators of mosquitoes, are discussed in detail in Section 3.5, "Biological Resources." Common mosquitoes in the Tahoe Basin include species in the genus *Aedes*, which breed in the standing water that results from melting snow; species in the genus *Culiseta*, which breed in ponds, basins, and human-made containers; and *Culex tarsalis*, the "encephalitis mosquito," which can transmit to humans viruses that can cause encephalitis (an inflammation of the brain) (EDCDEM 2008). The immature stages of *C. tarsalis* can develop in almost any standing freshwater (Bohart and Washino 1978:131–132).

All mosquito species are potential vectors of organisms that can cause disease to pets, domestic animals, wildlife, or humans (El Dorado County 2007). Public concern regarding West Nile virus, a disease transmitted to humans by mosquitoes (including *C. tarsalis*), has increased since the virus was first detected in the United States in 1999. A mosquito first acquires West Nile virus by feeding on a bird with the virus in its blood. Most people and animals that are infected with the virus have mild or no symptoms. In rare cases, the virus can cause encephalitis. The first evidence of West Nile virus in California was in 2003 and in El Dorado County in 2004 (EDCDEM 2008). West Nile virus has recently been detected in the vicinity of the study area (Huber, pers. comm., 2007).

Mosquito Control

The study area is within EDCVCD's monitoring zone, and most of the study area is recognized as a breeding ground for mosquitoes (Huber, pers. comm., 2007). Riparian areas naturally have depressions, oxbows and areas of seasonal standing water, and the golf course has several ponds. EDCVCD does not treat the Lake Tahoe Golf Course ponds. EDCVCD technicians do identify and monitor mosquito breeding sources at least every 2 weeks from March through September within the Tahoe Basin. In years of especially heavy precipitation, some areas of the study area are especially prone to being inundated with standing water for long periods of time. Larvacides have been applied to standing water bodies within the study area. Treatments contain either methoprene, which mimics an insect growth hormone to prevent development of adult mosquitoes, or the bacterium *Bacillus thuringiensis israelensis*, which produces toxins that target mosquito larvae and other insects. The type and quantity of larvacide used are regulated by the California Department of Pesticide Regulation.

3.14.2 ENVIRONMENTAL CONSEQUENCES

SIGNIFICANCE CRITERIA

For this analysis, significance criteria are based on the checklist presented in Appendix G of the State CEQA Guidelines; the TRPA Initial Environmental Checklist; factual information; scientific data; and regulatory standards of Federal, State, and local agencies. There are no Environmental Threshold Carrying Capacities for human health and risk of upset.

CEQA Criteria

Based on Appendix G of the State CEQA Guidelines, an impact on hazards and/or hazardous materials is considered significant if implementation of an alternative would do any of the following:

- create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment;
- for a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area;
- for a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area; B/impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

NEPA Criteria

An environmental document prepared to comply with NEPA must consider the context and intensity of the environmental effects that would be caused by or result from the proposed action. Under NEPA, the significance of an effect is used solely to determine whether an EIS must be prepared. The factors that are taken into account under NEPA to determine the significance of an action in terms of the context and the intensity of its effects are encompassed by the CEQA criteria used for this analysis.

TRPA Criteria

Based on TRPA's Initial Environmental Checklist, an alternative would result in a significant impact on hazards and/or hazardous materials if it would:

- involve a risk of explosion or the release of hazardous substances,
- create a health hazard or potential health hazard, or
- expose people to potential health hazards.

METHODS AND ASSUMPTIONS

This analysis considers the range and nature of foreseeable hazardous materials use, storage, and disposal resulting from the project alternatives and identifies the primary ways that these hazardous materials could expose individuals or the environment to health and safety risks. As discussed above, compliance with applicable Federal, State, and local health and safety laws and regulations by residents and businesses in the vicinity of the study area would generally protect the health and safety of the public. Local and State agencies would be expected to continue to enforce applicable requirements to the extent that they do so now.

The following reports documenting potential hazardous conditions in the study area were reviewed for this analysis:

- applicable land use plans;
- available literature, including documents published by city, county, State, and Federal agencies;
- applicable elements from the El Dorado County General Plan;
- applicable elements from the City of South Lake Tahoe Comprehensive Land Use Plan; and
- applicable elements from the Lake Tahoe Airport Draft Preliminary Wildlife Assessment.

The information obtained from these sources was reviewed and summarized to establish existing conditions and to evaluate the significance of potential environmental effects, based on the criteria presented above. In determining the level of significance, this analysis assumes that development in the project site would comply with relevant Federal, State, regional, and local ordinances and regulations.

IMPACTS FOUND NOT TO BE SIGNIFICANT AND NOT DISCUSSED FURTHER

Hazardous Materials Sites – There are no hazardous materials sites subject to compliance with Government Code Section 65962.5 in the study area.

Emergency Plans – No alternatives would impair implementation of or physically interfere with an adopted emergency response plan or evacuation plan.

Private Airstrip – There are no private airstrips in the vicinity of the study area.

IMPACT ANALYSIS AND MITIGATION MEASURES

Alternative 1: No Project/No Action: Existing River and 18-Hole Regulation Golf Course

IMPACT 3.14-1 (Alt. 1) Use of Hazardous Materials. *Alternative 1 would involve the storage, use, and transport of hazardous materials to and within the study area for general golf course operations, emergency repairs, and fuels management; however, there would be no change in use relative to existing conditions. No impact would occur.*

Under Alternative 1, on-site construction and operational equipment would continue to operate as it does today (e.g., for golf course mowing, fuels management); thus, the use of hazardous materials would be unchanged compared to current conditions. Emergency construction may be conducted as necessary; however, the nature and extent of these activities are unknown and would not be a direct result of implementing Alternative 1.

As described in the "Environmental Setting" section, above, the Lake Tahoe Golf Course is enrolled in a hazardous waste generator and hazardous materials management plan program with the El Dorado County Environmental Management Department. This program includes a hazardous materials business plan and annual hazardous materials safety training for golf course staff members. The El Dorado County Environmental Management Department performs inspections that include photographic documentation and materials sampling. Operations are also conducted under an updated waste discharge permit and associated monitoring and reporting program from Lahontan RWQCB (Lahontan RWQCB 2000a, 2000b).

Fuels management is conducted by a licensed State Parks forester under Wildfire Management Plan. Because future conditions under Alternative 1 would remain comparable to current conditions with regard to potential exposure to hazardous materials. No impact would occur.

No mitigation is required.

IMPACT 3.14-2 (Alt. 1) **Potential Human Health Hazards from Exposure to Existing On-Site Hazardous Materials.** *Alternative 1 could expose workers to hazardous materials present on-site during emergency repairs or spot treatment activities, and hazardous materials on-site could create an environmental or health hazard if left in place. This impact would be* ***less than significant****.*

Under Alternative 1, no land use changes would occur. In the study area, future conditions with regard to exposure to existing on-site hazardous materials would be comparable to current conditions. Spills known to have occurred within the study area have been remediated to the satisfaction of the Lahontan RWQCB and the El Dorado County Environmental Management Department. There is a potential for golf course employees, construction workers, or others to encounter unknown or undocumented hazardous materials while performing tasks related to emergency repairs along the Upper Truckee River or spot repairs on irrigation lines. However, the nature and extent of these activities are unknown and would not be a direct result of implementing Alternative 1. This impact would be less than significant.

No mitigation is required.

IMPACT 3.14-3 (Alt. 1) **Potential for Hazardous Emissions or Handling of Hazardous or Acutely Hazardous Materials, Substances, or Waste within One-Quarter Mile of an Existing or Proposed School.** *One school is located within one-quarter mile of the study area. Alternative 1 would involve the handling of hazardous materials or acutely hazardous materials within the study area for general golf course operations, emergency repairs, and ongoing fuels management; however, there would be no change in use relative to existing conditions. This impact would be* ***less than significant****.*

Under Alternative 1, on-site construction and operational equipment would continue to operate as it does today (e.g., for golf course mowing, fuels management); thus, the use of hazardous materials would be unchanged compared to current conditions. Emergency construction would be conducted as necessary; however, the nature and extent of these activities are unknown and would not be a direct result of implementing Alternative 1. The potential for hazardous emissions or handling of hazardous or acutely hazardous materials, substances, or waste would be comparable to current conditions. This impact would be less than significant.

No mitigation is required.

IMPACT 3.14-4 (Alt. 1) **Increased Exposure to Wildland Fire Hazard.** *Alternative 1 would not result in any change to existing conditions as they relate to the risk of wildland fire hazard.* ***No impact*** *would occur.*

The Lake Valley SRA and Washoe Meadows SP have adopted a Wildfire Management Plan that would continue to be in effect under Alternative 1. Implementing Alternative 1 would not result in any changes to existing conditions as they relate to wildland fire, and ongoing fuels management would remain the same. No impact would occur.

No mitigation is required.

IMPACT 3.14-5 (Alt. 1) **Potential to Result in More Frequent Collisions between Aircraft and Wildlife at Lake Tahoe Airport.** *Implementing Alternative 1 would not result in any changes in land use that could result in more frequent collisions between aircraft and wildlife at Lake Tahoe Airport. This impact would be* ***less than significant****.*

Under Alternative 1, land use changes would not occur in the study area. The golf course would remain in its current configuration, and no restoration activities would occur. Future conditions with regard to wildlife that could be hazardous to aircraft would be comparable to current conditions. The FAA considers golf courses and wetlands to be landscape types that attract wildlife that may be hazardous to aviation. However, open space and

golf courses are considered compatible land uses in Airport Safety Area 3 in the Lake Tahoe Airport CLUP (City of South Lake Tahoe 2007). As described in the "Environmental Setting" section, above, there are no records of bird-related air strikes in the FAA Birdstrike Database, and no airport staff members recall any bird-related air strikes (CDM 2007). The likelihood of wildlife-aircraft accidents associated with the Lake Tahoe Airport is considered low. Because an increase in wildlife-related hazards under Alternative 1 is unlikely and the proposed land uses in Airport Safety Area 3 under Alternative 1 are compatible with the CLUP, this impact would be less than significant.

No mitigation is required.

IMPACT 3.14-6 (Alt. 1) Potential Increase in Public Health Hazards from Mosquitoes Resulting from Increased Floodplain Inundation. *Implementing Alternative 1 would not result in changes to the study area, so it could not result in a greater abundance of mosquitoes. Future conditions in the study area would be comparable to current conditions. No impact would occur.*

Much of the study area is recognized by EDCVCD as a breeding ground for mosquitoes; thus, the district monitors the abundance of mosquito larvae in the study area and implements treatments to control mosquitoes as necessary. Riparian areas naturally have depressions, oxbows, and areas of seasonal standing water, and the golf course has several ponds. Because implementing Alternative 1 would not change the existing conditions with regard to mosquito breeding habitat. No impact would occur.

No mitigation is required.

Alternative 2: River Ecosystem Restoration with Reconfigured 18-Hole Regulation Golf Course

IMPACT 3.14-1 (Alt. 2) Use of Hazardous Materials. *Alternative 2 would involve the storage, use, and transport of hazardous materials to and within the study area during construction activities and for general golf course operations. However, use of hazardous materials at the site would be in compliance with Federal, State, and local regulations, including existing orders. Therefore, impacts related to creation of significant hazards to the public through routine transport, storage, use, and disposal would be less than significant.*

Construction and operational activities under Alternative 2 would involve the storage, use, and transport of hazardous materials (e.g., fuels). Construction activities would involve changes to the existing golf course areas, construction of new golf course areas, removal of golf course infrastructure adjacent to the Upper Truckee River, removal of bridges and installation of a replacement bridge, and construction and modifications to the river channel and floodplain surfaces. These activities would involve the use of construction vehicles and equipment, such as transport trucks, dump trucks, dozers, excavators, loaders, water trucks, forklifts, ton pickup trucks, chainsaws, and tub grinders. Transport vehicles would be refueled primarily off-site; however construction equipment may be refueled and serviced on-site, which would require the use and transport of fuels and lubricants.

Transportation of hazardous materials on area roadways is regulated by the California Highway Patrol and Caltrans, whereas use of these materials is regulated by the DTSC, as outlined in CCR Title 22. State Parks, its contractors, and golf course concessionaires would be required to use, store, and transport hazardous materials in compliance with Federal, State, and local regulations during project construction and operation.

As described in the "Environmental Setting" section, above, existing golf course operations are conducted under an updated waste discharge permit (Board Order No. 6-00-48) and the associated monitoring and reporting program from Lahontan RWQCB (Lahontan RWQCB 2000a, 2000b). In compliance with the updated permit, the golf course prepared a maintenance plan that included a "chemical plan, an irrigation plan, an agronomic plan, an erosion control plan, and reporting requirements" (Lake Tahoe Golf Course and Restaurant 2000). Potential pollutants from the facility consist of nutrients from fertilizers; toxic compounds from the use of pesticides;

products of erosion; construction waste materials; and small amounts of oil and grease contained in stormwater runoff from impervious surfaces, diesel fuel, and gasoline fuel from the two aboveground fuel tanks and the former underground tanks (Lahontan RWQCB 2000a).

As described in Chapter 2, "Project Alternatives," BMPs currently in place to manage stormwater runoff in the parking and maintenance areas would remain in place. Grassy areas on both sides of the golf course entrance are used for parking, and under Alternative 2, this area would be paved to create an additional 89 parking spaces. Additional BMPs, including a second oil separator and slotted channel drains, would be incorporated into the existing management system. The aboveground storage of gas and diesel would continue as it is today.

Because the project would comply with existing hazardous materials regulations and incorporate additional BMPs into the parking area improvements, impacts related to creation of significant hazards to the public through routine transport, use, disposal, and risk of upset would be less than significant.

No mitigation is required.

IMPACT 3.14-2 (Alt. 2) Potential Human Health Hazards from Exposure to Existing On-Site Hazardous Materials. *Implementing Alternative 2 could expose workers to hazardous materials present on-site during construction activities, and hazardous materials on-site could create an environmental or health hazard if left in place. This impact would be potentially significant.*

Spills known to have occurred in the study area have been remediated to the satisfaction of the Lahontan RWQCB and the El Dorado County Environmental Management Department. However, there is a chance that unknown or undocumented hazardous materials could be present in construction areas, including within the current golf course boundary and golf course relocation area (i.e., within the former Anderson Quarry area). Excavation at or near areas of currently unrecorded soil and/or groundwater contamination could result in the exposure of construction workers, the general public, and the environment to hazardous materials, such as petroleum hydrocarbons, pesticides, herbicides, fertilizers, contaminated debris, or elevated levels of other chemicals that could be hazardous. This impact would be potentially significant.

Mitigation Measure 3.14-2 (Alt. 2): Implement Measures to Reduce the Risk of Health Hazards Associated with Potential Exposure to Hazardous Substances.

If evidence of previously undiscovered soil or groundwater contamination (e.g., stained soil, odorous groundwater) is encountered during construction activities, the construction contractor will immediately stop work in that area and notify State Parks. State Parks will notify the appropriate Federal, State, and local agencies and will ensure that any contaminated areas are cleaned up in accordance with recommendations made by the El Dorado County Environmental Management Department, Lahontan RWQCB, DTSC, or other appropriate Federal, State, or local regulatory agencies as generally described above before authorizing work to continue in the area.

Implementing this mitigation measure would reduce potentially significant impacts associated with exposure of unknown hazardous materials within the study area to a less-than-significant level because hazardous substances that are encountered would be evaluated, removed, and properly disposed of in accordance with Federal, State, and local regulations as necessary.

IMPACT 3.14-3 (Alt. 2) **Potential for Hazardous Emissions or Handling of Hazardous or Acutely Hazardous Materials, Substances, or Waste within One-Quarter Mile of an Existing or Proposed School.** *One school is located within one-quarter mile of the study area. Alternative 2 would involve the handling of hazardous materials or acutely hazardous materials within the study area during construction, general golf course operations, and fuels management. This impact would be* ***potentially significant****.*

Restoration and operational activities would involve the use of potentially hazardous materials, such as fuels (gasoline and diesel), oils, and lubricants that are commonly used in construction projects and golf course operations. Implementation of Alternative 2 would include relocating part of the golf course to the west side of the river. River restoration activities and a portion of the relocated golf course would be within one-quarter mile of Lake Tahoe Environmental Science Magnet School. In addition, it is possible that undocumented contaminated soil or water may be found during construction activities, especially in the area of the former quarry, where a dump site of concrete and brick is known to exist. Therefore, this impact would be potentially significant.

Mitigation Measure 3.14-3 (Alt. 2): Notify Applicable School District with Jurisdiction over Schools within One-Quarter Mile of Project Construction Activities.

As required by Public Resource Code Section 21151.4, State Parks shall provide written notification of the project to the Lake Tahoe Unified School District and the Lake Tahoe Environmental Science Magnet School at least 30 days before certification of the EIR/EIS/EIS and shall consult with the school district and Lake Tahoe Environmental Science Magnet School regarding the potential impacts on schoolchildren associated with hazards from project implementation.

Implementation of this mitigation measure would reduce potentially significant impacts associated with hazardous materials emissions within one-quarter mile of a school to a less-than-significant level because the notification and consultation process satisfies the requirements of Public Resource Code Section 21151.4.

IMPACT 3.14-4 (Alt. 2) **Increased Exposure to Wildland Fire Hazard.** *Implementing Alternative 2 would increase the size of the golf course footprint and would seasonally increase the amount of human activity in the proposed new golf course area on the west side of the Upper Truckee River. The increase in human presence during the fire season could result in an increased risk of fire; however, golf course watering and vegetation management, combined with the removal of fuels for existing fire management and to construct the golf course, would reduce this impact. This impact would be* ***less than significant****.*

State Parks and the golf course concessionaire are responsible for vegetation management in the Washoe Meadows SP and Lake Valley SRA. Implementing Alternative 2 would increase the golf course footprint; however, the landscape would receive frequent water application and vegetation management that would serve to reduce the risk of wildland fires. Furthermore, areas of lodgepole pine stands with high levels of surface fuels, ladder fuels, and a dense contiguous canopy layer would be removed in the area on the west side of the river proposed as golf course, allowing additional emergency access to the west side of the river. Furthermore, Washoe Meadows SP and Lake Valley SRA have adopted a Wildfire Management Plan that would continue to be followed before, during, and after the proposed project is implemented. Because the Wildfire Management Plan includes methods of fire prevention and suppression and the project would reduce the amount of combustible fuels on the west side of the river, this impact would be less than significant.

No mitigation is required.

IMPACT 3.14-5 (Alt. 2) **Potential to Result in More Frequent Collisions between Aircraft and Wildlife at Lake Tahoe Airport.** *Alternative 2 would include floodplain and meadow restoration in Airport Safety Area 3. The Lake Tahoe Airport CLUP considers open space and watershed improvement projects compatible land uses in Airport Safety Area 3. This impact would be* ***less than significant****.*

The FAA considers golf courses and wetlands to be a landscape types that attract wildlife that may be hazardous to aviation. Alternative 2 includes relocation of seven complete and two partial holes, which would increase the southern and western extent of the Lake Tahoe Golf Course. Alternative 2 also includes restoration of meadow and floodplain in the northern part of the study area, a portion of which is in Airport Safety Area 3. The existing golf course and river are an attractant to wildlife that could potentially pose a hazard to aircraft. The proposed changes to the golf course would move a portion of the golf course out of the airport safety area and restore meadow and floodplain in that area. Watershed improvements and open space are considered compatible land uses in Airport Safety Area 3 in the Lake Tahoe Airport CLUP (City of South Lake Tahoe 2007). Restoration activities would improve the quality of existing habitat but would not increase the amount of habitat considered an attractant to wildlife and would not appreciably increase the amount of wildlife using the area. As described in the "Environmental Setting" section, above, there are no records of bird-related air strikes in the FAA Birdstrike Database, and no airport staff members recall any bird-related air strikes (CDM 2007). With or without project implementation, the likelihood of wildlife-aircraft accidents associated with the Lake Tahoe Airport is considered low. Because an increase in wildlife-related hazards under Alternative 2 is unlikely and the proposed land uses in Airport Safety Area 3 under Alternative 2 are compatible with the CLUP, this impact would be less than significant.

No mitigation is required.

IMPACT 3.14-6 (Alt. 2) **Potential Increase in Public Health Hazards from Mosquitoes Resulting from Increased Floodplain Inundation.** *Implementing Alternative 2 would result in more extensive floodplain inundation that could result in greater abundance of mosquitoes and thus greater potential for exposure of people to mosquito-borne viruses. This impact would be* ***potentially significant****.*

Much of the study area is recognized by EDCVCD as a breeding ground for mosquitoes; thus, the district monitors the abundance of mosquito larvae in the study area and implements treatments to control mosquitoes as necessary. In some years, Alternative 2 would increase the extent and frequency of floodplain inundation (e.g., the active [5-year] floodplain would be increased by approximately 43 acres). Furthermore, a 1.6 acre pond is proposed on the west side of the river and off-channel oxbows would be created in backfilled channels, while other existing oxbows would be re-connected to the river. The additional pond and inundation expected may increase the extent of calm, standing water in dense vegetation and thus could increase or enhance breeding habitat for mosquitoes. However, habitat for mosquito predators such as birds and bats would also be improved. Because implementing Alternative 2 could increase mosquito abundance and the potential for exposure of people to mosquito-borne viruses. This impact would be potentially significant.

Mitigation Measure 3.14-6 (Alt. 2): Establish and Implement a Management Agreement with the El Dorado County Vector Control District.

State Parks will establish and implement a management agreement with EDCVCD. As a performance criterion for the management agreement, the terms and conditions of the agreement will be designed to ensure that EDCVCD can maintain mosquito abundance at or below pre-project levels. The agreement will include but not be limited to:

- measures that ensure necessary access for monitoring and control measures;
- applicable best management practices from the California Department of Public Health's *Best Management Practices for Mosquito Control on California State Properties* (CDPH 2008), including:

- implementing procedures for coordinating State Parks and EDCVCD management activities, including procedures for golf course ponds; and

- providing public information for visitors and the community regarding control measures being implemented, the risk of transmission of mosquito-borne disease, and personal protective measures.

Implementation of this mitigation measure would reduce potentially significant impacts associated with increased exposure of the public to mosquito-borne viruses to a less-than-significant level because the establishment and implementation of the management agreement would ensure that EDCVCD maintains mosquito abundance at or below pre-project levels.

Alternative 3: River Ecosystem Restoration with Reduced Play Golf Course

IMPACT 3.14-1 (Alt. 3) Use of Hazardous Materials. *Alternative 3 would involve the storage, use, and transport of hazardous materials within the study area during construction activities, golf course operations, and ongoing fuels management. However, use of hazardous materials at the site would be in compliance with Federal, State, and local regulations. Therefore, during construction, impacts related to creation of significant hazards to the public through routine transport, storage, use, disposal, and risk of upset would not occur. This impact would be* ***less than significant****.*

This impact is similar to Impact 3.14-1 (Alt. 2) because hazardous materials would continue to be used on the golf course and during construction; however, the golf course would not be reconfigured under this alternative, so hazardous materials would be used only within the current footprint of the golf course, for restoration purposes, and ongoing nonproject-related fuels management.

No mitigation is required.

IMPACT 3.14-2 (Alt. 3) Potential Human Health Hazards from Exposure to Existing On-Site Hazardous Materials. *Implementing Alternative 3 could expose workers to hazardous materials present on-site during construction activities, and hazardous materials on-site could create an environmental or health hazard if left in place. This impact would be* ***potentially significant****.*

This impact is similar to Impact 3.14-2 (Alt. 2) because construction and operational activities under Alternative 3 would involve changes to the existing golf course areas, removal of golf course infrastructure adjacent to the Upper Truckee River, removal of bridges, and construction and modifications to the river channel and floodplain surfaces. These activities would involve grading that could potentially expose unknown hazardous materials. However, construction activities would not occur in the area of the former quarry on the west side of the river. Any unknown hazardous materials associated with that area would not be exposed or disturbed during construction.

Mitigation Measure 3.14-2 (Alt. 3): Implement Measures to Reduce the Risk of Health Hazards Associated with Potential Exposure to Hazardous Substances.

This mitigation measure is identical to Mitigation Measure 3.14.2 (Alt. 2). For the same reasons as described under Alternative 2, with implementation of Mitigation Measure 3.14-2 (Alt. 3), Impact 3.14-2 (Alt. 3) would be less than significant.

IMPACT 3.14-3 (Alt. 3) **Potential for Hazardous Emissions or Handling of Hazardous or Acutely Hazardous Materials, Substances, or Waste within One-Quarter Mile of an Existing or Proposed School.** *One school is located within one-quarter mile of the study area. Alternative 3 would involve the handling of hazardous materials or acutely hazardous materials within the study area during construction, general golf course operations, and existing fuels management. This impact would be* ***potentially significant****.*

This impact is similar to Impact 3.14-3 (Alt. 2) because under Alternative 3 construction activities along the Upper Truckee River and floodplain would be within one-quarter mile of the Lake Tahoe Environmental Science Magnet School. However, the golf course would not be relocated to the west side of the river. Because construction activities would be within one-quarter mile of the Lake Tahoe Environmental Science Magnet School, this impact would be potentially significant.

Mitigation Measure 3.14-3 (Alt. 3): Notify Applicable School District with Jurisdiction over Schools within One-Quarter Mile of Project Construction Activities.

This mitigation measure is identical to Mitigation Measure 3.14-3 (Alt. 2). For the same reasons as described under Alternative 2, with implementation of Mitigation Measure 3.14-3 (Alt. 3), Impact 3.14-3 (Alt. 3) would be less than significant.

IMPACT 3.14-4 (Alt. 3) **Increased Exposure to Wildland Fire Hazard.** *Implementing Alternative 3 would reduce the size of the golf course footprint and would restore portions of the Upper Truckee River. The smaller golf course would reduce human presence in the area, thus reducing the risk of fire. Restoring meadows and floodplains would not result in an increase in fire hazard relative to existing conditions. This impact would be* ***less than significant****.*

State Parks and the golf course concessionaire are responsible for vegetation management in Washoe Meadows SP and Lake Valley SRA. Implementing Alternative 3 would decrease the golf course footprint and the number of holes and would restore the meadow and floodplain formerly occupied by golf course, adjacent to the Upper Truckee River. The economic study prepared for the project (HEC 2008 [Appendix E]) predicts that between 8,000 and 18,000 fewer rounds of golf would be played annually under this alternative compared with current use. The reduced amount of human activity at the golf course would result in a decreased risk of wildland fire relative to existing conditions. The restored floodplain generally would have conditions similar to or wetter than existing irrigated conditions; therefore, there would not be an increase in fire hazard. Additionally, Washoe Meadows SP and Lake Valley SRA have adopted a Wildfire Management Plan that would continue to be followed before, during, and after implementation of Alternative 3. Because the Wildfire Management Plan includes methods of fire prevention and suppression and the project would reduce the human presence at the golf course, this impact would be less than significant.

No mitigation is required.

IMPACT 3.14-5 (Alt. 3) ***Potential to Result in More Frequent Collisions between Aircraft and Wildlife at Lake Tahoe Airport.*** *Alternative 3 would include restoration of floodplain and meadow in Safety Area 3 and decommissioning of a portion of the golf course. The Lake Tahoe Airport CLUP considers open space and watershed improvement projects compatible land uses in Airport Safety Area 3. This impact would be* ***less than significant****.*

Alternative 3 involves restoring areas of the Upper Truckee River and floodplain both within and outside of Airport Safety Area 3 and reducing the footprint of the golf course. Watershed improvements and open space are considered compatible land uses within Airport Safety Area 3, as discussed above. The proposed restoration activities would improve habitat quality but are not expected to result in an increase in the amount of wildlife using the study area. Of the wildlife present in the study area, waterfowl (geese and ducks) pose the greatest threat to aircraft. The golf course is considered a wildlife attractant, particularly for waterfowl, and reducing the golf course footprint and restoring part of the golf course to meadow and floodplain would not appreciably change the

attractiveness of the study area to waterfowl. As described in the "Environmental Setting" section, above, there are no records of bird-related air strikes in the FAA Birdstrike Database, and no airport staff members recall any bird-related air strikes (CDM 2007). With or without project implementation, the likelihood of wildlife-aircraft accidents associated with the Lake Tahoe Airport is considered low. Because an increase in wildlife-related hazards under Alternative 3 is unlikely and the proposed land uses in Airport Safety Area 3 under Alternative 3 are compatible with the CLUP, this impact would be less than significant.

No mitigation is required.

IMPACT 3.14-6 (Alt. 3) Potential Increase in Public Health Hazards from Mosquitoes Resulting from Increased Floodplain Inundation. *Implementing Alternative 3 would result in more extensive floodplain inundation compared with current conditions, which could result in greater abundance of mosquitoes; therefore, there would be greater potential for exposure of people to mosquito-borne viruses. This impact would be* ***potentially significant****.*

This impact is similar to Impact 3.14-6 (Alt. 2) areas adjacent to the Upper Truckee River that were formerly occupied by golf course will become restored floodplain and wetland area (approximately 41 additional acres). However, the golf course would be reduced in size, there would be fewer ponds on the remaining golf course. The ponds on the existing golf course are not treated by EDCVCD. Although implementation of Alternative 3 would reduce the area of untreated standing water on the golf course, the former golf course area would become wetland and restored floodplain, increasing the total active floodplain area by 41 acres, with additional standing water in off-channel oxbows created within backfilled channel sections. This increase in the area of standing water could result in an increase in the abundance of mosquitoes and thus increase the potential for exposure of people to mosquito-borne viruses. This impact would be potentially significant.

Mitigation Measure 3.14-6 (Alt. 3): Establish and Implement a Management Agreement with the El Dorado County Vector Control District.

This mitigation measure is identical to Mitigation Measure 3.14-6 (Alt. 2). For the same reasons as described under Alternative 2, with implementation of Mitigation Measure 3.14-6 (Alt. 3), Impact 3.14-6 (Alt. 3) would be less than significant.

Alternative 4: River Stabilization with Existing 18-Hole Regulation Golf Course

IMPACT 3.14-1 (Alt. 4) Hazardous Materials and Public Health—Use of Hazardous Materials. *Alternative 4 would involve the storage, use, and transport of hazardous materials to and within the study area during construction activities, golf course operations, and ongoing fuels management. However, use of hazardous materials at the site would be in compliance with Federal, State, and local regulations. Therefore, impacts related to creation of significant hazards to the public through routine transport, storage, use, disposal, and risk of upset would not occur. This impact would be* ***less than significant****.*

This impact is similar to Impact 3.14-1 (Alt. 2) because hazardous materials would be used during construction and would continue to be used on the golf course; however, the golf course would not be reconfigured under this alternative, so hazardous materials would be used only within the current footprint of the golf course, for restoration purposes, and on-going non-project related fuels management.

No mitigation is required.

IMPACT 3.14-2 (Alt. 4) **Potential Human Health Hazards from Exposure to Existing On-Site Hazardous Materials.** *Implementing Alternative 4 could expose workers to hazardous materials present on-site during construction activities, and hazardous materials on-site could create an environmental or health hazard if left in place. This impact would be* ***potentially significant****.*

This impact is similar to Impact 3.14-2 (Alt. 2) because construction activities under Alternative 4 would involve modifications to the river channel and localized floodplain surfaces. These activities would involve grading that could potentially expose unknown hazardous materials. However, construction activities would not occur in the area of the former quarry on the Westside of the river. Any unknown hazardous materials associated with that area would not be exposed or disturbed during construction under Alternative 4.

Mitigation Measure 3.14-2 (Alt. 4): Implement Measures to Reduce the Risk of Health Hazards Associated with Potential Exposure to Hazardous Substances.

This mitigation measure is identical to Mitigation Measure 3.14-2 (Alt. 2). For the same reasons as described under Alternative 2, with implementation of Mitigation Measure 3.14-2 (Alt. 4), Impact 3.14-2 (Alt. 4) would be less than significant.

IMPACT 3.14-3 (Alt. 4) **Potential for Hazardous Emissions or Handling of Hazardous or Acutely Hazardous Materials, Substances, or Waste within One-Quarter Mile of an Existing or Proposed School.** *One school is located within one-quarter mile of the study area. Implementing Alternative 4 would involve the handling of hazardous materials or acutely hazardous materials in the study area during construction. This impact would be* ***potentially significant****.*

This impact is similar to Impact 3.14-3 (Alt. 2) because under Alternative 4 construction activities along the Upper Truckee River and floodplain would be within one-quarter mile of the Lake Tahoe Environmental Science Magnet School. However, the golf course would not be relocated to the west side of the river and the river would be stabilized in place. Because construction activities would be within one-quarter mile of the Lake Tahoe Environmental Science Magnet School, this impact would be potentially significant.

Mitigation Measure 3.14-3 (Alt. 4): Notify Applicable School District with Jurisdiction over Schools within One-Quarter Mile of Project Construction Activities.

This mitigation measure is identical to Mitigation Measure 3.14-3 (Alt. 2). As described under Alternative 2, with implementation of Mitigation Measure 3.14-3 (Alt. 4), Impact 3.14-3 (Alt. 4) would be less than significant.

IMPACT 3.14-4 (Alt. 4) **Increased Exposure to Wildland Fire Hazard.** *Implementing Alternative 4 would restore portions of the Upper Truckee River and leave the golf course in its existing configuration. The future conditions under Alternative 4 with regard to wildfire risk would be the same as existing conditions. This impact would be* ***less than significant****.*

Under Alternative 4, the golf course would remain in its current configuration, and the river would be stabilized in place. Implementing Alternative 4 would result in only minor changes in the landscape relative to existing conditions. Additionally, Washoe Meadows SP and Lake Valley SRA have adopted a Wildfire Management Plan that would continue to be followed before, during, and after implementation of Alternative 4. Because the Wildfire Management Plan includes methods of fire prevention and suppression and implementing the project would result in minor changes to the landscape, this impact would be less than significant.

No mitigation is required.

IMPACT 3.14-5 (Alt. 4) Potential to Result in More Frequent Collisions between Aircraft and Wildlife at Lake Tahoe Airport. *Under Alternative 4, the golf course would remain in its current configuration, and the Upper Truckee River would be stabilized in place. Watershed improvement projects are considered compatible land uses under the CLUP. This impact would be* ***less than significant****.*

Under Alternative 4, the golf course would remain in its current configuration, and the Upper Truckee River would be stabilized in place. As described above, watershed improvement projects are considered compatible land uses under the CLUP. There would be no appreciable change in wildlife habitat quality or quantity, so the amount of wildlife in the study area that may be hazardous to aircraft would not increase. This impact would be less than significant.

No mitigation is required.

IMPACT 3.14-6 (Alt. 4) Potential Increase in Public Health Hazards from Mosquitoes Resulting from Increased Floodplain Inundation. *Implementing Alternative 4 would increase the size of the floodplain by 0.4 acre relative to existing conditions. However, the new area of floodplain would not hold standing water. Therefore, implementing Alternative 4 would not result in greater potential for exposure of people to mosquito-borne viruses. This impact would be* ***less than significant****.*

Under Alternative 4, the active floodplain would not be directly modified except for a 500-foot section of inset floodplain excavation in the vicinity of the replacement bridge between holes 6 and 7. The inset floodplain would create approximately 0.4 acre of active floodplain. Due to this limited area additional ponding would not be expected and current mosquito abatement practices would continue. Therefore, implementing Alternative 4 would not increase mosquito abundance and the potential for exposure of people to mosquito-borne viruses. This impact would be less than significant.

