TAHOE SIERRA INTEGRATED REGIONAL WATER MANAGEMENT PLAN

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A coordinated effort towards the protection and enhancement of water resources throughout Alpine County, California-Tahoe, and Truckee.

Prepared in partnership by:

TAHOE RESOURCE CONSERVATION DISTRICT

Contributors to this Plan

The Tahoe Sierra Plan was developed in cooperation by the following partners:

Alpine County
Alpine County Watershed Group
California Tahoe Conservancy
City of South Lake Tahoe
El Dorado County
Lake Tahoe Unified School District
Markleeville Water Company
Sierra Watershed Education Partnerships
South Tahoe Public Utility District
Squaw Valley Public Service District
Tahoe City Public Utility District
Tahoe Regional Planning Agency
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Tahoe Truckee Unified School District
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INTRODUCTION

Recognizing the value of coordinating water management, planning and implementation activities within the Tahoe Sierra region of Truckee River Watershed, the California-Tahoe Basin, and the Carson River Watershed, 16 public agencies, special districts, non-profit environmental organizations, and educational institutions came together as the Tahoe Sierra Regional Water Management Group (Tahoe Sierra Group) in order to:

- Foster a collaborative water management planning environment;
- Promote integration of water management across geographies of the region;
- Recommend priorities for implementation projects;
- Cooperatively apply for and obtain funding for implementation projects;
- Revise and update the Tahoe Sierra IRWM Plan as needed; and,
- Communicate the best available information to decision makers, stakeholders and the public.

The 16 Tahoe Sierra Group partners are:

- Alpine County
- Alpine County Watershed Group
- City of South Lake Tahoe
- El Dorado County
- Lake Tahoe Unified School District
- Markleeville Water Company
- Sierra Watershed Education Partnerships
- South Tahoe Public Utility District
- Squaw Valley Public Service District
- Tahoe City Public Utility District
- Tahoe Regional Planning Agency
- Tahoe Resource Conservation District
- Tahoe Truckee Unified School District
- Town of Truckee
- Truckee River Watershed Council
- UC Davis Tahoe Environmental Research Center

Through the Tahoe Sierra Group partnership, this Tahoe Sierra Integrated Regional Water Management Plan (Tahoe Sierra Plan) was developed. Adopted by the majority of partners before June 2006 through a Memorandum of Understanding (Appendix B), the Tahoe Sierra Plan integrates a set of coordinated strategies for the management of water resources and for the implementation of projects that protect our Tahoe Sierra communities from drought, protect and improve water quality and improve local water security.

The Tahoe Sierra Plan and MOU are in reference to Proposition 50, the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002, which was passed by

California voters in November 2002. It amended the California Water Code (CWC) to add, among other articles, § 79560 et seq. authorizing the Legislature to appropriate $500 million for Integrated Regional Water Management (IRWM) projects. The intent of the IRWM Grant Program is to encourage integrated regional strategies for management of water resources and to provide funding, through competitive grants, for projects that protect communities from drought, protect and improve water quality, and improve local water security by reducing dependence on imported water. The IRWM Grant Program is administered jointly by the Department of Water Resources (DWR) and the State Water Resources Control Board (State Water Board) and is intended to promote an integrated and regional approach to water management.

The Tahoe Sierra Plan is an integrated regional water management plan based on historical research and development of other water management planning, land use planning and other pertinent planning documents within the region. The full list of these planning documents can be found in Table 1 below. By integrating these regional planning documents, the Tahoe Sierra Plan addresses the following water management strategies:

- Water supply reliability
- Groundwater management
- Water quality protection and improvement
- Water recycling
- Water conservation
- Storm water capture and management
- Flood management
- Recreation and public access
- Ecosystem restoration
- Wetlands enhancement and creation
- Environmental and habitat protection and improvement
- Conjunctive use
- Land use planning
- NPS pollution control
- Surface storage
- Watershed planning
- Water and wastewater treatment
- Water transfers

Table 1. illustrates the water management strategies that each existing planning document contributed to the development of the Tahoe Sierra IRWMP.

Table1.

Tahoe Sierra Existing Adopted Regional Planning Documents	**Water Management Strategies**
Basin Plan	Ecosystem restoration, Environmental and habitat protection and Improvement, Water supply reliability, Flood management, Groundwater management, Recreation and public access, Storm water capture and management, Water conservation, Water quality protection and improvement, Water recycling, Wetlands enhancement and

	creation, Land use planning, NPS pollution control, Surface storage, Watershed planning, Water and wastewater treatment, and water transfers
Regional Plan	Ecosystem restoration, Environmental and habitat protection and Improvement, Recreation and public access, Storm water capture and management, Water conservation, Water quality protection and improvement, Wetlands enhancement and creation, Land use planning, NPS pollution control, Watershed planning, and Water and wastewater treatment
208 Plan	Ecosystem restoration, Environmental and habitat protection and improvement, Storm water capture and management, Water quality protection and improvement, Wetlands enhancement and creation, Land use planning, NPS pollution control, Watershed planning, and Water and wastewater treatment
STPUD UWMP	Water supply reliability, Water conservation, Water quality protection and improvement, and Water and wastewater treatment
STPUD GWMP	Groundwater management, water recycling, and Water and waste water treatment
Placer County Martis Valley GWMP	Water supply reliability, Groundwater management, Land use planning
Squaw Valley PSD ♦ Squaw Valley Groundwater Development & Utilization Feasibility Study ♦ Groundwater Management Support Activities ♦ Groundwater Management Support Activities Groundwater Characterization Report	Water supply reliability, Groundwater management, Water quality protection and improvement, Water conservation, Environmental and habitat protection and improvement, Land use planning
Coordinated Watershed Management Plan (Truckee River Watershed)	Water quality protection and improvement, Storm water capture and management, Recreation and public access, Ecosystem restoration, Environmental and habitat protection and improvement, Land use planning, NPS pollution control, Watershed planning

Alpine County Natural Hazards Mitigation Plan	Water supply reliability, Flood management, Storm water capture and management, Water conservation, Water quality protection and improvement, Water recycling, Water and wastewater treatment
Alpine County General Plan	Environmental and habitat protection and Improvement, Water supply reliability, Flood management, Groundwater management, Wetlands enhancement and creation, Land use planning, Water and wastewater treatment
Markleeville Downtown Revitalization Plan	Ecosystem restoration, Environmental and habitat protection and Improvement, Water supply reliability, Flood management, Recreation and public access, Water quality protection and improvement, Land use planning,

The unifying regional planning document for the Tahoe Sierra region is the adopted Water Quality Control Plan for the Lahontan Region (Basin Plan) because its reach covers the entire Tahoe Sierra Plan region. The other regional planning documents integrated by the Tahoe Sierra Plan address water management strategies appropriate to their regional authority and jurisdiction. All 11 reference plans are incorporated in this plan by reference and included in Section M—Relation to Local Planning. Any amendments, modifications or changes to the Lahontan Basin Plan will be assessed for its impact to the Tahoe Sierra Plan. If amendments to the Tahoe Sierra Plan are necessary, the Tahoe Sierra Group will organize those changes as discussed in Section F.

SECTION A

Regional Water Management Group

The Tahoe Sierra Regional Water Management Group (Tahoe Sierra Group) is comprised of 16 public agencies, special districts, non-profit environmental organizations, and educational institutions. The lead agency role is shared by all partners by MOU agreement and implementation of the plan is the responsibility of each partner agency's designated representative. As the Tahoe Sierra Group designed the IRWMP as a "living" document with the ability to respond to regional water management changes as appropriate, the agencies that comprise the Group will designate lead agency roles as necessary. Tahoe Resource Conservation District acted as the lead agency and designated applicant for the Proposition 50 IRWMP Funding Round 1 Application process and is responsible for executing grant agreements, tracking partner progress, and ensuring plan implementation for that funding round.

South Tahoe Public Utility District is acting as the lead agency for Proposition 50 IRWMP Funding Round 2 and is responsible for direct implementation of the plan for projects proposed to be implemented under this funding source.

Tahoe Sierra Group members include:

- Alpine County
- Alpine County Watershed Group
- City of South Lake Tahoe
- El Dorado County
- Lake Tahoe Unified School District
- Markleeville Water Company
- Sierra Watershed Education Partnerships
- South Tahoe Public Utility District
- Squaw Valley Public Service District
- Tahoe City Public Utility District
- Tahoe Regional Planning Agency
- Tahoe Resource Conservation District
- Tahoe Truckee Unified School District
- Town of Truckee
- Truckee River Watershed Council
- UC Davis Tahoe Environmental Research Center

Alpine County

Alpine County Board of Supervisors is responsible for developing all policies and procedures for water management within the county and is currently commissioning a Groundwater Management Plan to address future development. The county has only 1208 residents and does not have any incorporated cities. All four community centers

within the county have approximately 200 residents and are served by small public water and sewer agencies, most staffed by volunteers only. Alpine County has the headwaters for the Carson River which provides the drinking water for the county's western slope communities.

Alpine County Watershed Group

The Alpine County Watershed Group works to preserve and enhance the natural system functions of Alpine County's watersheds for future generations. The Group works by inspiring participation to collaborate, educate, and proactively implement projects that benefit and steward the County's watersheds.

City of South Lake Tahoe

The City of South Lake Tahoe is responsible for implementing Environmental Improvement Projects in their jurisdiction for water quality improvement.

El Dorado County

El Dorado County Water Agency was formed by a special act of Legislature in 1959. Among its authorities are the power to contract for water and to finance and construct, operate, and maintain works for the storage and transmission of water. The County is also responsible for implementing Environmental Improvement Projects in the Tahoe Basin for water quality improvement.

Lake Tahoe Unified School District (LTUSD)

LTUSD maintains its properties to achieve compliance with Lahontan RWQCB and TRPA stormwater runoff regulations. In addition, the District is committed to providing watershed education to students throughout its eight schools.

Markleeville Water Company

Markleeville Water Company is a publicly owned water company responsible for surface water production through the Carson River for the town of Markleeville in Alpine County. The agency is fully volunteer staffed.

Sierra Watershed Education Partnerships (SWEP)

Since 1994, SWEP's mission is to promote environmental stewardship by connecting students to their community and local environment through comprehensive watershed education and service-learning. SWEP partners with environmental professionals to implement student-scale water quality improvement projects that result in students, teachers and parents being more informed about water quality issues, as well as students using the knowledge and skills to take positive water quality action in their homes and in the community. By connecting teachers and students to active environmental projects in the community, students participate in authentic environmental monitoring, restoration and public outreach while meeting content standards adopted by the California State Board of Education.

South Tahoe Public Utility District (STPUD)

STPUD is a regional water management and provider agency serving over half the population of the Lake Tahoe Basin since 1950.

Squaw Valley Public Service District

Squaw Valley Public Service District (SVPSD) is a Special District located in Olympic Valley, which is in Eastern Placer County, California. It was organized under the provisions of Division 12 of the Water Code, Section 30000, and Incorporated in the State of California March 30, 1964. SVPSD water management responsibilities are enabled by the Code. SVPSD was originally called the Squaw Valley County Water District; however, the name was changed to SVPSD on January 1, 1998, in order to more fully portray the varied services SVPSD renders. SVPSD is governed by a five-member Board of Directors. SVPSD provides a potable water system and service to approximately 663 customers. SVPSD provides sewer collection service to approximately 967 customers. SVPSD is also responsible for the administration of the Squaw Valley Fire Department and bills annually for garbage service.