No mitigation is required.

Alternative 5: River Ecosystem Restoration with Decommissioned Golf Course

IMPACT 3.14-1 (Alt. 5) Use of Hazardous Materials. *Alternative 5 would involve the storage, use, and transport of hazardous materials to and within the study area during construction activities, golf operations, and ongoing fuels management. However, use of hazardous materials at the site would be in compliance with Federal, State, and local regulations. Therefore, impacts related to creation of significant hazards to the public through routine transport, storage, use, disposal, and risk of upset would not occur. This impact would be* ***less than significant****.*

This impact is similar to Impact 3.14-1 (Alt. 2) because hazardous materials would be used for restoration purposes and on-going non-project related fuels management. However, the golf course would be decommissioned, and there would be no golf-related use of hazardous materials at the site after project construction. The maintenance yard would not be modified as part of Alternative 5; however, its use would be evaluated under a separate planning process and could be operated as a 9-hole course in the interim. Hazardous materials would continue to be stored at the maintenance yard in compliance with Federal, State, and local regulations, and the necessity of this facility would be evaluated at a later date. This impact would be less than significant.

IMPACT 3.14-2 (Alt. 5) Potential Human Health Hazards from Exposure to Existing On-Site Hazardous Materials. *Alternative 5 could expose workers to hazardous materials present on-site during construction activities and hazardous materials on-site could create an environmental or health hazard if left in place. This impact would be* ***potentially significant****.*

This impact is similar to Impact 3.14-2 (Alt. 2) because activities under Alternative 5 would involve construction and modifications to the river channel and floodplain surfaces. These activities would involve grading that could potentially expose unknown hazardous materials. However, Alternative 5 proposes to remove the golf course in its entirety and construction activities would not occur in the area of the former quarry on the Westside of the river. Any unknown hazardous materials associated with the former quarry would not be exposed or disturbed during construction under Alternative 5.

Mitigation Measure 3.14-2 (Alt. 5): Implement Measures to Reduce the Risk of Health Hazards Associated with Potential Exposure to Hazardous Substances.

This mitigation measure is identical to Mitigation Measure 3.14-2 (Alt. 2). For the same reasons as described under Alternative 2, with implementation of Mitigation Measure 3.14-2 (Alt. 5), Impact 3.14-2 (Alt. 5) would be less than significant.

IMPACT 3.14-3 (Alt. 5) Potential for Hazardous Emissions or Handling of Hazardous or Acutely Hazardous Materials, Substances, or Waste within One-Quarter Mile of an Existing or Proposed School. *One school is located within one-quarter mile of the study area. Alternative 5 would involve the handling of hazardous materials or acutely hazardous materials in the study area during construction. This impact would be* ***potentially significant****.*

This impact is similar to Impact 3.14-3 (Alt. 2) because under Alternative 4 construction activities along the Upper Truckee River and floodplain would be within one-quarter mile of the Lake Tahoe Environmental Science Magnet School. However, golf course would be decommissioned and not relocated. Because construction activities would be within one-quarter mile of the Lake Tahoe Environmental Science Magnet School, this impact would be potentially significant.

Mitigation Measure 3.14-3 (Alt. 5): Notify Applicable School District with Jurisdiction over Schools within One-Quarter Mile of Project Construction Activities.

This mitigation measure is identical to Mitigation Measure 3.14-3 (Alt. 2). For the same reasons as described under Alternative 2, with implementation of Mitigation Measure 3.14-3 (Alt. 5), Impact 3.14-3 (Alt. 5) would be less than significant.

IMPACT 3.14-4 (Alt. 5) Increased Exposure to Wildland Fire Hazard. *Implementing Alternative 5 would decommission the Lake Tahoe Golf Course at Lake Valley SRA, including current irrigation practices. While the removal of the golf course would decrease the amount of human activity in the SRA, removal of irrigation during the fire season could potentially increase the risk for fire hazards. However, continuation of existing fire management practices would reduce this impact. This impact would be* ***less than significant****.*

Under Alternative 5 State Parks would be responsible for vegetation management in the Washoe Meadows SP and Lake Valley SRA. Implementing Alternative 5 would remove golf course landscape and replace it with native vegetation. Removal of the golf course would decrease the human activity in that area. Irrigation would be abandoned in place that could potentially increase the risk of fire hazards during the fire season when grasses are dryer; however, the Wildfire Management Plan that is currently being implemented would continue to be followed before, during, and after the proposed project is implemented. Because the Wildfire Management Plan includes methods of fire prevention and suppression this impact would be less than significant.

No mitigation is required.

IMPACT 3.14-5 (Alt. 5) **Potential to Result in More Frequent Collisions between Aircraft and Wildlife at Lake Tahoe Airport.** *Under Alternative 5, portions of the Upper Truckee River watershed in Airport Safety Area 3 would be restored. The CLUP identifies watershed improvement projects as a compatible land use in Airport Safety Area 3. This impact would be* ***less than significant****.*

Under Alternative 5, areas of the Upper Truckee River and floodplain would be restored, and the golf course would be decommissioned. The CLUP identifies watershed improvement projects as a compatible land use in Airport Safety Area 3. The golf course is considered an attractant to wildlife that may be hazardous to aircraft, particularly waterfowl such as ducks and geese, in part because it is maintained and watered frequently. Decommissioning the golf course and restoring it as a meadow would improve the overall quality of the habitat, but not in a way that would attract an appreciable number of waterfowl beyond the existing numbers that are using the area. This impact would be less than significant.

No mitigation is required.

IMPACT 3.14-6 (Alt. 5) **Potential Increase in Public Health Hazards from Mosquitoes Resulting from Increased Floodplain Inundation.** *Implementing Alternative 5 would result in removal of the Lake Tahoe Golf Course, the associated irrigation practices and several untreated ponds. However, additional floodplain inundation and off-channel oxbows are a component of the project that could result in a greater abundance of mosquitoes and thus a greater potential for exposure of people to mosquito-borne viruses. This impact would be* ***potentially significant****.*

This impact is similar to Impact 3.14-6 (Alt. 2) because activities under Alternative 5 would involve construction and modifications to the river channel and floodplain surfaces. However, the golf course would be decommissioned and restored to floodplain and meadow, removing irrigation practices, increasing the area of active floodplain by 41 acres over existing conditions, as well as creating additional floodplain and meadow habitat throughout the current golf course area. The several existing water features on the course would be removed and replaced with meadow habitat. However, the use of the hole 9 irrigation pond would be evaluated in a future planning process. The existing water features, including the hole 9 pond are not treated by EDCVCD and could potentially increase risk associated with human health mosquito hazards. Furthermore, as described under Impact 3.14-6 (Alt. 2), increasing the size of the floodplain and creating off-channel oxbow features would increase the extent of calm, standing water in dense vegetation following flood events and thus increase or enhance breeding habitat for mosquitoes. Although reducing the area of untreated standing water and removing irrigation within the SRA under Alternative 5 would reduce the abundance of mosquitoes in this area, the floodplain and meadow area would be increased, which could result in an increase in the abundance of mosquitoes and thus increase the potential for exposure of people to mosquito-borne viruses. Therefore, implementing Alternative 5 could potentially increase mosquito abundance and the potential for exposure of people to mosquito-borne viruses. This impact would be potentially significant.

Mitigation Measure 3.14-6 (Alt. 5): Establish and Implement a Management Agreement with the El Dorado County Vector Control District.

This mitigation measure is identical to Mitigation Measure 3.14-6 (Alt. 2). For the same reasons as described under Alternative 2, with implementation of Mitigation Measure 3.14-6 (Alt. 5), Impact 3.14-6 (Alt. 5) would be less than significant.

3.15 POPULATION AND HOUSING, SOCIOECONOMICS, AND ENVIRONMENTAL JUSTICE

The study area is in unincorporated territory of El Dorado County, California, adjacent to the community of Meyers and south of the City of South Lake Tahoe. Socioeconomic data are not segregated to provide discreet information about the Meyers community. The City of South Lake Tahoe is within the area influenced by economic activity within the study area (i.e., existing golf course), so its socioeconomic data is also relevant. Information related to both the county as a whole and to the nearby City of South Lake Tahoe is provided to present the socioeconomic conditions of the community around the study area. This section describes the demographic and socioeconomic characteristics of South Lake Tahoe and El Dorado County. It analyzes the possible changes in population, housing, and employment that could result from implementation of the Upper Truckee River Restoration and Golf Course Reconfiguration Project, including those that could trigger adverse physical effects in the city or the region. This section also addresses environmental justice issues associated with the project's implementation.

Analysis of the economic impacts of the project on the Lake Tahoe Golf Course is based on the study conducted by Hansford Economic Consulting (HEC 2008 [Appendix E]). The project's impacts on the Lake Tahoe Golf Course related to recreation are addressed in Section 3.13, "Recreation." Project impacts on Indian tribes are addressed in Section 3.9, "Cultural Resources." Cumulative effects to population and housing, socioeconomics, and environmental justice are presented in Section 3.16, "Cumulative Impacts."

3.15.1 AFFECTED ENVIRONMENT

REGULATORY SETTING

Federal

Socioeconomics

NEPA, Section 1502

NEPA provisions found in Section 1502.16(c) of the Code of Federal Regulations (40 CFR 1502.16[c]) requires Federal agencies to identify potential conflicts between a proposed action and the related plans and policies of Federal, State, and local agencies and Indian tribes. This requirement helps Federal agencies identify potential conflicts that may cause adverse effects on the social and economic environment of a study area, because many agencies' and tribes' plans and policies are designed to protect the people residing within their jurisdictions and/or the local economy they depend upon for their economic livelihoods (NEPAnet 2008).

Council on Environmental Quality

The Council on Environmental Quality's (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 CFR 1500–1508) provide guidance related to social and economic impact assessments. These regulations note that the "human environment" assessed under NEPA is to be "interpreted comprehensively" to include "the natural and physical environment and the relationship of people with that environment" (40 CFR 1508.14). Furthermore, these regulations require agencies to assess "aesthetic, historic, cultural, economic, social, or health" effects, whether direct, indirect, or cumulative (40 CFR 1508.8). Some Federal agencies, including the U.S. Bureau of Land Management and USFS, have developed socioeconomics-related handbooks and instructional memoranda to help the preparers of environmental impact statements comply with NEPA with respect to socioeconomic resources.

Environmental Justice

In 1994, President Bill Clinton issued Executive Order 12898 regarding environmental justice. This order requires Federal agencies to "identify and address" disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States. Two documents provide some measure of guidance to agencies required to implement this executive order: *Environmental Justice Guidance under the National Environmental Policy Act* (CEQ 1997) and *Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analysis* (EPA 1998). Both serve as a guide for incorporating environmental justice goals into preparation of environmental impact statements under NEPA. These documents provide specific guidelines for determining whether any environmental justice issues are associated with a proposed Federal project.

State

Cal/EPA adopted an environmental justice policy in 2004 (Cal/EPA 2004). Pursuant to Sections 71110–71113 of the California Public Resources Code, Cal/EPA developed this policy to provide guidance to its resource boards, departments, and offices. The policy is intended to support the State's goal of "achieving fair treatment of people of all races, cultures and incomes with respect to the development, adoption, implementation and enforcement of environmental laws and policies." While the Cal/EPA policy is not directly applicable to State Parks, it provides a context for the state's position on environmental justice.

Tahoe Regional Planning Agency

TRPA recognizes a relationship between the health of the natural environment and the social and economic health of the region. The following declaration from the TRPA Compact (1980) states:

> **Article 1, Finding 6:** Maintenance of the social and economic health of the region depends on maintaining the significant scenic, recreational, educational, scientific, natural public health values provided by the Lake Tahoe Basin.

1987 Regional Plan/Pathway

TRPA regulates growth and development in the Lake Tahoe region through the Regional Plan. TRPA's Regional Plan, adopted in 1987, consists of several documents: Goals and Policies, Code of Ordinances, Water Quality Management Plan, Plan Area Statements, and Scenic Quality Improvement Plan.

The 1987 Regional Plan had a 20-year scope and is currently being reviewed and updated through a collaborative effort led by TRPA. These agencies are working together to update several important environmental documents for the Tahoe Basin. These Regional Plan updates will guide land management, resource management, and environmental regulations in the Tahoe Basin over the next 20 years. The Regional Plan update is anticipated to be completed by 2011.

Regional Plan Goals and Policies

The following policy regarding socioeconomics from TRPA's Regional Plan (TRPA 2004), listed under Goal 1 of the Land Use Element, is applicable to the project:

- **Policy 3:** The Regional Plan shall seek to maintain a balance between economic health and the environment.

TRPA Environmental Threshold Carrying Capacities

TRPA does not have any established thresholds related to socioeconomics, population and housing, or environmental justice.

ENVIRONMENTAL SETTING

Population

The City of South Lake Tahoe experienced its most dramatic population growth between 1970 and 1980, when its population grew from 12,921 to 20,681, or 4.82 percent per year. From 1990 to 2000, the population increased from 21,586 to 23,609, or 0.94 percent per year (City of South Lake Tahoe 2008a:3-2). The city's year-round population reached a peak in 2002 and declined slightly between 2002 and 2006, mainly as a result of regulations that limited the number of new residential units. As of January 1, 2008, the California Department of Finance estimated that South Lake Tahoe's population was approximately 23,725 persons (DOF 2008a).

Approximately 15 percent of El Dorado County's population lives in South Lake Tahoe. The remaining population of the county resides in the incorporated city of Placerville (10,237 residents, or 6 percent of the county's population) and unincorporated areas, including El Dorado Hills, Cameron Park, Shingle Springs, Meyers, and Pollock Pines (DOF 2008a).

El Dorado County has experienced a higher rate of population growth than South Lake Tahoe. Although the city's population increased approximately 4.82 percent per year from 1970 to 1980, the county's population increased approximately 6.95 percent per year during the same period (City of Lake Tahoe 2008a:3-3). From 1990 to 2000, the population of El Dorado County increased from 125,955 to 156,299, for an average growth rate of 2.18 percent per year. As of January 2008, the California Department of Finance estimated that the county's population was 179,722 persons (DOF 2008a).

Housing

The number of housing units in South Lake Tahoe decreased from 14,066 in 1990 to 14,005 in 2000, a decrease of less than 0.01 percent (City of South Lake Tahoe 2008b:4-17). Although the housing statistics do not show a net increase in housing units, the city has seen an increase in residential development in recent years. Some of this housing development has occurred in places where existing units were demolished or rehabilitated; thus they are not reflected in the net housing growth (City of South Lake Tahoe 2008b:4-18). The number of housing units, as of January 1, 2008, was estimated to be 14,355 (DOF 2008b). Median home prices in South Lake Tahoe declined by 6.2 percent during a 1-year period (November 2006 to November 2007), from $453,000 to $425,000 (City of South Lake Tahoe 2008b:4-52).

The residential areas to the east, west, and south of the study area are known as Country Club Estates. Although median home prices are declining in South Lake Tahoe as a whole, the median housing prices in Country Club Estates are increasing. In 2007, the median sale price of residences in Country Club Estates was $565,000. As of August 2008, the median sale price was $682,500 (Lake Tahoe Real Estate 2008).

Vacancy Rates

Vacancy trends in housing are analyzed using vacancy rates to establish the relationship between housing supply and demand. If the demand for housing units is greater than the available supply, then the vacancy rate is low and the price of housing will most likely increase. According to the California Department of Housing and Community Development, a housing vacancy rate of 5 percent is considered normal (HCD 2000). Vacancy rates below 5 percent indicate a housing shortage in a community. The city had a vacancy rate of 2.0 percent for owner-occupied units and 8.3 percent for rental units in 2000 (City of South Lake Tahoe 2008b:4-28). Of the 14,005 housing units in the city in 2000, 4,595 housing units (32.8 percent) were reported to be vacant at the time of the U.S. Census (Table 3.15-1).

Table 3.15-1 Vacancy Status of Housing Units in South Lake Tahoe		
Vacancy Status	Total Units	Percent (%)
For rent only	482	3.4
For sale only	84	0.6
Rented or sold (not occupied)	97	0.7
Migrant workers	1	0.0
For seasonal, recreational, or occasional use	3,677	26.3
Other vacant	254	1.8
Total	**4,595**	**32.8**
Source: City of South Lake Tahoe 2008a:3-12		

Second-Home Ownership

Second-home ownership has several implications for land use planning because varied economic expectations for property ownership, community development, and reinvestment result. As in any tourist destination, a large portion of the housing units in the city are seasonally occupied second homes. Because the U.S. Census is collected in April during the city's low tourist season, most of these units are measured as vacant. The majority of vacant units (26.3 percent of the total housing stock) were for seasonal, recreational, or occasional use (Table 3.15-1). Based on transient occupancy taxes, approximately 1,290 housing units were used as vacation rentals at any one time (City of South Lake Tahoe 2008a:3-11). The majority of vacation rentals are larger second homes in prestigious areas of the city. The second-home market in South Lake Tahoe increases competition for home buyers, which results in increasing housing prices (City of South Lake Tahoe 2008b:4-29).

Socioeconomics

The Lake Tahoe region, including South Lake Tahoe, has a primarily tourist-based economy. Unlike other areas in the Sierra Nevada, South Lake Tahoe derives little industrial growth from population growth or increased affluence of local residents (City of South Lake Tahoe 2008b:3-18). The impact of visitors on the economy in the Lake Tahoe region was studied in the *2001 Threshold Evaluation* (TRPA 2002). Estimates generated by the report indicated that in 2000, visitors to the region spent more than $1.5 billion on travel-related goods and services. Businesses that depend primarily on travel and tourism, such as lodging establishments, gaming, restaurants, and recreation services, provide a major source of employment and payroll in the Lake Tahoe region. However, since the 2001 study given the current state of the economy, the Lake Tahoe region has experienced a decline in visitor spending. According to the U.S. Travel Association, travel spending is down 12 percent through June of this year (Modesto *Bee* 2009). The hotel occupancy rate in the South Lake Tahoe region was 47.1 percent in June, down nearly 13 percent from June 2008.

Employment

Table 3.15-2 shows the total number of people employed by major industries who resided in South Lake Tahoe in 2005. Employed citizens totaled 14,559. Of these, approximately 8,089 (55.6 percent) worked in the services industry, including 3,889 hotel and lodging workers, 648 entertainment and recreation workers, and 1,221 health and medical services workers. Retail trade was the second largest industry, with 3,833 workers (26.3 percent), including 1,139 restaurant employees. Many companies in the service industry and retail trade employ a seasonal workforce that is often composed of younger or college-aged workers. After Labor Day and in spring, hours of employment for seasonal employees tend to decrease, and in some cases, full-season layoffs occur (City of South Lake Tahoe 2008b:4-24).

Table 3.15-2 2005 Employment by Major Industry		
Industry	Total Employees	Percentage (%)
Agricultural, Forestry, Fishing	190	1.3
Mining	3	0.0
Construction	306	2.1
Manufacturing	60	0.4
Transportation and Communications	475	3.3
Wholesale Trade	171	1.2
Retail Trade	3,833	26.3
Finance, Insurance, and Real Estate	692	4.8
Services	8,089	55.6
Public Administration	740	5.1
Total	**14,559**	**100**
Source: City of South Lake Tahoe 2008b:4-25		

Environmental Justice

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. "Fair treatment" means that no group of people (defined by race, national origin, or income) should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental and commercial operations or policies. "Meaningful involvement" means that (1) people have an opportunity to participate in decisions about activities that may affect their environment and/or health; (2) the public's contribution can influence the regulatory agency's decision; (3) their concerns will be considered in the decision-making process; and (4) the decision makers seek out and facilitate the involvement of those potentially affected (EPA 2009).

Racial Distribution

Table 3.15-3 shows the racial composition of the populations of South Lake Tahoe and El Dorado County. The city's population is shown to be predominantly white, accounting for 85.7 percent of the population in 1990 and 75.7 percent in 2000. However, the city has a proportionally smaller white population than the county. El Dorado County's white population accounted for 94.5 percent of the total population in 1990, and 89.7 percent in 2000. The white population increased in both the county and city between 1990 and 2000; however, South Lake Tahoe's white population decreased by 3.3 percent during the same period.

The Black/African American population in South Lake Tahoe decreased 20.2 percent between 1990 and 2000. El Dorado County had a larger proportion of Black/African American residents than South Lake Tahoe, and the Black/African American population increased by 34.2 percent during the same period.

For both the city and county, the American Indian/Alaskan Native population generally remained the same between 1990 and 2000, comprising 1 percent of the total population in each location.

The Asian population in South Lake Tahoe increased by 3.8 percent between 1990 and 2000, accounting for 6 percent of the population in 2000. In comparison, El Dorado County's Asian population increased by 35.5 percent between 1990 and 2000.

South Lake Tahoe's Hispanic/Latino population grew significantly between 1990 and 2000, increasing by 57.2 percent and accounting for more than a quarter of the city's total population in 2000. Between 1990 and 2000, El Dorado County also experienced significant growth in the number of its Hispanic/Latino residents, an increase of 66 percent.

Table 3.15-4 shows the 2007 racial composition of the population in South Lake Tahoe. South Lake Tahoe's population remains predominantly white and generally remained the same between 2000 and 2007. The remaining race/ethnic categories increased between 2000 and 2007. The largest increase during this period was the Hispanic/Latino population, which increased 30.9 percent, followed by the Asian population, which increased 11.0 percent. The Black/African American and American Indian/Alaskan Native populations increased 1.2 percent and 1.3 percent, respectively, during the same period.

Table 3.15-3
Population Distribution by Race and Ethnicity for the City of South Lake Tahoe and El Dorado County

Race/Ethnicity [1]	1990		2000		Percent of Change
	Population	Percent of Total	Population	Percent of Total	
City of South Lake Tahoe					
White	18,496	85.7	17,878	75.7	-3.3
Black or African American	223	1.0	178	0.8	-20.2
American Indian or Alaskan Native	226	1.0	228	1.0	0.9
Asian	1,367	6.3	1,419	6.0	3.8
Hispanic or Latino [2]	4,003	18.5	6,294	26.7	57.2
Total Population	**21,586**	**100**	**23,609**	**100**	**9.4**
El Dorado County					
White	119,118	94.5	140,209	89.7	17.7
Black or African American	606	0.5	813	0.5	34.2
American Indian or Alaskan Native	1,351	1.1	1,566	1.0	15.9
Asian	2,456	1.9	3,328	2.1	35.5
Hispanic or Latino [2]	8,777	7.0	14,566	9.3	66.0
Total Population	**125,995**	**100**	**156,299**	**100**	**24.1**

Notes:
[1] The "other" and "two or more races" categories are not included in the table because of changes in descriptive measures between the 1990 and 2000 U.S. Census.
[2] The U.S. Census Bureau considers Hispanic and Latino as an ethnicity, not a race. Consequently, a person of Hispanic or Latino descent could identify racially as White, Black/African American, Native American, Asian, or other.
Sources: U.S. Census Bureau 2000, City of South Lake Tahoe 2008a:3-8

Table 3.15-4
2007 Population Distribution by Race and Ethnicity for the City of South Lake Tahoe

Race/Ethnicity [1]	Population	Percent Increase
White	20,136	75.9
Black or African American	319	1.2
American Indian or Alaskan Native	356	1.3
Asian	2,927	11.0
Hispanic or Latino [2]	8,208	30.9

Notes:
[1] The "other" and "two or more races" categories are not included in the table because of changes in descriptive measures between the 1990 and 2000 U.S. Census.
[2] The U.S. Census Bureau considers Hispanic and Latino as an ethnicity, not a race. Consequently, a person of Hispanic or Latino descent could identify racially as White, Black/African American, Native American, Asian, or other.
Source: City of South Lake Tahoe 2008a:3-8

Poverty Status

Table 3.15-5 shows the 1999 median household income, per capita income, and the percent of persons below poverty level in South Lake Tahoe and El Dorado County. The city's median household income was lower than that of the county. The city's median income was $34,707, and its per capita income was $18,452, compared to a median income of $51,484 and a per capita income of $25,560 in the county. Approximately 12.5 percent of city residents were below poverty level, while 7.1 percent of county residents were below poverty level. This difference can be accounted for in part by South Lake Tahoe's relatively high cost of living. In addition, people employed in the seasonal service industry and retail workforce generally worked in lower wage jobs.

Table 3.15-5
Per Capita Income and Poverty Level

Community	Median Income	Per Capita Income [1]	Percent of Persons Below Poverty Level
South Lake Tahoe	$34,707	$18,452	12.5
El Dorado County	$51,484	$25,560	7.1

[1] Per capita income is the mean income computed for every man, woman, and child residing in South Lake Tahoe and El Dorado County, respectively.

Sources: U.S. Census Bureau 2000, City of Lake Tahoe 2008a:3-13, 3-16

Economic Activity of the Lake Tahoe Golf Course

Since 1989, the Lake Tahoe Golf Course has been operated by American Golf Corporation under a concessionaire contract with State Parks. Approximately $881,000 in concession revenue generated by operations of the Lake Tahoe Golf Course is allocated to State Parks (data based on average of years 2003-2006) (HEC 2008:5 [Appendix E]) annually. This represents the fifth largest source of concession revenue in the State Parks system (HEC 2008:11 [Appendix E]).

The 18-hole regulation golf course generally operates from April 15 through November 1, weather permitting, with 80 percent of annual gross revenues generated from June through September. Winter recreational activities, including snowmobiling and cross-country skiing, may occur at the golf course from December through March, snow permitting. The clubhouse, which includes food and beverage service and event facilities, operates year round. However, the clubhouse is open only for events during winter. The Lake Tahoe Golf Course averages 76 full- and part-time employees, the majority of whom are employed in food and beverage service jobs.

Golf Course Revenues

Revenues change from year to year, based mostly on variations in weather and corresponding annual changes in the number of rounds played. In addition, the Lake Tahoe Golf Course is particularly susceptible to changes in annual revenue per round because of its reliance on visitor golfers.

Table 3.15-6 shows average revenues for 2003–2006, shown in 2007 dollars, adjusted for inflation. As shown, average revenues for the Lake Tahoe Golf Course totaled $2,012,000 for golf activities, $780,000 for concessions and other activities, and $17,000 for snowmobile sublease payments, for a total of $2,809,000. Seventy-two percent of total annual revenues are generated by golf activities, 28 percent by concessions and other activities (which include merchandise and food and beverage sales associated with golf-related activities), and 1 percent by snowmobile sublease payments. Total revenues are approximately $85 per round of golf (with golf operations–only revenues $61 per round) (HEC 2008:22 [Appendix E]).

Table 3.15-6
2003–2006 Revenues for the Lake Tahoe Golf Course All Figures in 2007 Dollars[1]

Revenues	2003	2004	2005	2006	2003–2006 Average	Percent of Revenue [2]
Golf concessionaire operations [3]	$2,237,935	$2,136,080	$1,837,258	$1,842,612	$2,012,000	72
Concessions [4]	$84,6173	$764,292	$789,686	$730,997	$780,000	28
Snowmobile sublease payments	N/A	$19,748	$22,561	$9,295	$17,000	1
Total Annual Revenue	**$3,084,108**	**$2,920,120**	**$2,649,506**	**$2,582,905**	**$2,809,000**	**100**

Notes:
[1] Data for the 2003 through 2006 time period is shown in 2007 dollars to adjust for inflation.
[2] The percent of revenue does not add to 100% because of rounding.
[3] Golf concessionaire operations include green fees, cart rental, and driving range fees.
[4] Concessions include merchandise, food, beverage, service charges, and other fees.
Source: HEC 2008:22 (Appendix E)

Golf Course Expenditures

Table 3.15-7 shows average expenditures for 2003–2006, including payments to State Parks. Average expenditures totaled $233,000 for the cost of goods, $628,000 for payroll, $286,000 for operating expenses, $89,000 for leases and replacement of equipment, and $79,000 for taxes and insurance. The greatest share of expenditures is payroll, at 48 percent of total average annual expenditures. Estimated revenues determine payments to State Parks. Rent to State parks and contributions to the Capital Improvement Project (CIP) fund are deducted from net revenues to estimate net annual concessionaire revenues (HEC 2008:58 [Appendix E]).

Table 3.15-7
2003–2006 Expenditures for the Lake Tahoe Golf Course All Figures in 2007 Dollars[1]

Expenditure Category	Expenditures (dollars)					Percent of Expenses [2]
	2003	2004	2005	2006	2003–2006 Average	
Goods [2]	$280,917	$226,605	$214,872	$210,860	$233,000	18
Payroll [3]	$672,684	$652,961	$615,374	$571,205	$628,000	48
Operating expenses [4]	$263,882	$280,529	$308,456	$292,360	$286,000	22
Leases, rentals, and equipment replacement	$103,508	$82,740	$80,086	$89,880	$89,000	6
Taxes and Insurance	$83,345	$76,640	$70,921	$85,840	$79,000	6
Total Annual Expenses	**$1,404,337**	**$1,319,476**	**$1,289,709**	**$1,250,143**	**$1,316,000**	**100**
Total Payments to State Parks[5]	**$1,051,798**	**$922,559**	**$795,635**	**$779,364**	**$887,339**	**--**

Notes:
[1] Data for the 2003 through 2006 time period are shown in 2007 dollars to adjust for inflation.
[2] The percent of revenue does not add to 100% because of rounding.
[3] Goods include merchandise, food, and beverages.
[4] Operating expenses include utilities, carts, course maintenance, food, and beverages.
[5] Total payments to State Parks include CIP Fund and rent to State Parks.
Source: HEC 2008:25 (Appendix E)

Golf Course Influence on the South Lake Tahoe Area Economy

Operation of the Lake Tahoe Golf Course results in direct spending in South Lake Tahoe and the surrounding South Shore area. Revenues attributed to visitors to the Lake Tahoe Golf Course include spending on lodging, retail sales, other recreation, and food and beverages; generation of tax revenues; and employee earnings from jobs at the golf course and elsewhere in South Lake Tahoe and the surrounding area (Table 3.15-8).

Estimated tax revenues generated by the Lake Tahoe Golf Course include sales tax on merchandise and food and beverages, as well as property tax. Sales tax charged for food and beverages and for all merchandise sales generate $53,000. Property taxes are paid by the concessionaire for possessory interest of the property, and annual property tax payments to South Lake Tahoe total $65,000. In total, the Lake Tahoe Golf Course generates $118,000 in sales and property taxes (HEC 2008:65 [Appendix E]).

In addition to tax revenues generated by economic activity at the Lake Tahoe Golf Course, visitors to the golf course generate tax revenues elsewhere in South Lake Tahoe and the surrounding area. Additional tax revenues include $157,000 in transient occupancy taxes, $115,000 in sales taxes from retail sales, and $103,000 in sales taxes from food and beverages. These tax revenues total $375,000 (HEC 2008:65 [Appendix E]).

Based on spending in the South Lake Tahoe area by visitors to the Lake Tahoe Golf Course, golfers are estimated to generate 168 full- and part-time jobs associated with employment to service visitor needs. Of these jobs, 76 are at the Lake Tahoe Golf Course and 92 are elsewhere in the South Lake Tahoe area. Direct earnings attributed to these jobs total $2,666,133 (HEC 2008:65 [Appendix E]).

Table 3.15-8
Revenues in the South Lake Tahoe Area Generated by Visitors to the Lake Tahoe Golf Course

Category	Revenue (dollars)
Visitor Spending in South Lake Tahoe and Surrounding Areas	
Lodging	$1,569,960
Other recreation	$783,440
Retail sales	$1,644,720
Food and beverage	$1,569,960
Employee Earnings	
Lake Tahoe Golf Course [1]	$628,000
City of Lake Tahoe	$2,038,133
Tax Revenues	
Lake Tahoe Golf Course [2]	$118,000
City of South Lake Tahoe and surrounding areas [3]	$375,000
Total for All Categories	$8,727,213

Notes:
[1] It is assumed that earnings by employees at the Lake Tahoe Golf Course would be spent in South Lake Tahoe and the surrounding area.
[2] Tax Revenues generated by the Lake Tahoe Golf Course include sales tax and property tax paid to the City of South Lake Tahoe.
[3] Tax Revenues include transient occupancy tax and sales tax.
Source: HEC 2008:61, 62 (Appendix E)

Socioeconomic Characteristics of Golfers

The total number of golfers is affected by ethnicity, population growth, income, and age of players. In general, Caucasians have a higher participation rate, while the participation rates of Hispanic and African-American populations are lower (HEC 2008:27 [Appendix E]). Approximately two-thirds of rounds played are estimated to be made by visitors to the Tahoe Basin. Based on a survey conducted by State Parks in 2007, the primary reasons golfers chose the Lake Tahoe Golf Course are convenience of location and playing an 18-hole regulation course. In addition, 63 percent of golfers chose the Lake Tahoe Golf Course for its scenic beauty, followed by difficulty (48 percent) and price (37 percent) (HEC 2008:29-30 [Appendix E]).

Because the majority of players are non-local, it is unsurprising that just over half of all players make less than 5 visits per year. Approximately 30 percent play more than 16 times per year. If the players frequenting the course more than 16 times per year represent the local player population, then over the course of the summer the locals play golf more than 3 times per month (HEC 2008:29 [Appendix E]). Although the local population only plays about one-third of the golf rounds at the Lake Tahoe Golf Course, they may be described as "avid" or "core" golfers and are important contributors to early- and late-season spending there (HEC 2008:8 [Appendix E]).

Personal income is a major determinant of rounds played at Lake Tahoe Golf Course because the majority of players are visitors, whose total trip costs are largely spent on transportation. The increase in the retirement-age population is projected to increase the rounds played nationally in the near future, but it is not necessarily applicable to the Lake Tahoe Golf Course because retired persons tend to have more fixed incomes (HEC 2008:9 [Appendix E]).

3.15.2 ENVIRONMENTAL CONSEQUENCES

SIGNIFICANCE CRITERIA

For this analysis, significance criteria are based on the checklist presented in Appendix G of the State CEQA Guidelines; the TRPA Initial Environmental Checklist; factual information; scientific data; and regulatory standards of Federal, State, and local agencies.

NEPA, the State CEQA Guidelines, and TRPA's Initial Environmental Checklist exclude discussion of significance criteria for economic impacts, which in themselves are not considered effects on the environment (although CEQA recognizes that a secondary physical effect can conceivably occur in response to an economic impact). Thus, no significance criteria have been established. For the purposes of this analysis, the standard environmental impact conclusion statements of "less than significant" and "significant" are not used. Instead, when addressing economic impacts, this analysis uses the following terminology: "no impact," "beneficial effect," and "adverse impact." Additionally, mitigation measures for any adverse economic impacts are not identified.

CEQA Criteria

Although the State CEQA Guidelines exclude discussion of significance criteria for economic impacts, the guidelines include questions related to population growth and displacement. Based on Appendix G of the State CEQA Guidelines, a population or housing impact is considered significant if implementation of the project would do any of the following:

- induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure);
- displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere; or

- displace substantial numbers of people, necessitating the construction of replacement housing elsewhere

NEPA Criteria

An environmental document prepared to comply with NEPA must consider the context and intensity of the environmental effects that would be caused by or result from the proposed action. Under NEPA, the significance of an effect is used solely to determine whether an EIS must be prepared. The factors that are taken into account under NEPA to determine the significance of an action in terms of the context and the intensity of its effects are encompassed by the CEQA criteria used for this analysis.

Executive Order 12898 of February 11, 1994 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations), requires that "each federal agency make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health effects of its programs, policies, and activities on minority populations and low-income populations.…" U.S. Council on Environmental Quality (CEQ) guidance also requires the evaluation of a project's socioeconomic effects on low-income and minority communities. According to CEQ, a minority is a member of any of the following groups: Black/African American; Hispanic, regardless of race; Asian; Native Hawaiian or Other Pacific Islander; and American Indian or Alaska Native.

In a memorandum to heads of departments and agencies that accompanied Executive Order 12898, the President states that "each federal agency shall analyze the environmental effects on minority communities and low-income communities, when such analysis is required by NEPA."

NEPA provides no specific thresholds of significance for socioeconomic impact assessment. Significance varies, depending on the setting of the proposed action (40 CFR 1508.27[a]), but 40 CFR 1508.8 states that indirect effects may include those that are growth inducing and others related to induced changes in the pattern of land use, population density, or growth rate.

TRPA Criteria

Based on TRPA's Initial Environmental Checklist, an alternative would result in a significant impact on population and housing if it would:

- alter the location, distribution, density, or growth rate of the human population planned for the region;
- include or result in the temporary or permanent displacement of residents;
- affect existing housing, or create a demand for additional housing by:
    - decreasing the amount of housing in the Tahoe Region or
    - decreasing the amount of housing in the Tahoe Region historically or currently being rented at rates affordable by lower and very-low-income households; or
- result in the loss of housing for lower income and very-low-income households.

METHODS AND ASSUMPTIONS

State Parks commissioned the Lake Tahoe Golf Course Economic Feasibility Analysis (Appendix E) for the Lake Tahoe Golf Course and surrounding golf courses to assist in evaluation of the economic and socioeconomic effects of the proposed project. One of the purposes of the economic analysis was to study the feasibility of continued operations at Lake Valley SRA both with and without a golf course, in light of the objectives of the alternatives. The analysis examines three scenarios for configuring the golf course:

- an 18-hole regulation golf facility (with two suboptions, one of which includes potential changes to course layout);
- a reduced-play area (nontraditional length such as 9 hole or executive) course with all golf activities located on the east side of the river (this scenario is modeled with a range of potential green fees resulting in a low to high range of financial projections); and
- no golf course, but retention of the clubhouse for an events facility.

This analysis addresses the revenue and operating expenditures of each scenario, as well as the changes in revenues to be received by State Parks, changes in revenues received by the concessionaire, and economic impacts within the surrounding community (which, for purposes of this draft EIR/EIS/EIS, is the south shore portion of the Lake Tahoe Basin). It should be noted that the "base case scenario" or existing condition for the purposes of the economic and fiscal analysis is based on data averaged from years 2003-2006. The economic and fiscal analysis of the alternatives presented below relies on the Lake Tahoe Golf Course Economic Feasibility Analysis.

Potential growth inducement impacts of the alternatives are addressed in Section 4.4, "Growth-Inducing Impacts."

IMPACTS FOUND TO BE LESS THAN SIGNIFICANT AND NOT DISCUSSED FURTHER

Displacement of housing or people – No alternative would involve actions that would displace people or housing or otherwise alter the location, distribution, or density of the planned human population.

IMPACT ANALYSIS AND MITIGATION MEASURES

Alternative 1: No Project/No Action—Existing River and 18-Hole Regulation Golf Course

IMPACT 3.15-1 (Alt. 1) Population, Employment, and Housing. *Alternative 1 would not involve any changes to the Lake Valley SRA, Lake Tahoe Golf Course, or Washoe Meadows SP. Impacts on population, employment, and housing would not occur. No impact would occur.*

Alternative 1 does not involve any changes to the Lake Valley SRA, the facilities of and uses at the Lake Tahoe Golf Course, or Washoe Meadows SP. No construction would occur, and all existing recreational facilities would remain unchanged. The number of jobs and employee earnings would also remain unchanged. Housing would not be affected because there would be no new population or demand generated by implementing Alternative 1. Therefore, impacts related to population, employment, and housing would not occur.

No mitigation is required.

IMPACT 3.15-2 (Alt. 1) Economic Impact on the Community. *Alternative 1 would not involve any changes to the Lake Tahoe Golf Course. Economic impacts on the community would not occur. No impact would occur.*

Operation of the Lake Tahoe Golf Course results in direct spending in South Lake Tahoe and the surrounding South Shore area. Revenues attributed to visitors to the Lake Tahoe Golf Course include spending on lodging, retail sales, other recreation, and food and beverages; generation of tax revenues; and employee earnings from jobs at the golf course and elsewhere in South Lake Tahoe and the surrounding area (Table 3.15-8). Under current conditions, total revenue to the local economy, including visitor spending, employee earnings, and tax revenue, is estimated at $8.7 million annually. Under Alternative 1, no changes would occur to the golf course; therefore,

revenues would remain unchanged. No economic impact would occur to the community with implementation of Alternative 1.

No mitigation is required.

IMPACT 3.15-3 (Alt. 1) Environmental Justice. *Alternative 1 would not involve any changes to the Lake Tahoe Golf Course. Impacts on minority or low-income populations would not occur. No impact would occur.*

Executive Order 12898 was drafted in response to a recurring circumstance whereby locally undesirable land uses were being sited in proximity to minority and low-income populations, which, in turn, were often underrepresented in political decision-making processes. As shown in Table 3.15-3, South Lake Tahoe's population is predominantly white, accounting for 75.7 percent of the population. The next largest ethnic group is the Hispanic or Latino population at 26.7 percent, with Asians as the third largest at 6 percent. Combined, Black/African American and American Indian/Alaskan Native compose less than 2 percent of the total population in South Lake Tahoe. Approximately 12.5 percent of South Lake Tahoe residents were below poverty level, whereas 7.1 percent of county residents were below poverty level (Table 3.15-5). This difference can be accounted for in part by South Lake Tahoe's relatively high cost of living. In addition, people employed in the seasonal service industry and retail workforce generally worked in lower wage jobs (City of South Lake Tahoe 2008a:3-13, 3-16).

Under Alternative 1, current uses at the Lake Tahoe Golf Course would continue. There would be no identifiable impacts on minority or low-income populations who live within the South Lake Tahoe area as a result of continued operations of the golf course. Current uses at the Lake Tahoe Golf Course do not represent a disproportionate effect on low-income or minority populations; therefore, there would be no significant impacts related to environmental justice.

No mitigation is required.

IMPACT 3.15-4 (Alt. 1) Fiscal Impact on State Parks. *Alternative 1 would not involve any changes to the Lake Tahoe Golf Course. There would be no changes to State Parks revenues. No impact would occur.*

Since 1989, the Lake Tahoe Golf Course has been operated by American Golf under a concessionaire contract with State Parks. Approximately $881,000 in concession revenue generated by operations of the Lake Tahoe Golf Course is allocated to State Parks annually (HEC 2008:5 [Appendix E]). This amount represents the fifth largest source of concession revenue in the State Parks system (HEC 2008:11 [Appendix E]).

Under Alternative 1, no changes would occur to the golf course; therefore, revenues to State Parks would remain unchanged. No fiscal impacts to State Parks would occur.

No mitigation is required.

Alternative 2: River Ecosystem Restoration with Reconfigured 18-Hole Regulation Golf Course

IMPACT 3.14-1 (Alt. 2) Population, Employment, and Housing. *Implementing Alternative 2 would result in short-term and long-term changes in population, employment, and housing. This impact would be* ***less than significant****.*

Alternative 2 does not include the development of residential uses; therefore, there would be no direct contribution to local or regional growth in population or housing. Employment growth associated with Alternative 2 could result in indirect housing demand and population growth through project-induced in-migration to the region. The projected number of employees is based on rounds per employee for golf-activity employees, number of major pieces of equipment per employee for golf course maintenance employees, and number of events per employee for food and beverage employees (HEC 2008:45 [Appendix E]). After it is constructed, Alternative 2 would result in the need for four additional employees at the Lake Tahoe Golf Course, increasing from the current 76 to 80 employees (total employment, including other areas of the study area, would be 172). This increase would represent a very small amount (less than 1 percent) of the services industry employment within the South Lake Tahoe area (Table 3.15-2). This increase in employment associated with operation of Alternative 2, although beneficial, would not be of great enough magnitude to substantially alter population patterns or housing demand.

Construction of Alternative 2 would involve a short-term increase in population and employment and potentially would create a short-term need for additional housing because of the need to hire and house construction workers. Construction of Alternative 2 is scheduled to take place over a 3- to 4-year period. Construction year 3 would involve the highest number of workers at one time, involving up to 58 construction workers during the peak construction period (May through October) (Table 2-4).

It is expected that the created construction jobs would be drawn from a regional labor pool and would not be exclusive to the South Lake Tahoe area. Some of the workers would commute in, while others may require short-term housing. According to the California Department of Housing and Community Development, a housing vacancy rate of 5 percent is considered normal (HCD 2000). Vacancy rates below 5 percent indicate a housing shortage in a community. The City of South Lake Tahoe had a vacancy rate of 8.3 percent for rental units in 2000 (City of South Lake Tahoe 2008b:4-28). The addition of 58 seasonal construction workers to the South Lake Tahoe area would not be great enough in magnitude to substantially affect rental housing demand even if all 58 required rental housing. Construction employment in the South Lake Tahoe area constitutes approximately 2 percent of total employment. The increase in employment associated with construction, although beneficial, would not be of great enough magnitude to substantially alter population patterns or housing demand.

Therefore, implementing Alternative 2 is not expected to result in significant impacts on population, employment, or housing on either a localized or a regional basis. The impact would be less than significant.

No mitigation is required.

IMPACT 3.15-2 (Alt. 2) Economic Impact on the Community. *Alternative 2 would involve improvements to the Lake Tahoe Golf Course that would alter tax revenues, jobs, and earnings associated with the golf course. This effect would be* ***beneficial****.*

According to the Lake Tahoe Golf Course Economic Feasibility Analysis, reconfiguration of the Lake Tahoe Golf Course under Alternative 2 would not affect total visitor spending or the total number of jobs in the South Lake Tahoe area (outside Lake Tahoe Golf Course) compared to existing conditions. The total number of Lake Tahoe Golf Course–generated visitors is currently 8,942, with total annual spending estimated at $7,476,000Under Alternative 2, it is estimated that the number of Lake Tahoe Golf Course–generated visitors and spending would remain the same since it is assumed that a well-designed, reconfigured 18-hole regulation course that takes maximum advantage of the terrain and vistas would have a financial performance similar to that currently

experienced at Lake Tahoe Golf Course. Total Lake Tahoe Golf Course revenues, including golf activities and concessions/other is currently $2,789,000. Total revenue is projected to slightly increase by $20,000 to $2,809,000 due to increased spending on golf-related food, beverage and events (HEC 2008: Table 22 [Appendix E]).Alternative 2 is estimated to increase revenue generated by sales tax by $2,000. Annual total tax revenue generated from both sales and property tax would therefore increase from $118,000 to $120,000 (HEC 2008:62 [Appendix E]). Earnings by employees at the Lake Tahoe Golf Course are estimated to increase $37,700 per year with a reconfigured 18-hole regulation course.

The golf course's driving range is used as a snowmobile track during winter. The snowmobile track at the golf course would be closed during the construction season because the driving range is the main construction staging area for the proposed project. However, this closure would be short term (3–4 years). Earnings impacts from potential cessation of snowmobile ride operations were not estimated in the economic study; however, it would be expected that earnings impacts of the snowmobile ride operations would be minor compared to the earnings impacts of changes in golf operations. Therefore, no financial impact is estimated for winter operations (i.e., snowmobiling on the driving range) with changes to the golf course under Alternative 2.

Alternative 2 would therefore have an overall minor, but beneficial economic effect on the community of South Lake Tahoe.

No mitigation is required.

IMPACT 3.15-3 (Alt. 2) Environmental Justice. *Lake Tahoe Golf Course would be reconfigured under Alternative 2, but effects on minority or low-income populations are not expected to occur. No impact would occur.*

Under Alternative 2, Lake Tahoe Golf Course would be reconfigured, but the current uses would continue. There is no indication that either the construction or operation of the Alternative 2 would affect identified minority or low-income populations to a greater degree than the general population of the surrounding area. Potential short-term impacts, such as construction emissions and elevated noise levels, would not have a disproportionately adverse impact on low-income or minority populations. They would affect the general population in the surrounding area, not just low-income or minority populations. In addition, appropriate measures associated with potentially significant impacts would reduce those impacts to a level below significance. Current and proposed uses at the Lake Tahoe Golf Course do not represent a disproportionate effect on low-income or minority populations.

Therefore, no significant long-term or short-term disproportionate adverse impacts on low-income or minority populations would result from implementation of Alternative 2. No significant impacts related to environmental justice would occur.

No mitigation is required.

IMPACT 3.15-4 (Alt. 2) Fiscal Impact on State Parks. *Operation of Lake Tahoe Golf Course with a reconfigured 18-hole regulation course is expected to be feasible (i.e., estimated golf course revenue would exceed operating expenditures after making concession payments to State Parks). No adverse fiscal impact on State Parks would occur.*

Based on research presented in the Lake Tahoe Golf Course Economic Feasibility Analysis as to whether a modified/renovated 18-hole regulation course would increase, decrease, or have no effect on the total number of rounds played yielded no definitive evidence what the outcome might be. Reconfiguration of the championship course in Incline Village during the 2003-2004 seasons did not appear to have substantially influenced the number of rounds played at that golf course. Based on the research conducted, the number of rounds played under Alternative 2 would not change compared with existing conditions. Ultimately, the number of rounds played

would be determined based on customer preferences and the excellence of course design. Although the number of rounds are not expected to increase under Alternative 2, it should be noted that there is potential for a minor price increase, which could slightly increase the projected revenues. Currently Lake Tahoe Golf Course is the most affordable golf course for 18-hole regulation play in the region. The maximum allowable fees are controlled by State Parks. Because most players are visitors who have already allocated leisure time to recreate, and because the local golfers are unlikely to be able to play twice as much even if the price is halved, demand at Lake Tahoe Golf Course is likely to be fairly price inelastic, meaning that a moderate price increase would not greatly decrease demand for play and that a moderate price decrease would not greatly increase rounds played (HEC 2008:8 [Appendix E]).

Estimated gross receipts (revenues) determine payments to State Parks. Rent to State Parks and contributions to the CIP fund are deducted from net revenues to estimate net annual concessionaire revenues. A well-designed, reconfigured 18-hole regulation course that takes maximum advantage of the terrain and vistas is projected to have financial performance similar to that currently experienced at Lake Tahoe Golf Course. Under the base case scenario, which uses data averaged from years 2003-2006, total revenue at the Lake Tahoe Golf Course is $2,789,000. Under Alternative 2, total annual revenue is estimated at $2,809,000. This expected increase is attributed to increased spending associated with golf-related food, beverage and events (HEC 2008:Table 22 [Appendix E]).Because revenues are projected to increase slightly over existing conditions, State Parks may receive a slight increase in revenues (approximately $6,000) with a reconfigured 18-hole regulation course (HEC 2008:Table 2 [Appendix E]).

The golf course's driving range is used as a snowmobile track during winter. The snowmobile track at the golf course would be closed during the construction season because the driving range is the main construction staging area for the proposed project. However, this closure would be short term (3–4 years). In addition, snowmobiling revenues and costs are variable, primarily a function of the weather (snowfall), and are minor compared to golf course revenue. No financial impact is estimated for winter operations (i.e., snowmobiling on the driving range) with changes to the golf course under Alternative 2. Golf course concessionaire revenue is estimated to decrease by approximately $25,000 annually, from $614,000 under existing conditions to $589,000, because expenses associated primarily with labor are estimated to increase.

Although the concessionaire's revenue would decrease, revenue to State Parks would slightly increase. For this reason, no adverse fiscal impacts would occur to State Parks.

Alternative 3: River Ecosystem Restoration with Reduced Play Golf Course

IMPACT 3.15-1 (Alt. 3) Population, Employment, and Housing. *Implementing Alternative 3 would result in short-term and long-term changes in population, employment, and housing. This impact would be* ***less than significant****.*

Population, employment, and housing impacts under Alternative 3 would be similar to those under Alternative 2. Alternative 3 does not include the development of residential uses; therefore, there would be no direct contribution to local or regional growth in population or housing. It is estimated that 29–55 jobs (11–16 of which are at the Lake Tahoe Golf Course) would be removed from the local economy. Therefore, implementing Alternative 3 would not result in indirect housing demands and population growth through project-induced in-migration to the region.

Implementing Alternative 3 would require construction activities and a construction schedule similar to those for Alternative 2 and would result in loss of golf course jobs after implementation. The increase in employment associated with construction, although beneficial, would not be of great enough magnitude to substantially alter population patterns or housing demand.

Therefore, implementing Alternative 3 is not expected to result in significant impacts on population, employment, or housing on either a localized or a regional basis. The impact would be less than significant.

No mitigation is required.

IMPACT 3.15-2 (Alt. 3) **Economic Impact on the Community.** *Alternative 3 would involve changes to the Lake Tahoe Golf Course that would alter tax revenue, jobs, and earnings associated with the golf course. This would be an* ***adverse*** *economic impact.*

According to the Lake Tahoe Golf Course Economic Feasibility Analysis, a nontraditional, or 9-hole reduced play golf course or 18-hole executive golf course, would affect total visitor spending and total number of jobs in the South Lake Tahoe area (outside Lake Tahoe Golf Course) compared to existing conditions. The total number of Lake Tahoe Golf Course–generated visitors is currently 8,942, with total annual spending estimated at $7,476,000. Under Alternative 3, it is estimated that the total number of visitors would decrease to between 5,048 and 7,192 annually, depending on the assumed number of rounds that would be played at a nontraditional golf course (HEC 2008:61 [Appendix E]). Total visitor spending would decrease to between $3,881,000 and $5,860,000. Total Lake Tahoe Golf Course estimated revenue would decrease from $2,789,000 to between $1,027,000 and $1,698,000 (HEC 2008: Table 22 [Appendix E]). Total annual tax revenue generated from both sales and property tax would decrease from $118,000 to between $98,000 and $110,000 (HEC 2008: 62 [Appendix E]).

Under Alternative 3, 29–55 jobs (11–16 of which are at the Lake Tahoe Golf Course) would be removed from the local economy. Earnings by employees generated elsewhere in South Shore by visitors to the Lake Tahoe Golf Course would decrease by $287,000–880,000 annually with a nontraditional course (HEC 2008:6 [Appendix E]). Earnings by employees at the Lake Tahoe Golf Course would decrease by approximately $81,300–117,900 per year.

The golf course's driving range is used as a snowmobile track during winter. The snowmobile track at the golf course would be closed during the construction season because the driving range is the main construction staging area for the proposed project. However, this closure would be short term (3–4 years). Earnings impacts from potential cessation of snowmobile ride operations were not estimated in the economic study; however, it would be expected that earnings impacts of the snowmobile ride operations would be minor compared to the earnings impacts of changes in golf operations. Therefore, no financial impact is estimated for winter operations (i.e., snowmobiling on the driving range) with changes to the golf course under Alternative 3.

Existing total additional Lake Tahoe Golf Course revenues and tax revenue benefiting the local economy are estimated at $6.1 million annually. These revenues would be reduced to between approximately $3.5 million and $5.2 million with a nontraditional golf course (HEC 2008:7 [Appendix E]). Implementing Alternative 3 would therefore have an overall adverse economic impact on the community of South Lake Tahoe.

IMPACT 3.15-3 (Alt. 3) **Environmental Justice.** *Under Alternative 3, the Lake Tahoe Golf Course would be either a 9-hole golf course or an 18-hole executive golf course, but impacts on minority or low-income populations are not expected to occur.* ***No impact*** *would occur.*

Under Alternative 3, the Lake Tahoe Golf Course would be reduced in size and modified to either a 9-hole course or an 18-hole executive course. There is no indication that either the construction or operation of Alternative 3 would affect identified minority or low-income populations to a greater degree than the general population of the surrounding area. As with Alternative 2, potential short-term impacts, such as construction emissions and elevated noise levels, would not have a disproportionately adverse impact on low-income or minority populations. They would affect the general population in the surrounding area, not just low-income or minority populations. In addition, appropriate measures associated with potentially significant impacts would reduce those impacts to a

level below significance. For any significant and unavoidable impacts, TRPA is required to make findings as to whether the project's benefits would outweigh the significant and unavoidable environmental impact. Current and proposed uses at the Lake Tahoe Golf Course do not represent a disproportionate effect on low-income or minority populations.

Therefore, no significant long-term or short-term disproportionate adverse impacts on low-income or minority populations would result from implementation of Alternative 3. No impacts related to environmental justice would occur.

No mitigation is required.

IMPACT 3.15-4 (Alt. 3) Fiscal Impact on State Parks. *Operation of Lake Tahoe Golf Course with a nontraditional golf course is estimated to be infeasible (i.e., golf course revenue may not exceed operating expenditures after making concession payments to State Parks). This would be an* **adverse** *fiscal impact on State Parks.*

As discussed for Alternative 2, estimated gross receipts (revenues) determine rent and CIP payments to State Parks. Rent to State Parks and contributions to the CIP fund are deducted from net revenues to estimate net annual concessionaire revenues. Currently, total revenue at the Lake Tahoe Golf Course is $2,789,000. Under Alternative 3, annual total revenue is estimated to range between $1,027,000 (low number of assumed rounds and low fees) and $1,698,000 (high number of assumed rounds and high fees) (HEC 2008:4 [Appendix E]). Currently, State Parks receives an average of $881,000 annually. Because revenues are projected to decrease over existing conditions, State Parks would receive between $324,000 and $536,000 (HEC 2008:4 [Appendix E]). Additionally, implementing Alternative 3 would result in negative cash flow to the concessionaire, resulting in losses ranging from $262,000 to $23,000. If the reconfigured golf course can achieve more than 25,000 rounds annually and command green fees above the median rack rate for comparable Tahoe nontraditional length facilities, it may be financially feasible, netting revenues to the concessionaire of $93,000 (HEC 2008:4 [Appendix E]). However, net revenues in this amount would be considered marginal, making the golf course susceptible to closure and eliminating or drastically reducing income to State Parks.

The golf course's driving range is used as a snowmobile track during winter. The snowmobile track at the golf course would be closed during the construction season because the driving range is the main construction staging area for the proposed project. However, this closure would short term (3–4 years). In addition, snowmobiling revenues and costs are variable, primarily a function of the weather (snowfall), and are minor compared to golf course revenue. No financial impact is estimated for winter operations (i.e., snowmobiling on the driving range) with changes to the golf course under Alternative 3. It should be noted that Lake Tahoe Golf Course is the most affordable golf course for 18-hole regulation play in the region. The maximum allowable fees are controlled by State Parks. Because most players are visitors who have already allocated leisure time to recreate, and because the local golfers are unlikely to be able to play twice as much even if the price is halved, demand at Lake Tahoe Golf Course is likely to be fairly price inelastic, meaning that a moderate price decrease would not greatly increase rounds played (HEC 2008:8 [Appendix E]).

A nontraditional golf course is estimated to be financially infeasible under all but the most optimistic of circumstances (assuming high number of rounds and high fees) because the concessionaire would have a negative cash flow after making payments to State Parks. Payments to State Parks would be substantially reduced. Fiscal impacts on State Parks under Alternative 3 would be adverse.

Alternative 4: River Stabilization with Existing 18-Hole Regulation Golf Course

IMPACT 3.15-1 (Alt. 4) Population, Employment, and Housing. *Alternative 4 would not involve any changes to the Lake Valley SRA, Lake Tahoe Golf Course, or Washoe Meadows SP. However, implementing Alternative 4 would result in short-term changes in population, employment, and housing. This impact would be* ***less than significant****.*

Alternative 4 does not involve any changes to the Lake Valley SRA, the facilities of and uses at the Lake Tahoe Golf Course, or Washoe Meadows SP. All existing recreational facilities would remain unchanged. The number of jobs and employee earnings would also remain unchanged. Housing would not be affected because there would be no new population or demand generated under Alternative 4.

Implementing Alternative 4 would, however, require construction activities and a construction schedule similar to those for Alternative 2 because it would involve stabilization of the river. The increase in employment associated with construction, although beneficial, would not be of great enough magnitude to substantially alter population patterns or housing demand.

Therefore, implementing Alternative 4 is not expected to result in significant impacts on population, employment, or housing on either a localized or a regional basis. The impact would be less than significant.

No mitigation is required.

IMPACT 3.15-2 (Alt. 4) Economic Impact on the Community. *Alternative 4 would not involve any changes to the Lake Tahoe Golf Course. Economic impacts on the community would not occur.* ***No impact*** *would occur.*

This impact is the same as Impact 3.15-2 (Alt. 1). For the same reasons as described for Alternative 1, there would be no impact.

No mitigation is required.

IMPACT 3.15-3 (Alt. 4) Environmental Justice. *Alternative 4 would involve only minor changes to the Lake Tahoe Golf Course. Impacts on minority or low-income populations would not occur.* ***No impact*** *would occur.*

This impact is the same as Impact 3.15-3 (Alt. 1). For the same reasons as described for Alternative 1, there would be no impact.

No mitigation is required.

IMPACT 3.15-4 (Alt. 4) Fiscal Impact on State Parks. *Alternative 4 would involve only minor changes to the Lake Tahoe Golf Course. There would be no changes to State Parks revenues.* ***No impact*** *would occur.*

This impact is the same as Impact 3.15-4 (Alt. 1). For the same reasons as described for Alternative 1, there would be no impact.

No mitigation is required.

Alternative 5: River Ecosystem Restoration with Decommissioned Golf Course

IMPACT 3.15-1 (Alt. 5) Population, Employment, and Housing. *Implementing Alternative 5 would result in short-term and long-term changes in population, employment, and housing. This impact would be* ***less than significant****.*

Population, employment, and housing impacts associated with implementation of Alternative 5 would be similar to those of Alternative 2 during construction and would result in loss of golf course jobs after implementation. Alternative 5 does not include the development of residential uses; therefore, there would be no direct contribution to local or regional growth in population or housing. However, it is projected that the total number of employees would decrease to 32 (HEC 2008:45 [Appendix E]), if operating just the event facility is feasible. Otherwise all concessionaire jobs would be lost. As a result, implementing Alternative 5 would not result in indirect housing demands or population growth through project-induced in-migration to the region.

Under Alternative 5, construction activities would include decommissioning and removing the existing golf course, removing bridges, and constructing and modifying the river channel and floodplain surfaces. Implementing Alternative 5 would require a construction schedule similar to that for Alternative 2. The increase in employment associated with construction, although beneficial, would not be of great enough magnitude to substantially alter population patterns or housing demand.

Therefore, implementing Alternative 5 is not expected to result in significant impacts on population, employment, or housing on either a localized or a regional basis. The impact would be less than significant.

No mitigation is required.

IMPACT 3.15-2 (Alt. 5) Economic Impact on the Community. *Lake Tahoe Golf Course would be decommissioned under Alternative 5. Tax revenue, jobs, and earnings associated with the golf course would no longer exist. This would be an* ***adverse economic impact****.*

Under Alternative 5, the Lake Tahoe Golf Course would be decommissioned. The clubhouse would remain; however, the future use of this facility would be determined through a separate planning process conducted at a later time. Snowmobiling would be discontinued because the snowmobile track on the driving range would be decommissioned along with the golf course. Other winter recreation activities (i.e., snowshoeing, cross-country skiing) would continue informally in the study area. In the short term, the golf course portion of the study area would be closed for construction and staging, and winter recreation opportunities within this portion of the study area would not be available.

According to the Lake Tahoe Golf Course Economic Feasibility Analysis, the total number of Lake Tahoe Golf Course–generated visitors is currently 8,942, with total annual visitor spending estimated at $7,476,000. Under Alternative 5, if the clubhouse remained in operation for events, it is estimated that the total number of visitors would decrease to 1,832 and that total annual visitor spending would decrease to $912,000 (HEC 2008:61 [Appendix E]). Total annual estimated tax revenue directly generated by Lake Tahoe Golf Course visitors would decrease from $493,000 to $128,000 (HEC 2008:62 [Appendix E]). The closure of the golf course would result in the loss of approximately 168 full- and part-time jobs (76 at Lake Tahoe Golf Course and 92 elsewhere) from the local economy. The loss in earnings associated with these jobs is approximately $2.7 million, which is money no longer recirculated in the local economy (HEC 2008:63 [Appendix E]). Closure of winter operations would result in the loss of approximately three jobs (HEC 2008:8 [Appendix E]). Earnings by employees generated elsewhere in South Shore by visitors to Lake Tahoe Golf Course would decrease by $2.0 million with no golf course (HEC 2008:6 [Appendix E]). Earnings impacts from potential cessation of snowmobile ride operations were not estimated in the economic study; however, it would be expected that earnings impacts of the snowmobile ride operations would be minor compared to the earnings impacts of changes in golf operations. The economic impact

of decommissioning Lake Tahoe Golf Course and no longer providing any public services at Lake Valley SRA is approximately $7.5 million in direct visitor spending and $0.5 million in tax revenue, for a total of $8.0 million (HEC 2008:63 [Appendix E]). These revenues would be lost under Alternative 5 and would therefore have an overall adverse economic impact on the community of South Lake Tahoe.

IMPACT 3.15-3 (Alt. 5) **Environmental Justice.** *Lake Tahoe Golf Course would be decommissioned under Alternative 5, but impacts on minority or low-income populations are not expected to occur. No impact would occur.*

Under Alternative 5, the Lake Tahoe Golf Course would be decommissioned, and the clubhouse and maintenance yard would remain; however, the future use of this facility would be determined through a separate planning process based on comments submitted on this draft EIR/EIS/EIS and consideration of compatible State Parks uses. There is no indication that either the construction or the operation of Alternative 5 would affect identified minority or low-income populations to a greater degree than the general population of the surrounding area. Potential impacts would affect the general population in the surrounding area, not just low-income or minority populations. In addition, appropriate measures associated with potentially significant impacts would reduce those impacts to a level below significance. For any significant and unavoidable impacts, TRPA is required to make findings as to whether the project's benefits would outweigh the significant and unavoidable environmental impact. Current and proposed uses at the Lake Tahoe Golf Course do not represent a disproportionate effect on low-income or minority populations.

Therefore, no significant long-term or short-term disproportionate adverse impacts on low-income or minority populations would result from implementation of Alternative 5. No significant impacts related to environmental justice would occur.

No mitigation is required.

IMPACT 3.15-4 (Alt. 5) **Fiscal Impact on State Parks.** *Decommissioning the Lake Tahoe Golf Course while maintaining the clubhouse for event purposes only is estimated to be financially infeasible (i.e., revenue would not exceed operating expenditures after making concession payments to State Parks). This would be an adverse fiscal impact on State Parks.*

As discussed for Alternative 2, estimated gross receipts (revenues) determine payments to State Parks. Rent to State Parks and contributions to the CIP fund are deducted from net revenues to estimate net annual concessionaire revenues. Currently, total revenue at the Lake Tahoe Golf Course is $2,789,000. Under Alternative 5, total revenue would decrease to $387,000 if the clubhouse continued to host events, if not income would be zero (HEC 2008:4 [Appendix E]). Operation of the clubhouse for events only is estimated to be infeasible, even if the number of events is doubled per year. Concessionaire operations would have to cease because operating expenditures would exceed revenues (HEC 2008:3 [Appendix E]). If operation of the clubhouse is infeasible for a concessionaire, it would also not be expected to produce positive cash flow if operated by State Parks staff directly (and the State Parks District does not have staff available for such an operation). Therefore, operation of the clubhouse for special events would be infeasible with either operating model.

Under Alternative 5, potential annual loss of income to State Parks from decommissioning and removing the Lake Tahoe Golf Course is $881,000 (HEC 2008:3 [Appendix E]). Fiscal impacts on State Parks under Alternative 5 would be adverse.

This page intentionally left blank.

3.16 CUMULATIVE IMPACTS

This chapter provides an analysis of overall cumulative impacts of the project alternatives and the No Project/ No Action alternative taken together with other past, present, and reasonably foreseeable future projects producing related impacts, as required by the California Environmental Quality Act Guidelines (State CEQA Guidelines) (14 California Code of Regulations (CCR) Section 15130) and National Environmental Policy Act (NEPA) implementing regulations (40 Code of Federal Regulations [CFR] 1508.7). This analysis follows applicable guidance provided by the Council on Environmental Quality (CEQ) in *Considering Cumulative Effects under the National Environmental Policy Act* (CEQ 1997) and in *Guidance on the Consideration of Past Actions in Cumulative Effects Analysis* (CEQ 2005) and applicable Reclamation guidance and directives provided in the public review draft of Reclamation's *NEPA Handbook* (2000), (the latter of which is used as informal guidance, because it is currently being revised).

3.16.1 DEFINITIONS OF CUMULATIVE IMPACTS

The significance criteria for environmental effects are the same for cumulative impact analysis as they are for the project related impacts. These significance criteria are described in each of the topical environmental consequences sections of this chapter. The cumulative impact analysis is different, however, in that it accounts for the combination of environmental effects from other past, present, and reasonably foreseeable future projects potentially causing related impacts, not just the effects of the singular proposed project. Definitions of cumulative impacts and the scope of the cumulative impact analysis are discussed below.

NEPA DEFINITION OF CUMULATIVE IMPACTS

The CEQ regulations that implement provisions of NEPA define cumulative impacts as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or nonfederal) or person undertakes such other actions" (40 CFR 1508.7). Cumulative effects can result from individually minor, but collectively significant, actions over time and differ from indirect impacts (40 CFR 1508.8). They are caused by the incremental increase in total environmental effects when the evaluated project is added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can thus arise from causes that are totally unrelated to the project being evaluated, and the analysis of cumulative impacts looks at the life cycle of the effects, not the project at issue. These impacts can be either adverse or beneficial.

TRPA DEFINITION OF CUMULATIVE IMPACTS

TRPA looks to NEPA and CEQA for guidance in assessing cumulative impacts (and thus the analysis contained in this document is sufficient for TRPA purposes).

CEQA DEFINITION OF CUMULATIVE IMPACTS

Cumulative impacts are defined in the State CEQA Guidelines (CCR Section 15355) as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." A cumulative impact occurs from "the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time" (CCR Section 15355(b)).

Consistent with the State CEQA Guidelines (CCR Section 15130(a)), the discussion of cumulative impacts in this chapter focuses on significant and potentially significant cumulative impacts. The State CEQA Guidelines (CCR Section 15130(b)) state that:

The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact.

3.16.2 CUMULATIVE ANALYSIS APPROACH

GEOGRAPHIC SCOPE OF EFFECTS OF THE PROJECT

Table 3.16-1 defines the geographic scope of the effects of the proposed action and alternatives for each of the resource topics addressed in this draft EIR/EIS/EIS.

Table 3.16-1
Geographic Areas That Would Be Affected by the Project

Resource Area	Geographic Area
Air quality	Lake Tahoe Air Basin
Archaeological and Historical Resources	Study area, with regional implications
Vegetation and Wildlife	Project vicinity and watershed of the Upper Truckee River, with regional implications
Fisheries	Watersheds of Trout Creek and the Upper Truckee River, with regional implications
Earth Resources	Study area
Human Health and Risk of Upset	Study area
Hydrology and Flooding	Project vicinity and watershed of the Upper Truckee River
Geomorphology and Water Quality	Project vicinity and watershed of the Upper Truckee River, with implications for Lake Tahoe
Land Use	Project vicinity
Noise	Project vicinity
Public Services	South shore of Lake Tahoe
Recreation	South shore of Lake Tahoe
Scenic Resources	Project vicinity
Socioeconomics, Environmental Justice, and Public Housing	South shore of Lake Tahoe and project vicinity
Transportation, Parking, and Circulation	South shore of Lake Tahoe
Utilities	South shore of Lake Tahoe
Global Climate Change	Upper Truckee River watershed for related projects, although cumulative consequence issues can be global.