Tahoe City Public Utility District (TCPUD)

TCPUD is a Special District located in Tahoe City, CA in the Lake Tahoe Basin with 10,800 water and sewer customers. It is governed by a five member Board of Directors.

Tahoe Regional Planning Agency (TRPA)

TRPA is a regional water quality management agency created by the US Congress in 1969. TRPA's jurisdictional boundaries include the Lake Tahoe Basin and Lake Tahoe. TRPA regulates land development and is charged with meeting environmental threshold carrying capacities, including thresholds for surface water and groundwater quality.

Tahoe Resource Conservation District (TRCD)

TRCD was created by the California Legislature in 1974 to address specific resource conservation needs related to water and water quality. TRCD provides technical assistance for soil and water conservation, control of runoff, prevention and control of soil erosion and stabilization, protection of water quality and reclamation, and the development of storage and distribution of water and treatment to the California-Tahoe basin.

Tahoe Truckee Unified School District (TTUSD)

The TTUSD has performed a number of projects at all of its sites related to installing and maintaining BMP's that improve the quality of water leaving the school sites in order to achieve compliance with Lahontan RWQCB and TRPA stormwater runoff regulations. The TTUSD along with other Tahoe school districts is committed to providing watershed education to students at all of its schools.

Town of Truckee

The Town of Truckee is an incorporated municipality with an area of 34 sq. miles. The Town is responsible for providing general governmental services, police protection, land use planning, building compliance, housing, animal control, road maintenance and snow removal. The Town regulates private development and land use within the Town and

enforces standards related to grading, drainage and the protection of water quality established by the California Building Standards and the Truckee Development Code.

Truckee River Watershed Council (TRWC)
The Truckee River Watershed Council was founded as a non-profit corporation in May 1998 to design and implement locally developed public-private collaborative solutions to protect and improve water quality and biological resources for the sustainable environmental and economic health of the Truckee River watershed. The TRWC relies on voluntary participation in its programs and has no regulatory or management responsibilities.

UC Davis Tahoe Environmental Research Center (TERC)
The UC Davis Tahoe Environmental Research Center is a research organization providing scientific input to natural resource agencies.

Seven of the Tahoe Sierra Regional Water Management Group member agencies have statutory authority over water management: Tahoe Regional Planning Agency (TRPA), South Tahoe Public Utility District (STPUD), El Dorado County, Squaw Valley Public Service District, Town of Truckee, Tahoe City Public Utility District and Alpine County.

All Tahoe Sierra Group partners listed above participated in the development of their own water management plans, of which 11 were selected to help develop the Tahoe Sierra IRWM Plan. The Tahoe Sierra Group partners worked together to develop the Plan, meeting routinely to determine which plan objectives, water management strategies, and project priority lists from the 11 existing local and regional plans were appropriate candidates for integration into the Tahoe Sierra Plan. The product of this effort is demonstrated throughout the Tahoe Sierra Plan, specifically in Section C Objectives, Section D Water Management Strategies, and Section G Implementation. In addition, all partners in the Tahoe Sierra Group outreached to their communities, solicited public comments, placed the draft Tahoe Sierra Plan at local libraries, presented the Tahoe Sierra Plan at two local Earth Day events and open Board meetings, shared the Tahoe Sierra Plan on the TIIMS website (www.tiims.org), and circulated newsletters, PSAs, and newspaper advertisements to involve the public, ask for comments, and provide transparency to the integrated regional water management planning effort.

Finally, there is a deep history of collaboration among many members of the Tahoe Sierra Group for both planning and project implementation efforts. A major collaborative partnership formed in 2004 when several of the entities undertook a collaborative grant application for California Prop 13 funds. This successful grant involves a thriving partnership in support of water quality management with TRCD, TRPA, Lake Tahoe Environmental Education Coalition and SWEP. These grant funds allowed the implementation of a variety of collaborative NPS pollution control projects as well as collaborative planning efforts. Throughout the effort to secure the Prop 13 grant, related plans that were developed under previous grants and with other funding sources were brought into further alignment. This collaborative planning effort was taken a step further in the formulation of the Tahoe Sierra Plan, as partners have and

continue to meet regularly in order to enhance communication, ensure plan alignment, and provide support for project coordination. In addition, three of the partners received an Integrated Water Management grant under Proposition 40 in 2006 and collaborate currently on implementing several of the projects that are listed in the IRWMP. Many of the water agencies are also collaborating on funding sources from the Army Corp of Engineers and utilize the Tahoe Sierra IRWMP to help choose the priority projects for implementation with these funds. For instance, waterline replacement projects for all the Tahoe Basin water agencies was chosen as the first priority to implement based on three water management strategy goals—water conservation, water supply reliability and water quality protection and improvement, as well as the ability to provide a regional integrated approach that provides multiple benefits.

SECTION B

Regional Description

The region including the California-Tahoe Basin, Truckee River Watershed and Carson River Watershed is collectively referred to as the Tahoe Sierra Region. The Tahoe Sierra Region is an ideal area for integrated regional water management due to the interconnected nature of the region's hydrology, geography, socio-economy, and the historic sharing of water resources.

Tahoe Sierra Region Hydrology

Hydrologically, Lake Tahoe and the Truckee River Watershed are connected by the headwaters of the Upper Truckee, which eventually drains into the Lake. The Upper Truckee is the largest watershed in the Tahoe Basin, accounting for approximately one-third of the entire Basin area. The Upper Truckee also shares a watershed boundary with the Carson River Watershed in Alpine County.

Tahoe Sierra's water resources provide economic, aesthetic, recreation, and ecologic value to the region. The communities surrounding Lake Tahoe including South Lake Tahoe, Tahoe City, and King's Beach are economically dependent on area visitors to the lake. Home values around Lake Tahoe are some of the highest in the nation, primarily due to the environmental quality of the area and the regulatory restrictions placed on new development. However, Lake Tahoe's unmatched water clarity and overall water quality have steadily deteriorated since the 1960's. Research indicates that Lake Tahoe's clarity will continue to wane at a rate of about one foot per year unless efforts are made to combat non-point source pollution, especially nutrient and sediment loads in surface runoff. In addition, Both the Truckee River and Carson River are renowned for their ecological and recreational value. Healthy, functioning rivers and streams are the bedrock of the small, rural surrounding communities who rely on visitors to support their local businesses. Finally, the use of these water bodies as a water supply source extends far beyond the Tahoe Sierra Plan boundaries. Hundreds of thousands of people downstream, in Reno and Carson Valley, rely on them for drinking and irrigation water.

Tahoe Sierra Geography and Environment

The Tahoe Sierra region is characterized primarily by its location within the northern reaches of the 380-mile Sierra Nevada mountain range. A vast and mountainous rugged area, the Plan region extends from Donner Lake, encompassing the Lake Tahoe Basin, to the rural outpost of Markleeville in Alpine County. Ninety-percent of the Plan region is a forested alpine ecosystem above 5,000 feet in elevation and experiences cold, snowy winters and temperate summers. Spring snowmelt is the primary source of water supply to the Plan region's surface waters and is important for aquifer recharge.

Due to hazardous winter conditions and limited road access, the community centers in the Plan region are isolated, rural, and, from a water supply perspective, self-sufficient. Communities provide their own water supply and do not rely on imported water.

Areas near streams, lakeshores and other wetlands are the most damaged and altered areas of the Tahoe Sierra region. Nearly two-thirds of these riparian areas are privately owned, making it even more important to engage private landowners in water management strategies.

There are a number of internal political boundaries that fall within the Tahoe Sierra Plan region. The coarsest internal boundary is the Lahontan Regional Water Quality Control Board (LRWQCB) jurisdiction, of which the entire Tahoe Sierra Plan region is a part. The second largest boundary is the Tahoe Regional Planning Agency's jurisdiction, which includes the 64 sub-watersheds of the Lake Tahoe Basin and Lake Tahoe. The Tahoe Sierra Plan region boundaries are further defined by Placer, El Dorado, Alpine and Nevada counties and a multitude of municipalities within them. In addition, there are 4 groundwater basin boundaries within the region. The region is a mosaic of land uses, with a majority of property in the public domain. Appendix A (Regional Maps) illustrates the complexity of boundaries within the region. A high number of government agencies are located within the Tahoe Sierra region, many of which have over-lapping jurisdictional boundaries. They range from local governments (i.e., City of South Lake Tahoe and county governments) to regional governments (i.e., Tahoe Regional Planning Agency and Tahoe Resource Conservation District) and state and federal agencies (Lahontan RWQCB, California State Parks, NRCS, and USDA Forest Service). As over-lapping levels of government manage the same land and environmental resources, this political situation has necessarily created an environment of collaboration, cooperation, integration, and the establishment of well-defined regional roles and responsibilities.

Tahoe Sierra Socio-Economy

The Tahoe Regional Planning Agency (TPRA) Regional Plan for the Basin states the "primary function of the region shall be as a mountain recreation area with outstanding scenic and natural values. A study commissioned by the TPRA to assess recreation resource allocation and use estimated the existing base-year (1994/95) demand day visits at 51,572 visits for summer day recreation, 10,500 visits for summer overnight recreation, and 46,917 visits for winter recreation." The study estimated the demand for day visits would increase by more than 13 percent by 2005. Peak summer day population, including overnight and day-use visitors, is nearly 300,000. There are approximately 23,000,000 visitor days per year at Lake Tahoe, which is approximately four times that of Yosemite.

Due to the peak visitor usage, all of the communities in the region are interconnected by a shared tourist-based economy, which attracts visitors from all over the world, principally to enjoy the region's natural and water resources. Many of the year-round residents in the region support themselves with service- and tourist-based occupations. Recent years has seen a dramatic increase in the price of homes and the cost of living in the region, which has not been matched by a similar increase in wages. There is inter-dependence between the economy of the region and the quality of its natural resources. Residents place a high value on ecologically sound and high-quality water resources in order to make a living.

According to the 2000 US Census Bureau census, there are approximately 130,500 Tahoe Sierra region residents. Most of the population growth in the region occurred after the 1960 Squaw Valley Olympics, where the population more than quadrupled in the span of 20 years. In addition, the Tahoe Sierra region is home to a high number of temporary, summer residents. In this 20-year growth period, summer residency grew nine times over, from approximately 10,000 to 90,000. After 1980, population growth slowed primarily due to land use controls.

In terms of demographics, the Tahoe Sierra region is primarily White Non-Hispanic (approximately 85%), with the next largest demographic population being Hispanic (approximately 12%). There are localized areas of higher diversity within the region, such as in King's Beach on Lake Tahoe's north shore, and the City of South Lake Tahoe. South Lake Tahoe is 64% White Non-Hispanic, 27% Hispanic, 12.5% Other Race, 4.4% Filipino, and Black, Asian Indian, American Indian constituting the remainder. (Population statistics often exceed 100% because Hispanics can be counted in other races). King's Beach is 74% White Non-Hispanic, 44% Hispanic, and 23% Other Race. Due to the low median income level of residents in King's Beach and South Lake Tahoe, these communities are considered disadvantaged.

The majority of Tahoe Sierra residents are very well educated. Over 80% have received a High School Diploma. The percentage of residents with a Bachelor's Degree ranges from 18% to 33% throughout the region.

Tahoe Sierra Water Resource Infrastructure
Major water-related infrastructure and districts include:

South Tahoe Public Utility District: Boundaries extend from Emerald Bay on the west to Christmas Valley on the south, the California/Nevada state line to the east and Lake Tahoe to the north for a total service area of 27,000 acres with 14,500 water customers and 17,500 sewer customers. STPUD relies solely on groundwater for its water supply and operates 17 active wells with a source capacity of 19.789 million gallons per day (MGD); 22 storage tanks with an operational storage capacity of 9 million gallons, 11 booster pump stations with a total pumping capacity of 7,019 gpm and 36 sewage pump stations with an average of 5 MGD wastewater processed at the treatment plant and exported to Alpine County for storage in Harvey Place Reservoir. STPUD is the only water district within the Tahoe Sierra region that is large enough to require the development of an Urban Water Management Plan. This plan was adopted by the board August 2002 and is included with this application.

Tahoe City Public Utility District: Boundaries extend from Emerald Bay to Dollar Hill and along the Truckee River to the Nevada County Line (encompasses 22 sq. miles) with 10,800 water and sewer customers. Relies solely on groundwater for its water supply and operates 3 wells with a total source capacity of 645 gpm, three storage tanks having a total capacity of 538,000 gallons and two booster pumps with capacities of 185 gpm each.

North Tahoe Public Utility District: Boundaries range from the Nevada state line in Crystal Bay to Dollar Hill. The service area includes the communities of Kings Beach, Tahoe Vista, Brockway Vista, Carnelian Bay, Cedar Flat and Agate Bay. NTPUD relies solely on groundwater for its water supply and serves approximately 7500 customers.

Markleeville Water Company and Markleeville Public Utility District: Serves the communities of Markleeville, Marklee Village and Thornburg Subdivision in Alpine County (approximately 200 customers). They rely exclusively on surface water from a tributary to the Carson River with a backup groundwater well. Maximum capacity is 160 gpm with an average daily use of 65 gpm. The PUD serves 100 customers and has one pump station with an operating capacity of 20,000 gallons per day. The remaining population in the service area is supplied through private wells, septic tanks and small owner operated facilities.

Truckee Donner Public Utility District: Boundaries include the Town of Truckee and eastern areas Nevada County. TDPUD relies exclusively on underground aquifers with a series of pumps and storage tanks in and around the community of Truckee. The district serves 9000 customers.

Placer County Water Agency: The Placer County Water Agency (PCWA) was created in 1957 with broad authority for powers related to waters. The boundary of the agency is the same boundary of Placer County covering over 1,500 square miles.

The Martis Valley Groundwater Management Plan covers a subset of the PCWA boundary. The boundary line of the plan area is in eastern Placer County, on the east side of the Sierra Nevada crest, and follows the Martis Valley groundwater basin in the unincorporated area of the County. A surveyed map is on page 6 of the plan.

The Martis Valley groundwater basin has 1,050,000af of stored water, a recharge rate of 18,000af/year and an interim safe yield of 13,000af/year.

The Martis Valley service area is the same as the plan boundary area. The Martis Valley General Plan, circa 1974 (the recent update of the plan is under litigation), sets a maximum forecast of just over 25,000 citizens. However, when the general plan update (Martis Valley Community Plan) is finalized, the number is likely to be significantly lower. Some demand is met by the Northstar Community Service District. Current service levels are for approximately 1,300 citizens, 8 commercial customers, and 2 fire protection zones.

Squaw Valley Public Service District. The Squaw Valley Public Service District is located in Olympic Valley, in Eastern Placer County, California and consists of a 15 square mile valley (9,600 acres). They rely on ground water from original wells and pipes were built for the 1960 Olympics. Many of these original facilities are still in use. Year-round population in the Valley is estimated to be approximately 924 people, with a maximum overnight population of 6,573. However, during peak winter holiday periods,

the daily population can swell to 25,000. The SVPSD currently serves water to 663 Residential units and 20 large commercial entities.

Non-public regional water purveyors include:

Lukens Water Company (South Lake Tahoe): 2,000 gpm from three active wells.

Tahoe Keys Homeowners Association (South Lake Tahoe): 5000 gpm from three active wells.

Tahoe Swiss Village Utility, Inc. (South Lake Tahoe): 150 gpm from one well.

Squaw Valley Mutual Water Company: Provides water in Squaw Valley to approximately 325 residential customers, from one well.

Alpine Springs County Water District: This public agency provides water in Bear Creek Valley (Eastern Placer County).

The water supply capacity as described above for each water purveyor within the Tahoe Sierra Plan region does not include the use of reclaimed water, imported water or desalted water. Maximum water source/supply capacities of these purveyors are not expected to be reached within the 20 year planning horizon.

Water demand forecasts for a 20-year planning horizon are included in Table B.1.

Table B.1. Water Demand Forecast for 20 Years

Purveyor	**2025/Buildout (af/year)**
South Tahoe Public Utility District	
Alternative 1*	9893/10328
Alternative 2**	10302/10421
Tahoe City Public Utility District	
Alternative 1*	312/319
Alternative 2**	328/329
Placer County Water Agency: Martis Valley	3400
Squaw Valley Public Service District***	2262
Northstar CSD****	600
Truckee Donner PUD****	13200

*Alternative 1: Low Growth/Seasonal Occupancy. This alternative assumes that the current initiative seeking to further reduce the number of residents that can be built in South Tahoe area (not to exceed 87 unites per year) is passed. It also assumes the continuing occupancy of a portion of units. Under this scenario the area is estimated to reach buildout in 2034.
**Alternative 2: Moderate Growth/Full Occupancy. The second alternative assumes the present level of allowable development in South Tahoe (116 residential units per year) and also projects that 50 percent of all residential units, hotel/motel rooms, and campground sites are currently not occupied full-time will have full-time occupancy. Under this scenario, the area is estimated to reach buildout in 2027.

****Source: Martis Valley Groundwater Management Plan by Placer County Water Agency, 1998
***Sqauw Valley Public Service District Groundwater Development and Utilization Feasibility Study, 2003

Water supply within the Tahoe Sierra Plan region is adequate. The region's main concerns are with water quality and aging infrastructure that have hampered water production and storage in the region. Within the basin, groundwater supplies have been lost due to MTBE and arsenic contamination**.** Water and wastewater infrastructure is aged and deteriorating. In neighboring Alpine County, non-point source pollution to surface water from a historical reliance on ranching and agriculture, aged and deteriorating water infrastructure; and a small capitol expenditure fund due to a limited customer base have all contributed to water supply problems. Likewise, in the Truckee basin, some groundwater wells have been found to be contaminated with arsenic (new wells are being developed by Truckee Donner PUD); water management has been hampered by aging infrastructure and concerns over nutrient loads (a new treatment plant in under construction by the Truckee Tahoe Sanitation Agency).

SECTION C

Objectives

The five objectives of the Tahoe Sierra Plan are: 1) Protect and improve water quality, 2) Protect the community water supply, 3) Manage groundwater for sustainable yield, 4) Contribute to ecosystem restoration, and 5) Implement integrated watershed management throughout the region. To determine the water management objectives of this Plan, the Tahoe Sierra Group reviewed the 11 reference plans, selected relevant objectives from each, integrated them by water management category, and cross-referenced them against Statewide and regional California priorities. Thus, the objectives help to meet local, regional and state water management needs and are in accordance with State and Federal mandates.

The process for development of the objectives for this plan was as follows:

- Regional agencies, non profit groups, community groups such as watershed councils, and any other groups interested in water management throughout the region were invited to a preliminary interest meeting in 2004.
- After discussion of the creation of an IRWMP, agencies willing to participate in the development of the plan, either through the appointment of a staff person or by providing feedback and information, set up meeting schedules.
- Key staff members from each of the partner agencies were identified for participation to attend the development meetings. During the process, the group, utilizing existing local, regional and state planning documents, identified high priority objectives common across all agencies that were capable of regional implementation. Those are reflected in this section. The group was then able to review the many projects each agency brought to the table to identify and match projects to the IRWMP objectives. In this way, the projects contained within this IRWMP were prioritized as a group. Additional partnerships and projects were sought during this entire time frame and the group developed a process by which they could be added to the plan.
- After the IRWMP was complete and had been through a formal public review process, the group developed a memorandum which formalized each of the agencies agreement to the established objectives.
- To enable the IRWMP to remain a vital "living" document, each member of the Tahoe Sierra group has committed to a bi-annual meeting to evaluate the IRWMP objectives and revise as appropriate. For example, changes in erosion control objectives (and priority projects to meet those objectives) are likely to take place in the next 6-18 months given the visibility of fire safety and fire zone erosion control measures based on the recent Angora Fire in South Lake Tahoe.

1. Water Quality Objectives:

WQ1 Develop TMDL standards.

WQ2 Reduce nutrient and sediment loads to receiving water bodies.

WQ3 Meet nutrient and sediment standards for tributary streams and stormwater runoff.

WQ4 Ensure that drinking water continues to meet the standards of the Safe Drinking Water Act.

WQ5 Restore degraded streams and wetlands to re-establish natural water filtering processes.

WQ6 Increase public awareness of regional water quality issues and their role in improving the quality of local water bodies.

Conflicts over water quality objectives arise from regulation of polluting land use activities. For example, in the Tahoe Sierra region some water quality improvement projects rely upon private property owner resources (i.e. time and money). Often participation is difficult to achieve due to seasonal residency. Also, public water quality improvement projects generate conflicts due to impacted land owner concerns.

The Tahoe Sierra partnership plans to address these conflicts through a variety of public outreach and notification activities. Outreach materials that detail the water quality improvement projects that are dependent upon private property owners are being developed. Additionally, permanent and seasonal staffing to provide free BMP evaluations for property owners is provided by Tahoe Resource Conservation District and Tahoe Regional Planning Agency. TMDL Implementation projects include work items specifically designed to provide landowner outreach through public meetings, stakeholder involvement in implementation and letter and media coverage. As future conflicts arise within the water quality objective projects, the partnership will address each specific concern by delegating outreach responsibilities to the agency responsible for the implementation of the project. If a broader scope conflict resolution is necessary, the partnership will address it at the bi-annual meeting.

2. Water Supply Objectives:

WS1 Provide adequate water supply for a 20-year management window.

WS2 Build reliable infrastructure to supply water.

WS3 Implement and promote water conservation measures and practices.

WS4 Install water meters to track water use and encourage water conservation.

Conflicts over water supply objectives arise from multiple use of a static water supply. For example, in Alpine County, allocation of the scarce surface water rights of the Carson River was a matter of decades of disputes. These conflicts were finally adjudicated by the Federal Alpine Decree of 1980. On the Truckee River and at Lake Tahoe, a similar Decree has installed a Federal water master to govern the lake levels behind the outlet dam in Tahoe City, so that water rights owners downstream in Nevada will have desirable storage and timing of water releases.