Source: Data compiled by EDAW (now AECOM) in 2009.

PLANNING CONTEXT

Land use plans adopted for areas within the geographic scope of analysis provide guidance for future projects. These plans are described below.

USFS Land and Resource Management Plan

The *Land and Resource Management Plan Lake Tahoe Basin Management Unit* (Forest Plan) (USFS 1988) directs USFS management of the Lake Tahoe Basin Management Unit (LTBMU). It provides management direction that applies to the entire LTBMU and additional direction for specific management areas within the LTBMU. The study area for the proposed project is in the Tahoe Valley Management Area. For this area, the emphasis of USFS management is on satisfying the recreational, scenic, and special use demands of the large visiting and urban population; and some USFS land is managed for existing and potential development (which may include construction of new recreational facilities). The USFS is currently revising the Forest Plan. A Notice of Intent to prepare an environmental impact statement to develop a new planning rule to replace the 2008 Planning Rule that was overturned by the courts was published in 2009. Rather than wait for the publication of a new final rule, the LTBMU will complete their revisions using the 2000 planning rule. The 2000 Planning Rule allows the Forest Service to use the provisions of the 1982 Planning Rule to develop, amend and revise plans while the agency develops a new rule. The LTBMU 2000 Planning Rule principles include:

- Conducting restoration and conservation to address ecosystem resilience;
- Proactively addressing climate change;
- Maintaining and restoring watershed health and protecting and enhancing water resources;
- Providing for diversity of species and wildlife habitat;
- Fostering sustainable NFS lands and their contribution to vibrant rural economies;
- Conducting effective and pro-active collaboration with the public;
- Considering the relationship between NFS lands and neighboring lands; and
- Using the latest planning science and principles to achieve the best decision possible.

El Dorado County General Plan

The El Dorado County General Plan provides direction for local land use decisions in the unincorporated portions of El Dorado County. This guidance would be applicable to private and locally owned lands in the watershed of the Upper Truckee River that are outside of the City of South Lake Tahoe. The El Dorado County General Plan consists of 9 elements: land use; transportation and circulation; housing; public services and utilities; health, safety, and noise; conservation and open space; agriculture and forestry; parks and recreation; and economic development. Goals, objectives, and policies, and implementation measures are provided for each of these elements. Although no goals, objectives, policies, or measures specifically refer to Washoe Meadows State Park (SP), Lake Valley State Recreation Area (SRA), or the Upper Truckee River some are relevant to the proposed project. In particular, Goal 2.10 (“Lake Tahoe Basin”) provides direction for land use decisions by El Dorado County in the Lake Tahoe Basin. This goal is: “To coordinate the County’s land use planning efforts in the Tahoe Basin with those of the Tahoe Regional Planning Agency” (El Dorado County Planning Department 2004). Other applicable goals, objectives, and actions are discussed further in Section 3.2, “Land Use.”

South Lake Tahoe General Plan

The study area is located outside of the City of South Lake Tahoe. However, the land use vision described in the general plan specifically addresses the commercial corridor along U.S. Highway 50 (U.S. 50) adjacent to the study area. The vision is to remove the “strip commercial uses” and reestablish distinct “villages” reminiscent of early South Shore development along the highway (City of South Lake Tahoe 2003). The goals and policies of the general plan are the basis upon which the city council and planning commission will base their land use decisions (OPR 2001). The general plan for the City of South Lake Tahoe (City of South Lake Tahoe 2003) consists of

seven elements: land use, circulation, housing, conservation, open space, noise, and safety. Goals, objectives, and actions are provided for each of these elements. Although no goals, objectives, or actions specifically refer to the SP or SRA, many are applicable to the study area. These goals, objectives, and actions are summarized in Section 4.10, "Land Use." The City's general plan is currently being revised.

Lake Tahoe Airport Comprehensive Land Use Plan

The *Lake Tahoe Airport Comprehensive Land Use Plan* (Brand and French 1990), prepared by the City of South Lake Tahoe, defines compatible types and patterns for any future development that might occur in the area surrounding the Lake Tahoe Airport, including the project vicinity. The findings, policies, and guidelines of this plan have three major functions:

- To protect the airport from encroachment by incompatible land uses;
- To safeguard the general welfare of the inhabitants within the vicinity of the airport and the public in general by protecting them from the adverse effects, related hazards; and
- To ensure that no structures effect navigable airspace.

To limit the potential consequences of an off-airport accident, the plan limits the intensity of land uses (measured as the number of people potentially present per acre) in some areas. The plan also includes guidelines regarding the compatibility of land uses. Because bird-plane collisions (i.e., bird strikes) are a hazard to the operation of aircraft, land uses that potentially attract hazardous wildlife are a safety concern that is addressed by the plan.

Lake Valley SRA General Plan

Section 5002.2 of the Public Resources Code requires State Parks to prepare a general plan or revise any existing plan after the State Park and Recreation Commission has classified or reclassified a unit of the State Park system, and before any new permanent facilities are developed in a previously classified unit. To satisfy this requirement for the unit in which the study area for this project is located, State Parks prepared and adopted the *Lake Valley State Recreation Area General Plan* on May 13, 1988 (State Parks 1988). The general plan provides guidelines for long-term management and development of Lake Valley SRA. The Land Use Element of the general plan determines uses of land within the SRA for providing recreational opportunities and public facilities consistent with the programs and policies identified in the general plan's Resource Element. It identifies developed and undeveloped land uses and provides recommendations for future uses within the SRA. Specifically, the purpose of Lake Valley SRA is to make available an 18-hole golf course and the scenic Upper Truckee River and its environs for people's enjoyment and inspiration. State Parks must balance the objectives of providing optimum recreational opportunities and maintaining the highest standards of environmental protection. According to the General Plan purpose statement, State Parks must define and execute a management program for the unit that perpetuates the unit's declared values, providing for golfing and other compatible summer and winter recreation opportunities while restoring the natural character and ecological values of the Upper Truckee River, protecting its water quality, and protecting and interpreting significant natural, cultural, and scientific values. No general plan has been prepared for Washoe Meadows State Park.

Lake Valley State Recreation Area River Management Plan—Upper Truckee River

The *Lake Valley State Recreation Area River Management Plan—Upper Truckee River* (State Parks 2000) was an internal planning study that provides guidelines for the management and development of Lake Valley SRA. The plan's major theme is combining river enhancement and erosion control with recreation enhancement. Resource objectives include implementing rehabilitation within the Upper Truckee River without moving the golf course, protecting and enhancing scenic quality, and monitoring modifications. Objectives related to recreation include redevelopment that considers effects on the river (e.g., control of runoff into the river, implementation of best

management practices, experimental use of more tolerant turf and grass species). In general, the plan calls on State Parks to:

- recreate the riparian corridor along the Upper Truckee River;
- protect the existing characteristics of the river corridor and riparian values;
- restore or rehabilitate disturbed areas, and enhance all other areas;
- enhance the golfing experience and improve the facilities;
- protect, preserve, and enhance the area's scenic quality; and
- protect, restore, and enhance wildlife and fisheries habitat values.

This plan was never completed and adopted because it did not meet the goals in the General Plan to restore the Upper Truckee River. Its information was superseded by the *Upper Truckee River Restoration Project – Riparian Ecosystem Restoration Feasibility Report* (River Run Consulting 2006), which provided the foundation information for developing the river restoration concepts of the proposed project. Consequently, the River Management Plan does not provide direction to current restoration planning efforts at Lake Valley SRA.

TRPA Regional Plan

The Lake Tahoe Regional Plan provides the overall planning framework for TRPA decisions in the Basin. The framework of the Regional Plan includes thresholds, goals and policies, a code of ordinances, and Plan Area Statements (PASs). Each of these components of the Regional Plan is described below. The Regional Plan is being updated through the Pathway, which is a multi-agency collaborative process described in a subsequent section (entitled "Pathway").

Environmental Thresholds

Thresholds are used by TRPA as standards for evaluating projects. TRPA threshold criteria have been established for the following environmental resource topics: water quality, air quality, scenic resources, soil conservation, fish habitat, vegetation, wildlife habitat, noise, and recreation.

Both attainment and maintenance of the thresholds are required, and TRPA does not have flexibility in its enforcement when evaluating projects. An effect on exceedance of these threshold criteria must be mitigated by avoidance, relocation, or removal of the identified project element that would cause the effect on exceedance (TRPA 1982). The consequences of each alternative for the thresholds are addressed in the applicable resource evaluations in Chapter 4 of this document.

Goals and Policies

The Goals and Policies document for the 1987 Regional Plan establishes an overall framework for development and environmental conservation in the Lake Tahoe region (TRPA 1986). This document identifies goals and policies that establish the strategies necessary to achieve the goals.

Code of Ordinances

The TRPA Code of Ordinances establishes standards and regulations for implementation of the Regional Plan for the Lake Tahoe Basin. The Code of Ordinances is intended to implement the Goals and Policies of the Regional Plan while maintaining the environmental thresholds (TRPA 1991). Public agencies and organizations in the Lake Tahoe Basin must comply with TRPA provisions or may establish equivalent or higher requirements in their jurisdiction.

Plan Area Statements

The TRPA Code of Ordinances requires that all projects and activities be consistent with the provisions of a particular area's applicable PAS. The Lake Tahoe Region is divided into more than 175 separate Plan Areas. For each Plan Area, a "statement" is made as to how that particular area should be regulated to achieve regional environmental and land use objectives and provide detailed plans and policies for specific areas of the basin. The Plan Area's written text and maps, as well as the other land use regulations, provide specific land use policies and regulations for a specific planning area. The project area is located within PAS 119 (Country Club Meadow). The PAS is described in Section 3.2, "Land Use."

Pathway

Pathway is a collaborative planning effort between TRPA, USFS, the Lahontan RWQCB, and NDEP. Through Pathway, these agencies are working together to align environmental goals and develop integrated regional plans for the Tahoe Basin. The elements of Pathway include:

- developing the Lake Tahoe total maximum daily loads,
- updating TRPA's Environmental Thresholds and 20-Year Regional Plan, and
- updating the USFS Land and Resource Management Plan.

Each of the Pathway efforts is being undertaken using an adaptive management framework to provide ongoing opportunities for review and revision of the success of regulations and policies.

METHODS AND ASSUMPTIONS OF ANALYSIS

Although NEPA guidelines do not provide specific guidance on how to conduct a cumulative impact analysis, the U.S. Department of the Interior, Bureau of Reclamation's draft *NEPA Handbook* states that an EIS should identify associated actions (past, present, or future) that, when viewed with the proposed or alternative actions, may have significant cumulative impacts. Cumulative impacts should not be speculative, but should be based on known long-range plans, regulations, or operating agreements.

The State CEQA Guidelines identify two basic methods for establishing the cumulative environment in which the project is to be considered: the use of a list of past, present, and probable future projects (the "list approach") or the use of adopted projections from a general plan, other regional planning document, or certified EIR for such a planning document (the "plan approach"). For this cumulative effects analysis, the list approach has been followed to generate the most reliable future projections possible.

Significance Criteria

When considering cumulative impacts of the Upper Truckee River Restoration and Golf Course Reconfiguration Project, the environmental consequences of actions associated with the project were evaluated to determine if implementation would make a cumulatively considerable contribution to a significant cumulative effect. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other projects, and the effects of probable future projects (CEQA Guidelines 15065[a][3]). Thus, the action's effects were evaluated in combination with the effects of other past, present, and reasonably foreseeable future actions to determine if (1) the overall cumulative effect is significant and (2) the action contributes to that overall cumulative effect. Both circumstances must exist to conclude that an environmental consequence is cumulatively significant. Cumulatively significant effects of would do any of the following:

- Cause a significant adverse effect on a resource (using the criteria for significance described in Chapter 3, "Environmental Consequences and Mitigation Measures");

- Make a considerable contribution to an already degraded or declining resource that has experienced substantial adverse effects from other past, present, or reasonably foreseeable future projects; or

- Cause an effect that was initially not significant by itself, but that would be part of a cumulatively degrading or declining future trend resulting from other reasonably foreseeable future actions.

Short-term, and Long-term Cumulative Impacts

Because the project involves the restoration of natural functions and values to a river and floodplain through construction activity, short-term impacts may occur as a result of the construction disturbance. Therefore, the analysis needs to examine whether short-term cumulative impacts may occur because of the implementation of a combination of the Upper Truckee River Restoration and Golf Course Reconfiguration Project and other past, present, and reasonably foreseeable future projects in the watershed.

Short-term impacts include both effects that would be transient and are related to construction (e.g., noise) and effects that would last for approximately 3–5 years that are related to an adjustment period after construction. Following construction activities, restoration involves a transitional period during which the project area will adjust and evolve to mimic the natural environment prior to project implementation. Vegetation will grow and develop into fuller cover over the river channel and soils exposed during construction, wildlife habitats will reestablish themselves or develop for the first time, and the river will equilibrate. The short-term cumulative impact analysis time period, therefore, involves the construction phase of the project and approximately 5 years thereafter.

In this cumulative impact analysis, short-term impacts are addressed separately from long-term cumulative impacts. Typically, such transitory effects do not result in a cumulatively significant impact, because they do not add to the effects of other actions. However, the construction and transitional periods of the proposed restoration project could be concurrent with the construction and transitional periods of several other restoration and erosion control actions in the Upper Truckee River watershed (see Table 3.16-2). Thus, the combined and short-term effects of these restoration and related actions (including the proposed project) could be cumulatively significant for certain resources (e.g., water quality), and are, therefore, discussed in this section. Also, the short-term effects on a resource could be adverse, while long-term effects to the same resource are beneficial. (For example, the temporary risk of construction-period sedimentation or transitional-period erosion could be adverse, even though the project is implementing its purpose to create long-term benefits to water quality.) For these reasons, the cumulative impacts resulting from temporary and short-term effects are distinguished from long-term impacts in the analysis and conclusions regarding cumulative impacts.

Long-term cumulative impacts are the more common subject of cumulative impact analysis. Adverse effects typically accumulate over time as a result of the implementation of a combination of projects. Because this environmental document examines a proposed restoration project, long-term cumulative environmental effects could be either adverse or beneficial, both of which are considered in this analysis. Long-term cumulative impacts are discussed for each resource following short-term cumulative impacts, if both are applicable.

Mitigation Measures for Cumulative Impacts

Where a considerable contribution to a significant cumulative adverse effect is identified, mitigation measures are presented, where feasible. If mitigation described in Sections 3.2–3.15 for project-related impacts would also resolve cumulative impacts, it is cross-referenced in the discussion below. If a new mitigation measure is needed for the cumulative impact, it is described in its entirety in the following discussion.

RELATED PROJECTS CONSIDERED IN CUMULATIVE IMPACT ANALYSIS

Past Projects

The Upper Truckee River, its watershed, and surrounding areas, have been substantially altered by land use practices during the past 150 years. The opening of the Comstock silver mining boom in Nevada, beginning in mid-1859, prompted a surge in timber harvesting, and agricultural and developed land uses also increased. During the 1900s (to the present), developed land uses have continued to increase, particularly since 1960. For example, the population of the City of South Lake Tahoe has increased fivefold since 1960 (City of South Lake Tahoe 2003).

As a result of these changes in land use, the Upper Truckee River has experienced ecosystem degradation throughout its watershed that is typical of what has occurred elsewhere in the Tahoe Basin (Murphy and Knopp 2000). The river has been modified from its original conditions by human activities, such as logging; livestock grazing; and construction of roads, and residential, commercial, and industrial developments (including the Lake Tahoe Airport, U.S. 50 Bridge). Many of these past actions continue to affect resources of the project vicinity, Upper Truckee River watershed, and south shore of Lake Tahoe. These major past actions include the following:

- *Historic Timber Harvests*. The Comstock mining boom between 1860 and 1890 brought about substantial changes in the watershed. Loss of trees and compaction of soils from clear-cut logging and primitive log transport methods increased runoff, soil erosion, and sediment supply to the river. Intensive logging, including clear-cutting and hauling, took place in the area surrounding the Upper Truckee River below the current U.S. 50 crossing at Meyers. Straightening the channel to help move the logs downriver and constructing splash dams likely also affected the Upper Truckee River. Splash dams were temporary structures to impound the flow and create a pond where logs could be floated. Once full, the dam would be breached, sending the logs downstream to Lake Tahoe with the detained river flow (SH+G 2004:II-21).

- *Historic Grazing*. Sheep and cattle grazing were seasonal uses in the upper watershed area, particularly concentrated in meadows and lakes. The introduction of grazing to the floodplain meadow areas and the watershed would have brought pathogens, elevated nutrient levels and increased areas of soil disturbance and erosion, and loss of channel sinuosity. Grazing in the project vicinity occurred between the 1850s and the 1960s; in the Upper Watershed grazing could have started in the 1840s, and at some periods, included sheep grazing as well as cattle. Grazing along stream zones where the water course was the main supply of drinking water often resulted in “chiseled” banks with barren soils, a lack of vegetation cover and trampled substrate. The 1940s aerials indicate many barren streambanks, a wide channel with fresh bars of sediment and little indication of recent vegetation colonization. These features all suggest grazing impacts were significant in the1940s (SH+G 2004:II-29).

- *Fire Suppression*. Prior to the late-1800s, fires in the Lake Tahoe Basin were frequent and mostly of low to moderate intensity. Since that time, changes in land use and fire management have altered the frequency and intensity of fires. In particular, since about the 1920s, fire suppression has resulted in a several-fold increase in tree density and fuel loads in most forests in the Lake Tahoe Basin (Barbour et al. 2002:461–462). These changes in forest structure have altered biological habitats, and increased the frequency of high-intensity fires and the vulnerability of trees to insect outbreaks.

- *Urban Development*. During the past 150 years, a portion of the watershed of the Upper Truckee River has been converted to developed land uses. Based on a review of land cover within the watershed (using the CDF 2002 and California Interagency Watershed Mapping Committee 2004 GIS data layers), this portion is about 9 percent, concentrated in the lower elevation areas of the watershed, and includes much of the project vicinity. Urban development has been altering hydrologic, geomorphic, and other resources within the watershed of the Upper Truckee River, including the project vicinity. Several development projects along the Upper Truckee River have adversely affected geomorphic processes, water quality, and habitats; these

projects include the Lake Tahoe Golf Course at the Lake Valley SRA, South Lake Tahoe Airport, U.S. 50, and the Tahoe Keys Marina and residential area.

- *Newlands Project – Tahoe City Dam*. Since 1870, a dam has been operated at Tahoe City that regulated water flow from Lake Tahoe into the Lower Truckee River. Following enactment of the Reclamation Act of 1902, the Secretary authorized construction of the Newlands Project, and during 1909–1913, the dam at Tahoe City was reconstructed to its present configuration. This dam controls the top 6.1 feet of storage at Lake Tahoe as a Federal reservoir. The Truckee River Operating Agreement governs the operation of this dam and consequently the surface elevation of Lake Tahoe (Reclamation and DWR 2008), which has an effect on the Upper Truckee River, primarily in the lower reaches.

- *Species Introductions.* Non-native species have been accidentally or deliberately introduced into the aquatic and terrestrial ecosystems of the Lake Tahoe Basin. Species that have become particularly abundant and are present in the project vicinity include beaver (*Castor canadensis*), brown trout (*Salmo trutta*), brown bullhead catfish (*Ictalurus nebulosus*), and cheatgrass (*Bromus tectorum*) (EDAW and ENTRIX 2003). Bullfrogs (*Rana catesbeiana*) have been documented in the Tahoe Basin, including the golf course ponds in the study area (McMorrow 2003, Wildlife Resource Consultants 2008a). These species have been altering the resources of the project vicinity, Upper Truckee River watershed, and south shore of Lake Tahoe.

- *Tahoe Keys Marina and Tahoe Keys Residential Area*. From the late 1950s and continuing into the 1970s, the construction of the Tahoe Keys Marina and the Tahoe Keys residential area substantially altered the Upper Truckee Marsh and the downstream reach of the Upper Truckee River. During this time, approximately 500 acres in the center of the marsh was excavated to create canals and the Tahoe Keys Marina, and fill was placed to create the housing pads of the Tahoe Keys residential area. This project fragmented the marsh into what is now known as Pope Marsh on the west and the Upper Truckee Marsh on the east. In addition, by 1965, the adjacent portion of the Upper Truckee River was channelized, which effectively disconnected it from its former floodplain (EDAW and ENTRIX 2003).

- *Lower West Side Wetland Restoration Project*. During the summers of 2001 and 2002, the Conservancy restored approximately 12 acres of former wetland that was filled during Tahoe Keys construction. The site was excavated 3–5 feet, and subsequently restored as wetland and reconnected to the Upper Truckee River as part of the active floodplain. The Lower West Side Wetland Restoration Project is located next to Tahoe Keys Marina behind Cove East Beach, west of the river.

- *Angora 3A and 3B Water Quality Project.* In 2002, El Dorado County, the Conservancy, TRPA, and USFS implemented erosion control measures within a 45-acre area along Angora Creek to reduce the quantity of fine sediment reaching Angora Creek and to reduce the peak flow of stormwater reaching Angora Creek during large storm events (El Dorado County DOT 2006). These measures included redesign and replacement of inadequately sized culverts; revegetation and other source control measures on eroding slopes; and installation of curb and gutter, rock bowls at culvert outlets, vegetated swales, and sediment traps.

- *Angora Creek Restoration Project.* Two restoration projects have been completed by State Parks on Angora Creek: 1997 and 2002. In 2002, State Parks restored a reach of Angora Creek and the adjacent meadow. A section of Angora Creek once meandered through a wet meadow, but the stream was captured by the STPUD sewer alignment in the 1960s. The stream deviated from its original winding path over the sewer giving the stream more power, causing an increase in erosive forces. The channel had down-cut, scouring the bed of the stream to two feet below its original elevation. This, in turn, caused the meadow to dry out and critical habitat was degraded. A second reach that flows through the study area was restored in 1997. That reach was channelized and diverted to dry the meadow for grazing. The golf course was later built over part of this meadow and abandoned channel. Both reaches were restored, building a new more sinuous channel reconnected to the meadow floodplain. The objective of both projects was to decrease erosion, enhance wetland and riparian habitat and to improve water quality by restoring the stream channel to a geomorphically functioning condition. Restoration of the bed elevation and sinuosity of the stream restored access to the

meadow floodplain, raised groundwater elevations, increased sediment deposition and nutrient removal and improved meadow health.

- *Anderson Quarry*. A 17-acre sand-and-gravel quarry was formerly located on the west side of the Upper Truckee within the SP. Most of the viable sand and gravel was excavated from the site prior to State Parks ownership. While the exact dates of use are not known evidence of mining is visible in the 1969 aerial photograph and no mining occurred since State Parks took possession of the property in 1985. In 2003, approximately 80,000 yards of clean fill material taken from the Lower Westside Wetland Restoration Project, along with compost, topsoil, and native seed were used to restore the middle lobe of the quarry. The north and south lobe are still in a similar condition to previous years, both containing brick and asphalt waste. The north lobe has an accidentally created wetland, because the quarry cut intercepts the groundwater from the fen located upslope and water ponds in old divots on the previous quarry floor forming seasonal ponds with riparian vegetation.

Present and Reasonably Foreseeable Projects

Present and reasonably foreseeable, probable future projects are those projects that are currently under construction, approved for construction, or in various stages of formal planning. Some of these projects are planned to be under construction during the period that this project is expected to be constructed (2010–2014).

The present or reasonably foreseeable, probable future projects considered in this cumulative analysis are those projects located within the Upper Truckee River watershed and the South Shore area of the Lake Tahoe Basin and that have been identified as potentially having an effect on resources that also may be affected by the Upper Truckee River Restoration and Golf Course Reconfiguration Project. Table 3.16-2 lists these related projects. A preliminary list of projects was compiled by reviewing available information regarding planned projects (including agency websites), and by contacting the City of South Lake Tahoe, Conservancy, El Dorado County, Lake Valley Fire Protection District, State Parks, TRPA, and USFS staff. Projects were then reviewed for inclusion in the cumulative effects analysis based on three criteria:

- The project is reasonably foreseeable, because it has an identified sponsor, and has initiated CEQA, TRPA, and NEPA environmental review or other regulatory procedures.
- Available information defines the project in sufficient detail to allow meaningful analysis.
- The project could affect resources potentially affected by the Upper Truckee River Restoration and Golf Course Reconfiguration Project.

Identified projects that satisfied these three criteria have been organized into the following three categories:

- river and stream restoration
- water quality and erosion control, and
- other projects.

The projects within each of these categories are described in Table 3.16-2.

Table 3.16-2
List of Related Projects in the
Upper Truckee River Watershed and the South Shore Area

Name	Description and Status
	River and Stream Restoration Projects
Upper Truckee Middle Reaches 3 and 4 Restoration Project	**Description:** This project proposed and being implemented by the City of South Lake Tahoe with funding from the Conservancy and Reclamation will be located along the Upper Truckee River from roughly 0.5 mile northeast of the northern runway limit of the Lake Tahoe Airport to approximately the midpoint of the runway(Reclamation, City, and TRPA 2008). The objectives of the Upper Truckee Middle Reaches 3 and 4 Restoration Project include restoring natural river and floodplain processes by increasing overbank flow and depositing sediment onto the floodplain, and improving terrestrial and aquatic wildlife habitat. To accomplish these objectives a new channel (approximately 4,000 feet long) will be constructed and revegetated, and in the third year the river's flow will be diverted into the new channel, and the abandoned channel will be backfilled and revegetated. A new floodplain also will be constructed by removing existing fill. Construction of this new channel and floodplain will entail construction of a temporary crossing of the river, removal and stockpiling of approximately 52,000 cubic yards of soil, and also the removal and stockpiling of a large amount of plant materials. Additionally, three fish barriers will be removed and three in-channel habitat structures will be constructed. The total area of disturbance associated with this project will be approximately 28 acres. **Status:** An environmental assessment/finding of no significant impact/initial study/mitigated negative declaration (EA/FONSI/IS/MND) has been prepared for the project and construction began in 2008 and will be completed in 2010 or 2011 (with most in-channel work occurring in less than one season).
Sunset Stables Restoration Project	**Description:** This project proposed by the Conservancy and USFS would be located in a 739-acre Management Planning Area in the vicinity of the South Lake Tahoe Airport, and adjacent to and directly south of the Upper Truckee Middle Reaches 3 and 4 Restoration Project. (ENTRIX 2008). Its goals include restoring a more naturally functioning river and floodplain, improving water quality by restoring floodplain processes, reducing erosion from bank failure, and treating runoff from upstream and adjacent areas. The project will restore, enhance, and protect aquatic and terrestrial habitat diversity and quality and provide for appropriate and compatible public access. To accomplish these goals, it would restore a portion of the 2.6-mile-long reach of the Upper Truckee River that is in the Management Planning Area. This new channel would start east of the U.S. 50 Bridge and would be designed around existing sewer and water pipelines to the extent possible. Lateral grade controls would be installed where the new channel crosses the old channel, and vertical grade controls would be installed where the new channel transitions to existing channel. Implementation would entail excavating new channels, and after the new channels have been revegetated, diverting the river's flow into the new channel(s) and filling and revegetating the abandoned channel. **Status:** Environmental review has begun for the project and an IS/MND and EA/FONSI are being developed. Construction should begin for the first phase in 2011 and last for 3 years. Construction for the second phase would start in 2012 or 2013 and last for 3 years.
Upper Truckee River Middle Reaches 1 and 2 Stream Restoration Project	**Description:** This project proposed by the Conservancy and the Tahoe Resource Conservation District would be located from U.S. 50 upstream to the vicinity of the South Lake Tahoe Airport, and just downstream of the Upper Truckee Middle Reaches 3 and 4 Restoration Project. The objectives of the Upper Truckee Middle Reaches 1 and 2 Stream Restoration Project are to (1) eliminate a gully that is eroding along the river at this site, and (2) enhance aquatic and adjacent terrestrial habitat along the Upper Truckee River. To accomplish these objectives, the gully channel will be filled and revegetated, portions of the channel banks of the Upper Truckee River will be recontoured and revegetated, and some riparian enhancements, bank stabilization, and aquatic habitat structures are also being considered (Carroll, pers. comm., 2007). **Status:** Environmental review has begun for the project and a MND/IS, and EA/FONSI are being developed. Construction could begin in 2011 and would last for 1 season, with only irrigation anticipated in subsequent seasons.

Table 3.16-2
List of Related Projects in the
Upper Truckee River Watershed and the South Shore Area

Name	Description and Status
Upper Truckee River and Marsh Restoration Project	**Description:** This project proposed by the Conservancy and the Real Estate Services Division would be located along the most downstream reach of the Upper Truckee River from U.S. 50 to where the river connects to Lake Tahoe (EDAW and ENTRIX 2006). Its objectives include restoring natural and self-sustaining river and floodplain processes and functions, protecting, enhancing, and restoring naturally functioning fish and wildlife habitats, improving water quality through enhancement of natural physical and biological processes, protecting and where feasible, expanding Tahoe yellow cress populations, and enhance the quality of public access, access to vistas, and environmental education. To fulfill these objectives, four project alternatives have been developed. These alternatives all include river restoration that would re-establish an active floodplain, create a sinuous channel in the straightened reach, and reduce the input of sediment from eroding banks downstream of the U.S. 50 Bridge. However, the alternatives differ in their approach to this restoration. As a result, features that differ among alternatives include reducing in the size of the river mouth, creating an inset floodplain, narrowing and aggrading the channel, creating a new channel, and re-establishing a river-overflow lagoon. Other features of one or more project alternatives include: constructing a visitor and interpretive center near the end of Venice Drive; isolating the Sailing Lagoon from the marina and reconnecting it to the Upper Truckee River; constructing new trails, boardwalks (or both), or rerouting existing trails; restoring sand ridges at Cover East; and creating a river corridor barrier to reduce disturbance of wildlife by humans. **Status:** Schematic plans and preparation of an EIR/EIS/EIS are in progress. Construction could begin in 2013 and would last for 3 years, and in-channel work could last for approximately 2.5 construction seasons.
High Meadows Forest Plan Designation; Ecosystem Restoration; and Access Travel Management Project	**Description:** This project by the USFS would be located in 1,790 acres in the upper Cold Creek watershed, which is part of the Trout Creek watershed (USFS 2008a). Its purpose includes guiding management of the property, restoring the channel of Cold Creek through the High Meadow Complex to increase water and sediment storage and to allow it to function as a wet meadow ecosystem, and to provide for current and future recreation needs and also reduce the impacts associated with recreation. The project could include creation of approximately 8,700 feet of new channels and associated floodplain on the Mainstem, East Fork, and North Fork of Cold Creek; removal and fill of diversion ditches; removal of lodgepole pines; rerouting and decommissioning of roads and trails, and redesign of stream crossings by roads and trails to reduce effects on aquatic ecosystems. **Status:** The project has completed environmental review and permitting. Construction activities began in 2008 and could continue through 2011 (Heller, pers. comm., 2008).
Erosion Control and Water Quality Projects	
Sierra Tract Erosion Control Project	Description: This project proposed by the City of South Lake Tahoe with funding from the Conservancy and USFS is located in the Sierra Tract Subdivision in the Trout Creek watershed in the City of South Lake Tahoe. It entails construction of a stormwater conveyance and treatment system, and stabilization of roadsides with vegetation. This project has been structured into 5 phases. The project does not include activities in the channel of a perennial waterway. **Status:** Construction of Phase 1 began in 2007 and this phase is still being implemented (USFS 2007). Phase 2 has already been constructed. Phase 3 is being planned and designed and may be constructed in 2011. Planning and design of Phase 4 has begun, with construction expected in 2012 or beyond. Planning and design for phase 5 has not begun and is dependent on funding being available.

Table 3.16-2
List of Related Projects in the
Upper Truckee River Watershed and the South Shore Area

Name	Description and Status
Al Tahoe Erosion Control Project	**Description:** This project by the City of South Lake Tahoe with funding from the Conservancy and USFS would be implemented in 320 acres of the Al Tahoe neighborhood in the Trout Creek watershed in the City of South Lake Tahoe, adjacent to the project site for the Upper Truckee River and marsh restoration project. Using a variety of measures, the project would treat runoff from the project area with a focus on the area closest to Lake Tahoe (Wood-Rodgers 2007). Treatment measures differ among project alternatives and may include discouraging parking, local revegetation, placement of riprap, curb and gutter, protection of road shoulders with permeable pavement, and other measures in the channel of a perennial waterway (Horvath, pers. comm., 2008). **Status:** Construction of the first area, which discharges directly to the Lake, began in 2009 and should be completed in 2010. Construction of the second area, which also discharges directly to the Lake, is scheduled for 2011. Construction of the phases which drain to the Marsh and river might begin in 2012, if funding is available, and continue for several years.
El Dorado U.S. 50 Segment 2– Lake Tahoe Airport to U.S. 50-SR 89 Junction Water Quality Improvement Project	**Description:** This project by Caltrans (in conjunction with the FHWA) would be located in the watershed of the Upper Truckee River on U.S. 50 from the Lake Tahoe Airport to the junction of U.S. 50 and SR 89 in the City of South Lake Tahoe. It would provide source control, containment, or treatment, or both of stormwater runoff from this segment of U.S. 50 (Caltrans 2007a). Measures could include erosion control measures on eroding slopes; installation of curbs and gutters, sand traps and sand vaults, infiltration basins, bioswales, and maintenance pullouts; and rehabilitating and constructing new drainage inlets and outfalls, and culverts. The project would include some construction activities (e.g., culvert replacement) in the channel of seasonal waterways (and possibly perennial waterways) that are tributaries to the Upper Truckee River. **Status:** An IS/Negative Declaration (ND) has been prepared and construction will begin when funding becomes available.
El Dorado SR 89, Segment 1– Luther Pass to Meyers Water Quality Improvement Project	**Description:** This project by Caltrans (in conjunction with the FHWA) would be located on SR 89 from Luther Pass to the intersection with U.S. 50 in Meyers. It would provide containment, or treatment, or both of stormwater runoff from this segment of SR 89. Measures could include erosion control measures on eroding slopes; installation of curbs and gutters, sand traps and sand vaults, infiltration basins, bioswales, and maintenance pullouts; and rehabilitating and constructing new drainage inlets and outfalls, and culverts. The project would involve replacement of culverts within the channel of Big Meadow Creek, Grass Lake Creek, and unnamed tributaries of the Upper Truckee River (Caltrans 2007b). **Status:** An IS/ND (Caltrans 2007b) has been prepared and construction of this project began in 2009 and could continue until 2014 (McNamara, pers. comm., 2007).
Montgomery Estates Phases 1, 2, and 3 Water Quality Project	**Description:** This project proposed by El Dorado County with funding from the Conservancy and USFS would be located in the watershed of Trout Creek in the City of South Lake Tahoe. It would implement various slope stabilization, infiltration, sediment trapping, and channel or road source treatment best management practices (BMPs) to reduce the amount of sediment discharging into Cold or Trout Creeks. **Status:** Project alternatives are being formulated and evaluated. Construction of Phase 1 could begin in 2010. At least two more years of construction will be required for Phases 2 and 3, but these phases are on hold and thus their construction may not immediately follow Phase 1.
Cold Creek Fisheries Project	**Description:** This project by El Dorado County and the Conservancy would be located at and upstream from the intersection of Pioneer Trail with Cold Creek, which is in the watershed of Trout Creek. Within this area, the project would remove or improve all man-made fish barriers, and evaluate and if necessary remove debris jams and beaver dams. **Status:** Construction could begin in 2010 or 2011 and is anticipated to be completed in 1 season.