Although the partnership does not expect any conflicts over water supply objectives due to the designation of decrees as described above, additional conflicts may occur during project implementation due to the construction impact to landowners adjacent to the project. To minimize and address these conflicts, each project includes a homeowners' public meeting prior to implementation as well as written notification of the project and the geographic area of impact. Water conservation practices can also cause conflict with

water users, but as these practices have been in use for many years, with extensive outreach activities provided annually, it is expected these conflicts will be minimal and can be addressed by each individual agency responsible for implementing water conservation projects.

3. Groundwater Management Objectives:

GWM1 Create reliable groundwater supply.
GWM2 Protect groundwater quality.
GWM3 Manage groundwater for multiple uses.

Conflicts over groundwater supply occur when use exceeds natural recharge. Conflicts also arise in groundwater supply planning due to large seasonal population fluctuations.

In order to address future groundwater conflict, the partnership relies on the development and adoption of groundwater management plans including the South Tahoe Public Utility District Groundwater Management Plan, the Placer County Martis Valley GWMP, the Squaw Valley PSD and Alpine County GWMP. These plans contain conflict resolution procedures the partnership can utilize to address future groundwater concerns.

4. Ecosystem Restoration Objectives:

ER1 Enhance and restore degraded stream environment zones (SEZs) to support healthy and viable native fish populations.
ER2 Restore wetlands and natural biogeochemical cycles.
ER3 Educate public about ecosystem services provided by healthy wetlands and SEZs.
ER4 Manage forest health and wildfire risks.
ER5 Minimize disturbance caused by urban development.

Conflicts arise over ecosystem restoration projects because of temporary inconveniences caused by construction. Conflicts also occur when restoration efforts confront a lack of public understanding. In the Tahoe Sierra region, restoration projects may require contiguous parcels of land and such acquisition can be difficult due to private ownership.

Resolution of these conflicts is dependent upon a high level of public outreach activities by each individual agency implementing the project, as well as the partnership outreach that has been scheduled for the complete integrated suite of projects. Partners work in tandem to attend local environmental planning events, reach stakeholders through meetings, websites, and personal communication, and invite public participation wherever the opportunity occurs. As a result of these past and future outreach activities, public understanding of ecosystem restoration has increased and the continued use of these activities is expected to reduce future conflicts.

5. Integrated Watershed Management Objectives:

IWM1 Ensure sound planning that is based on watershed science.
IWM2 Encourage collaboration among multiple jurisdictions within a watershed.

IWM3 Form partnerships to share resources, take advantage of cost sharing opportunities, and exchange information.

Conflicts arise with integrating watershed management because of divergent statutory obligations and agency culture. Also coordinating meetings and agendas across a broad geographic region is challenging.

Conflicts will be addressed through the Tahoe Sierra Partnership's bi-annual status meetings. Should conflicts arise that will need to be addressed prior to these meetings, the partnership current appointed lead will call an emergency meeting. Meeting scheduling will be flexible and allow for ease of participation by all partners, including the ability to hold conference calling for those that are unable to travel to attend.

SECTION D

Water Management Strategies

All applicable water management strategies have been considered in the implementation of the Tahoe Sierra Plan objectives. To address each strategy appropriate for implementation and integration on a region wide basis, the group researched the 11 local and regional planning documents as listed in Section M of this plan and incorporated goals and objectives from each that were capable of integration across the region. (The unifying document that is referenced most often in this section is the Lahontan Basin Plan for its broad scope region-wide.) In cases where gaps existed in the integration of these plans, the Tahoe Sierra group has developed strategies to bridge those gaps. Each individual water management strategy and the regional goals and objectives for implementation are discussed in this section.

Ecosystem Restoration:

- Disturbed soils, including cut slopes, fill slopes, bare areas, and compacted areas, contribute large amounts of pollutants to the regions water bodies and streams. Prevention of excessive or unnecessary soil disturbance and restoration of disturbed areas will have a large positive impact on water quality and serve many other purposes as well. Application of best management practices will help to meet soil disturbance and restoration objectives and will be implemented with a flexible approach involving evaluation of site-specific considerations throughout the region.
- Vegetation is also a key component of water quality protection in the Region. Protection and maintenance of vegetation is integral to the many scenic, wildlife, and recreational amenities in the Region. Vegetation also fulfills many functional roles related to water cleansing, soil stabilization, nutrient catchment and release, air purification, and noise control. The focus of vegetation preservation in the Region is to protect and maintain these and other attributes. Objectives include increasing plant and structural diversity through appropriate management practices as measured by diversity indices of species richness, relative abundance, and pattern. This requires on-going programs throughout the region involving harvest, revegetation, and vegetation manipulation. Revegetation of disturbed sites will require the use of native plants whenever practical, but other approved species also may be appropriate. A list of approved species is available in each watershed within the region.
- Stream environment zones have many beneficial effects on water quality. The development of stream zones in the region has adversely affected water quality, in many cases permanently. Stream zone restoration is a cost-effective policy for improving water quality, and a high-priority for capital improvement programs. Programs that meet this stream zone policy will reduce dissolved inorganic nitrogen loads from surface runoff by about five percent. Preservation and restoration of naturally functioning stream environment zones is essential to the region.

Environmental and Habitat Protection and Improvement:

- Certain waters within the Region are considered exceptional resources for a variety of reasons. There are currently no federally-designated Wild and Scenic Rivers in the Tahoe Sierra Region. However, sections of rivers may be under review for this status and the Carson River in Alpine County is eligible for federal Wild and Scenic status. Federal guidelines require that rivers eligible for National Wild and Scenic River designation be managed to protect their outstandingly remarkable values and free-flowing character until Congress makes a decision concerning designation. The section that is designated is the East Fork Carson River, approximately ten river miles from the town of Markleeville to the California/Nevada state line.
- Implementation of the federal anti-degradation regulations includes the potential to designate certain waters of the Lahontan Regional Water Quality Control Board as Outstanding National Resource Waters (ONRWs). The water quality of the waters which are designated an ONRW must be maintained and protected. No permanent or long-term reduction in water quality is allowable in areas given special protection as ONRWs (48 Fed. Reg. 51402). In the Tahoe Sierra Region, Lake Tahoe has been designated as an ONRW and projects that protect the water quality of this exceptional resource will be prioritized.
- Special Aquatic Sites (SASs) include wetlands, mudflats, vegetated shallows, coral reefs, riffle and pool complexes, sanctuaries and refuges (as listed in 40 CFR § 230.3), vernal pools, and riparian areas. Parts of many waters of the Region qualify for the SAS designation as wetlands, riffle and pool complexes, sanctuaries, refuges and riparian areas.
- Rangeland is the most extensive land type in California, accounting for more than 40 million acres of the State's 101 million acres. As most of the rangelands are located between forested areas and major river systems, nearly all surface waters in the State flow through rangelands. Thus, rangeland activities within the Tahoe Sierra region can greatly impact water quality and the region contains many grazing sites. Grazing activities (particularly overgrazing), by contributing excessive sediment, nutrients and pathogens, can adversely impact water quality and impair beneficial uses. Allotment Management Plans (AMP's) and Best Management Practices (BMP's) will be utilized in these rangeland areas within the region to control overgrazing.
- Numerous plant and animal species in the Region are listed as threatened or endangered under the federal Endangered Species Act and/or the California Endangered Species Act (CESA), or are candidates for such listing. Examples include the Lahontan cutthroat trout and the Lake Tahoe shorezone plant Tahoe yellowcress. These and many other sensitive species depend directly on aquatic or wetland habitats for survival. The Region also includes water bodies that support rare or unique combinations of species (biological communities). Examples include the Grass Lake sphagnum bog in the Lake Tahoe Basin.

Partners will recognize and provide protection for sensitive aquatic/wetland species and communities in their land use planning, zoning and project review activities.

Water Supply Reliability:

- Most surface water in the Region has already been allocated through court adjudications, water rights licenses, or interstate agreements. The California-Nevada Interstate Water Compact was negotiated in the 1960s, approved by the states in the early 1970s, and partially ratified by Congress in 1990 as P.L. 101-618. This law allocates the surface and ground waters of the Carson River and Lake Tahoe/Truckee River watersheds between the two states. Management of reservoirs and flows of regulated streams in these watersheds is the responsibility of a federal watermaster. New federal drinking water regulations require higher treatment levels for surface sources; because of these regulations, water purveyors are increasingly changing from surface to ground water sources. Regional water suppliers will have to provide treatment for drinking water from surface diversions in accordance with state and federal standards and regulations.
- Tahoe Sierra partners recommend that local and regional agencies involved in land use planning consider the limitations set by the Interstate Water Compact, and that the State's water quality program take the availability of water into account. In addition the following strategies are critical to preserving and maintaining the current water supply:
    1. Encouragement of the use of Best Management Practices to minimize water use for agricultural, landscape, and turf irrigation. These practices should also encourage the use of water saving devices and appliances for both public and private water users.
    2. Encouragement of the adoption and implementation of wellhead protection programs.
    3. Encourage the implementation of capitol improvement programs for water infrastructure to replace aging water lines, storage, and pumping stations and the use of water auditing and efficient leak detection and repair.
- Many of the regions water supply systems are in need of upgrading to insure delivery of adequate quantities of water for domestic and fire suppression purposes. Needed improvements include water lines, storage facilities, and additional hydrants. Individual water suppliers will have to maintain their existing water supply systems, and upgrade them as appropriate to meet fire flow requirements, peak demand, and the need for backup supplies.

Flood Management:

- A 100-year floodplain is defined as the extent of a flood that has a statistical probability of occurring once in 100 years. Floods of this extent may occur more than once every 100 years, and floods of even greater extent are possible. Most state, federal and local floodplain protection planning is based upon the 100-year

floodplain. Floodplains often include wetland and riparian areas that may extend beyond the limits of the 100-year floodplain. Riparian areas are typically defined as the terrestrial moist soil zone immediately adjacent to wetlands, lakes, and both perennial and intermittent streams. Undisturbed floodplains and riparian areas provide natural storage for flood waters and thus moderate downstream flood flows and augment dry season (base) flows. The wetland and riparian areas of floodplains can provide water treatment including settling of suspended matter as flood flows are slowed, physical filtration of sediment and associated chemicals by vegetation, uptake of nutrients by roots and foliage, adsorption of chemicals on soil particles, and uptake and chemical transformation of substances by soil microorganisms. Riparian areas are important habitat for fish and other wildlife (including significant habitat for threatened or endangered species), providing drinking water, abundant food, a moderate climate (with more shade and cooler temperatures than many upland areas), and shelter. Riparian areas support abundant and diverse mixtures of plant and animal life. The areas within the region that contain these 100 year floodplains have been mapped by Federal Emergency Management Agency (FEMA) and are available for review. For proposed projects with probable floodplain impacts where floodplains have not been mapped by FEMA or the Corps of Engineers, the regional group will promote appropriate floodplain mapping by the project applicant.

- Flooding in the Region usually results from rapid surface water runoff from rainfall, snowmelt, or both, that exceeds the capacity of the natural and manmade drainage systems. Localized flooding occurs throughout the urbanized areas of the Region and flooding from seiches (abnormally large waves generated by earthquakes or landslides) is also possible in the shorezone of Lake Tahoe. The counties in the Tahoe Sierra Region provide general protection for floodplains and riparian areas through zoning, land use ordinances and the project review process. Examples include specified buffer zones, building setbacks, grading limits, and building bans within floodplains. As development in floodplains is enforced throughout the region, there will be less need for disaster declarations and hazard mitigation projects. To protect current development, projects that maintain and protect riparian habitat, stream environment zones and wetlands will be given priority, especially in historical flooding zones within the Region.

<u>Groundwater Management:</u>

- Ground waters in the Region supply high quality drinking water and irrigation water, as well as industrial service supply, wildlife habitat supply, and aquaculture supply waters. Ground waters in the Region also provide a source of freshwater for the replenishment of inland lakes and streams of varying salinity. Because of the sensitive ecological nature of the region, the discharge of domestic, municipal or industrial wastewater to Lake Tahoe, its tributaries, the groundwaters of the Tahoe Region, or the Truckee River within the Tahoe Region, is prohibited, except for existing discharges under alternative plans for wastewater disposal authorized by state law and approved by the state agency of appropriate jurisdiction. California and Nevada prohibit wastewater discharge in the Tahoe

Basin through the enactment of the Porter-Cologne Act, and an Executive Order by the Governor of Nevada dated January 27, 1971. All treated effluent must leave the Basin for eventual storage and utilization elsewhere. Wastewater projects that support this mandate, as well as those that contribute to the health of the Region's groundwater supplies, will be given priority status.

- The Tahoe Sierra group includes water providers that have developed specific ground water management plans that regulate, manage, conserve and protect the Groundwater resources available to the Region so that the Groundwater will remain a viable potable water resource and be available to be put to the most efficient and beneficial use. These water providers are authorized groundwater management agencies. Groundwater protection strategies as defined by these groundwater management plans include, but are not limited to:

    1. Establishing wellhead protection programs.
    2. Monitoring groundwater supplies consistently and effectively.
    3. Adopting and implementing Best Management Practices for the protection of groundwater and wellheads.
    4. Recharge projects.

- The Tahoe Sierra partner's further state that a specific Groundwater Plan for each source supply is necessary for the protection of Groundwater resources within the Region, and that it is in the public interest and will benefit all Persons residing within the Plan Area. In addition, specific categories of activities pose greater threats to Groundwater quality than others, and that Persons engaged in those activities should be responsible for a proportionate share of the costs of implementing groundwater plans based on the proportionate risk posed by their activities.

<u>Recreation and Public Access:</u>

- Tourism related to outdoor recreation is a major sector of the Tahoe Sierra Region's economy. Recreational activities range from backpacking in wilderness areas to golfing, boating, and skiing at highly developed resorts. Water quality concerns associated with outdoor recreation include sanitation, erosion/stormwater problems (related to disturbance of soils and vegetation), and water contamination due to the use of pesticides at golf courses and fuel and paint at marinas. Visitor education regarding how to lessen impacts on the environment while enjoying the varied recreational activities should be provided as appropriate.
- Designated wilderness and national park areas are of special concern. Land use practices in these areas must assure protection of beneficial uses of water. Erosion control in the vicinity of surface waters must be implemented for all human activities that disturb the natural ground surface. Animal wastes must be managed to prevent nuisance and to protect beneficial uses of water.
- New campgrounds and day use recreation facilities should be designed to minimize water quality impacts by avoiding disturbance of steep slopes, highly

erodible soils, and riparian/wetland areas. Best Management Practices can be applied to new and existing campgrounds and day use areas to reduce erosion and provide treatment for stormwater. Control of erosion from unpaved roads and parking areas is particularly important. Interpretive displays and programs at recreational facilities should address water quality impacts of recreation and request public cooperation (e.g.,use of designated fishing trails rather than random trampling of streambank vegetation).

- Alternative transportation modes such as transit, pedestrian and bicycle paths should be encouraged throughout the region and, if appropriate, incorporated into any projects that may have impacts on transportation.

Stormwater Capture and Management:

- Water quality problems related to stormwater discharges, erosion and sedimentation are among the most frequent and widespread water quality problems in the Region. (The term "stormwater" includes surface runoff resulting from rainfall and snowmelt. It is essentially synonymous with "urban runoff," "highway runoff, "and "surface runoff") The human development of the watersheds in the region affects surface runoff quality by increasing the intensity of peak discharges, the volume of runoff per storm, the velocity of runoff during the storm, and the frequency and severity of flooding. These changes can lead to increases in stream bedload sediment transport and streambank erosion, and to consequent degradation of aquatic habitat. In addition, these human activities in watersheds, especially the creation of large amounts of impervious surface (e.g., roads, parking lots, and buildings) can greatly increase the potential for surface runoff, reduce the potential for soil/vegetation treatment of chemicals in rain and snow, and add a large variety of contaminants to the runoff discharge. Lahontan Regional Water Quality Control Board estimates that erosion control and surface runoff are the "most critical controllable sources of nutrient loading to Lake Tahoe."
- Education and implementation of source control BMP's should be encouraged throughout the region. Examples of source control BMPs for stormwater problems include control of air pollutants, enforcement of anti-litter ordinances, educational programs (to limit fertilizer and pesticide use by home gardeners and dumping of waste motor oil in storm drains), street and storm drain maintenance practices, spill prevention and cleanup, and BMPs for erosion control. Projects that focus on source control BMP's in the region will be given priority status.
- Land use controls can also function as stormwater source controls. Protection and restoration of natural vegetation, soils and the duff layer, particularly in steep headwater areas, and in wetlands, floodplains, and riparian areas, preserves natural infiltration and nutrient uptake capabilities, as does limitation of impervious surface coverage. Naturally functioning soil/vegetation systems, particularly wetland systems, can act as buffers between urban areas and surface waters. Examples of treatment control BMP's for stormwater include infiltration, wet ponds, extended detention basins, biofilters (such as grassy swales), media filtration (e.g., a settling basin followed by a sand filter), oil/water separators, and

constructed wetlands. Because of differences in efficiency among BMP's, combinations of different methods often provide the best treatment.

- Management practices to control elevated levels of runoff from existing development should be geared toward treatment of runoff waters through the use of natural and artificial wetlands as close to the source of the problem as possible. Management practices should also infiltrate runoff to negate the effects of increased impervious coverage and drainage density. Management practices should ensure that snow disposal does not harm water quality, and that snow removal from unpaved areas does not expose soils to runoff and further disturbance, contributing to sediment and nutrient loading to receiving waters.
- Tahoe Sierra partners will assess these Best Management Practices and implement them, as appropriate, into proposed projects. In addition, projects that have the greatest potential to reduce surface runoff will be given priority implementation status.

Water Conservation:

- Most municipal and agricultural water supplies used within the Region come from ground water, often from individual wells. As discussed in the Water Supply strategy above, water conservation first begins with protecting the source of the water supply. Within the Region, there is only one water provider partner that is required by the state to develop Urban Water Management Plans (UWMP) — South Tahoe Public Utility District. The plan is current (2005) and projects water usage and storage for the South Lake Tahoe area and includes water conversation strategies that have the potential for implementation region-wide. STPUD has been promoting its water conservation program since 1982. The program targets residential, commercial, and vacationing water users through public and school education, low water use fixture promos, staged water use restrictions, water educator patrols, leak detection, an award-winning demonstration garden, turf replacement, and landscape audits. Other regional water suppliers have implemented these plus additional water conservation measures, including Tahoe City Public Utility District who is developing a phased water metering installation program to promote water conservation. In addition, the water supply partners rely on development and implementation of Best Management Practices as defined by such programs as the California Urban Water Conservation Council.
- In addition to the water conservation programs implemented in the Region, long drought periods beginning in the 1970s inspired a variety of legislation related to water conservation and reclamation. Local governments are now required to have ordinances regulating landscape irrigation. Local governments within the Region also encourage the use of native plants or species adapted to local conditions, which have low requirements for irrigation, fertilizer, and pesticides for survival and maintenance.
- The Region, due to environmental and regulatory constraints, cannot make full use of reclaimed or recycled water as other regions may be able to, but where allowable and feasible, programs will be encouraged that promote both of these options.

Water Quality Protection and Improvement:

- Section 303 of the federal Clean Water Act (P.L. 92-500, as amended) defines water quality standards as both the uses of the waters involved and the water quality criteria applied to protect those uses. An effective water quality control plan requires determination of the beneficial water uses. As the Tahoe Sierra Region has established beneficial uses and the resultant water quality standards for all watersheds and waterbodies within the Region (Lahontan Region Plan), the focus of water quality enhancement and protection in this IRWMP is to minimize man-made disturbance to the watershed and to reduce or eliminate the addition of pollutants that result from development.
- Capital improvement projects for erosion and runoff control and stream environment zone protection and restoration projects have priority based on their contribution to water quality protection and improvement.

Water Recycling:

- Recycled water has a wide variety of applications that could be used within the Tahoe Sierra region. The applications include agricultural irrigation, landscape irrigation (including highway landscape, parks and golf courses), impoundments for landscape, recreational and/or wildlife uses, wetland and wildlife enhancement, industrial processes (e.g.,cooling water, process water, wash water, dust control), construction activities and ground water recharge. While the Tahoe Sierra group supports the concept of water recycling, it must also consider potential impacts from recycling on ground and surface water quality. Discharges of recycled water are prohibited in areas of the Tahoe Sierra IRWMP Region where waste discharge prohibitions are in place (Tahoe Basin). The Porter-Cologne Act (§ 13952) allows the Lahontan Regional Board to consider approval of pilot reclamation projects for the use of reclaimed domestic wastewater for beneficial purposes within the Lake Tahoe Basin, provided that such projects will not individually or collectively, directly or indirectly, adversely affect the quality of the waters of Lake Tahoe. When prioritizing water recycling projects, careful consideration will be given to potential public health impacts from pathogens or conservative organic compounds, as well as the potential of the proposed project to create pollution or nuisance conditions. The potential impacts on the quality and beneficial uses of any receiving surface or ground waters, including the potential for eutrophication of surface waters due to nutrient loading from recycled water, will also be considered.
- Recycled water from the South Tahoe Public Utility District (STPUD) is exported from the Lake Tahoe Basin to Alpine County, where it is used for irrigation. In order to protect the beneficial uses of the Indian Creek watershed, there are regulations for the use of recycled water for irrigation in coordination with regulation of other discharges such as septic systems, irrigation return flows from lands not irrigated with effluent, and stormwater from pasture lands and manure

storage areas. Projects which look to expand the use of recycled water while also protecting the beneficial uses of the area will be prioritized.