Table 3.16-2
List of Related Projects in the
Upper Truckee River Watershed and the South Shore Area

Name	Description and Status
Apalachee 3B – Water Quality Project	**Description:** This project by the Conservancy, El Dorado County, TRPA, and USFS would be located in El Dorado County in the Tahoe Paradise Addition Units 4 and 5 off of Pioneer Trail in the Upper Truckee River and Trout Creek watersheds. It would increase retention and infiltration of runoff from impervious surfaces during large storm events. It also would stabilize eroding cut slopes and roadside drainage ditches, and treat runoff before it discharges into Trout Creek and the Upper Truckee River. The project would not involve activities within stream channels (Ferry, pers. comm., 2007). **Status:** The project has gone out to bid. The last phase of construction could begin in 2010.
Angora Fisheries and Water Quality Project	**Description:** This project by the Conservancy, El Dorado County, and Reclamation would be located in the watershed of the Upper Truckee River at the Angora Creek crossing of Lake Tahoe Boulevard (El Dorado County DOT 2006). It would modify Angora Creek in the vicinity of the culverts under Lake Tahoe Boulevard to improve fish passage. As part of these modifications, fill would be removed in the Stream Environment Zone (SEZ) and the existing culverts would be replaced. Angora Creek would be dewatered and isolated while the culverts were replaced. Some project activities would be in the channel of Angora Creek (e.g., installation of bridge footings). **Status:** The project has undergone environmental review and construction could begin in 2010 and is anticipated to be completed in 1 season (Ferry, pers. comm., 2007).
Christmas Valley Phase 2 Water Quality and Recreation Access	**Description:** This project by El Dorado County with funding from the Conservancy and USFS would be located in the watershed of the Upper Truckee River along SR 89 from the intersection with U.S. 50 to Portal Drive. It would provide a bike trail, and reduce both peak discharge of stormwater during large storm events and the quantity of fine and coarse sediment entering the Upper Truckee River from the project area. This project by the Conservancy, El Dorado County, TRPA, and USFS would be located in the watershed of the Upper Truckee River along Highway 89 from the intersection with U.S. 50 to Portal Drive (Ferry, pers. comm., 2007). It would provide a bike trail, and reduce both peak discharge of stormwater during large storm events and the quantity of fine and coarse sediment entering the Upper Truckee River from the project area. The project would not involve activities in the channel of a perennial waterway. **Status:** Environmental review has been completed. Construction of water quality improvements began in 2009 and could be completed in 2011. Design and construction of the bike trail is still under consideration.
Sawmill 2 Bike Path and Erosion Control Project	**Description:** This project by El Dorado County with funding from the Conservancy and USFS would be located in the watershed of the Upper Truckee River along Sawmill Road from Lake Tahoe Boulevard to U.S. 50 (Ferry, pers. comm., 2007). It would provide a bike trail through the project area, and it would install appropriate BMPs to reduce erosion and nutrient loading, and to increase treatment of stormwater runoff from existing impervious surfaces in the project area. This project would include construction activities in the channel of perennial waterways (e.g., bridge footings and abutments), which would be dewatered during construction. **Status:** Project planning has begun and construction could begin in 2011, and is anticipated to continue for 1–2 years (Ferry, pers. comm., 2007).

Table 3.16-2
List of Related Projects in the
Upper Truckee River Watershed and the South Shore Area

Name	Description and Status
	Other Projects
Greenway Bike Trail Project	**Description:** This project by the Conservancy would be located between the intersection of Pioneer Trail and U.S. 50 in Meyers, California and Van Sickle State Park at Stateline, Nevada. A portion of this project site is in the watershed of the Upper Truckee River and a portion is in the Trout Creek Watershed. Several alternative routes and two design alternatives have been developed. This project by the Conservancy would be located between the intersection of Pioneer Trail and U.S. 50 in Meyers, California and Van Sickle State Park at Stateline, Nevada. This project site is in the Upper Truckee River, Trout Creek, and other watersheds. The Greenway Bike Trail would be an approximately 9.6-mile-long shared-use trail that would link Meyers, California and Stateline, Nevada (USFS 2008b, TRPA 2008a). The project would also include restoration actions and fuel reduction actions along the trail route. Several alternative routes and two design alternatives have been developed. The project would cross waterways on bridges or raised platforms, and the construction of these crossings would require some in-channel construction activities. **Status:** A draft EIR/EIS/EIS will be released in 2010. Depending on funding availability, construction could begin in 2012 and will proceed in phases over many years.
Lake Tahoe Boulevard Enhancement Project	**Description:** This project by the Conservancy, El Dorado County, and TRPA would be located in the watershed of the Upper Truckee River in a corridor along Lake Tahoe Boulevard from Tahoe Mountain Road to the City of South Lake Tahoe. It would reduce Lake Tahoe Boulevard from 4 to 2 lanes, and along the road it would construct a 2-mile-long bike trail along the road, restore 4 acres of stream environment zone, and implement erosion control measures. This project by the Conservancy, El Dorado County, and TRPA would be located in the watershed of the Upper Truckee River in a corridor along Lake Tahoe Boulevard from Tahoe Mountain Road to the City of South Lake Tahoe (El Dorado County DOT 2007a, 2007b, 2007c). It would reduce Lake Tahoe Boulevard from 4 to 2 lanes, and along the road it would construct a 2-mile-long bike trail along the road, restore 4 acres of stream environment zone, and implement erosion control measures. The project would not involve construction activities in the channel of a perennial waterway. **Status:** Environmental field studies have begun for the project. Construction could begin in 2012 and could continue for 2 years.
Lake Tahoe Airport Runway Restoration Project	**Description:** This project by the City of South Lake Tahoe would be located at the South Lake Tahoe Airport adjacent to the Upper Truckee River. Along the existing runway, it would remove a 25-foot wide by 1,300-foot long area of impervious surface and replace a portion of this area with pervious concrete, and from the remainder of this area, it would remove fill from within the SEZ of the Upper Truckee River and revegetate the area (TRPA 2008b). The project would not involve activities within the channel of the Upper Truckee River or any perennial tributaries of the river. **Status:** Environmental review and permitting are complete. Construction would be completed in 2010.
Sawmill 1B Bike Trail Project – Air Quality and Recreation Access	**Description:** This project by El Dorado County with funding from the Conservancy and TRPA is located along U.S. 50 from the entrance to the Lake Tahoe Golf Course to Sawmill Road (Ferry, pers. comm., 2007). It provides a bike trail across the project area. This project would involve some construction activities in the channel of waterways (e.g., footings and abutments of crossings). **Status:** An IS/MND was completed and approved by the El Dorado County Board of Supervisors in 2005 (Stantec Consulting 2006). Construction was completed in 2009 with only warranty work to continue in 2010.

Table 3.16-2
List of Related Projects in the
Upper Truckee River Watershed and the South Shore Area

Name	Description and Status
Riparian Hardwoods Restoration and Enhancement	**Description:** This project by State Parks is being implemented in selected areas of SP properties including Washoe Meadows and Lake Valley SRA. It involves the removal of lodgepole pines from areas of aspen, willow and alder along the maintenance road adjacent to the Upper Truckee River upstream of the golf course (State Parks and Reclamation 2007). The project would not involve construction activities in the channel of a perennial waterway. **Status:** A mitigated negative declaration exists for the project. Construction began in 2008 and could continue into 2010.
Multi-Agency Fuel Reduction Plan	**Description:** This plan is a multi-agency strategy for coordinating implementation of fuel reduction treatments in the Lake Tahoe Basin (USFS et al. 2007). Treatment types (i.e., general prescriptions) include community defensible space-wildland urban interface, urban core, defense zone, and general forest prescriptions. All of these prescriptions reduce surface and ladder fuels, and tree density, to reduce flame lengths and the likelihood of crown fire. Treatment methodologies include thinning, pruning, prescribed burning, and masticating and chipping. The strategy identifies a substantial portion of the Upper Truckee River watershed as priority areas for treatment These treatments would not involve construction activities in the channel of perennial waterways. **Status:** Fuel reduction treatments are on-going and the plan identifies priority areas for treatment during the next 5 and 10 years (i.e., 2008–2012 and 2013–2018, respectively).
Heavenly Mountain Resort Master Plan	**Description:** This plan by Vail Resorts, Inc. guides improvement, expansion, and management of facilities and uses at Heavenly Mountain Resort, including areas within the Cold Creek watershed (which is within the Trout Creek watershed). Phase I projects include: replacing ski lifts and regrading ski trails; constructing a 1,000-seat restaurant, a bridge for skiers, and 152 acres of new ski trails; and other facilities. This plan guides improvement, expansion, and management of facilities and uses at Heavenly Mountain Resort, including areas within the Cold Creek watershed (which is within the Trout Creek watershed) (Vail Resorts 2007). Phase I projects include: restoration of SEZ; replacing ski lifts and regrading ski trails; constructing a 1,000-seat restaurant, a bridge for skiers, and 152 acres of new ski trails; and other facilities. Implementation of this plan would involve construction activities (e.g., installation of trail, road, and pipeline crossings) in the channel of perennial waterways. **Status:** The final EIR/EIS/EIS for the amended version of this plan was approved by TRPA in 2007 (Vail Resorts 2007), and construction of Phase I a project has begun and will continue for the next 2 to 4 years (through 2009–2011).
Angora Fire Restoration and Redevelopment	**Description:** Currently much of the Tahoe Mountain/North Upper Truckee neighborhood is being redeveloped after the Angora Fire in the summer of 2007 destroyed 254 structures. Current rules allow for property owners to pursue the replacement of previously existing development. Provisions allow for landowners to expedite the permitting process and granting fee waivers and allocation requirements. Coverage that was preexisting, including coverage located within SEZs and on steep slopes will be allowed to be redeveloped (El Dorado County Planning Department 2007). Various agencies including the Conservancy, El Dorado County and the USFS have implemented erosion control techniques and provided hazardous tree removal assistance in the area. These agencies are proposing additional restoration activities including channel reconstruction, meadow and wetland complex restoration in the burn area (USFS 2009). **Status**: Angora Fire restoration and redevelopment is on-going. It is expected that additional restoration and redevelopment will continue for the next 5 to 10 years.

Table 3.16-2
List of Related Projects in the
Upper Truckee River Watershed and the South Shore Area

Name	Description and Status
Additional Urban Development	**Description:** This urban development would consist of numerous small residential, commercial, industrial, and infrastructure projects in the project vicinity and elsewhere in the watershed of the Upper Truckee River and south shore of Lake Tahoe. These projects might include some construction activities in the channel of perennial or intermittent waterways (e.g., at road and utility crossings). Based on current land use planning and projected changes in population, additional urban development in the project vicinity, watershed of the Upper Truckee River, and south shore of Lake Tahoe is likely. Based on a review of land cover and general plan land use designations within the watershed (using the CDF 2002, UCD 2004, and California Interagency Watershed Mapping Committee 2004 GIS data layers), approximately 8 percent of the watershed is in natural vegetation within areas zoned for developed land uses, and thus a portion of this natural vegetation could be converted to developed land uses in the foreseeable future. The population of the City of South Lake Tahoe is projected to increase 6.4 percent during 2007–2012 (Applied Geographic Solutions 2007), which indicates that some of this additional urban development is likely to occur during implementation of the Upper Truckee River Restoration and Golf Course Reconfiguration Project. This development would consist of numerous small residential, commercial, industrial, and infrastructure projects. These projects might include some construction activities in the channel of perennial or intermittent waterways (e.g., at road and utility crossings). **Status:** Additional urban development is on-going, and anticipated to be on-going throughout implementation of the Upper Truckee River Restoration and Golf Corse Reconfiguration Project.

Source: Data compiled by EDAW (now AECOM) in 2010.

3.16.3 CUMULATIVE IMPACT ANALYSIS

IMPACT 3.16-1 (All Alts.) Cumulative Land Use — Potential to Physically Divide an Established Community or Conflict with Land Use Plans, Policies, and Regulations. *None of the alternatives or other reasonably foreseeable projects would involve physically dividing an established community, and implementing Alternative 1, 2, or 4 would not reduce access through the study area. Implementing Alternative 3 or 5 would reduce access through the study area; however, access in unauthorized outside of golf use. In addition, none of the alternatives would conflict with any land use plans, policies, or regulations, and no other reasonably foreseeable projects would conflict with land use plans, policies, or regulations relevant to the study area. Thus, when viewed in connection with other projects, none of the project alternatives would make a considerable contribution to effects on land use plans, policies, or regulations applicable to the study area, and would not physically divide a community. The project's contribution to this cumulative impact would be less than significant.*

As described in Section 3.2, "Land Use," the study area is public land, and none of the alternatives involve dividing an established community. Implementing Alternative 1, 2, or 4 would not reduce access through the study area, and although implementing Alternative 3 or 5 would permanently remove existing golf course bridges on the Upper Truckee River and Angora Creek, these bridges do not provide authorized public access through the study area, outside of golf use. Alternative 2 would include construction of a new bridge that would provide authorized access over the Upper Truckee River. The new bridge proposed under Alternative 4 would not provide public access because the existing design of the course would still have safety hazards when crossing the Upper Truckee. Alternatives 2 and 3 would also provide public access on proposed designated trails that would connect to the Sawmill Bike Trail, Country Club Drive, and other trails within the study area. Other projects that reduce access to public lands could result in a cumulative impact on land use in the project vicinity; however, other past, present, and future projects in the project vicinity could also increase access to public lands by providing new

trails (e.g., Sawmill Bike Trail and Greenway Bike Trail). Because none of the alternatives would reduce authorized access or divide a community, the project's contribution to this cumulative impact would be less than significant.

In addition, none of the alternatives would conflict with any plans, policies, or regulations intended to protect the environment. Land uses under all alternatives would be consistent with allowable uses for PAS 119 and the goals and policies in the TRPA *Regional Plan.* None of the alternatives would intensify or expand any nonconforming uses. Implementing any of Alternatives 2–5 would involve a SRA General Plan amendment as part of the proposed action, and implementing Alternative 2, 3, or 5 would involve boundary changes between Lake Valley SRA and Washoe Meadows SP as part of the proposed action. A General Plan amendment would require approval by the State Parks and Recreation Commission, including a finding that these actions are consistent with the Public Resources Code. Amending the existing General Plan and adjusting the park boundaries, as necessary, would ensure that all alternatives are consistent with State Parks plans, policies, and regulations.

Because none of the alternatives would involve dividing an established community or reducing authorized access through the study area, and none of the alternatives would conflict with any plans, policies, or regulations, they would not make a cumulatively considerable contribution to a cumulative land use impact. Therefore, the project's contribution to this cumulative impact would be less than significant.

No additional mitigation is required.

IMPACT 3.16-2 (All Alts.) **Cumulative Hydrology and Flooding – Long-Term Increased Stormwater Runoff Volumes and Long-Term Increased Peak Flows Generated or Released Downstream.** *Project-generated changes to impervious surface areas or modifications to existing channels of the creeks, drainages, or the Upper Truckee River in the study area would be localized and have stormwater runoff volume effects that are either beneficial (Alternatives 3 and 5), or that could be controlled on-site with mitigation features planned as part of the alternative development (Alternatives 2 and 4). The stormwater runoff volume and peak flow effects could combine with other potential changes to stormwater runoff generation or floodplain attenuation in the vicinity but would not be considerable on their own, or significant in combination. The project's contribution to this cumulative impact would be* ***less than significant****.*

Implementing the No Project/No Action Alternative (Alternative 1) would not increase stormwater runoff volumes or directly modify the peak flows generated in the study area. Therefore, the No Project/No Action alternative (Alternative 1) in would not result in a considerable contribution to a cumulative impact on stormwater runoff and peak flows in the project vicinity.

Implementing any of the action alternatives (Alternatives 2–5) would not adversely affect the altered existing stormwater generation in the study area. Implementing Alternative 3 or 5 would result in net reduction of impervious surfaces and restore natural soil and vegetation conditions to improve stormwater management. Implementing Alternative 2 would modify the patterns of stormwater runoff within the study area, to make improvements in some areas and incorporate on-site stormwater controls for areas with increased runoff through mitigation planned as part of the alternative (Measure 3.3-1 [Alternative 2]). Alternative 4 would make minor modifications to existing stormwater conditions due to bridge replacement, a new restroom and paving of the overflow parking area and incorporate on-site stormwater controls for areas with increased runoff through mitigation planned as part of the alternative (Measure 3.3-1 [Alternative 4]).The planned controls under Alternatives 2 and 4 would include providing on-site storm drainage facilities approved by El Dorado County and TRPA that will identify the location, size, and type of facilities used to retain and treat the runoff volumes and peak flows to meet or surpass preproject conditions. The stormwater designs shall strive to incorporate BMPs such as pervious pavement or pavers, bioswales and vegetated swales, constructed wetlands and detention ponds, rock-lined areas to prevent disruption or erosion, and training of maintenance personnel on stormwater pollution prevention measures.

Implementing Alternative 2, 3, or 5 would increase opportunities for overbanking of flows and enlarge the active floodplain area, potentially modifying (decreasing) peak flows released downstream. Other proposed projects include a range of projects that have individually varied effects on stormwater runoff and peak flows. Some projects may potentially increase runoff from increased impervious surfaces (e.g., bike trails, development projects) or reduced vegetation cover (e.g., fuel reduction projects); others may potentially decrease runoff from decreased impervious surfaces, restore natural soil and vegetation properties that better infiltrate runoff, and/or provide opportunities for detention and infiltration (e.g., Lake Tahoe Boulevard Enhancement, Lake Tahoe Airport Runway Restoration). Proposed projects that would increase impervious surfaces would be required to incorporate mitigation to limit their incremental contribution. These actions would be similar to or beneficial relative to existing conditions and the No Action/No Project Alternative. Changes to stormwater volume and peak flow generation within the study area might combine with other stormwater modifications in the vicinity, because hydrologic effects within the local subwatersheds naturally combine downstream, but the changes would be of small magnitude and difficult to discern. Therefore, implementing any of the action alternatives would not make a considerable contribute to a potentially significant cumulative effect on stormwater runoff volumes or peak flows generated or released downstream and the related projects together would not combine for a significant cumulative effect.

No additional mitigation is required.

IMPACT 3.16-3 (All Alts.) **Cumulative Hydrology and Flooding – Long-Term Increased Overbanking During Small to Moderate Flood Events.** *Project-generated changes to the size and configuration of the Upper Truckee River channel or floodplain within the study area would produce beneficial increases in overbanking during small to moderate flood events under Alternatives 2, 3, and 5. The overbanking effects would produce a discernable beneficial effect on their own and could combine with other potential improvements in overbanking processes downstream. Implementing Alternative 4 would have overbanking effects similar to existing conditions or possibly worse than the No Project/No Action Alternative. Changes in overbanking under Alternative 4 would not be substantial on their own and would not contribute to other potential changes to overbanking processes downstream. The combined effect of the related projects would be beneficial and the project's contribution would be less than considerable. This cumulative impact would be* ***less than significant****.*

Implementing the No Project/No Action Alternative (Alternative 1) would not directly modify the size or configuration of the Upper Truckee River channel or floodplain within the study area. Natural channel adjustments to prior disturbances may eventually provide some limited opportunity for increased frequency of overbanking onto a small active floodplain inset within the incised channel during small to moderate (1.5-year to 10-year). However, the inset floodplain would remain isolated within the incised channel, between high terrace banks with only minor beneficial changes relative to the existing, degraded floodplain function conditions, and those changes would be realized only after many more years of channel adjustment to past disturbances. Furthermore, golf course infrastructure would continue to be adjacent to the Upper Truckee and protection of that infrastructure would further limit potential channel adjustment and overbanking potential. Other restoration projects would either be neutral or beneficial to overbanking processes. Therefore, implementing the No Project/No Action Alternative would not contribute to a potentially significant cumulative effect on overbanking potential during small to moderate flood events. Implementing Alternative 4 would not directly modify the channel capacity and/or floodplain conditions relative to the present degraded state, but it would prevent continued channel widening and perhaps limit the natural formation of a small inset floodplain between terraces. This could result in overbanking frequency that is 'not as good as expected conditions under the No Project/No Action Alternative. However, the potential for an inset floodplain to form under the No Project/No Action Alternative could also be restricted by spot treatments and repairs to bank stabilization treatments considered critical for protecting golf course infrastructure.

Implementing Alternative 2, 3, or 5 would decrease the Upper Truckee River channel capacity, increase the length of appropriately sized channel, and enlarge the area inundated by the 2-year return interval flow (e.g., 760 cfs within the study area). These changes would result in substantial improvement to overbanking at specific

streamflow magnitudes in the study area. Changes to overbanking frequency within the study area, although measureable and substantial under Alternative 2, 3, or 5, would not have a direct effect on overbanking conditions in other adjacent river reaches because of the intervening hydraulic controls of the U.S. 50 bridge and road fill in the active floodplain. Therefore, the effect of the project would not combine with other reaches to cause a significant cumulative impact. Reasonably foreseeable river restoration projects on the Upper Truckee River have alternatives under consideration that would also decrease channel capacity and increase overbank flooding for small and moderate flood events and that would improve channel and floodplain relationships relative to the existing degraded condition along their respective project reaches. Substantial benefits could result, although it is uncertain whether possible adverse influences of climate change under the No Project/No Action Alternative (Alternative 1) would be fully offset by the alternatives. Direct benefits to overbanking would be largely limited to each project area because return flows back from the floodplain to the channel would occur, particularly where road fill and/or bridges limit downvalley floodplain continuity. However, it is possible that project reaches not separated by existing bridges (e.g., U.S. 50/Lake Tahoe Boulevard, U.S. 50 at Elks Club) may experience benefits of improved floodplain connectivity between adjacent project reaches. The benefits within the study area that would result from implementing Alternative 2, 3, or 5 would combine with benefits of other proposed projects downstream, but changes in the study area would not directly enhance overbanking and active floodplain downstream because of the existing U.S 50 crossing roadfill. Therefore, implementing the Alternatives 2, 3, or 5 would not combine with other projects to cause a potentially significant cumulative effect on increased overbanking during small to moderate flood events. This cumulative effect would be less than significant.

No additional mitigation is required.

IMPACT 3.16-4 (All Alts.) Cumulative Hydrology and Flooding – Long-Term Increased 100-Year Flood Hazard Area or Elevation. *Project-generated changes to the existing channel (size, shape, or location) or the floodplain topographic surfaces and configurations within the FEMA regulatory floodway or floodplain would not result in a higher 100-year flood water surface elevation or an enlarged 100-year floodplain under Alternative 1 or Alternative 4. Changes to the 100-year flood water surface or floodplain area under Alternative 2, 3, or 5 would be minor, and on-site design features planned for these alternatives would avoid increased flood hazards or potential flood damage. The 100-year flood effects from all alternatives would remain localized in the study area, because the existing U.S. 50 bridge crossing would continue to serve as the control on rates of flow released to downstream reaches during a 100-year flood. Therefore, the project's effect would not combine with downstream reach projects' flooding hazards to cause a cumulative effect. This cumulative impact would be less than significant.*

Implementing any of the alternatives (Alternatives 2–5) would either maintain the existing 100-year floodplain storage and flow routes in the study area (Alternatives 1 or 4) or involve incorporating on-site design features planned as mitigation for the alternative (Measure 3.3-4, Alternative 2, 3, or 5), if needed, to not increase risks from flood hazard in the FEMA floodplain. The design features include hydraulic modeling of the proposed channel configuration at a more detailed design level to identify and incorporate modifications into final design that would prevent an increase flood hazards or potential damage to existing structures, residences, or public infrastructure.

Reasonably foreseeable future restoration projects on the Upper Truckee River would not be expected to result in adverse changes to the 100-year floodplain storage capacity, flow routes, or boundaries. Several projects have alternatives that would remove previously placed fill and/or recontour areas within the existing 100-year floodplain that provide minor incremental improvements to the existing degraded condition. Other proposed alternatives for some projects would be expected to incorporate design features and/or mitigation to remain neutral in terms of potential hazards from the 100-year flood because they are also in mapped FEMA special hazard zones. The effects within some project reaches could be substantial if the existing floodplain is highly confined, but in the study area, and in some downstream reaches, the existing 100-year floodplain is already large and has a high storage volume. The project-generated changes in the study area are not expected to be substantial on their own, and the U.S. 50 bridge crossing constriction would prevent effects within the study area from

combining with downstream reaches because it would continue to control the rate of flow released downstream. Some of the downstream reaches between constricting bridges may experience combined effects, but those could not affect changes upstream in the study area. Therefore, implementing any of the action alternatives would not contribute to cumulative effects on 100-year flood hazard area or elevation. Therefore, this cumulative effect would be less than significant.

No additional mitigation is required.

IMPACT 3.16-5 (All Alts.) Cumulative Hydrology and Flooding – Long-Term Modified Groundwater Levels and Flow Patterns. *Project-generated changes to the size, shape, or location of existing creek and river channels, changes to the size, elevation, or use of existing golf course ponds, and changes to soils or subsurface conditions throughout the study area, as well as increased overbanking and active floodplain area, under Alternatives 2, 3, and 5 would result in beneficial changes to groundwater levels and flows within the study area. Implementing Alternative 1 or 4 would not change the groundwater levels or flow patterns from existing conditions; Alternative 4 would prevent minor degradation that would occur under Alternative 1. The potential benefits of Alternatives 2, 3, or 5 could be substantial and beneficial on their own within the study area and may combine with beneficial effects of similar restoration projects downstream to increase low flow season support of groundwater. Therefore, implementing any of the action alternatives would make a considerable contribution to a* ***cumulative beneficial effect*** *related to long-term modified groundwater levels and flow patterns.*

Implementing Alternative 2, 3, or 5 would enhance the groundwater conditions in the study area relative to both existing conditions and the No Project/No Action Alternative (Alternative 1). Implementing Alternative 1 or 4 would not modify the groundwater conditions in the study area relative to existing conditions. Alternative 4 would not involve improvements to groundwater resources within the study area but may prevent continued channel widening from making the existing degraded conditions worse, resulting in a discernable benefit relative to the No Project/No Action Alternative (Alternative 1). Reasonably foreseeable restoration projects along the Upper Truckee River could improve groundwater levels and flow rates and incrementally improve downvalley groundwater connectivity between adjacent reaches. Restoration project alternatives that raise streambed elevations and expand groundwater storage capacity within the replaced (backfilled) valley floor materials may provide minor incremental benefits to adjacent downstream locations because of improved groundwater levels (at least during low flow season), increased storage volumes, and decreased losses to surface water upstream. Proposed erosion control and water quality improvement projects and other enhancement and restoration projects within the local drainages and upstream watersheds would incorporate some site-specific restoration or enhancement of surface water features. These features may control peak flow hydrology in ways that also improve groundwater recharge potential. To the degree that groundwater recharge is improved in dispersed areas of the groundwater basin, incremental benefits to recharge, total storage, and long-term groundwater support to the stream corridors and the study area may result. The detention of peak flows provided by proposed stormwater treatment facilities may help counteract reduced opportunities for groundwater recharge that would result from climate change effects on rainfall runoff versus snowmelt runoff. The erosion control and water quality improvement projects' effects on groundwater conditions would be beneficial relative to existing conditions and the No Project/No Action Alternative. The study area's location upstream of other reasonably foreseeable restoration projects suggests that effects within the study area could combine beneficially with other proposed actions downstream and produce cumulative benefits to groundwater conditions in adjacent downstream reaches. This cumulative effect would be beneficial.

No additional mitigation is required.

Impact 3.16-6 (All Alts.)	Cumulative Geomorphology and Water Quality – Long-Term Stream Channel Erosion. *Project-generated changes to surface water bodies under any of the action alternatives would result in stream channel erosion effects that are generally beneficial throughout most of the study area, while potentially creating localized erosion that would be controlled by mitigation planned as part of the alternatives. The stream channel erosion benefits would be substantial on their own and could combine with other potential reductions of erosion along the Upper Truckee River in downstream restoration reaches and by preventing upstream migration of channel instability. Therefore, the effect would be beneficial on its own and would make a considerable contribution to a* ***cumulative beneficial effect*** *related to long-term stream channel erosion.*

Implementing Alternative 1 would not make direct changes to surface water bodies within the study area. However, natural geomorphic response to historic disturbances and the continuing effects of undersized bridges would cause channel instability that erodes the streambanks and streambed within the study area, releasing sediment and nutrients that degrade the river and lake water quality relative to undisturbed natural conditions.

Implementing any of the action alternatives would reduce stream channel erosion within the study area relative to existing conditions or the No Project/No Action Alternative, resulting in substantial overall benefits. Alternatives 2, 3, and 5 would involve making changes to the channel of the Upper Truckee River, the mouth of Angora Creek, and the mouth of the unnamed creek to offset past geomorphic response to historic disturbances and the undersized bridges within the study area. Alternative 4 would involve making direct changes to the channel of the Upper Truckee River, the mouth of Angora Creek, and the mouth of the unnamed creek to prevent continued geomorphic response to historic disturbances and reduce the effects of undersized bridges within the study area. The potentially significant local erosion impacts of each action alternatives would be controlled through mitigation planned as part of each action alternative (Mitigation Measures 3.4-1A, 3.4-1B, and 3.4-1C for Alternatives 2, 3, 4, and 5). The planned controls include providing channel bed and bank stabilization at the bridge removal sites, ensuring bed and bank stability downstream of the treated reaches, and ensuring bed and bank stability in the lower reaches of both tributary creeks in the study area (Angora Creek and the unnamed creek). The dominant project effect of any action alternative would be beneficial.

Other reasonably foreseeable restoration projects in the watershed would repair, restore, and/or reconstruct portions the Upper Truckee River channel and would be expected to have a beneficial long-term overall effect on stream channel erosion rates, including the expectation that any potential localized increased erosion risks within their study areas or adverse effects on immediate upstream or downstream reaches would be controlled through design and/or implementation of on-site, project-specific mitigation measures. Benefits of these channel modifications would be substantial relative to existing conditions and the No Project/No Action Alternative, but largely limited to each respective project area. Combining benefits between reaches would be expected where project-generated changes in one reach could protect channel stability of adjacent upstream reaches and tributaries.

Reasonably foreseeable erosion control projects in the vicinity would be neutral or beneficial because they would control runoff volumes and regulate peak flows within the contributing subwatersheds. Other proposed projects include a range of projects that have individually varied effects on runoff. Some projects may potentially increase runoff from increased impervious surfaces (e.g., bike trails, development projects) or reduced vegetation cover (e.g., fuel reduction projects); others may potentially decrease runoff from decreased impervious surfaces (e.g., Lake Tahoe Boulevard Enhancement, Lake Tahoe Airport Runway Restoration). Proposed projects that would increase impervious surfaces would be required to incorporate mitigation to limit their incremental contribution. A measureable beneficial effect of smaller erosion control and other projects would be difficult to discern because they focus on controlling runoff for small to moderate events, which are less likely to cause erosion in the main stream channel.

Although the No Project/No Action Alternative would result in continuation of an adverse condition, because it is not a change from existing conditions, this alternative's contribution to a cumulative impact would be less than considerable. Reductions of stream channel erosion within the study area under the action alternatives would be

additive with other stream channel erosion reductions in terms of total benefit along the entire Upper Truckee River, but changes within the study area would not directly improve channel erosion downstream. Because of the location of the study area, improvements in the channel stability would only combine with other actions by preventing channel instability from migrating further upstream. Therefore, implementing any of the action alternatives would be beneficial on its own and would contribute beneficially to cumulative benefits on stream channel erosion from other restoration projects in the watershed. No additional mitigation is required.

IMPACT 3.16-7 (All Alts.) Cumulative Geomorphology and Water Quality – Long-Term Fine Sediment and Nutrient Retention. *Project-generated changes to the channel capacity and elevation, the frequency of overbanking, or the area of functional active floodplain within the study area would produce beneficial increases in fine sediment and nutrient retention during small to moderate flood events under Alternatives 2, 3, and 5. The fine sediment and nutrient retention effects would produce a discernable beneficial effect on their own and could combine with other potential improvements in floodplain processes downstream to cumulatively reduce sediment and nutrients delivered to Lake Tahoe. Implementing Alternative 4 would have fine sediment and nutrient retention effects similar to existing conditions or possibly worse than the No Project/No Action Alternative. Changes under Alternative 1 or Alternative 4 would not be substantial on their own and would not contribute to other potential changes to fine sediment and nutrient retention downstream. However, implementing Alternative 2, 3, or 5 would make a considerable contribution to a* ***beneficial cumulative effect*** *related to long-term fine sediment and nutrient retention resulting from the combination of restoration projects along the river.*

Implementing Alternative 2, 3, or 5 would decrease the Upper Truckee River channel capacity, increase the length of appropriately sized channel, and enlarge the area inundated by the 2-year return interval flow (e.g., 760 cfs within the study area). These changes would result in a substantial improvement to overbanking at specific streamflow magnitudes in the study area. The area of active floodplain would be enlarged, and the length of channel with overbanking would increase, allowing more opportunities for low-velocity, shallow flooding that deposits fine sediment and supports vegetation uptake of nutrients. Floodplain vegetation would be modified to incorporate increased area, density, and diversity of native vegetation within the overbank zone along the river (increasing the buffer distance for alternatives that retain a golf course and replacing golf course managed landscaping), which would enhance opportunities for flow interception and trapping. Implementing Alternative 1 or 4 would not directly modify the channel capacity and/or floodplain conditions relative to the present degraded state; however Alternative 4 would prevent continued channel widening and perhaps limit the natural formation of a small inset floodplain between terraces that could potentially occur under the No Project/No Action Alternative. This could result in future fine sediment and nutrient trapping that is less than what may eventually occur in a naturally inset floodplain under Alternative 1. Changes to active floodplain processes of sediment and nutrient retention within the study area, although measureable and considerable under Alternative 2, 3, or 5, would not contribute to floodplain process changes in other adjacent river reaches because of the intervening hydraulic controls of the U.S. 50 bridge and road fill in the active floodplain.

Reasonably foreseeable river restoration projects on the Upper Truckee River have alternatives under consideration that would also improve floodplain processes of sediment and nutrient retention for small and moderate flood events, relative to the existing degraded condition along their respective project reaches. Substantial benefits could result, although it is uncertain whether possible adverse influences of climate change under the No Project/No Action Alternative would be fully offset by implementing any of the alternatives. Benefits to floodplain sediment and nutrient retention would be largely confined to each project area because return flows back from the floodplain to the channel would occur between project reaches, particularly where road fill and/or bridges limit downvalley floodplain continuity. However, it is possible that floodplain connectivity between adjacent reaches may be improved between existing bridges. The benefits within the study area that would result from implementing Alternative 2, 3, or 5 would add to benefits of other restoration projects downstream to cumulatively reduce fine sediment and nutrients delivered to Lake Tahoe. Therefore, implementing any of the action alternatives would be beneficial on their own and would contribute to beneficial cumulative effects on fine sediment and nutrient retention during small to moderate flood events. The combined effect of the proposed restoration projects would be beneficial.