Wetlands Enhancement and Creation:

- Wetland values and functions include high productivity, water purification, flood control, nutrient removal and transformation, sediment stabilization and retention, water supply, ground water recharge and erosion control. The high biological productivity of wetlands results in important wildlife habitat for both aquatic and terrestrial animals and plants, including feeding, breeding and nursery grounds. A greater than average number of rare species are found in wetland habitats. Wetlands also provide a number of other scientific, educational and aesthetic uses. Wetlands within the Region are defined to include areas that are "inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (including) playa lakes, swamps, marshes, bogs and similar areas such as sloughs, prairie potholes, wet meadows, prairie river overflows, mudflats, and natural ponds"
(40 CFR § 110.1[f]).
- Tahoe Sierra partners will use the Lahontan RWQCB approach to all projects that have potential implications to existing wetlands values and functions: Avoid; Minimize; Mitigate. Through a thorough analysis of project alternatives, the project proponent must first demonstrate that wetland impacts are not avoidable. If the impacts are not avoidable, the proponent must then demonstrate that the impacts to the wetland area are the minimum necessary for the project. The project proponent must then propose mitigation to compensate for any wetland impacts.
- Restoration of an historic wetland (once functioning wetland but now damaged or destroyed) generally will have a greater chance of success in terms of restoration of wetland functions and long-term persistence so projects that propose wetland restoration will be prioritized.
- Created or "constructed" wetlands proposed as strategies to provide stormwater treatment, if not created as mitigation for the loss of natural wetlands, need not attempt to replicate all of the functions (e.g., wildlife habitat) of natural wetlands.
- For restored or created wetlands, measures may be necessary to protect the wetland from excessive sedimentation, foot traffic, offroad vehicles, exotic species, or other factors that may inhibit wetland functions or degrade wetland values.

Land Use Planning:

- The construction and maintenance of urban and commercial developments and the supporting infrastructure for these developments (roads, water, sewer, etc) can impact water quality in many ways. Construction activities inherently disturb soil and vegetation, often resulting in accelerated erosion and sedimentation. Stormwater runoff from developed areas can also contain petroleum products, nutrients, and other contaminants. Construction activities often produce erosion by disturbing the natural ground surface through scarifying, grading, and filling. Floodplain and wetland disturbances often reduce the ability of the natural environment to retain sediment and assimilate nutrients. Construction materials such as concrete, paints, petroleum products, and other chemicals can contaminate nearby water bodies. Construction impacts such as these are typically associated with subdivisions, commercial developments, and industrial developments.
- Within the Tahoe Sierra Region, development, construction and maintenance activities are strictly controlled. The Tahoe Regional Planning Agency controls new development through its regional land use plan (TRPA 1987) and through the land use provisions of a variety of TRPA "environmental threshold carrying capacity standards." These "thresholds" include standards for soils, air quality, vegetation, fisheries, wildlife, recreational opportunities, noise, and scenic quality as well as for water quality. Under TRPA's plans, and under the 1987 Regional Plan litigation settlement, the total amount of new residential, commercial, tourist commercial, public service and recreational development in the Lake Tahoe Basin is limited. TRPA periodically evaluates progress toward attainment of its environmental thresholds, and progress in accomplishment of the Capital Improvements and Stream Environment Zone Restoration Programs of the 208 Plan, and adjusts allocations for new development accordingly. In the region's communities that do not fall within the TRPA's jurisdiction, land use planning is the responsibility of the local governance structure, either city or county.
- The Tahoe Sierra group commits to implementing projects that meet established "thresholds" and land use planning ordinances as appropriate to the project location. In addition, projects that help to establish land use goals, such as wetland restoration, will be given priority.

NPS Pollution Control:

- Implementation of control measures for the different types of nonpoint source pollution will help to prevent water quality problems related to stormwater, which is the largest contributor to NPS Pollution with the region. Erosion control is particularly important and local and regional planning documents have detailed Best Management Practices for implementation within the region. The Tahoe Sierra group has prioritized projects based on these BMP's and these are described in greater detail in this section. Because the region focuses more on controlling sources to prevent NPS pollution from entering watersheds, treatment of stormwater is not a high priority. However, in some cases where Total

Maximum Daily Load limits have been reached or exceeded, treatment to bring water bodies back in compliance is proposed.

Surface Storage:

- Reservoirs and natural lakes used as reservoirs, are utilized throughout the Tahoe Sierra Region to store water for municipal and agricultural supply. These reservoirs also supply aquatic and wildlife habitat and meet ground water recharge, recreation, and flood control needs. Reservoir operations and maintenance activities can impact water quality and beneficial uses both within and downstream of reservoirs. Point and nonpoint sources of pollution within a reservoir's drainage area, such as fertilizer applications, bank erosion, timber harvesting, stormwater runoff, wastewater discharges and industrial discharges, can contribute to the sediment and nutrient load into a reservoir. High nutrient levels in a reservoir can contribute to accelerated eutrophication and/or impact downstream waters. Most reservoirs act as large sediment basins and accumulate sediments. Coarse sediments usually deposit in a delta at the head of the reservoir, while finer sediment can remain in suspension and may eventually settle in the deepest pools or be carried to the dam.
- Control measures for the operation and maintenance for all reservoirs within the Region have been established through regulatory agencies, so Tahoe Sierra Region partners will focus on implementing projects that address point and nonpoint sources of pollution that could affect the region's reservoirs and that promote the establishment and implementation of Best Management Practices.

Watershed Planning:

- This IRWMP is one document among many within the Tahoe Sierra Region that attempts to establish watershed planning activities. These activities are based on scientific research and sound technical basis as established in the development of the local and regional plans on which this IRWMP is based. It relies on the water quality standards as set forth by regulatory agencies for the surface and groundwaters of the region, as well as the knowledge base and inherent skills of the agencies that make up the partnership.
- The Tahoe Sierra group commits to keeping current with recent changes in any local or regional water management plan that affects any of the water management strategies within this plan, as well as bi-annual meetings to evaluate new scientific or technical information which would be of benefit and help to continue the region's project priority inclusion with this IRWMP.

Water and Wastewater Treatment:

- The general purpose of sewage (wastewater) treatment is to provide a stable effluent that can be disposed of without hazard or actual damage to the environment, that will commingle with and remain a part of the usable water supply, and that will not impair the quality of the receiving water for present and probable future beneficial uses. The Porter-Cologne Act (§ 13950-13952) includes specific language regarding domestic wastewater disposal in the Lake Tahoe Basin. It requires the export of all domestic wastewater from the California portion of the Lake Tahoe Basin; an Executive Order of the Governor of Nevada requires export on the Nevada side. The Tahoe Regional Planning Agency (1987, Ordinance Chapter 81) also prohibits the discharge of domestic, municipal, or industrial wastewater within its jurisdiction.
- The Tahoe-Truckee Sanitation Agency (TTSA) provides tertiary treatment for wastewater collected by the North Tahoe and Tahoe City Public Utility Districts in the Lake Tahoe Basin; and by the Alpine Springs and Squaw Valley County Water Districts, the Truckee Sanitary District, and Placer County Service Area 21 in the Truckee River watershed. Wastewater is carried from member districts by an interceptor pipeline which generally parallels the Truckee River. The high level of treatment provided by TTSA is necessary to protect instream beneficial uses of the Truckee River in California and municipal use of the River in the Reno-Sparks, Nevada area.
- On the south shore of the Basin, the South Tahoe Public Utility District (STPUD) provides collection and treatment for municipal wastewater from the El Dorado County portion of the Lake Tahoe Basin. Wastewater is given advanced secondary treatment and pumped over Luther Pass to Alpine County, where it is stored in Harvey Place Reservoir and used for pasture irrigation. (Export of wastewater from the Lake Tahoe Basin is mandated by the Porter-Cologne Act. An amendment to that Act allowed STPUD to submit a conceptual plan for the reuse of treated wastewater within the Tahoe Basin. However, any project involving reuse of reclaimed water in the Lake Tahoe Basin would still be required to comply with all water quality objectives and to protect beneficial uses). As a condition of Alpine County's approval of Harvey Place Reservoir, storage capacity in the reservoir was reserved for possible future discharges of secondary effluent from development in Alpine County
- Wastewater from the community of Markleeville is treated by the Markleeville Public Utility District's facility consisting of a mechanically aerated oxidation pond and two evaporation-percolation ponds. The system is designed to treat 0.04 mgd. All of the ponds are currently unlined and the subsurface flow migrates towards Markleeville Creek, located approximately 100 feet south of the ponds. There are numerous seeps at the toe of the slope below the ponds. It is unknown if the seeps are natural or are a result of the ponds. Future increases in capacity may be handled by reserve capacity available in Harvey Place Reservoir which is currently used by South Tahoe Public Utility District.
- Water and wastewater treatment and sewer capacity problems within the region are minimized by the limits and controls on building, however, due to aging

infrastructure, the likelihood of exfiltration problems (exfiltration of nutrients from sewer lines to ground water) within the Tahoe Sierra region might be a future problem. The high capitol costs of maintaining and/or replacing the mandated sewer export lines throughout the Region add to the existence of aging infrastructure. In addition, smaller communities in Alpine County are faced with meeting more stringent water and wastewater treatment requirements with no funding sources for capitol improvements. Projects within the region that address these issues will be given priority.

Water Transfers:

- Large volumes of water are exported for consumptive use outside the Tahoe Sierra Region. The waters of the Truckee, Carson and of Lake Tahoe are allocated by court decisions, federal law, and interstate agreements among water users in California and Nevada. Reasons for concern about water transfers include projected increases in population and consequent demands for water, and possible future water shortages due to drought, global climate change, and contamination of some water supplies by toxic substances. There is also increasing scientific and public awareness of environmental values associated with natural water volumes in streams, lakes, wetlands and ground water aquifers. As the region is the historical headwaters for these water transfers, protecting the exported water is a primary consideration within the region. The Tahoe Sierra group is committed to utilizing the water management strategies as discussed in this section to provide water quality protection, as well as participating in scientific and technical research that may affect the water supply.

The Tahoe Sierra group researched the following water management strategies that, by mutual agreement, they did not feel were applicable within the region: Conjunctive Use, Desalination and Imported Water.

Tables D.1 – D.5 demonstrate the relationship between Tahoe Sierra Plan objectives and water management strategies.

1. Water Quality Objectives:

WQ1 Develop TMDL standards
WQ2 Reduce nutrient and sediment loads to receiving water bodies
WQ3 Meet nutrient and sediment standards for tributary streams and stormwater runoff
WQ4 Ensure that drinking water continues to meet the standards of the Safe Drinking Water Act
WQ5 Restore degraded streams and wetlands to re-establish natural water filtering processes
WQ6 Increase public awareness of regional water quality issues and their role in improving the quality of local water bodies

Table D.1. Water Management Strategies Relevant to Water Quality Objectives

Water Management Strategies	Objective: Protect and Improve water quality					
	WQ1	WQ2	WQ3	WQ4	WQ5	WQ6
Ecosystem Restoration		X	X		X	
Environmental and Habitat Protection and Improvement		X	X		X	X
Water Supply Reliability						
Flood Management					X	
Groundwater Management				X		
Recreation and Public Access						X
Stormwater Capture and Management	X	X	X	X		
Water Conservation						X
Water Quality Protection and Improvement	X	X	X	X	X	X
Water Recycling						
Wetlands Enhancement and Creation		X	X		X	
Conjunctive Use						
Desalination						
Imported Water						
Land Use Planning		X	X			
NPS Pollution Control	X	X	X			X
Surface Storage						
Watershed Planning	X	X	X	X	X	X
Water and Wastewater Treatment				X		
Water Transfers						

2. Water Supply Objectives:

WS1 Provide adequate water supply for a 20-year management window
WS2 Build reliable infrastructure to supply water
WS3 Implement and promote water conservation measures and practices
WS4 Install water meters to track water use and encourage water conservation

Table D.2. Water Management Strategies Relevant to Water Supply Objectives

Water Management Strategies	Objective 2: Protect community water supply			
	WS1	WS2	WS3	WS4
Ecosystem Restoration				
Environmental and Habitat Protection and Improvement				
Water Supply Reliability	X	X	X	X
Flood Management				
Groundwater Management	X			X
Recreation and Public Access				
Stormwater Capture and Management				
Water Conservation	X	X	X	X
Water Quality Protection and Improvement				
Water Recycling	X	X	X	X
Wetlands Enhancement and Creation				
Conjunctive Use	X			
Desalination				
Imported Water				
Land Use Planning				
NPS Pollution Control				
Surface Storage	X	X		
Watershed Planning	X			
Water and Wastewater Treatment	X	X		
Water Transfers	X	X		

3. Groundwater Management Objectives:

GWM1 Create reliable groundwater supply
GWM2 Protect groundwater quality
GWM3 Manage groundwater supply for multiple uses

Table D.3. Water Management Strategies Relevant to Groundwater Management Objectives

Water Management Strategies	Objective 3: Manage groundwater for sustainable yield		
	GWM1	GWM2	GWM3
Ecosystem Restoration			
Environmental and Habitat Protection and Improvement			
Water Supply Reliability	X	X	X
Flood Management			
Groundwater Management	X	X	X
Recreation and Public Access			
Stormwater Capture and Management		X	
Water Conservation			X
Water Quality Protection and Improvement		X	
Water Recycling			
Wetlands Enhancement and Creation			
Conjunctive Use	X		X
Desalination			
Imported Water			
Land Use Planning			
NPS Pollution Control		X	
Surface Storage	X		
Watershed Planning	X	X	X
Water and Wastewater Treatment			
Water Transfers			

4. Ecosystem Restoration Objectives:

ER1 Enhance and restore degraded stream environment zones (SEZs) to support healthy and viable riparian, aquatic, and fisheries habitat
ER2 Restore wetlands and natural biogeochemical cycles
ER3 Educate public about ecosystem services provided by healthy wetlands and SEZs
ER4 Manage forest health and wildfire risks
ER5 Minimize disturbance caused by urban development

Table D.4. Water Management Strategies Relevant to Ecosystem Restoration Objectives

Water Management Strategies	Objective 4: Contribute to ecosystem restoration				
	ER1	ER2	ER3	ER4	ER5
Ecosystem Restoration	X	X	X	X	X
Environmental and Habitat Protection and Improvement	X	X	X	X	X
Water Supply Reliability					
Flood Management		X	X		X
Groundwater Management					
Recreation and Public Access			X	X	
Stormwater Capture and Management		X	X		X
Water Conservation					X
Water Quality Protection and Improvement	X	X	X		X
Water Recycling					X
Wetlands Enhancement and Creation	X	X	X		X
Conjunctive Use					
Desalination					
Imported Water					
Land Use Planning				X	X
NPS Pollution Control		X			
Surface Storage					
Watershed Planning				X	
Water and Wastewater Treatment					
Water Transfers					

5. Integrated Watershed Management Objectives:

IWM1 Ensure sound planning that is based on watershed science
IWM2 Encourage collaboration amongst multiple jurisdictions within a watershed
IWM3 Form partnerships to share resources, take advantage of cost sharing opportunities, and exchange information

Table D.5. Water Management Strategies Relevant to Integrated Watershed Management Objectives

Water Management Strategies	Objective 5: Implement integrated watershed management throughout the Tahoe Sierra region		
	IWM1	IWM2	IWM3
Ecosystem Restoration	X		
Environmental and Habitat Protection and Improvement	X		
Water Supply Reliability	X		
Flood Management	X		
Groundwater Management	X		
Recreation and Public Access	X		
Stormwater Capture and Management	X		
Water Conservation	X		
Water Quality Protection and Improvement	X		
Water Recycling	X		
Wetlands Enhancement and Creation	X		
Conjunctive Use	X		
Desalination			
Imported Water			
Land Use Planning	X	X	X
NPS Pollution Control	X		
Surface Storage	X		
Watershed Planning	X	X	X
Water and Wastewater Treatment	X		
Water Transfers	X		

SECTION E
Integration

Integrating multiple water management strategies in the Tahoe Sierra Plan is imperative to meet the five objectives of protecting water quality, restoring ecosystems, supplying water, managing groundwater supplies, and integrating watershed management. A discussion of the mix of water management strategies considered and selected for the Tahoe Sierra Plan follows.

1. Water Quality Objectives

In order to achieve the water quality objectives of the Tahoe Sierra Plan, the following water management strategies were considered and selected:

• Ecosystem restoration • Environmental and habitat protection and improvement • Groundwater management • Recreation and Public Access • Stormwater capture and management • Water conservation	• Water quality protection and improvement • Wetlands enhancement and creation • NPS pollution control • Watershed planning • Water and Wastewater Treatment

2. Water Supply Objectives:

In order to achieve the water supply objectives of the Tahoe Sierra Plan, the following water management strategies were considered and selected:

• Water supply reliability • Groundwater management • Water conservation • Water recycling • Conjunctive use	• Surface storage • Watershed planning • Water and Wastewater Treatment • Water transfers

3. Groundwater Management Objectives:

In order to achieve the groundwater management objectives of the Tahoe Sierra Plan, the following water management strategies were considered and selected:

• Water supply reliability • Groundwater management • Stormwater capture and management • Water conservation • Water quality protection and improvement	• Conjunctive use • NPS pollution control • Surface storage • Watershed planning

4. Ecosystem Restoration Objectives:
In order to achieve the ecosystem restoration objectives of the Tahoe Sierra Plan, the following water management strategies were considered and selected:

• Ecosystem restoration • Environmental and habitat protection and improvement • Flood management • Recreation and Public Access • Stormwater capture and management • Water conservation	• Water quality protection and improvement • Water recycling • Wetlands enhancement and creation • Land use planning • NPS pollution control • Watershed planning

5. Integrated Watershed Management Objectives:
In order to achieve the integrated watershed management objectives of the Tahoe Sierra Plan, the following water management strategies were considered and selected:

• Ecosystem restoration • Environmental and habitat protection and improvement • Water supply reliability • Flood management • Groundwater management • Recreation and Public Access • Stormwater capture and management • Water conservation • Water quality protection and improvement	• Water recycling • Wetlands enhancement and creation • Land use planning • NPS pollution control • Surface storage • Watershed planning • Water and Wastewater Treatment • Water transfers

The following water management strategies were considered but not selected because they are not applicable in the Tahoe Sierra region:

• Desalination • Conjunctive Use	• Imported water

Added Benefits of Integrating Multiple Water Management Strategies
The following discussion describes how water management strategies work together to provide reliable water supply, protect and improve water quality, and achieve other objectives.

Since the late 1970's, there has been much coordination among state, local and regional jurisdictions to ensure high quality of water for human uses as well as for the

environmental needs of Tahoe Sierra region. These needs are mutually dependent and to manage one properly, all must be considered in concert.

To control NPS pollution into receiving water bodies, a large number of public and private best management practices (BMP) projects are being implemented each year in the Tahoe Sierra. This water management strategy is coupled with the Water and Wastewater Treatment strategy. For example, in the 1970s, all septic tank systems in the Lake Tahoe basin were retired, properties were connected to sewer systems, and wastewater was exported out of the basin. This action simultaneously provided reliable wastewater treatment and protected source water by preventing wastewater leaching and accidental spills.

The export of wastewater out of the Tahoe basin is integrated with the Watershed Planning strategy as the TRPA has connected its water management plans with Nevada and Alpine counties. This is because most wastewater from north Lake Tahoe communities is pumped to Truckee, and treated effluent from south Lake Tahoe communities is pumped to Alpine County.

The Groundwater Management and Water Supply Reliability strategies are directly linked and serve multiple goals as most Tahoe Sierra residents get their municipal water from wells. Wellhead protection programs, cleanups of leaking underground storage tanks, and other groundwater protection efforts are in place to ensure clean drinking water for all residents in the region. The NPS Pollution Control strategy is integrated as well, as the region's management strategies consider the possibility of fertilizers and other nutrient sources leaching through landscapes to the water table.

Water conservation might not be high on the minds of all Tahoe Sierra residents and visitors, for there appears to be an abundance of water in the region's lakes, rivers, and streams. However, water conservation programs are important to local water purveyors, where water conservation is good economics. Therefore, the Water Conservation and Water Supply Reliability strategies are directly linked. BMPs also stress water conservation through the use of native and adapted plants to cover bare soil and protect it from erosion for such plants require little irrigation once they are established.

Enhancing stream environment zones (SEZ) and creating new wetlands (Environmental and Habitat Protection and Improvement, Wetlands Enhancement and Creation) are two of the main strategies for water quality protection (Water Quality Protection and Improvement). Within the Tahoe Sierra region, some communities have set minimum restoration goals for SEZ since over 70% of Sierra wildlife depend on this habitat and associated food sources. Other communities have successfully created and restored degraded wetlands and SEZs for the purpose of water quality protection and flood management.

Most flood management efforts in the Tahoe Sierra region have focused restoration of natural flood zones (Flood Management and Wetlands Enhancement and Creation). In most communities restoration of wetlands and other SEZs has been a priority for decades.

For example, in the Lake Tahoe basin, strict construction setbacks are enforced from 20 to 60 feet outside of the boundary of the SEZ. In addition the Stormwater Capture and Management strategy is integrated as well, as BMPs largely control stormwater by infiltration and any overflow is released to relatively intact SEZs. At this point, dense wetland vegetation attenuates stormwater overflow and mitigates any potential water quality impact.

Current land use planning efforts (Land Use Planning) in the Tahoe Sierra focus on ecosystem and watershed management (Environmental and Habitat Protection and Improvement and NPS Pollution Control). For example, the first BMP in the TRPA handbook requires owners to flag and fence off all natural areas on the lot that do not need to be disturbed during construction activities. By preserving native vegetation, soil, and habitat even on private properties, such BMPs not only reduce erosion and sedimentation, but enhance all the other ecosystem values as well.

The Tahoe Sierra region is world renowned for its recreation opportunities and public access. Lake Tahoe was considered three times in the early 20th century for National Park status. The US Forest Service and Bureau of Land Management in Alpine, Placer, El Dorado, and Nevada counties maintain extensive trail systems and public beaches in the region. Through controlled use, these amenities enhance efforts to promote ecosystem and watershed restoration. The education of the general public about the environmental issues in the region is furthered by outdoor recreational experiences. As people get to know and love the natural beauty of the lakes, rivers, and streams many will realize the intrinsic value of protected and enhanced ecosystems.