No additional mitigation is required.

IMPACT 3.16-8 (All Alts.) **Cumulative Geomorphology and Water Quality – Long-Term Modifications in Upper Truckee River Coarse Sediment Transport and Delivery Downstream.** *Project-generated changes to the channel bed profile, bank and bed materials, or the hydraulic conditions controlling bedload (i.e., sands and gravel) transport within the study area and into the downstream reaches of the Upper Truckee River could worsen (Alternative 2, 3, or 5) relative to effects of historically declining watershed coarse sediment yield on downstream channel erosion and beach erosion adjacent to the river mouth (i.e., at Cove East and Barton Beach) or remain similar to the No Project/No Action Alternative (Alternative 4). Potential contributions of the project could be considerable and combine with effects of other actions on coarse sediment transport and delivery, but the incremental or combined consequences to channel and beach erosion are not predictable because of highly uncertain climate change influences, especially on beach erosion. Conditions could range from worse than the existing degraded condition to a possible improvement regardless of coarse sediment delivery changes. After thorough investigation, consideration of these conditions remains too speculative for a meaningful significance conclusion.*

Implementing the No Project/No Action Alternative (Alternative 1) would not involve directly modifying the channel bed profile, bank and bed materials, or hydraulic conditions controlling bedload (i.e., sands and gravel) transport within the study area and into the downstream reaches of the Upper Truckee River. Implementing any of the action alternatives would result in modifications to the channel bed profile, bank and bed materials, and the hydraulic conditions controlling bedload (i.e., sands and gravel) transport within the study area and into the downstream reaches of the Upper Truckee River. Alternatives 2, 3, and 5 would involve making major modifications to the channel bed profile and would anticipate net sedimentation of coarse sediment to create aggraded portions in the treatment reaches of the study area. This could limit transport from upstream sources through and out of the study area. Implementing Alternative 4 would result in minor modifications to the profile. It would limit bed and bank erosion that could reduce local sources of coarse sediment but would not limit transport from upstream sources. Given the background of naturally declining watershed coarse sediment yield and ongoing channel and beach erosion, adverse changes could worsen the existing degraded condition in downstream reaches or along the shoreline.

Impacts of implementing the project could combine with the potential coarse sediment effects of other reasonably foreseeable future restoration projects downstream on the Upper Truckee River to increase the potential risk of erosion consequences in downstream channel reaches and along the beach. Although the performance goals of the proposed restoration projects would be focused on reducing human-induced excessive erosion, some of the treatment approaches and channel designs might also further reduce the supply of coarse sediment generated by the natural process of streambed or streambank erosion. The projects would not modify coarse sediment sources along the river upstream of Meyers, but they could reduce the downstream delivery of coarse sediment relative to existing conditions, because they create additional opportunities for in-channel and floodplain sedimentation and reduce sediment generated due to bank erosion.

Proposed erosion control and water quality improvement projects within the local drainages and upstream watersheds would involve installing measures designed to detain runoff and capture fine sediment. Although the performance goals would be focused on treating fine sediment, nutrient, and other urban pollutant loads, many of the methods and facilities would inadvertently trap coarse sediment. Coarse sediment captured in stormwater facilities would likely be removed under normal maintenance practices. This could create a minor, but potentially measureable, decrease in coarse sediment delivery to downstream receiving waters.

For the long term, highly uncertain climate change influences might overwhelm the possible long-term effects of any action. It is possible that climate change may exacerbate impacts (e.g., further decrease coarse sediment delivery) or counteract them (e.g., lower lake levels, reducing beach erosion). The net effect of these factors, given the uncertainty associated with climate change, is not yet practical to quantify with current scientific understanding, but they could range from worse than the existing degraded condition to a possible improvement

in beach erosion. Given the uncertainty of future climate change-related conditions and the fact that the uncertainties range from exacerbated to improved, consideration of project-specific effects and potential cumulative impacts remains too speculative for a meaningful cumulative significance conclusion.

No additional mitigation is required.

IMPACT 3.16-9 (All Alts.) Cumulative Geomorphology and Water Quality – Short-Term Risk of Surface Water or Groundwater Degradation during Construction. *Project construction activities would occur along or in the channel of the Upper Truckee River, Angora Creek, and the unnamed creek under the all action alternatives. Although temporary BMPs would be implemented, short-term risk of water quality degradation during construction could occur during summer construction seasons or intervening winters. Short-term turbidity that potentially impairs noncontact recreation beneficial uses (i.e., aesthetics) would be minimized by mitigation features planned as part of the alternatives. The residual impact would be minor under the action alternatives, but could violate water quality standards of the Basin Plan, including the turbidity standard (<10 percent above background). If similar impacts occurred under reasonably foreseeable projects at the same time, the effects could combine downstream to increase the magnitude or duration of the water quality standard violation. Although the joint probability of concurrent failures of BMPs, given the high anticipated performance standards and short overlapping periods of construction, would be extremely remote, if it occurred, the combined effect would be cumulatively significant. The project could result in a considerable contribution to the combined, significant cumulative adverse effects related to violation of a water quality standard. This cumulative impact would be* ***potentially significant.***

The No Project/No Action Alternative (Alternative 1) would not include any planned construction, although it is possible that emergency repairs during or following damaging high flows could be required to reinforce or replace bridges, repair existing streambank stabilization measures, or protect infrastructure (i.e., irrigation pipelines on bridges or buried under or along the river), as would occur under existing conditions. All four action alternatives (Alternatives 2–5) would require active construction upslope of, near, and/or in active stream channels and in the vicinity of other surface water bodies and groundwater recharge areas. Although temporary BMPs would be implemented, short-term risk of water quality degradation during construction could occur. All of the action alternatives would incorporate on-site construction phase management plans through mitigation planned as part of the alternatives (Mitigation Measure 3.4-6). The planned controls include many specific measures to be implemented by State Parks, including restricted disturbance areas and duration; BMPs that are effective up to the 20-year precipitation event and 50-year streamflow event; discrete measures for various subdrainage areas on each side of each water body; construction equipment and vehicle restrictions; specific winterization guidelines; protection for transported and stored materials and debris; custom dewatering/bypassing plans; rewetting requirements; and monitoring of water quality, BMP effectiveness, and remedial action requirements. The controls would limit the likelihood and magnitude of potential short-term water quality degradation that could result in persistent turbidity above background levels and impair beneficial uses. However, the potential for violations of narrative or numerical water quality standards of the Basin Plan, at least for short periods of time, cannot be feasibly eliminated. T A detailed discussion of the significance criteria is provided in Section 3.4, “Geomorphology and Water Quality”. The reasonably foreseeable future stream restoration projects along the Upper Truckee River are in contiguous reaches downstream of the study area, including areas where active construction is currently occurring and could continue through 2015. Exposure to high flows during intervening winters could occur; however, each proposed restoration project is expected to take many measures to reduce the potential risk of short-term water quality degradation, including:

- restricting the area and duration of construction disturbance to the absolute minimum necessary and
- designing, installing, and maintaining temporary BMPs to protect disturbed areas and minimize soil erosion; prevent surface runoff interaction with disturbed surfaces; and limit the potential for release of sediment, nutrient, or otherwise contaminated water into water bodies outside the construction disturbance zone.

The performance standards for overwintering BMPs on the reasonably foreseeable projects would be expected to be the same as those for the mitigation identified for the action alternatives, but it is possible that the BMPs could fail, particularly if unusual runoff or streamflow conditions occur that exceed the BMP design capacity. The Upper Truckee River has no dams or other flow-regulation facilities, and it is not possible to predict weather and runoff conditions before the onset of construction, especially construction that occurs over more than one season. The projects would all be located along the same unregulated river, and all would be scheduled without advanced prediction of future storm events. Therefore, if a storm event created conditions in the watershed that overwhelmed temporary BMPs at one project site, it is conceivable that BMPs for other projects concurrently in active construction also could fail. The exposure would largely be related to sediment from disturbed or re-vegetated surfaces that are present on-site over winter, rather than other type of potential pollutants that would be present during active summer construction seasons. The concurrent exposure to the same impact mechanism produces a potential adverse cumulative impact involving storm damage in one construction reach influencing BMP performance in other, downstream reaches. However, the BMP performance standards would be expected to be relatively high (i.e., 20-year precipitation event, 50-year streamflow event) relative to the short time frame of overlapping construction for multiple project reaches (i.e., likely just days or weeks within the years of active construction). The joint probability of multiple projects having BMPs that concurrently fail would be extremely remote. However, the potential for violations of narrative or numerical water quality standards of the Basin Plan, including the turbidity standard, cannot be feasibly eliminated, although inclusion of BMPs would substantially reduce impacts so not to affect aesthetics or other beneficial uses. Thus, the cumulative risk of violating a water quality standard would be significant and the project's contribution to this cumulative impact would be considerable. This cumulative impact would be potentially significant.

All feasible mitigation has been incorporated into the individual restoration project plans and construction BMPs for specific projects. Additional feasible cumulative impact mitigation is not available and the residual impact would remain cumulatively significant and unavoidable.

IMPACT 3.16-10 (All Alts.) Cumulative Geomorphology and Water Quality – Short-Term Risk of Surface Water or Groundwater Degradation Following Construction. *Project implementation would include periods of adjustment in channel sections following construction to meet final design (Alternatives 2, 3, and 5), reseeding of native species on active floodplains (Alternatives 2, 3, and 5), and biotechnical streambank treatments (all action alternatives) that could be vulnerable to a large flood within the first few years following construction. Potential reductions in coarse sediment delivery downstream, mobilization of fine sediment and organic matter on reactivated floodplains, and flood damage resulting in persistent or chronic water quality degradation would be controlled by mitigation features planned as part of the alternatives development. The residual impacts would be minor under the action alternatives, but could violate a stringent water quality standard of the Basin Plan (<10 percent above background). If similar impacts occurred at reasonably foreseeable projects during the same interim period, effects could combine downstream to increase the magnitude or duration of the water quality standard violation. This combined effect would be cumulatively significant and the project could result in a considerable contribution to the effect. This cumulative impact would be* ***potentially significant****.*

Implementing Alternative 1 would not require any planned construction, although it is possible that flood damage to existing undersized bridges, public infrastructure, or stream stabilization features that protect infrastructure may need emergency or follow-up repairs, as under existing conditions. If such activities are required to protect infrastructure and/or repair or replace bridges, their areal extent would be localized, and it is likely that the repair measures would rely on hard engineering features that would be 'at design' grade and stable at the time of installation. It is unlikely that post construction geomorphic adjustments would be required to meet final design parameters, and the treatments would cover the entire localized erosion source area. Implementing Alternative 1 would not create a mechanism to increase short-term risk of water quality following construction. Therefore, Alternative 1 would not make a considerable contribution to a cumulatively significant effect. This impact would be less than significant.

Implementation of Alternative 2, 3, or 5 would include periods of geomorphic adjustment for channel sections following construction to meet final design, including net aggradation (e.g., deposition of coarse sediment), bed mobilization to redistribute materials, and local bank erosion to meet geomorphic equilibrium dimensions. These adjustments would most likely occur during and just following peak seasonal streamflows (around or higher than the intended design capacity of 500–550 cfs). Under Alternative 4, the river system would be expected to respond to an unusually large flood within the first few years after construction differently than Alternatives 2, 3, and 5, since Alternative 4 would treat the entire reach between hard grade controls (RS 1400 to RS 8800), would not enlarge or reactivate as floodplain portions of the existing terrace that have remained isolated from flow and have accumulated sediment, and would not modify the alignment or create backfilled channels that could be vulnerable to recapture. These differences reduce the potential likelihood and magnitude of effects from a large flood event relative to existing conditions. While the residual effects of an unusually large flood within the first few years of construction would be no worse than under the existing conditions and the No Project/No Action Alternative, a potential for narrative or numeric water quality standards to be violated would exist. The probability that project-related turbidity impacts would be substantially greater than under the existing flows (and the No Project/No Action Alternative) and/or that they would impair beneficial uses outside the treatment reaches would be low the potential for violations of the Basin Plan turbidity standard, at least for short periods of time, cannot be feasibly eliminated. A detailed discussion of the significance criteria is provided in Section 3.4, “Geomorphology and Water Quality”, Potential reductions in coarse sediment delivery and downstream effects on channel or beach erosion would be controlled by mitigation planned as part of alternatives development (Mitigation Measure 3.4-5). The planned controls would require State Parks to monitor for excessive bedload deposition within the study area and for substantial reductions in coarse sediment discharged at the downstream end of the study area; perform a joint assessment of possible downstream effects in coordination with downstream landowners; and, as needed, supplement coarse sediment supply downstream.

Implementation of Alternative 2, 3, or 5 would include reseeding large areas of former golf course floodplain with native species and activating floodplain areas that have been dormant and collecting sediment and organic matter. All of the action alternatives would involve installing biotechnical streambank protections that might not achieve maximum hydraulic resistance or geotechnical strength within 5 years of construction as vegetation fills in and matures. If a large flood (i.e., 25-year recurrence or larger) occurs within the first few years of construction, it could produce erosion and sedimentation in the modified channels and/or floodplain that degrades water quality, at least for short periods (potentially hours, days, or, most likely, weeks). Although the same flood event could also result in potential water quality degradation under the No Project/No Action Alternative, the project activities may alter the location, extent, and duration of impacts. For example, the existing floodplain occupied by golf course currently has erosion-resistant turf, whereas some of the active channel and floodplain under Alternative 2, 3, or 5 would involve construction disturbance in areas that have not been active for decades. Fine sediment and organic matter mobilization in newly reactivated floodplain areas would be minimized by mitigation planned as part of Alternatives 2, 3, and 5 (Mitigation Measure 3.4-7A) that involves removing loose, unvegetated, or otherwise unstable fine sediment and/or organic material and revegetating loose, unvegetated, or otherwise unstable fine sediment within remnant channel sections. Possible channel and floodplain damage that could result in persistent or chronic water quality degradation within the study area would be controlled by mitigation planned as part of all action alternatives (Mitigation Measure 3.4-7B) that requires State Parks to develop and implement an adaptive management plan with specific data collection and monitoring protocols, decision-making processes and authorities, and thresholds for corrective actions. The residual impacts of the action alternatives would not be substantial on their own as they relate to degradation of beneficial uses, but the potential for violations of the narrative or numerical turbidity standard in the Basin Plan (<10 percent above background) cannot be feasibly eliminated.

The reasonably foreseeable stream restoration projects on the Upper Truckee River are in contiguous reaches downstream of the study area. Although each proposed restoration project is expected to take measures to reduce potential effects during construction, the specific details of post-construction mitigation measures for each project cannot be determined until detailed design development occurs. Some of the alternatives for various reaches include the need for post-construction natural channel adjustments, and all the projects likely include channel,

bank, or floodplain treatments that may not reach full erosion resistance within the first couple of years. The projects would be located along the same unregulated river, and if a large flood occurred within the first few years of construction, it could affect multiple project reaches, combining to increase the potential magnitude or duration of water quality violation effect and/or causing a channel response that eventually affects more than one reach. During an interim period of 5 years following construction, the probability of a large flood (e.g., 25-year recurrence or larger) is relatively high, because it would be the additive probability of the same statistical chance for each project (i.e., 20 percent over the interim period of 5 years). Therefore, such an event could be reasonably expected. Overall, the potential for water quality degradation during such an event would likely be less under one of the action alternatives than under the No Project/No Action Alternative, primarily because the bank heights would be lowered and the channel slopes would be reduced compared with the existing degraded condition of the channel. Furthermore, a large flood event would have naturally high background turbidity levels. Nevertheless, locally worse conditions and/or flood damage could result under one of the action alternatives and in combination with other reasonably foreseeable restoration projects. The combined risk of increased turbidity from multiple restoration projects in their post-construction maturation period together would be cumulatively significant. Violations of the Basin Plan turbidity standard could occur, even if the resulting conditions were not severe enough to negatively affect beneficial uses. A large flood effect would most likely occur during winter storms, including rain-on-snow events when absorption rates are low and runoff rates are high. During these large events, background turbidity tends to be extremely high, and aesthetic beneficial uses are less prevalent. Implementation of Alternatives 2, 3, and 5 and to a lesser extent Alternative 4 could make a considerable contribution to a potentially significant cumulative impact. This impact would be a potentially significant cumulative effect.

Mitigation Measure 3.16-10A: Cumulative Geomorphology and Water Quality – Implement Alternative-Specific Measures to Minimize or Correct Temporary Water Quality Effects Following Construction.

The nature of this mitigation measure would vary by project site/reach and by alternative selected, and each project lead agency/sponsor shall develop and implement these measures separately during detailed design development. The measures would be alternative and site specific and designed to minimize or correct potential water quality effects from a large flood (25-year recurrence or larger) within 5 years of construction. The performance criterion for the mitigation will be to minimize the risk of significant water quality impact(s) during the 5 year period following completion of construction. For example, some of the proposed alternatives shall include longer revegetation/stabilization periods before reactivation of channel sections, other alternatives shall include preproject removal of accumulated fines and organic matter in reactivated floodplains/channels, and some shall involve monitoring and the potential replenishment of coarse sediment to downstream reaches.

Mitigation Measure 3.16-10B: Cumulative Geomorphology and Water Quality – Implement an Interim Adaptive Management Plan on the Upper Truckee River.

The project proponents for all the restoration project reaches on the Upper Truckee River (i.e., California Tahoe Conservancy, State Parks, United States Forest Service, and the City of South Lake Tahoe) currently participate in the Upper Truckee River Watershed Advisory Group (UTRWAG), which is a forum to facilitate discussion of issues important to the planning, implementation, and monitoring of SEZ and river improvement, enhancement, and restoration projects in the watershed. The aforementioned agencies also participate in a subcommittee of the UTRWAG that focuses on coordinated adaptive management (activities necessary for resource management of the various UTR improvement projects). These activities include:

- sharing and evaluating monitoring data
- determining effectiveness of implementation and monitoring
- identifying potential problems and sources
- making suggestions and providing mutual feedback regarding potential activities or actions in response to resource degradation or revisions to objectives or monitoring in the various Upper Truckee River project areas

The project proponents shall continue adaptive management with a plan focused on preventing potential short-term water quality degradation that may result if unexpectedly large flood flows occur within the first 5 years after construction of each project. Each project reach will collect and evaluate monitoring data for its reach. The UTRWAG subcomittee will coordinate annual data review and field inspections for each project reach during the period of adjustment and initial flood vulnerability and will develop recommendations for an adaptive management action. Potential actions could include changes to objectives or monitoring, minor maintenance, (e.g., additional re-vegetation or spot repairs) or intervention such as corrective action to ameliorate a chronic or worsening trend and continued monitoring to determine if there is need for future action. The adaptive management subcommittee will focus on identifying potential problems, and guiding levels of monitoring or action to prevent them from becoming a persistent, recurring, or chronic source. The coordinated effort will foster early identification of short-term surface water quality degradation and will aid in the facilitation of remedial actions Adaptive management shall be in force for the interim period of channel adjustment and initial flood vulnerability (i.e., at least 5 years but no more than 10 years from the end of construction—sufficient length to allow for expected natural channel adjustments).

With implementation of Mitigation Measures 3.16-10A and 3.16-10B as described above, the likelihood and potential magnitude and duration of Impact 3.16-10 would be lessened, and would not be considerably worse than under existing conditions or the No Project/No Action Alternative. However, the cumulative risk of Basin Plan turbidity standard violations cannot be feasibly eliminated and the residual effect would remain significant and unavoidable.

IMPACT 3.16-11 (All Alts.) Cumulative Biological Resources – Short-Term Effects on Fisheries and Aquatic Resources. *Project construction activities along or in the channel of the Upper Truckee River, Angora Creek, or the unnamed creek could result in temporary adverse effects on water quality, aquatic habitats, and the aquatic community under the action alternatives. Project implementation would also cause channel sections or features to undergo periods of adjustment after construction, making project features vulnerable to habitat degradation as a result of a large flood occurring within the first few years after construction. These short-term effects would be minimized by mitigation features planned as part of alternatives development. The residual effects of the action alternatives would be minor, but if similar effects were to occur as a result of reasonably foreseeable projects during the same interim period, the effects could combine downstream to increase the magnitude or severity of an adverse effect on water quality, aquatic habitat, and/or the aquatic community. The combined risk of such an event would be cumulatively significant and the project's contribution could be considerable. This cumulative impact would be* ***potentially significant****.*

The size and configuration of stream channels or associated aquatic habitats in the study area would not be physically modified under Alternative 1. However, aquatic habitat functions and values for fish and other aquatic organisms would continue to be influenced by trends in natural geomorphic processes caused by the current encroachments on the stream corridor. Channelization, incision, and resulting channel widening (in response to incision) of the Upper Truckee River channel would continue to occur throughout the project reach.

It is anticipated that treatments would be applied to eroding banks periodically to prevent the loss of areas managed as golf course and to maintain the stability of structures (e.g., bridges), or bridges may be replaced, if needed. However, the potential for application of these treatments would be the same as under current conditions. The nature and extent of these unforeseeable activities are unknown and would not be a direct result of implementing Alternative 1. In the short term the simplified condition of aquatic habitats would remain similar to the existing degraded condition. Alternative 1 would not result in cumulative effects from project-related rescue and relocation in the Upper Truckee River. Under this alternative, the stream channel would not be disturbed so there would be no disturbance to habitat and no reason to rescue and relocate fish from this reach of the Upper Truckee River. Therefore, Alternative 1 would not make a considerable contribution to a cumulatively significant effect. This impact would be less than significant.

Project construction activities related to action alternatives could result in increased turbidity and downstream sedimentation and could result in the release and exposure of construction-related contaminants. Such exposure could reduce or adversely affect aquatic habitat and populations, including native species. All of the action alternatives would involve construction activities that would disturb instream sediments and soils adjacent to waterways. With project implementation, channel sections could undergo periods of channel adjustment after construction to meet final design objectives (Alternatives 2, 3, and 5), areas of reseeded native species would be located on active floodplains (Alternatives 2, 3, and 5), and biotechnical streambank treatments would occur (all action alternatives). These project features could be vulnerable to habitat degradation as a result of a large flood within the first few years following construction.

Water Quality: Sedimentation and Turbidity, Release and Exposure of Contaminants

Construction activities under all of the action alternatives would disturb instream sediments and soils adjacent to waterways. Any resulting erosion or disturbance of instream sediments and soils would temporarily increase turbidity and sedimentation downstream of the construction sites throughout the study area if soils were transported in the river flows or stormwater runoff. The potential also exists for contaminants used in construction activities to be accidentally introduced into the water system, either directly in spills or incrementally through surface runoff, from work within or immediately adjacent to the channel. Several measures would be implemented as part of the project to minimize potential effects on water quality. Further, all of the action alternatives would incorporate on-site construction-phase management plans through mitigation planned as part of the alternatives (Measure 3.5-1A). The controls would limit the likelihood and magnitude of potential short-term water quality degradation that could also degrade aquatic habitat.

Direct Disturbance and Temporary Loss of Habitat during Construction Activities

Several aspects of construction under each of the action alternatives would require dewatering of the active channel to allow for access. These activities would occur during the low-flow summer months. The native fish and macroinvertebrate species occupying aquatic habitats could be injured or killed directly or indirectly by heavy equipment during site access, preparation, or construction activities, if present in the affected area. Project construction activities would also result in the temporary loss of riparian trees and shrubs that provide important shaded riverine aquatic habitat functions, including shade, cover, complexity, and substrate for macroinvertebrates.

All of the action alternatives would incorporate preconstruction surveys and native-fish and mussel translocation plans through mitigation planned as part of the alternatives (Measures 3.5-1B and 3.5-1C). The controls would limit the potential for native fish and macroinvertebrate species to be injured or killed. The action alternatives (Alternatives 2–5) would result in channel improvements that would disrupt aquatic habitat, dewater channel reaches and result in the rescue and relocation of fish in the Upper Truckee River. However, because fish are highly motile, they would redistribute themselves throughout the river segments once restoration work is completed and stream flow is restored. There would be no long-term cumulative population-level impacts to introduced trout or native fish populations, and therefore, no cumulatively significant effect from the action alternatives.

Fish and mussel rescue and relocation for several proposed restoration actions may occur sequentially or concurrently during summer construction periods from 2010 to 2015 and individual fish and mussel relocations will need some level of coordination to avoid releasing too many rescued fish and mussels into one area of the Upper Truckee River. Some mortality would occur as a result of capture and handling but this would be minor relative to the number rescued and would not result in population-level effects. Multiple concurrent rescue and relocation efforts would lead to a short-term change in the distribution of fish and mussels within the Upper Truckee River. Fish are highly motile and would quickly re-colonize restored habitats. Following the completion of proposed future restoration actions, the fish community would gradually return to a more natural condition with all species present relative to existing conditions. Therefore, no population-level, cumulative impact would occur

and the proposed project would not contribute to a cumulatively significant effect. This impact would be less than significant.

Initial Channel Response

After the completion of construction activities, some habitat improvements associated with river ecosystem restoration activities would be realized immediately. However, the new physical form of the channel and associated floodplain would also result in immediate changes to hydraulic conditions, which in turn would result in a geomorphic response for some period of time until a new dynamic equilibrium was reached. Depending on the specific, localized circumstances, localized changes in water velocities and sediment transport and depositional patterns could occur. Because the geomorphic response is process driven and subject to several highly variable conditions (e.g., frequency, duration, and magnitude of intermediate- to high-flow events; local sediment grain sizes; local channel geometry), it can be extremely difficult to predict the nature and extent of short-term (interim) outcomes. Nevertheless, as described for all action alternatives it is possible that some aquatic habitat conditions could become temporarily degraded during the channel's initial response to the changed physical condition.

All of the action alternatives would incorporate activities to stabilize the channel during and immediately after construction through mitigation planned as part of the alternatives (Measures 3.5-1D and 3.5-1H). The controls would limit the potential for adverse effects on habitat conditions within the study area, and the residual effects of the action alternatives would not be substantial on their own.

All of the action alternatives would incorporate measures to limit the likelihood and magnitude of potential short-term water quality degradation, limit the potential for native fish and macroinvertebrate species to be injured or killed, and stabilize the channel during and immediately after construction, through mitigation planned as part of the alternatives (Measures 3.16-11A and 3.16-11H). These measures would limit the potential for adverse effects on habitat conditions within the study area, and the residual effects of the action alternatives would not be substantial on their own.

Active construction could occur during multiple years for the reasonably foreseeable future stream restoration projects downstream along the Upper Truckee River. Each proposed restoration project is expected to take similar measures to reduce the potential effects on aquatic habitats and the aquatic community of short-term water quality degradation, direct disturbance, and/or channel response. However, all the action alternatives require some level of post-construction adjustment to the channel, and all of the projects likely include channel, bank, or floodplain treatments that may not reach full resistance within the first couple of years. The proposed projects would all be located along the same unregulated river; if a large flood were to occur within the first few years of construction, it could affect multiple project reaches, combining to increase the potential magnitude or duration of effect and/or causing a channel response that would eventually affect more than one reach. During an interim period of 5 years after construction, the probability of a large flood (e.g., 25-year recurrence or larger) is relatively high, because it would be the additive probability of the same statistical chance each (i.e., 20 percent over the interim period of 5 years). Therefore, such an event could be reasonably expected. Overall, the potential for aquatic habitat degradation during such an event under the restored condition on multiple project reaches would likely be less than under the No Project/No Action Alternative. However, locally worse conditions and/or flood damage could pose a risk of combining with similar effects in other reaches and might occur together under the action alternatives and other reasonably foreseeable restoration projects. Therefore, the cumulative risk of temporary aquatic habitat degradation would be significant and implementing the action alternatives could result in a considerable contribution to a potentially significant cumulative impact on aquatic habitats and the aquatic community.

Mitigation Measure 3.16-11A: Cumulative Biological Resources – Implement Alternative-Specific Measures to Minimize or Correct Temporary Water Quality Effects Following Construction.

This mitigation measure is identical to Mitigation Measure 3.16-10A.

Mitigation Measure 3.16-11B: Cumulative Biological Resources – Implement an Interim Adaptive Management Plan on the Upper Truckee River.

This mitigation measure is identical to Mitigation Measure 3.16-10A.

With implementation of the measures described above, the likelihood and potential magnitude of Impact 3.16-11 would not be substantially different than under the existing conditions or the No Project/No Action Alternative. Therefore, with implementation of Mitigation Measures 3.16-11A and 3.16-11B, Impact 3.16-11 would be less than significant.

IMPACT 3.16-12 (All Alts.)	Cumulative Biological Resources – Long-Term Effects on Fisheries and Aquatic Resources. *Under Alternatives 2 –5 the long-term ecosystem response to river and floodplain restoration is expected to improve habitat quality and functions for fish and aquatic macroinvertebrate communities in the Upper Truckee River. This effect, when combined with other river restoration projects in the Tahoe Basin, would be* ***cumulatively beneficial*** *and would not contribute to a significant adverse cumulative impact on fisheries and aquatic resources.*

As discussed in Section 3.5, "Biological Resources," the general abundance of the native fish community has declined substantially since the arrival of the first Euro-Americans in the Tahoe Basin in the 1840s. Several factors are believed to have contributed to the decline or extinction of native fish and the degradation of fish habitat in the Upper Truckee River and throughout the greater Tahoe Basin. Logging, water diversions, channelization, grazing, commercial harvesting, road building, and the introduction of nonnative fish and other aquatic organisms have contributed cumulatively to the change in the Upper Truckee River's fisheries composition and the degradation of the river's fish habitat (Murphy and Knopp 2000). The combined effects of several past activities and projects have cumulatively resulted in adverse impacts on fisheries and aquatic resources in the Upper Truckee River.

Many of the reasonably foreseeable projects (e.g., the Upper Truckee River and Marsh, airport, and Sunset Stables reach restoration projects) would result in long-term improvement of aquatic habitat conditions for the native fish and macroinvertebrate community. Specifically, such projects would prevent channel incision, increase channel sinuosity, decrease channel capacity, restore riparian vegetation communities, increase floodplain inundation, and restore ecologically important geomorphic processes. Overall, the combined effect of these future projects is expected to improve habitat conditions in the long term compared to current conditions. However, even with these future projects, conditions for fisheries and aquatic resources in the Upper Truckee River watershed would remain limited. For example, ongoing influences of existing urbanization and the presence of nonnative species would be expected to continue into the future, limiting the ability of the historic native fishery to fully recover.

The Upper Truckee River is a key migration corridor and rearing area for the entire Upper Truckee River watershed, implementing the No Project/No Action Alternative (Alternative 1) could limit the effectiveness of downstream restoration projects in enhancing populations of native or desirable fish species. Nevertheless, under this alternative, fish and aquatic habitat in the study area would not change in the long term because no changes would be made to the river system. The fish community and aquatic habitat conditions would continue to be affected by ongoing altered hydraulic and geomorphic processes and periodic treatments to address bank erosion. Implementing the No Project/No Action Alternative would not make a considerable contribution to the cumulative impact on fisheries and aquatic resources in the Upper Truckee River.

In the long term, implementing Alternative 2, 3, or 5 would restore geomorphic processes of the Upper Truckee River valuable to ecological functions, and implementing Alternative 4 would stabilize the river in place, limiting the progress of the current negative trend in habitat function. Proposed river restoration activities associated with Alternatives 2, 3, and 5 would substantially increase the length of the channel and the width of the riparian corridor and would restore natural processes within the study area, increasing available habitat for the fish and macroinvertebrate community. Increased sinuosity would improve pool development and maintenance, and a wider and more vigorous riparian vegetation community would lead to increased riparian cover and instream complexity with the introduction of woody debris. Many of the benefits of the restoration project would be realized over time, as functional geomorphic processes shape channel morphology and associated habitat features that provide important functions and values to the fish and macroinvertebrate community. These processes, which rely on regular disturbance resulting from flood events, would improve aquatic habitat functions and values over a period of several decades and would ensure that aquatic habitat would be maintained over time.

Alternative 4 would involve a combination of hard and soft stabilization to keep the river in its present configuration and would involve only minor changes to the existing golf course. River stabilization activities associated with Alternative 4 would not increase the length of the channel or the width of the riparian corridor and would not restore natural geomorphic processes within the study area. However, the stabilization measures would contribute to a small, incremental improvement to fish and aquatic resources by limiting future sediment inputs and creating additional habitat complexity where biotechnical approaches would be applied. Creation of the relatively small area of inset floodplain (0.4 acre) would result in localized improvement of conditions supporting the development of riparian cover and providing high-flow refugia for fish.

These effects, when combined with those of other ongoing and future river restoration projects in the Tahoe Basin (e.g., marsh, airport, Sunset Stables reaches, High Meadows) would be beneficial. No adverse, long-term cumulative effect on fisheries and aquatic habitats would occur.

No additional mitigation is required.

IMPACT 3.16-C13 (All Alts.) Cumulative Biological Resources Vegetation and Wildlife – Effects on Introduction and Spread of Invasives. *Under the No-Project/No-Action Alternative, ongoing management would continue to limit introduction and spread of invasive plants in the study area, but invasive plants would continue to be introduced and spread within the vicinity of the study area. Under the action alternatives (Alternatives 2–5), construction activities could introduce or spread invasive plants, which in turn could increase the introduction and spread of invasive weeds and aquatic organisms. However, mitigation planned as part of the alternatives would substantially reduce the potential for construction activities to introduce and spread invasive species. Therefore, none of the alternatives would make a considerable contribution to a significant cumulative effect on the introduction and spread of invasive weeds and aquatic organisms. This impact would be* ***less than significant****.*

Under the No-Project/No-Action Alternative, ongoing management would continue to limit introduction and spread of invasive plants in the study area, but invasive plants would continue to be introduced and spread within the vicinity of the study area. Under the action alternatives (Alternatives 2–5), construction activities could introduce or spread invasive plants or aquatic organisms, which in turn could increase the introduction and spread of these invasives. The potential for causing these effects differs among the action alternatives. Ground disturbance is a major factor affecting the introduction and spread of invasive species and differs among alternatives: Alternative 2 and 5 would disturb the greatest and least acreage, respectively, and Alternatives 1, 3, and 4 would disturb comparable, smaller acreages. Mitigation planned as part of the alternatives would substantially reduce the potential for invasive species to be introduced and spread. Mitigation planned as part of the alternatives (Mitigation Measure 3.5-7) includes cleaning of construction machinery, use of seed and other erosion control materials free of invasive plant seed, and pre and post-construction monitoring and invasive plant removal. These measures would substantially reduce the potential for construction activities to introduce and

spread invasive species, and consequently reduce opportunities for introduction and spread of invasive species relative to both existing conditions and conditions under the No-Project/No-Action Alternative.

Therefore, none of the alternatives would make a considerable contribution to a significant cumulative effect on the introduction and spread of invasive species. This impact would be less than significant.

No additional mitigation is required.

IMPACT 3.16-14 (All Alts.) Cumulative Biological Resources – Effects on Special-Status Plants and Sensitive Habitats (Jurisdictional Wetlands, Riparian Vegetation, and SEZ). *When combined with beneficial effects of ongoing and future river restoration projects in the Tahoe Basin, the effects of the No Project/No Action Alternative are not expected to make a considerable contribution to the cumulative impact on sensitive botanical resources. Under Alternative 2 –5, the acreage and functions of sensitive habitats (jurisdictional wetlands, riparian vegetation, and SEZ) are expected to increase. Although the magnitude would be different under each alternative, this effect, combined with the effects of other ongoing and future river restoration projects in the Tahoe Basin, would make a considerable contribution to a* ***beneficial cumulative impact*** *on special-status plants and sensitive habitats. Potential effects of the project could be considerable and combine with effects of other actions on transport and delivery of coarse sediment; however, the incremental or combined consequences to channel and beach erosion are not predictable because of highly uncertain climate change influences (See Impact 3.16-8 (All Alts), especially on beach erosion. Conditions could range from worse than the existing degraded condition to a possible improvement regardless of changes in coarse-sediment delivery. Beaches support one of the most important populations of Tahoe yellow cress in the Tahoe Basin. Any changes to beach erosion processes near the river mouth could affect habitat for Tahoe yellow cress. With the unknown effects of climate change on beach erosion (could decrease or increase potential habitat/beach erosion) consideration of the potential cumulative effects to Tahoe yellow cress habitat remains* ***too speculative for a meaningful significance conclusion****.*

Under the No Project/No Action Alternative, the study area would remain unaltered from existing conditions, with the banks of the Upper Truckee River continuing to erode and widen, thereby limiting sensitive habitats within the riparian corridor. No planned or project-related removal of riparian vegetation or wetlands would occur as a result of implementing this alternative. Under the No Project/No Action Alternative, effects on sensitive habitats (i.e., continued degradation) would be similar to existing and ongoing conditions. When combined with the beneficial effects of ongoing and future river restoration projects in the Tahoe Basin (e.g., Upper Truckee River and Marsh, airport, Sunset Stables reaches), the effects of the No Project/No Action Alternative are not expected to constitute a considerable contribution to the cumulative impact on common and sensitive botanical resources.

Project implementation under Alternative 2 –5 could result in potential short-term construction-related impacts on special-status plant species. However, mitigation planned as part of these alternatives—conducting preconstruction surveys for special-status plant species, delineating Federally protected wetlands, implementing vegetation protection and revegetation measures, avoiding sensitive plant communities by project design, and compensating for the short-term loss of resources that could not be avoided—would minimize short-term construction-related impacts on common and sensitive vegetation resources and compensate for potential loss. The alternatives would increase habitat for special-status plant species and would increase the quantity and quality of wetlands and riparian vegetation, while minimizing project-related disturbances. When considered in combination with other restoration projects that would increase or improve habitat for special-status plant species, increase the quantity and quality of wetlands and riparian vegetation, and minimize project-related disturbances, these combined activities would provide cumulative benefits to sensitive botanical resources.

As discussed in Impact 3.16-8 (All Alts.), "Cumulative Geomorphology and Water Quality – Long-Term Modifications in Upper Truckee River Coarse Sediment Transport and Delivery Downstream," depending on the alternative selected, conditions associated with the transport of bedload (i.e., sands and gravel) within the study

area and into downstream reaches of the Upper Truckee River could either worsen, improve, or remain the same, depending on unpredictable climate change influences. Under Alternative 2, 3, or 5, project-generated changes to the river's channel bed profile, bank and bed materials, or hydraulic conditions that control transport of bedload could worsen conditions relative to the effects of historically declining watershed coarse-sediment yields on downstream channel erosion and beach erosion adjacent to the river mouth (e.g., at Cove East and Barton Beaches) or remain similar under the No Project/No Action Alternative and Alternative 4. Cove East and Barton Beaches support one of the most important populations of Tahoe yellow cress in the Tahoe Basin. Beaches support one of the most important populations of Tahoe yellow cress in the Tahoe Basin. Any changes to beach erosion processes near the river mouth could affect habitat for Tahoe yellow cress. With the unknown effects of climate change on beach erosion (could decrease or increase potential habitat/beach erosion) consideration of the potential cumulative effects to Tahoe yellow cress habitat remains too speculative for a meaningful significance conclusion.

No additional mitigation is required.

IMPACT 3.16-15 (All Alts.) Cumulative Biological Resources – *Tree Removal and Forest Land Conversion. When combined with effects of ongoing and future river restoration and fuels reduction projects in the Tahoe Basin, effects of the No Project/No Action Alternative is not expected to make a considerable contribution to the cumulative impact on trees and forest land conversion. Implementing any of the action alternatives (2–5) would result in substantial native tree removal greater than 10 inches DBH, for golf course relocation, restoration, and access road construction, as well as a few trees greater than 30 inches DBH. The magnitude of proposed tree removal in the study area is considered "substantial" as defined in the TRPA Code of Ordinances for all action alternatives and would require a tree removal and management plan developed with TRPA. These measures planned as part of the action alternatives would minimize and compensate for loss of individual trees and forest conversion related to implementation of alternatives 2–5. The goals of fire fuel management programs in the Basin include improvement of forest health, where the focus is on reducing density by removing low-canopy to mid-canopy trees, which is not expected to result in changes to the distribution or abundance of forest vegetation types. Therefore, in combination with other tree removal for restoration projects and fire fuels management, the action alternatives' tree removal and the loss of trees greater than 30 inches DBH would be a* ***less than significant*** *impact.*

Under the No Project/No Action Alternative, the study area would remain unaltered from existing conditions, with the banks of the Upper Truckee River continuing to erode and widen. This condition would likely result in the long-term degradation of woodland habitats within the riparian corridor and floodplain, which could involve the loss of individual trees from undercut banks. Implementation of bank treatments and repairs would continue on an emergency or as-needed basis, primarily in response to major flood events, and would be limited to locations with vulnerable public or golf infrastructure or private property. No planned or project-related removal of trees would occur as a result of implementing this alternative. Under the No Project/No Action Alternative, effects on trees and conversion of forestland would be similar to existing and ongoing conditions. Management activities including fuels treatment thinning within Washoe Meadows SP, Lake Valley SRA, and throughout the Tahoe Basin would continue to manage fire fuel and improve forest health. When combined with effects of ongoing and future river restoration and fuels management projects in the Tahoe Basin, the effects of implementing the No Project/No Action Alternative are not expected to result in a significant cumulative impact on trees and no conversion of forest land would occur.

The tree removal estimates for the action alternatives include trees that may be removed in the future for additional forest health and fuels treatments prior to, or in the absence of, project implementation, as part of State Parks' existing Lake Sector Wildfire Management Plan. Although State Parks has treated much of the study area for fuels reduction, some proportion of trees estimated for removal may be removed in the future regardless of project implementation (Walck, pers. comm., 2010) to further reduce densities in some areas. Additionally, some lodgepole pines that would be removed within the riparian corridor as part of the proposed geomorphic restoration or river stabilization would be removed regardless, i.e., as part of State Parks' existing management objectives to

reduce conifer encroachment in riparian and meadow habitats and to enhance riparian hardwood growth (related to the existing Riparian Hardwood Restoration Project).

Regarding the potential for cumulative conversion of forest land, only Alternative 2 involves conversion of existing forest to a non-forest use (i.e., conifer forest to golf course west of the river in Washoe Meadows SP). This is determined to be a significant impact on its own and could be interpreted as an additional increment of conversion with other past projects and present conditions. Reasonably foreseeable future projects, however, do not include substantial conversion of forest land to non-forest uses, so the cumulative condition would not be worsened in the future, except for the influence of implementing Alternative 2. Therefore, a cumulative impact, where multiple, reasonably foreseeable future projects combine to increase overall forest land conversion, would not occur.

Implementing any of the action alternatives (2–5) would result in substantial removal of native trees greater than 10 inches DBH for golf course relocation, restoration, and access road construction, as well as a few trees greater than 30 inches DBH. The final acres, number, and stand condition of trees removed would be determined in cooperation with TRPA prior to construction. The magnitude of proposed tree removal in the study area is considered "substantial," as defined in the TRPA Code of Ordinances, for all action alternatives and would require a tree removal and management plan developed with TRPA. Substantial tree removal and the loss of trees greater than 30 inches DBH would be a significant impact on its own. In addition, other river restoration projects and fire fuels management projects would involve removal of trees over 10 inches DBH, which would combine to cause a significant cumulative impact related to tree removal. However, as a counter balance to this effect, geomorphic, floodplain, and SEZ restoration would lead to a net increase in riparian tree abundance, cover, and productivity over time, following project implementation. Furthermore, measures to minimize tree removal and develop a tree removal and management plan (Mitigation Measure 3.5-6 [Alternatives 2–5]) planned as part of these alternatives would minimize and compensate for loss of individual trees and forest conversion related to implementation of the action alternatives. With the adoption of these measures, implementing Alternative 2–5, when combined with past, present, and reasonably foreseeable future projects (e.g., south shore fuels reduction projects and other restoration projects that require tree removal) would not threaten, regionally eliminate, or contribute to a substantial reduction in the distribution or abundance of common conifer forest. Also, planning for a South Shore fuels reduction project is under way. The fuels reduction program would involve substantial removal of fire fuel, including trees, from the Upper Truckee River watershed. However, the goals of this fire fuel management program include improvement of forest health. The focus would be on reducing density by removing low-canopy to mid-canopy trees, and the tree removal is not expected to result in changes to the distribution or abundance of forest vegetation types. Therefore, in combination with other tree removal for restoration projects and fire fuels management, the action alternatives' tree removal and the loss of trees greater than 30 inches DBH would be a less than significant impact.

IMPACT 3.16-16 (All Alts.) Cumulative Biological Resources – Effects on Common or Special-Status Wildlife Resources. *When combined with beneficial effects of ongoing and future river restoration projects in the Tahoe Basin, effects of the No Project/No Action Alternative are not expected to make a considerable contribution to the cumulative impact on common and sensitive wildlife resources. Under Alternative 2, 3, and 5, the long-term ecosystem response to river and floodplain restoration is expected to substantially improve habitat quality and functions for riparian and aquatic wildlife, including special-status species such as yellow warbler, willow flycatcher, and waterfowl. Alternative 4 ecosystem response would also be beneficial, however on a lesser scale than Alternatives 2, 3, and 5. River and floodplain restoration would also increase the size and enhance functions of TRPA-designated wildlife habitats of special significance (i.e., wetlands, meadows, and riparian areas). This effect, when combined with the effects of other ongoing and future river restoration projects in the Tahoe Basin, would be a considerable contribution to* **beneficial cumulative effects** *on common and special-status wildlife associated with riparian, wetland, and aquatic habitat, and wildlife habitats.*

Under the No Project/No Action Alternative (Alternative 1), the study area would remain unaltered from existing conditions, with the banks of the Upper Truckee River continuing to erode and widen, thereby limiting sensitive habitats within the riparian corridor and floodplain. No planned or project-related removal of riparian vegetation

or wetlands would occur as a result of implementing this alternative. Under the No Project/No Action Alternative, impacts on sensitive habitats (i.e., continued degradation) would be similar to existing and ongoing conditions. However, when combined with beneficial effects of ongoing and future river restoration projects in the Tahoe Basin (e.g., Upper Truckee River and Marsh, airport, Sunset Stables reaches, High Meadows), effects of the No Project/No Action Alternative are not expected to make a considerable contribution to the cumulative impact on common or sensitive wildlife resources.

Implementing Alternative 2 would remove and fragment approximately 60 acres of common upland habitat (primarily degraded Jeffrey pine and lodgepole pine forest) and increase disturbance levels west of the Upper Truckee River. However, implementing Alternative 2 is not expected to substantially affect the breeding productivity or population viability of any common or special-status wildlife species, cause a change in species diversity locally or regionally, or remove any known or potentially significant wildlife movement corridors. In addition under areas that are currently golf course adjacent to the river would be restored to riparian vegetation, increasing habitat corridor connectivity. Because these common wildlife habitat types are abundant and widely distributed locally and regionally, implementing Alternative 2, when combined with past, present, and reasonably foreseeable future projects (e.g., Upper Truckee River and Marsh, airport, and Sunset Stables reach restoration projects; South Shore fuels reduction projects), would not threaten, regionally eliminate, or contribute to a substantial reduction in the distribution or abundance of habitat for common or special-status wildlife associated with these communities in the project region. Also, mitigation planned as part of these alternatives includes conducting focused preconstruction surveys for special-status wildlife (Mitigation Measures 3.5-9A and 3.5-9B [Alts. 2–5]), which would avoid the loss of individuals, nests, or roost sites of special-status wildlife species during construction. Therefore, the golf course reconfiguration and trail development component of Alternative 2 would not make a considerable contribution to the cumulative impact on common and sensitive wildlife resources.

Under Alternative 2, 3, or 5, the long-term ecosystem response to river and floodplain restoration is expected to substantially improve habitat quality and functions for riparian and aquatic wildlife, including special-status species such as yellow warbler, willow flycatcher, and waterfowl. Alternative 4 ecosystem response would also be beneficial, however on a lesser scale than Alternatives 2, 3, and 5 because floodplain function would not be restored. Restoration would also increase the size and enhance functions of TRPA-designated wildlife habitats of special significance (i.e., wetlands, meadows, and riparian areas). This effect, when combined with those of other ongoing and future river restoration projects in the Tahoe Basin (e.g., marsh, airport, Sunset Stables reaches, High Meadows), would be a beneficial contribution to cumulative impacts on common and special-status wildlife associated with riparian, wetland, and aquatic habitat, and wildlife habitats of special significance.

No additional mitigation is required.

IMPACT 3.16-17 (All Alts.) **Cumulative Earth Resources – Soil Erosion, Sedimentation, and Loss of Topsoil.** *River and floodplain modifications would occur under any of the action alternatives and upland modifications under Alternative 2. Although temporary BMPs would be implemented, erosion, sedimentation, and loss of topsoil could occur during summer construction seasons or intervening winters. However, these effects would be minimized by mitigation features planned as part of the alternatives development. If BMP failures were to occur at reasonably foreseeable projects in the vicinity, it would not be expected that those effects would contribute to a cumulatively significant erosion, sedimentation, or loss of topsoil impact because these failures would be localized in their extent. This cumulative impact would be* ***less than significant****.*

Under Alternative 1, formerly disturbed areas (i.e., trails, roads, and streambanks) would continue to erode, and on-site construction equipment would continue to be operated as it is today (i.e., for fuels management); thus, soil erosion would remain comparable to the current conditions. Construction would be conducted, as necessary, to stabilize streambanks and/or infrastructure, but this potential for emergency repairs would be the same as current conditions.

Runoff and water quality effects are addressed above in the discussions of hydrology and flooding and of geomorphology and water quality. All four action alternatives (Alternatives 2–5) would require construction within active stream channels and their adjacent floodplains. Upland modifications would be implemented under Alternative 2. Although temporary BMPs would be implemented, erosion, sedimentation, and loss of topsoil could occur during construction. All the action alternatives would incorporate on-site construction phase management plans through mitigation planned as part of the alternative (Mitigation Measure 3.6-1). The planned controls include many specific measures to be implemented by State Parks, including restricted disturbance areas and duration, BMPs that are effective up to the 20-year precipitation event and 50-year streamflow event, discrete measures for various subdrainage areas on each side of each water body, construction equipment and vehicle restrictions, specific winterization guidelines, protection for transported and stored materials and debris, topsoil salvaging, custom dewatering/bypassing plans, rewetting requirements, and monitoring requirements regarding BMP effectiveness and remedial action requirements. The controls would limit the likelihood and magnitude of potential erosion, sedimentation, and loss of topsoil impacts. The reasonably foreseeable development projects in the project vicinity and stream restoration projects along the Upper Truckee River could have active construction during overlapping periods and exposure to large storm events and/or high flows during intervening winters. Each proposed project is expected to take many measures to reduce the potential risk related to erosion, sedimentation, and loss of topsoil, including:

- restricting the area and duration of construction disturbance to the absolute minimum necessary and
- designing, installing, and maintaining temporary BMPs to protect disturbed areas and minimize soil erosion; prevent surface runoff interaction with disturbed surfaces; and limit the potential for release of sediment, nutrient, or otherwise contaminated water into water bodies outside the construction disturbance zone.

The performance standards for BMPs on the reasonably foreseeable projects would be expected to be the same as those for mitigation identified for the action alternatives, but it is possible that the BMPs could fail, particularly if unusual runoff conditions occur that exceed the BMP design capacity. However, it is highly unlikely that a BMP failure at one project site could contribute to a cumulative erosion, sedimentation, or loss of topsoil impact because these failures would be localized in their extent. Therefore, implementing any of the alternatives would not contribute to a significant cumulative impact.

No additional mitigation is required.

IMPACT 3.16-18 (All Alts.) Cumulative Earth Resources – Land Coverage Changes. *Implementing Alternative 2, 3, or 5 would decrease coverage in the most sensitive lands (LCD 1b) adjacent to the Upper Truckee River, Angora Creek, and the unnamed creek. Implementing Alternative 2 would relocate coverage currently within LCD 1b to higher capability and previously disturbed lands west of the river. Under Alternatives 1 and 4 lands adjacent to the Upper Truckee River and Angora Creek would continue to support golf uses. While coverage would increase under Alternative 4, proposed coverage would still be within limits allowed in the study area, as determined by TRPA. Coverage effects would either be beneficial or less than significant under all alternatives. Because implementing any of the action alternatives would either contribute to a beneficial effect on land coverage (Alternatives 2, 3, and 5) or be within the allowable land coverage limits(Alternative 4), and other projects would be required to either mitigate or have no effect on coverage, a cumulative adverse land coverage impact would not occur. This cumulative impact would be* ***less than significant****.*

In the past 150 years, much of the Upper Truckee River watershed has been converted to developed land uses. Based on a review of land cover within the watershed (using the CDF 2002 and California Interagency Watershed Mapping Committee 2004 GIS data layers), this portion is about 9 percent, concentrated in the lower elevation areas of the watershed, and includes much of the project vicinity. Urban development has been altering hydrologic, geomorphic, and habitats commonly encroaching on the most sensitive lands located within the SEZ. Past projects include the Lake Tahoe Golf Course within the study area, South Lake Tahoe Airport, U.S. 50, and the Tahoe Keys Marina and residential and commercial areas within the watershed (e.g., Meyers, North Upper

Truckee). Coverage within the study area would not be modified under Alternative 1, and implementing Alternative 2, 3, or 5 would decrease coverage in the most sensitive lands (LCD 1b) adjacent to the Upper Truckee River, Angora Creek, and the unnamed creek, decreasing existing land coverage within sensitive lands in the watershed. Implementing Alternative 2 would relocate coverage currently within LCD 1b to higher capability and previously disturbed lands west of the river. Alternatives 2, 3, or 5 would either decrease coverage or result in the same coverage in other LCDs, therefore either decreasing coverage or having no effect on coverage within those LCDs. While coverage would increase under Alternative 4, proposed coverage is still within the limits allowed in the study area, as determined by TRPA.

Other reasonably foreseeable projects in the vicinity include a range of projects that have individually varied effects on coverage. Some projects may potentially increase the amount of impervious surfaces (e.g., bike trails, development projects, Upper Truckee River and Marsh Restoration Project), others may potentially decrease the amount of impervious surfaces (e.g., Lake Tahoe Boulevard Enhancement, Elks Club, Lake Tahoe Airport Runway Restoration), and others may include no coverage changes (many restoration projects in the watershed). Proposed projects that would increase the amount of impervious surfaces would be required to incorporate mitigation to limit their incremental contribution. Projects that propose to remove coverage would have a beneficial effect on land coverage. Therefore, when viewed in connection with the effects of other projects, a cumulative impact on land coverage would not be expected to occur.

No additional mitigation is required.

IMPACT 3.16-19 (All Alts.) Cumulative Scenic Resources — Short-Term and Long-Term Impacts on the Existing Visual Character. *Short-term and long-term changes associated with implementing any of the action alternatives would be visible or partially visible from U.S. 50 within Roadway Travel Unit 36B, from trails within Washoe Meadows SP, and from surrounding neighborhoods. However, short-term construction-related effects would be intermittent and temporary, and changes associated with implementing Alternative 3, 4, or 5 would be minimal and are not considered adverse. Therefore, implementing Alternative 3, 4, or 5 would not contribute to a potentially significant cumulative short-term impact on scenic resources. Implementing Alternative 2 would result in substantial long-term changes in views of Washoe Meadows SP. However, views of the golf course would be screened by implementing a measure that would involve natural landscaping and forest management to screen views of the golf course from surrounding neighborhoods and trails. The residual impacts would be minimal, localized, and would not contribute to a potentially significant cumulative impact on scenic resources. Thus, the project's contribution to this cumulative impact would be* ***less than significant****.*

In the short term, implementing Alternatives 2–5 would introduce construction activities and staging areas into the study area that would temporarily change views over a period of approximately 2–4 years. Construction activities associated with other projects that occur within the same timeframe as the action alternatives could result in a cumulative change in visual character associated with those activities. However, all construction-related effects would be intermittent and temporary. For this reason, short-term impacts under Alternatives 2–5 would be less than significant and would not make a cumulatively considerable contribution to a potentially significant cumulative impact.

Other projects that include substantial tree removal or other long-term changes in views could result in a cumulative effect on scenic resources in the project vicinity. Although some ongoing tree removal related to fuels management would occur, no other ongoing projects or other projects planned in the study area or the project vicinity would involve substantial tree removal or other substantial changes that would alter the scenic character of the area. Tree removal related to fuels management would continue to occur in the vicinity of the study area and throughout the Tahoe Basin. Current forest management practices within this area include reducing fuels in the urban interface, often removing 50% of trees or more in some areas with the long-term goal of maintaining an open canopy and low-density forest for fire safety. These management actions open the viewscape adjacent to

residences. Other past, present, and future restoration projects in the project vicinity could combine with one of the action alternatives to create a more natural landscape, which is desirable.

As described in Section 3.7, "Scenic Resources," implementing Alternatives 2–5 would result in long-term changes in views from U.S. 50, trails within Washoe Meadows SP, and adjacent golf course neighborhoods. Long-term views would change from golf course greens to a more natural landscape ranging from minor changes to the golf course to complete removal of the golf course. However, changes in views to a more natural landscape are considered desirable and are not considered an adverse change in views. Implementing Alternative 2 would result in significant long-term changes in views of Washoe Meadows SP related to tree removal and relocating golf course holes to the west side of the river. However, views of the golf course would be screened by implementing a measure planned as part of Alternative 2 (Mitigation Measure 3.7-2) that would involve natural landscaping and forest management to screen views of the golf course from surrounding neighborhoods and trails and that would reduce project-related long-term changes to a less-than-significant level. Implementing Alternative 4 would result in a more stabilized channel with abundant rock and biotechnical structures and treatments. Planting of rock armor and toes would screen the rock to make it look more natural.

Because long-term changes in views either would be desirable or would be screened by natural landscaping and forest management, all long-term visual character impacts associated with the project would be less than significant. A cumulatively significant scenic impact in combination with other reasonably foreseeable projects would not be anticipated.

No additional mitigation is required.

IMPACT 3.16-20 (All Alts.) Cumulative Scenic Resources — Potential for Increase of Light and Glare. *Implementing Alternative 3 or 5 would not introduce any new sources of light or glare, and implementing Alternative 2 or 4 would introduce new lighting associated with the parking area improvements but would comply with TRPA Design Review Guidelines for lighting as part of alternatives development. Thus, while cumulative night lighting would be a potentially significant concern in the community, the project's contribution to this condition would be less than considerable and, therefore, the cumulative impact of the project would be* ***less than significant****.*

Under Alternative 3 or 5, no new facilities would be constructed, so no new sources of light or glare or skyglow (a glow that extends beyond the light source and reduces views of the nighttime sky) would be introduced to the study area. Under Alternative 2 or 4, the restroom facility proposed would be constructed of nonreflective materials and would not increase glare in the study area. No exterior lighting is proposed for the restroom facility. Lighting would be added to the newly paved parking area adjacent to the golf course entrance under these alternatives. Glare from nighttime lighting can be an annoyance to nearby residences and can reduce the quality of nighttime views. Nighttime lighting can also cause skyglow. Views of the nighttime sky around Lake Tahoe are a unique scenic resource. Implementing the proposed project and past, present, and reasonably foreseeable future projects would introduce new sources of lighting to the immediate neighborhood and region, contributing to the cumulative skyglow produced by development around the south shore of Lake Tahoe. However, as part of development of Alternative 2 or 4, all new lighting would be designed according to the TRPA Design Review Guidelines lighting standards, which require that lighting be directed downward and that lighting fixtures not exceed 10–12 feet in height (TRPA 1989:30-5 and 30-6). Because the new lighting would be near a parking area and clubhouse that are sources of existing lighting, and because the proposed lighting would be minimal and would be consistent with TRPA's lighting standards, implementing Alternative 2 or 4 would have a less-than-considerable contribution to skyglow. Therefore, under all alternatives, this cumulative impact would be less than significant, because none of the alternatives would make a cumulatively considerable contribution.

No additional mitigation is required.

IMPACT 3.16-21 (All Alts.) Cumulative Recreation Resources — Short-Term and Long-Term Reductions in Golf and Spring, Summer, Fall, and Winter Outdoor Recreation Opportunities. *Short-term changes associated with all of the alternatives could temporarily reduce existing recreation opportunities during construction. However, short-term construction-related impacts would be intermittent and temporary. Therefore, implementing any of Alternatives 1—5 would not contribute to a potentially significant cumulative impact on recreation opportunities. Implementing Alternative 3 or 5 would have a significant impact on golfing opportunities. However, other cumulative projects would not involve long-term adverse changes to golfing facilities. Therefore, although implementing Alternative 3 or 5 would result in a significant reduction in golf recreation opportunity on its own, other reasonably foreseeable future projects do not involve further reduction of golf recreation resources; therefore, a significant cumulative impact would not occur. Implementing Alternative 1, 2, or 4 in combination with other projects would not make a considerable contribution to a potentially significant cumulative impact related to short-term and long-term reductions in golf and spring, summer, fall, and winter outdoor recreation opportunities. Currently, no PAOTs are assigned to recreational facilities within the study area. Continuation of recreation opportunities in the study area would likely result in assignment of PAOTs, under Alternatives 1–4 and the need for PAOT allocation under Alternative 5 would be evaluated in a future planning effort. Thus, the project's contribution to a cumulative recreation or PAOT capacity effect would be* ***less than significant****.*

Implementing Alternatives 2–5 would temporarily reduce existing recreation opportunities during construction, and implementing several other projects in the vicinity of the study area would also reduce existing recreation opportunities in the short-term. Projects that could be constructed within a time frame similar to that of any of the action alternatives involve improvements/restoration along different rivers and streams, such as Cold Creek, and the Upper Truckee River that could reduce water-related recreation opportunities, as well as access to existing trail systems. Trail system projects include the Greenway Bike Trail Project, Sawmill 2 Bike Path and Erosion Control Project, and the Lake Tahoe Boulevard Enhancement Project, which will provide new bike trails and enhance existing bike trails. Other projects will improve public access to the Upper Truckee River and Cold Creek.

Constructing these projects would temporarily reduce existing recreational opportunities in the surrounding area; however, many other recreation opportunities exist in the South Lake Tahoe area and throughout the Tahoe Basin which could accommodate increased recreation use. Additional temporary use would not likely focus on one specific recreational area. For these reasons, short-term impacts on recreation opportunities under Alternatives 2–5 would be less than significant and would not make a cumulatively considerable contribution to a potentially significant cumulative impact.

No other projects exist that would reduce or eliminate golfing opportunities in the surrounding area in the long term. Although implementing Alternative 3 or 5 would have a significant impact on golfing opportunities in the study area, there would be no cumulative or combined effect because the other projects would not involve long-term adverse changes to golfing facilities. Therefore, although implementing Alternative 3 or 5 would cause a considerable contribution, the overall cumulative effect on golfing opportunities would not be significant. Implementing the No Project/No Action Alternative or Alternatives 2 or 4 would have a less-than-significant impact on golfing opportunities and would not make a considerable contribution to an overall cumulative effect.

None of the project alternatives would have a significant effect on any other spring, summer, fall, or winter outdoor recreation opportunities in the long term. While Alternative 5 would discontinue the snowmobile track on the driving range. Other winter recreation activities (i.e., snowshoeing, cross-country skiing) would continue informally in the long-term in the study area. Although snowmobiling in the study area would be eliminated under this alterative, snowmobiling is available at Tahoe Paradise Golf Course and Zephyr Cove Snowmobiling. In addition, other proposed trail and river access projects in the South Lake Tahoe area would improve outdoor recreation opportunities in the long term and would not result in an adverse cumulative effect on recreation opportunities.

Currently, no PAOTs are assigned to recreational facilities within the study area. Continuation of recreation opportunities in the study area would likely result in assignment of PAOTs, under Alternatives 1–4 and the need for PAOT allocation under Alternative 5 would be evaluated in a future planning effort. The Upper Truckee River Restoration and Golf Course Reconfiguration Project qualifies under the EIP for PAOT allocation from the existing pool (6,215 available for summer-day use and 7,927 available for winter-day use [TRPA 2007: 10-9]) available for the Golf Course and for the driving range snowmobile uses, respectively.

Therefore, implementing the project would not make a considerable contribution to a cumulative effect on recreation opportunities or PAOT capacity.

No additional mitigation is required.

IMPACT 3.16-22 (All Alts.) **Cumulative Cultural Resources – Damage to or Destruction of Significant Documented Cultural Resources, As-Yet Undiscovered Cultural Resources, or Human Remains.** *Research conducted for the project indicates that the study area contains four prehistoric cultural resources that are considered significant as defined by CEQA, Section 106, and TRPA criteria. As-yet undiscovered cultural resources might also be present within the study area. However, protection of cultural resources planned as part of alternatives development would reduce impacts to a less-than-significant level. Therefore, project-related activities in combination with other projects would not combine to result in a significant cumulative impact on important cultural resources in the project vicinity. The project's cumulative impact would be* ***less than significant****.*

Cultural resources in the study area and surrounding region generally consist of early Native American habitation and resource processing sites and buildings and structures associated with late 19th and early 20th century agricultural, logging, and recreational industries. Particularly from the latter half of the 20th century to the present, prehistoric sites and historic-era buildings and structures have been destroyed, disturbed, and modified. During this period, the creation and enforcement of various regulations such as CEQA that protect cultural resources have substantially reduced the rate and intensity of these impacts; however, even with these regulations, cultural resources are still degraded or destroyed as cumulative development proceeds in the Tahoe Basin.

Research conducted for the project indicates that the study area contains four prehistoric cultural resources that are considered significant as defined by CEQA, Section 106, and TRPA criteria. As-yet undiscovered cultural resources may also be present in the study area. However, protection of cultural resources planned as part of alternatives development (Mitigation Measures 3.9-1 through 3.9-3) would reduce impacts on prehistoric and historic-era resources and human interments to a less-than-significant level under all action alternatives by avoiding impacts on documented significant cultural resources and by requiring that work be stopped and measures implementing to protect cultural resources and human remains if they are discovered during ground-disturbing activities. Therefore, the action alternatives would comply with CEQA, Section 106, and TRPA guidance and would not incrementally contribute to any significant cumulative impacts on important cultural resources in the project vicinity. Under the No-Project/No-Action Alternative (Alternative 1), construction activities that could potentially damage or destroy undocumented, potentially significant, cultural resources would not occur. However, impacts of natural forces, such as erosion and weathering, could continue to gradually destroy these resources or reduce their information potential and cultural values. This would not be a change from existing conditions and this effect could potentially occur throughout the Tahoe Basin. Consequently, the project's effects would not combine with other projects to result in a significant cumulative effect on cultural resources.

No additional mitigation is required.

IMPACT 3.16-23 (All Alts.) **Cumulative Transportation, Parking, and Circulation – Construction and Operation Impacts on the Local and Regional Circulation System.** *Implementing any of the action alternatives (Alternatives 2–5) would generate construction traffic. Reasonably foreseeable projects in the vicinity of the study area could also generate construction-related traffic. However, none of the action alternatives in combination with other projects would combine to result in an overall significant impact on traffic in either the short term or the long term. The project's cumulative impact would be* ***less than significant****.*

Implementing any of the action alternatives (Alternatives 2–5) would generate construction-related traffic (Under the No-Project/No-Action Alternative [Alternative 1], no substantial construction activities would occur in the study area.). Construction-related traffic would be similar under all action alternatives. Mitigation planned as part of the action alternatives includes a traffic control plan (Mitigation Measure 3.10-3), which would follow standards of the agency responsible for the affected roadway. Measures typically used in traffic control plans include advertising of planned lane closures, warning signage, a flag person to direct traffic flows when needed, and methods to ensure continued access by emergency vehicles. During project construction, access to existing land uses would be maintained at all times, with detours used as necessary during road closures. This plan would reduce effects on transportation and circulation. Nonetheless, construction activities would generate some additional traffic.

Construction-related traffic also would be generated by reasonably foreseeable projects in the vicinity (e.g., Sunset Stables Restoration Project, El Dorado U.S. 50, Segment 2—Lake Tahoe Airport to U.S. 50/SR 89 Junction Water Quality Improvement Project, and El Dorado SR 89, Segment 1—Luther Pass to Meyers Water Quality Improvement Project).Other projects in the vicinity would be constructed at various times during the summer construction period over the life of the proposed project, but they would not result in a substantial combined peak traffic congestion impact in the project vicinity because all the construction projects together would generate a small fraction of the overall traffic on local and regional roadways and would not be sufficient to alter the level of service (LOS). Because implementing any of the action alternatives would not result in an unacceptable LOS at intersections that receive project construction traffic, the combined impact would not be significant in the short term. Furthermore, implementing any of the action alternatives would not result in a contribution to any ongoing postconstruction increase in traffic because the long-term traffic generation resulting from any of the alternatives would range from not substantially different from to much less than existing conditions. Because constructing any of the action alternatives would not result in an unacceptable LOS at intersections that receive project construction traffic, the combined effect would not be significant in the short term.

Implementing any of the action alternatives would not result in a long-term increase in recreational use of the study area compared to existing conditions and the No-Project/No-Action Alternative (Alternative 1) traffic loads, and in combination with other projects would be insufficient to create an unacceptable LOS, or otherwise cause a cumulatively significant effect on transportation or circulation. Similarly, the parking improvements associated with Alternatives 2 and 4 would not increase in public use of the study area and other projects would not increase parking demand or decrease parking capacity in the vicinity of the study area. Alternatives 1 and 3 would not modify the unpaved parking area and Alternative 5 would decommission and restore the compacted soils in this unpaved parking area, Thus, implementing any of the action alternatives would not result in a considerable contribution to a cumulatively significant effect on parking.

In summary, implementing any of the alternatives would not cause a cumulatively significant traffic or parking impact, nor contribute considerably to any cumulatively significant effect on transportation, parking, or circulation. This cumulative impact would be less than significant.

No additional mitigation is required.

IMPACT 3.16-24 (All Alts.) Cumulative Air Quality — Generation of Short-Term Construction-Related Emissions of Criteria Air Pollutants and Precursors. *Construction-related oxides of nitrogen (NO_X) emissions from implementation of any of the action alternatives (Alternatives 2–5) and simultaneous construction projects in the Tahoe Basin could violate or contribute substantially to an existing or projected air quality violation and/or expose sensitive receptors to substantial pollutant concentrations. Construction-generated emissions of reactive organic gases (ROG), NO_X, and respirable particulate matter (PM_{10}) would be reduced with mitigation planned as part of alternatives development and similarly would be reduced for other related projects. Therefore, a cumulative impact related to temporary construction emissions would not occur and implementing the project also not would result in a considerable contribution to a potentially significant cumulative impact. This cumulative impact would be* ***less than significant****.*

Emissions of pollutants generated during construction are temporary in nature but can contribute substantially to air quality violations and nonattainment conditions. Implementing the No Project/No Action Alternative (Alternative 1) would not result in a project-related increase in criteria air pollutants and precursors and thus would not contribute to the cumulative condition. Emissions are associated primarily with heavy-duty construction equipment and fugitive dust emissions from ground disturbance and earth-moving activities.

Emissions associated with implementing Alternative 2, 3, 4, or 5 would exceed the applicable significance thresholds for NO_X and PM_{10}. In addition, when taken together, the project-generated emissions combined with the emissions from other projects undergoing simultaneous construction in the Tahoe Basin could violate or contribute substantially to an existing or projected air quality violation and/or expose sensitive receptors to substantial pollutant concentrations. This can be especially pronounced in the Tahoe Basin where—because of strict seasonal restrictions on construction activities—many projects are often under construction at the same time. Therefore, implementing Alternatives 2–5 could result in a considerable contribution to this potentially significant cumulative air impact.

Project construction is required to comply with all applicable TRPA, Bureau of Air Quality Planning, and Bureau of Air Pollution Control codes, specifically TRPA Code of Ordinances Chapter 25 (Best Management Practices), Chapter 64 (Grading Standards), and Chapter 91 (Air Quality Control). All EDCAQMD-recommended measures to reduce construction-generated emissions of ROG, NO_X, and PM_{10} would be incorporated as part of alternatives development. State Parks or its contractor would be required to (1) obtain all necessary TRPA permits and approvals and follow all required codes and procedures with respect to BMPs, grading and excavation for the project, and all construction-related and emissions-generating activities; (2) obtain all necessary El Dorado County permits and approvals and follow all required County laws and procedures with respect to BMPs, grading and excavation for the project, and all construction-related and emissions-generating activities; and (3) implement dust control measures for any grading activity that would create substantial quantities of dust in compliance with the provisions of Chapter 64.4 of the TRPA Code of Ordinances and the EDCAQMD CEQA Guidelines as part of alternatives development. Furthermore, it is anticipated that other projects in the Tahoe Basin would also be required to implement similar measures to reduce their emissions of ROG, NO_X, and $PM_{10,}$ to levels below those required by TRPA regulations, so temporary construction emissions would not combine to cause a significant cumulative impact. NO_X and PM_{10} emissions after implementation of these measures and recommended dust control measures would be reduced to a level below the applicable significance criteria; therefore, contributions by the project would not be considerable. In summary, a cumulatively significant impact related to temporary construction emissions is not expected to occur, and implementing Alternatives 2–5 would not result in a considerable contribution. This cumulative impact would be less than significant.

IMPACT 3.16-25 (All Alts.) **Cumulative Air Quality — Generation of Long-Term Operation-Related (Regional and Local) Emissions of Criteria Air Pollutants.** *Long-term operation of Alternatives 2–5 would not result in the generation of regional unmitigated daily emissions that exceed any of the applicable thresholds. Therefore, implementing the project in connection with other projects would not result in a cumulatively considerable contribution to effects on regional emissions of criteria air pollutants or precursors. This cumulative impact would be* ***less than significant****.*

Implementing the No Project/No Action Alternative would not result in a project-related increase in criteria air pollutants and precursors and thus would not contribute to the cumulative condition. Regional stationary-, area-, and mobile-source emissions of ROG, NO_X, PM_{10}, carbon monoxide (CO), and sulfur oxides (SO_X) associated with implementation of Alternatives 2–5 were estimated using the URBEMIS 2007, Version 9.2.4, computer program. Based on the modeling conducted, long-term operation of Alternatives 2–5 would result in regional unmitigated daily emissions of approximately 1 lb/day of ROG, less than 1 lb/day of NO_X, less than 1 lb/day of PM_{10}, 1 lb/day of CO, and less than 1 lb/day of SO_X, which would not exceed any of the applicable thresholds. In addition, because implementing Alternatives 2–5 would not include the construction or operation of any major sources of stationary emissions, project implementation would not conflict with any air quality planning efforts. No trip-generating features or additional parking areas would be developed. Therefore, implementing Alternatives 2–5 would not result in changes to the LOS at signalized intersections in the project vicinity, nor would it result in increased long-term local emissions of CO from mobile sources. Thus, generation of long-term operation-related emissions from the project would not violate an air quality standard, contribute to an existing or projected air quality violation, expose sensitive receptors to substantial pollutant concentrations, or conflict with or obstruct implementation of the applicable air quality plan. Therefore, implementing Alternatives 2–5 would not make a cumulatively considerable contribution to regional emissions of criteria air pollutants or precursors. The long-term cumulative impact on regional emissions of criteria air pollutants and precursors would be less than significant.

No additional mitigation is required.

IMPACT 3.16-26 (All Alts.) **Cumulative Air Quality — Exposure of Sensitive Receptors to Emissions of Hazardous Air Pollutants.** *Long-term operation of Alternatives 1–5 would not result in the generation of hazardous air pollutant (HAP) emissions. Therefore, implementing the project in combination with other projects would not result in a considerable contribution to the cumulative impact related to exposure of sensitive receptors to HAP emissions. This cumulative impact would be* ***less than significant****.*

No major stationary sources of HAP emissions would be constructed or operated with long-term operation of Alternatives 1–5, nor would implementing the project result in the generation of HAP emissions from on-site mobile sources (e.g., diesel truck traffic). In addition, no major sources of HAPs exist in the vicinity of the study area. Nonetheless, all stationary sources with the potential to emit HAPs are required to obtain permits from TRPA. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, specifically Chapter 91 (Air Quality Control) of the TRPA Code of Ordinances. Given that compliance with applicable standards is required for the development and operation of facilities that may emit HAPs, emissions in the study area are expected to remain within established standards. Thus, neither construction nor operation of Alternatives 2–5 would expose sensitive receptors to substantial emissions of HAPs. As a result, implementing the project in combination with other projects would not result in a cumulatively considerable contribution to the exposure of sensitive receptors to substantial pollutant concentrations. This cumulative impact would be less than significant.

No additional mitigation is required.

IMPACT 3.16-27 (All Alts.) Cumulative Air Quality — Exposure of Sensitive Receptors to Odors. *Long-term operation of Alternatives 1–5 would not result in the generation of odors, nor would other foreseeable projects. Therefore, when viewed in connection with the effects of other projects, the proposed project would not result in a cumulatively considerable contribution to objectionable odors affecting a substantial number of people. This cumulative impact would be* ***less than significant.***

Implementation of Alternatives 1–5would not result in any major sources of odor, and the project's proposed land use type is not one of the types commonly known to generate odors (e.g., landfill, coffee roaster, wastewater treatment plant). However, for both the proposed project in the study area, and for some other projects in the vicinity of the study area, construction would entail the use of on-site equipment that would emit diesel exhaust. Emissions of diesel exhaust from the use of on-site construction equipment would be intermittent and temporary, and the exhaust would dissipate rapidly from the source. Thus, construction and operation of Alternatives 1–5 viewed in combination with the effects of other projects, would not result in a cumulatively considerable contribution to objectionable odors affecting sensitive receptors. This cumulative impact would be less than significant.

No additional mitigation is required.

IMPACT 3.16-28 (All Alts.) Cumulative Air Quality — Generation of Greenhouse Gases. *Implementation of the project alternatives would not result in the generation of substantial short-term construction-related or long-term operation-related emissions of greenhouse gases (GHGs).The proposed project's emissions would not create a considerable contribution to cumulative GHG emissions and would not affect GHG reduction planning efforts. This cumulative impact would be* ***less than significant.***

GHGs play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space and is trapped by GHGs. Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, chlorofluorocarbons, and sulfur hexafluoride. Human-caused emissions of these GHGs in excess of natural ambient concentrations are responsible for intensifying the greenhouse effect and have led to a trend of unnatural warming of the earth's climate, known as global climate change or global warming (Ahrens 2003:536).

No air districts within California, including the EDCAQMD, have adopted a significance criterion for GHGs generated by nonindustrial projects. In addition, TRPA has not adopted a significance criterion for GHGs. No methodology has been specified for analyzing impacts related to GHG emissions or global climate change. However, by adopting Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006, the State of California has established GHG reduction targets. Further, the State has determined that GHG emissions, as they relate to global climate change, are a source of adverse environmental impacts in California and should be addressed under CEQA. AB 32 did not amend CEQA, although the legislation identifies the myriad environmental problems in California caused by global warming (Health and Safety Code, Section 38501[a]). Senate Bill 97, in contrast, did amend CEQA by requiring the Governor's Office of Planning and Research to revise the State CEQA Guidelines to address the mitigation of GHG emissions or their consequences (Public Resources Code, Sections 21083.05 and 21097).

For the purposes of this draft EIR/EIS/EIS, the proper context for addressing climate change is in the discussion of cumulative impacts. Although the emissions of one project will not cause global climate change, GHG emissions from numerous projects throughout the world could result in the cumulative impact of global climate change.

AB 32 demonstrates California's commitment to reducing its rate of GHG emissions and associated contribution to climate change without limiting population or economic growth within the state. To meet the GHG emissions targets mandated by AB 32, California would need to generate a lower level of GHG emissions in the future than at the present time. For most projects, however, no simple metric is available to determine whether a single

project would substantially increase or decrease overall GHG emissions levels or conflict with the goals of AB 32.

Although AB 32 focuses on major stationary and area sources of GHG emissions, the primary objective of the act is to reduce California's contribution to global warming by reducing California's total annual production of GHG emissions. The impact of GHG emissions on global climate change does not depend on whether the emissions were generated by stationary, mobile, or area sources or whether they were generated in one region or another. Thus, helping to meet the reduction goals mandated by AB 32 is the best metric for determining whether project implementation would contribute to global warming. This metric has been used below to determine where impacts of project implementation would be significant.

GHG emissions generated by the proposed project would predominantly be in the form of CO_2. Although emissions of other GHGs, such as CH_4 and N_2O, are important with respect to global climate change, the emission levels of these GHGs for the sources associated with construction and operation activities are relatively small compared with CO_2 emissions, even considering their higher global warming potential. Therefore, all GHG emissions for construction and operation are reported as CO_2.

Construction-related GHG emissions associated with restoration-, bridge-, and golf course-related construction activities were calculated using URBEMIS 2007, Version 9.2.4. Operation-related emissions, including direct (e.g., landscaping and maintenance) and indirect (e.g., vehicle trips) emissions were also calculated using URBEMIS 2007.

Construction-Generated Greenhouse Gas Emissions

Activities associated with construction of Alternative 2– 5 would occur in approximately three distinct phases during 2012–2014. During this time, construction-related GHG emissions would be associated with engine exhaust from heavy-duty construction equipment, material transport trucks, and worker commute trips. Implementing the No Project/No Action Alternative would not result in any construction-generated GHG emissions related to the project. However, non-project related fuels management (tree thinning) would continue by State Parks and others (e.g., USFS), as under existing conditions. Although any increase in GHG emissions related to the action alternatives would add to the quantity of emissions that contribute to global climate change, emissions associated with construction of the project would occur over a limited period. Furthermore, emissions would be lessened by reusing vegetation removed from the site instead of hauling it from the study area and bringing in all new vegetation. Also, the larger vegetation being reused onsite will allow for more CO_2 uptake than smaller new plantings initial capabilities.

Although for traffic analysis it was presumed that all trees would be hauled off-site, it is expected that some would be used for restoration (e.g., woody debris material) and chipped for mulch material. However, because the estimated tree removal is relatively large (1,640, 255, 590, and 247 trees under Alternatives 2, 3, 4, and 5, respectively) and the amount of material proposed to be used onsite or hauled off have not been defined additional mitigation (see below) has been developed to lessen the effects of tree removal on carbon sequestering and GHG emissions. The tree removal estimates for all action alternatives include trees that may be removed in the future for forest health and fuels treatments prior to, or in the absence of, project implementation, as part of State Parks' existing Lake Sector Wildfire Management Plan (Walck, pers. comm., 2010), to further reduce the densities in some areas. Other past, present and reasonably foreseeable fuels management projects will be implemented throughout the South Lake Tahoe area and the entire Lake Tahoe Basin as well. While carbon sequestering (discussed below) does occur in these trees if forest health is not obtained there is potential for the release of biological carbon stock due to fire. Additionally, some lodgepole pines that would be removed within the riparian corridor as part of the geomorphic restoration under Alternatives 2, 3, and 5 and as part of other foreseeable fuels management projects would also be removed as part of State Parks' and USFS existing management objectives to reduce conifer encroachment in riparian and meadow habitats and to enhance riparian hardwood growth (e.g.,

Blackwood Creek project). Effects of this conifer forest conversion on common and sensitive biological resources are discussed in Section 3.5, "Biological Resources".

To establish additional context in which to consider the magnitude of project-generated construction-related GHG emissions, it may be noted that facilities (i.e., stationary, continuous sources of GHG emissions) in California that generate greater than 25,000 metric tons of CO_2 per year are mandated to report their GHG emissions to the California Air Resources Board (ARB) pursuant to AB 32. As shown in Table 3.16-3, estimated GHG emissions associated with construction of the project would be a maximum of 974 metric tons of CO_2 per year under the conditions for the highest emitting alternative (Year 1 [2012] of Alternative 2).

The project would generate substantially less emissions than the ARB reporting level of 25,000 metric tons of CO_2 per year and the cap-and-trade level of 10,000 metric tons of CO_2 per year set by AB 32. This information is presented for informational purposes only, and it is not the intention of State Parks to adopt 25,000 or 10,000 metric tons of CO_2 per year as a numeric threshold. Rather, the intention is to put project-generated GHG emissions in the appropriate context to evaluate whether the project's contribution to the global impact of climate change is considered substantial.

Table 3.16-3
Summary of Modeled Construction-Generated Emissions of Greenhouse Gases under the Conditions for the Highest Emitting Alternative (Alternative 2)

Source	Total Mass CO_2 Emissions (metric tons)[1]
Construction Emissions [2]	
2012	608
2013	613
2014	562
Total Construction Emissions (2012-2014)	**1,783**

[1] The values presented do not include the full life-cycle of GHG emissions that occur over the production/transport of materials used during construction of the project, solid waste that occurs over the life of the project, and the end-of-life of the materials and processes that indirectly result from the project. Estimation of the GHG emissions associated with these processes would be speculative, would require analysis beyond the current state of the art in impact assessment, and may lead to a false or misleading level of precision in reporting of project-related GHG emissions.

[2] Construction emissions were modeled with the URBEMIS 2007 computer model. The URBEMIS 2007 model does not account for CO_2 emissions associated with the production of concrete or other building materials used in project construction. It also does not estimate emissions for GHGs other than CO_2, such as CH_4 and N_2O, because the emission levels of these other GHGs are expected to be nominal in comparison to the estimated CO_2 levels despite their higher global warming potential.

See Appendix I, "Air Quality Modeling Results," for detailed model input, assumptions, and threshold calculations.

Source: Modeling conducted by AECOM 2009.

Operation-Related GHG Emissions

Operation-related GHG emissions would be generated by area and mobile sources during the life of the project. Area-source GHG emissions would be associated with landscaping and maintenance largely related to golf course lawn mowing, waste disposal, and other miscellaneous activities, under Alternatives 1–4, and potential GHG operation emissions under Alternative 5 would be evaluated under a separate planning process after site uses have been established. Existing maintenance and fuels reduction programs would continue as they do today under the No Project/No Action Alternative and all action alternatives. As described below, the largest, albeit minor, increase in emissions would occur under Alternative 2 with the relocation of nine holes of the golf course and development of a reconfigured regulation-length, 18-hole course. GHG emissions associated with off-site electricity generation would be similar to existing conditions under all alternatives. Municipal water use would generate off-site GHG emissions associated with water conveyance, treatment, and consumption; however, water usage is expected to be similar to or less than existing conditions under all alternatives and, therefore, would not create a substantial increase in GHG emissions. Mobile-source GHG emissions would be generated by the slight

increase in project-related vehicle trips associated with Alternative 2. All other alternatives have vehicle trip levels similar to or less than existing conditions. Table 3.16-4 presents the operation-related GHG emissions associated with Alternative 2, the highest emitting alternative. Estimates of mobile-source GHG emissions are based on the traffic analysis prepared for the project, which estimates nine additional trips per day under Alternative 2, compared to existing conditions, which are associated with an increase of four employees needed for golf course maintenance. Based on the economic study prepared for this project, patron levels are expected to remain approximately the same as current levels because the golf course would operate the same as under existing conditions, and recreation areas would continue to be passive.

Each action alternative would create a net increase in riparian tree abundance, cover, and productivity as a result of geomorphic, floodplain, and SEZ restoration. However, this increase in riparian vegetation would be limited under Alternative 4 due to stabilization of the river. As discussed under construction related emissions, tree removal would vary by alternative, and other past, present and reasonably foreseeable fuels management projects will be implemented throughout the South Lake Tahoe area and the entire Lake Tahoe Basin as part of State Parks' and USFS existing management objectives. Net sequestration rate effects would vary depending on vegetation removed compared with vegetation habitat restored. Quantification is not feasible without accurate counts of vegetation types, age, and size to be added and removed by implementation of the projects and their respective sequestration rates, but it can be assumed that with increased riparian vegetation, and healthier forest conditions related to ongoing fuels management practices (therefore, less fire potential) carbon sequestration capabilities would be similar to existing conditions. Furthermore, the areas within the proposed golf course footprint under Alternative 2, where trees removed will be replaced by turf will still have some capability to sequester carbon, and even more so where native vegetation is proposed. However, the lack of capability for a detailed analysis remains too speculative for a meaningful significance conclusion.

As described in the construction related emissions, projects that generate more than 25,000 metric tons of CO_2 per year are mandated to report GHG emissions to ARB pursuant to AB 32. As shown in Table 3.16-4, the estimated increase in GHG emissions associated with operation of Alternative 2 would be approximately 12 metric tons of CO_2 per year. Again, the proposed project would generate substantially fewer emissions than the above-referenced threshold levels of 25,000 and 10,000 metric tons of CO_2 per year.

Table 3.16-4
Summary of Modeled Operation-Related Emissions of Greenhouse Gases under the Conditions for the Highest Emitting Alternative (Alternative 2)

Source	Annual Mass CO_2 Emissions (metric tons/year)
Operation-Related Emissions of Alternative 2 (Year 2014)	
Area Sources [1]	0.3
Mobile Sources [1, 2]	11.5
Electricity Consumption [3]	0
Municipal Water Use [4]	0
Total Operation-Related Emissions'	**11.8**

[1] Direct operation-related emissions (i.e., area and mobile sources) were modeled using the URBEMIS 2007 computer model, based on trip generation rates obtained from the traffic analysis, as well as the other assumptions and input parameters used to estimate criteria air pollutant emissions. Mobile source emissions assume nine trips per day above existing conditions. Year 2013 is the earliest year when completion of the project could occur. URBEMIS does not estimate emissions for GHGs other than CO_2, such as CH_4 and NO_2, because the emission levels of these other GHGs are expected to be nominal in comparison to the estimated CO_2 levels despite their higher global warming potential.

[2] Estimation of mobile-source emissions is based on the traffic study, which assumes four additional employees per day (nine additional trips).

[3] No additional substantial electricity consumption is expected under any of the alternatives.

[4] No additional substantial water consumption is expected under any of the alternatives.

See Appendix I, "Air Quality Modeling Results," for detailed model input, assumptions, and threshold calculations.

Source: Modeling conducted by AECOM 2009

Because construction and operation related emissions under all alternatives would be temporary, minimal, and finite in nature (i.e., would not be continuing), would not approach emissions levels of concern to agencies that have established emission reporting levels, the project proposes to reuse removed vegetation and revegetate and mulch where appropriate, and because carbon sequestering affects are too speculative for a meaningful significance conclusion the project's GHG effects would not be a considerable contribution to the cumulative condition.

Mitigation Measure 3.16-28: Cumulative Air Quality – Develop and Implement a Carbon Sequestering Plan for Project Related Tree Removal

Project construction will be handled in a manner that either extends the duration of its sequestration function (i.e., chip and used as mulch or till into soils) or is used for renewable energy purposes thereby minimizing landfill disposal or open burning of woodpiles.

With implementation of the mitigation measure 3.16-28, described above, Impact 3.16-28 would be less than significant by minimizing effects on carbon sequestering and GHG emissions.

IMPACT 3.16-29 (All Alts.) Cumulative Noise – Short-Term or Long-Term Noise and Vibration Impacts. *Project-generated noise and vibration under the action alternatives would not combine with other noise sources in the project vicinity because construction noise and vibration would be temporary, would be at less-than-significant levels, and would occur within time periods exempted by applicable ordinances (i.e., daytime hours), and long-term noise would be similar to or less than current conditions, depending on the alternative selected. Therefore, the project in combination with other projects would not result in a significant cumulative impact on noise. This cumulative impact would be* ***less than significant****.*

Alternative 1 would not include any new stationary or area-noise sources. Use of the study area (e.g., golf course and passive recreation areas) would remain comparable to existing use. Heavy equipment and power tools (e.g., chainsaws, wood chippers) would continue to be used for public utility maintenance and fuels reduction programs. Lawn mowing, golfing activities, recreation, and other miscellaneous activities would continue as they do today. Thus, noise and vibration from implementing Alternative 1 would remain comparable to existing levels and not contribute to a significant cumulative noise or vibration impact. This impact would be less than significant. Implementing any of the action alternatives would generate noise from construction activity and project-generated construction traffic. A reasonably foreseeable project in the vicinity of the study area (e.g., Sawmill Bike Trail) also could generate construction-related noise; however, for several reasons, implementing any of the action alternatives would not make a considerable contribution to an overall significant effect on noise in either the short term or the long term. First, construction-related noise generated by any of the action alternatives would not exceed applicable regulations. Noise from construction activity that occurs between 8 a.m. and 6:30 p.m. (daily) is exempt from the provisions of the applicable TRPA regulations; noise from construction activity that occurs between 7 a.m. and 7 p.m. (weekdays) and between 8 a.m. and 5 p.m. (weekends and Federal holidays) is exempt from the provisions of the applicable El Dorado County regulations because noise sensitivity is less during these daytime periods than during quieter evening, nighttime, or early morning hours. Because noise-generating construction activities would not occur during the more noise-sensitive hours (i.e., before 8 a.m. and after 6:30 p.m. on weekdays or after 5 p.m. on weekends or Federal holidays) and project-generated construction traffic would not create a substantial increase in average local traffic noise levels (+3 dB or more), implementing any of the action alternatives would not contribute to any overall effect on noise that could be cumulatively significant in the short term. Second, implementing any of the action alternatives would not result in any substantial, ongoing postconstruction increase in noise because the land uses in the study area would be similar to current conditions following project implementation and because both traffic and area noise sources would not increase substantially (Alternative 2), would remain at existing levels (Alternatives 3 and 4), or would be reduced (Alternative 5). As calculated for Alternative 2, the action alternative with the greatest change in noise generation, the worst-case estimate for community noise level would be 44.6 dBA CNEL, an increase of 1.3 dBA CNEL, which is below the level of increase of perceptible change and well within the most stringent noise

standard for land uses in the vicinity of the study area. Therefore, implementing any of the action alternatives in combination with other related projects would not result in a significant short-term or long-term cumulative effect on noise. This cumulative impact is less than significant.

No additional mitigation is required.

IMPACT 3.16-30 (All Alts.) Cumulative Public Services and Utilities – Increased Demand for and Interference of Public Services and Utilities. *None of the alternatives would generate significant public service or utility demands. Implementing any of the action alternatives would not make a considerable contribution to an overall significant impact on traffic in either the short term or the long term. However, during construction, the presence of construction traffic and access interruptions could potentially hinder the ability of law enforcement, fire protection, and emergency medical service providers to provide emergency services to the project vicinity in a timely manner. In addition, other projects occurring at the same time in the project vicinity could also hinder emergency response time. This project's impact would be avoided with planned traffic controls, alternative access routes, and other information presented in a Construction Traffic Management Plan. Furthermore, other projects in the vicinity would be required to coordinate any potential construction related interference with the appropriate entities. Therefore, the project in combination with other projects would not result in a considerable contribution to a cumulative effect on public services and utilities. Thus, this cumulative impact would be* ***less than significant****.*

Implementation of Alternatives 1–5 would not generate substantial demands for any public service or utilities and therefore would not result in a cumulatively considerable incremental contribution to local agency or utility demand. Although implementing Alternative 2 or 4 would result in a minor increase in electrical, water, and wastewater service use with addition of the restroom facility and lighting for the parking area improvements, the services needed would be minimal and would not create supply, treatment, distribution, or storage issues on the local water or electrical systems. Restored floodplain and riparian vegetation would need temporary irrigation; however, this use would be seasonal, would be short term, and would not be sufficient enough to increase water demand beyond that currently available.

Although implementing any of the action alternatives would not make a considerable contribution to an overall significant impact on traffic in either the short term or the long term, it could potentially lead to temporary interference with the ability of law enforcement, fire protection, and emergency medical service providers to provide emergency services to the project vicinity in a timely manner, especially if other reasonably foreseeable projects were to occur at the same time in the project vicinity. However, as described in Section 3.13, "Public Services and Utilities," controls planned as part of each action alternative (Mitigation Measure 3.13-1) would be implemented, including preparation of a Construction Traffic Management Plan, notification of public service providers, and provision of emergency routes, where potential access issues may occur. Furthermore, other projects in the vicinity would be required to coordinate any potential construction related interference with the appropriate entities as well. These planned actions would reduce the contribution of the project to a less than considerable level by avoiding the potential for interference with public service or emergency access.

No additional mitigation is required.

IMPACT 3.16-31 (All Alts.) **Cumulative Public Health and Risk of Upset – Potential Human Health Hazards from Exposure to Hazardous Materials, Wildland Fire Hazards, Mosquitoes Resulting from Increased Floodplain, and Increased Hazards to Aviation.** *In the short term, implementing any of the action alternatives (Alternatives 2–5) could expose construction workers to hazardous materials, and in the long term, implementing Alternative 2, 3, or 5 could increase the quality or extent of mosquito habitat or both. However, limiting exposure of workers to hazardous materials and controlling mosquito production in the study area as part of alternative development would reduce these effects to a less-than-significant level. Other projects occurring in the project vicinity would also be in compliance with Federal, State, and local regulations related to hazardous materials and would not substantially increase mosquito habitat. In addition, although past projects have created a significant wildland fire hazard condition and other projects could increase hazardous wildlife in the airport safety area, implementing any of the action alternatives in the short term or long term would not add to the existing wildland fire hazards or increase in hazardous wildlife in the airport safety area. Therefore, implementing the project in combination with other projects would not make a considerable contribution to a cumulative impact on public health. This cumulative impact would be less than significant.*

Hazardous Materials

In the short term, implementing any of the action alternatives (Alternatives 2–5) could expose construction workers to hazardous materials. However, limiting exposure of workers to hazardous materials (Mitigation Measure 3.14-2 [Alt. 2]) as part of alternatives development by evaluating, removing, and properly disposing of any hazardous substances that are encountered during construction would reduce hazards associated with the project alternatives but would not eliminate the risk of construction workers being exposed to hazardous materials. However, the remaining risk would not contribute to a greater overall cumulative impact because other construction activities would not occur in the same place or at the same time, and they would not involve the same workers. Furthermore, other projects occurring in the project vicinity would also be in compliance with Federal, State, and local regulations. Thus, implementing any of the action alternatives would not make a cumulatively considerable contribution to human health hazards from exposure to hazardous materials and would not cause a cumulatively significant effect.

Implementing any of the action alternatives would have no long-term effect on human health hazards from exposure to hazardous materials because following project implementation, the land uses of the study area and potential for exposure to hazardous materials would be similar to current conditions, and there would be no change from current conditions in the transport, use, release, or disposal of hazardous materials.

Under the No Project/No Action Alternative, on-site construction and operational equipment would continue to operate as it does today (e.g., for golf course mowing, fuels management); thus, the use of hazardous materials would remain comparable to current conditions. Potential emergency construction would be conducted as necessary. However, the nature and extent of these activities are unknown and would not be a direct result of implementing this alternative. The remaining risk would not contribute to a greater overall cumulative impact because other construction activities would not occur in the same place and they would not concurrently involve the same workers. Therefore, there would not be a short-term or a long-term contribution to human health hazards from the exposure of construction workers to hazardous materials.

Wildland Fire Hazards

Although the combined effect of reasonably foreseeable future actions would be expected to reduce wildland fire hazards, this anticipated reduction would not eliminate the significant adverse risk of wildland fire hazards that exists as a result of past actions (e.g., past fire suppression and other forest land management that has allowed fuels to accumulate, urban development in a forested landscape). In both the short and long term, implementing any of the action alternatives would not add to the existing wildland fire hazards. As mandated by the fire prevention and suppression policy in the *Lake Valley State Recreation Area General Plan*, a wildfire management

plan has been implemented for Lake Valley SRA and Washoe Meadows SP. The plan identifies modified fire suppression methods that preserve sensitive unit resources while protecting human lives and property specific to these areas (State Parks 2006). Implementation of the wildfire management plan would eliminate any cumulatively considerable contribution of the action alternatives to wildland fuel hazards; thus, there would not be a cumulatively significant effect.

Under the No Project/No Action Alternative, State Park's recent fuel management practices are anticipated to continue and to maintain fuels and fire risks at a level comparable to existing conditions. Thus, there would not be an effect on wildland fire hazards individually or in combination with other projects as a result of implementing this alternative.

Hazards to Aviation

In the short term, construction activity associated with implementing any of the action alternatives (Alternatives 2–5) would reduce attraction of hazardous wildlife to the study area. Therefore, no short-term contribution to cumulative wildlife hazards to aviation would occur.

There are no records of bird-related air strikes in the FAA Birdstrike Database, and no airport staff members recall any bird-related air strikes (CDM 2007). In addition, habitat management, open space, recreational uses, and watershed improvement projects are considered compatible land uses in the airport Comprehensive Land Use Plan (City of South Lake Tahoe 2007).

Several other reasonably foreseeable river restoration projects are located in or close to the Critical Zone of the Lake Tahoe Airport, including the Upper Truckee River Middle Reaches 1 and 2 Stream Restoration Project, Upper Truckee Middle Reaches 3 and 4 Restoration Project, Sunset Stables Restoration Project, and Upper Truckee River and Marsh Restoration Project. Although implementation of these projects may not result in greater attraction of hazardous wildlife, most would increase floodplain inundation and the extent of riparian or wet meadow habitats and thus could increase attraction of one or more guilds of hazardous wildlife.

With the exception of Alternative 4, implementing any of the action alternatives would involve modifying the river channel and floodplain to reestablish an active floodplain and oxbow features that would receive overbank flows more often than under existing conditions. Implementing Alternative 4 would stabilize the river but would not create new floodplain. Implementing Alternative 2, 3, or 5 would increase the size of the floodplain in Airport Safety Area 3 by a small amount over existing conditions; however, most of the increase in floodplain size would be outside of the airport safety area. Because the increase in floodplain size in the airport safety area would be small, it is not anticipated that implementing the proposed project would noticeably increase the amount of hazardous wildlife in Airport Safety Area 3 relative to existing conditions. Therefore, implementing Alternative 2, 3, or 5 would not make a considerable contribution to an increase in hazardous wildlife in the airport safety area and would not result in a cumulatively significant effect.

Under Alternative 1 or 4, habitat conditions for hazardous wildlife would likely remain similar to existing conditions; thus, implementing any of these alternatives would not make a considerable contribution to a cumulative impact on hazards to aviation.

Mosquito Vector Control

In the short term, implementing any of the action alternatives (Alternatives 2–5) would not increase the quality or extent of mosquito breeding habitat and would not reduce the effectiveness of mosquito control efforts because areas disturbed by construction activities would provide less suitable habitat for mosquito breeding than the river channels and other natural vegetation currently provided.

In the long term, implementing Alternative 2, 3, or 5 could increase the quality or extent of mosquito habitat or both. Other restoration actions on the Upper Truckee River could also contribute to a cumulative adverse effect on

mosquito vector control that could be additive with the effects of the proposed project. However, through development and implementation of control measures in coordination with the El Dorado County Vector Control District (EDCVCD) as part of alternatives development (Mitigation Measure 3.14-6), mosquito production in the study area would be limited to an amount comparable to or less than existing conditions. Therefore, implementing any of the action alternatives would not make a considerable contribution to effects on mosquito vector control and thus would not result in a cumulatively significant impact.

Under Alternative 1 or 4, it is anticipated that the quality and extent of mosquito habitat in the study area would remain similar to existing conditions and that the EDCVCD would continue its control mosquito production in the study area. Thus, these alternatives would not make a considerable contribution to a cumulative impact on mosquito vector control.

No additional mitigation is required.

IMPACT 3.16-32 (All Alts.) Cumulative Population, Employment, and Housing – Potential Adverse Effects on Population, Employment, or Housing. *Implementing the No Project/No Action Alternative would have no effect on population, employment, and housing. Any of the action alternatives (Alternatives 2–5), together with other construction projects, would generate a temporary increase in employment in the South Lake Tahoe area from construction-related activities. However, this increase would be small relative to the existing labor pool in the City of South Lake Tahoe and nearby communities, and thus, it would not be a considerable contribution to cumulative effects on population growth or on demand for housing. This cumulative impact would be* ***less than significant****.*

Implementing the No Project/No Action Alternative would not contribute to any population, employment, and housing impacts because existing conditions would not be altered; therefore, implementing this alternative would not make a considerable contribution to a cumulative impact on population, employment, or housing.

Similar to Alternatives 2–5, other cumulative projects could involve short-term increases in population and employment and potentially would create a short-term need for additional housing because of the need to hire and house construction workers. Impacts on population, employment, and housing are identified as less than significant under Alternatives 2–5 because none of the alternatives would include population-generating land uses, which would create the need for new housing, and because the increase in employment associated with construction, although beneficial, would not be of great enough magnitude to substantially alter population patterns or housing demand. Furthermore, other foreseeable projects in the project vicinity are not expected to substantially alter the population patterns or housing demand. Therefore, none of the action alternatives would make a considerable contribution to a cumulative impact on population, employment, or housing.

No additional mitigation is required.

IMPACT 3.16-33 (All Alts.) Cumulative Environmental Justice – Potential Adverse Effects on Environmental Justice. *Under the No Project/No Action Alternative, existing conditions would be maintained, and as a result, implementing this alternative would not make a considerable contribution to a cumulative environmental justice impact. For Alternatives 2–5, there is no indication that either the construction or the operation of the alternatives would affect identified minority or low-income populations to a greater degree than the general population of the surrounding area. Therefore, no cumulative effects on minority and low-income populations would occur. This cumulative impact would be* ***less than significant****.*

Under the No Project/No Action Alternative, no changes would occur, and existing conditions would be maintained. As a result, implementing this alternative would not make a considerable contribution to a cumulative impact on environmental justice.

For Alternatives 2–5, there is no indication that either the construction or the operation of the alternatives would affect identified minority or low-income populations to a greater degree than the general population of the surrounding area. Potential short-term impacts, such as construction emissions and elevated noise levels, would not have a disproportionately adverse impact on low-income or minority populations. Potential impacts would affect the general population in the surrounding area, not just low-income or minority populations. No significant long-term or short-term disproportionate adverse impacts on low-income or minority populations would result from implementation of Alternatives 2–5. For this reason, implementing any of these alternatives would cause no cumulative impact related to environmental justice.

No additional mitigation is required.

This page intentionally left blank.