The keystone objective of the Tahoe Sierra Plan is integrated watershed management. The TRPA and LRWQCB are able to independently utilize integrated watershed management as their jurisdictions incorporate entire watersheds. In addition, local agencies in the region seek to continue coordinated planning efforts across watershed boundaries.

SECTION F

Short and Long-Term Priorities for Implementing the Plan

The short- and long-term implementation priorities identified in the tables below stem from priorities for the region that are identified and described in the Tahoe Sierra Plan. For example, the 208 Plan and the TRPA Regional Plan describe long-term priorities with 20-year plan schedules while other planning documents are revised in 5-year increments, such as the STPUD UWMP. Tables F.1-F.5 present the long and short term priorities for implementing the Plan objectives.

Table F.1. Water Quality Priorities

Short Term Priorities	**Long Term Priorities**
WQ1 Develop and implement TMDL standards WQ2 Meet nutrient and sediment standards for tributary streams and stormwater runoff WQ6 Increase public awareness of regional water quality issues and their role in improving the quality of local water bodies WQ4 Ensure that drinking water continues to meet the standards of the Safe Drinking Water Act	WQ3 Reduce nutrient and sediment loads to receiving water bodies WQ2 Meet nutrient and sediment standards for tributary streams and stormwater runoff WQ5 Restore degraded streams and wetlands to re-establish natural water filtering processes WQ6 Increase public awareness of regional water quality issues and their role in improving the quality of local water bodies

Table F.2. Water Supply Priorities

Short Term Priorities	**Long Term Priorities**
WS2. Build reliable infrastructure to supply water **WS4**. Install water meters to track water use and encourage water conservation **WS3**. Implement water conservation measure and practices	**WS3**. Promote water conservation measure and practices **WS1.** Provide adequate water supply for a 20-year management window

Table F.3. Groundwater Management Priorities

Short Term Priorities	**Long Term Priorities**
GWM1 Create reliable groundwater supply	GWM1 Ensure reliable groundwater

	supply GWM2 Protect groundwater quality GWM3 Manage groundwater for multiple uses

Table F.4. Ecosystem Restoration Priorities

Short Term Priorities	**Long Term Priorities**
ER5 Minimize disturbance caused by urban development	ER1 Enhance and restore degraded stream environment zones (SEZs) to support healthy and viable native fish populations ER2 Restore wetlands and natural biogeochemical cycles ER3 Educate public about ecosystem services provided by healthy wetlands and SEZs ER4 Manage forest health and wildfire risks

Table F.5. Integrated Watershed Management Priorities

Short Term Priorities	**Long Term Priorities**
IWM2 Encourage collaboration amongst multiple jurisdictions within a watershed IWM3 Form partnerships to share resources, take advantage of cost sharing opportunities, and exchange information	IWM1 Ensure sound planning that is based on watershed science

Modifying Priorities in Response to Regional Change

The Tahoe Sierra Plan priorities will be implemented and modified using adaptive management principles. Regional changes that may modify short- and long-term implementation priorities include:

- **Technological advances affecting project scope –** Integrating new and relevant technology into project design may serve to increase the effectiveness of the project in meeting its objectives. Examples include advances in stormwater treatment devices that reduce pollutant load, monitoring instrumentation, and computer modeling programs.

- **Emergency response to natural and anthropogenic disturbances –** Priorities for implementing projects could change in response to emergency situations, such as discovery of pollutants in groundwater supplies, accidental spills, terrorist and national security issues, and other natural disasters.

- **NEPA and CEQA project evaluation –** During the environmental review process, project implementation may shift in order to accommodate mitigation measures, public comments, or avoid environmental impacts.

- **Pre- and post-monitoring results –** Pre-monitoring evaluations may indicate that a project scope change is necessary. Also, post-monitoring results may show that future projects may have to be modified.

- **Attainment of management goals –** Once management thresholds have been reached and no further action is indicated, project priorities will shift.

- **Changes in methods/projects in response to scientific indicators –** Through the collection and analysis of scientific data, new information may show that a change in priorities is necessary.

- **Outcomes of collaborative planning –** Individual agency priorities may shift in response to the opportunity to collaborate with other agencies to meet shared objectives.

- **Costs –** Priorities may shift in response to fluctuations in funding and project costs (e.g. materials, work order changes, mitigation costs, etc).

The Tahoe Sierra Group will stay connected and in communication with one another primarily through email. Individual partners implementing a project under the Plan will submit digital quarterly progress reports to the lead agency serving under that particular funding source. The lead agency will then collate them into one progress report and make available to all Tahoe Sierra Group partners. Through email, individual partners will be able to broadcast important changes in their local areas to keep all partners updated. In addition, partners will forward to the Sierra Group Partners any appropriate information from list-serve email services from the USDA Forest Service, Lahontan RWQCB, SWRCB, DWR, TRPA, and California Tahoe Conservancy. In this way, partners will be aware of regional changes and the implementation status of projects under the Plan.

Any modification to an individual implementation project that will not affect the region or other partners will be handled between the project manager and the lead agency. To respond to regional changes that will impact the entire Group and potentially the Plan, the Tahoe Sierra Group will meet every six months. At these meetings, the Group will discuss the relevancy of regional changes to the Plan, including its priorities, water management objectives, and project list. If regional changes or trends (e.g., TMDL implementation, Pathway 2007 adoption, and foundation plan amendments) are deemed

to warrant an amendment to the Tahoe Sierra Plan, the Tahoe Sierra Group will appoint a committee to do so. Finally, the lead agency will stay in close communication with DWR, SWRCB, and the Lahontan RWQCB to stay abreast of statewide and regional priorities changes, TMDL development and implementation, forest fuels initiatives, and other regional changes that may affect the Plan. These changes will be communicated to the Group as appropriate.

In the event of a catastrophic regional change, partners will be in close communication with DWR, SWRCB, and Lahontan RWQCB to discuss options and alternatives. A meeting among Tahoe Sierra Group partners will be organized, who will meet as soon as possible to discuss how the change will impact the Plan and project implementations and the recommendations from the State on how to handle the change.

SECTION G
Implementation

As noted in the Introduction, the Tahoe Sierra Plan utilized current, adopted regional and local planning documents in its development. From these current plans, the IRWMP partners strove to develop one regional integrated plan that was comprehensive in scope and targeted the water management strategies from all of the other plans that were capable of such regional integration. As a result of these research and planning endeavors, hundreds of planned projects within the Tahoe Sierra Region were evaluated, with the intent to prioritize those projects that met the IRWMP strategies, provided the most benefit region-wide and that were capable of implementation within one year. In addition, funding sources were evaluated for each project and some projects were not chosen for implementation under the Tahoe Sierra IRWMP not because they were not worthy, but because they were scheduled for implementation using alternative approaches and funding sources. Although the projects listed in Table G.1 below are all part of this comprehensive approach to watershed management in the region, they are not exhaustive. Each comprehensive project list can be found with its corresponding plan and implementing agency or partnership.

Table G.1 lists the priority projects that were selected for their geographic scopes; ability to achieve multiple benefits, obtain objectives and meet statewide priorities; strength of partnership commitments; and applicability to proposed IRWMP funding sources. The project list is adaptable and subject to review at every partnership meeting. As new partners come to the table, their projects will be added to the list and ranked by priority. The Tahoe Sierra Plan will remain flexible and adaptable to incorporate new priority projects as they develop.

TABLE G.1
Projects that Implement the Tahoe Sierra Plan

PROJECT NAME	PRIMARY PROJECT PURPOSE	PROJECT LOCATION	PROJECT STATUS	PROJECT TIMELINE	IMPLEMENTING AGENCY
Trout Creek (Truckee) Flood Control and Restoration	• Flood Management • Ecosystem Restoration	Truckee	Phase I will be completed in Fall 2005. Phases II committed. Phases III and IV require additional funding.	2007-2009	• Town of Truckee • Sierra Watershed Education Partnership • Truckee River Watershed Council
BMP Retrofit for the Lake Tahoe Region	• NPS Pollution Control • Water Quality Protection and Improvement • Stormwater Capture and Management	Sierra Tahoe Region	Implementation in progress. Additional funding required.	2006-2010	• Tahoe Regional Planning Agency • Tahoe Resource Conservation District
Indian Creek	• Water Quality	Alpine County	Implementation	2006-2010	• South Tahoe Public

TABLE G.1
Projects that Implement the Tahoe Sierra Plan

PROJECT NAME	PRIMARY PROJECT PURPOSE	PROJECT LOCATION	PROJECT STATUS	PROJECT TIMELINE	IMPLEMENTING AGENCY
TMDL Implementation	Protection and Improvement		plan submitted to LRWQCB March 2005. Designs completed for oxygenation and wetlands treatment. Requires additional funding		Utility District • Alpine County
Christmas Valley 2 ECP	• NPS Pollution Control	El Dorado County	Scoping and planning phase in progress. Existing Conditions Report in progress.	2007-2008	• El Dorado County
UC Davis Fish Hatchery, BMP Implementation, Wetland Restoration and Educational Interpretive Center	• Environmental and Habitat Protection and Improvement • Wetlands Enhancement • NPS Pollution Control	Placer County	Planning in progress. Environmental documentation to be complete by May 2006. Additional funding required for implementation.	2006-2009	• UC Davis • Tahoe Resource Conservation District • Sierra Watershed Education Partnership
Markleeville Pipeline Replacement and Water Meter Installation	• Water Supply Reliability	Markleeville	Project planning, design, and implementation require additional funding.	2006-2008	• Markleeville Water Company • Alpine County • Alpine County Watershed Group
Schoolyard BMP Implementation	• NPS Pollution Control	IRWM Plan Region	Planning in progress. Demonstration project completed. Funding complete. Project will be implemented.	2006-2010	• Tahoe Resource Conservation District • Sierra Watershed Education Partnership • Lake Tahoe Unified School District • Tahoe Truckee Unified School District
Cold Creek Fisheries Enhancement	• Ecosystem Restoration • Habitat • Protection	El Dorado County	Planning and design phase in progress.	2007-2009	• El Dorado County
Aquifer Storage Replacement	• Groundwater Management	Squaw Valley	Phase I and II complete. Funding required for III and IV.	2006-2010	• Squaw Valley Public Service District • Truckee River Watershed Council
Water Conservation Project	• Water Conservation	Tahoe Basin	Project planning, design and implementation	2006-2010	• South Tahoe Public Utility District • Tahoe Resource

TABLE G.1
Projects that Implement the Tahoe Sierra Plan

PROJECT NAME	PRIMARY PROJECT PURPOSE	PROJECT LOCATION	PROJECT STATUS	PROJECT TIMELINE	IMPLEMENTING AGENCY
			fully funded. Project is being implemented.		Conservation District
South Upper Truckee Erosion Control Project (ECP)	• Non-Point Source (NPS) Pollution Control	El Dorado County	Project planning, design and implementation require funding.	2008-2009	• El Dorado County
Stormwater Management and Residential BMP Retrofit	• Storm water capture and management • NPS Pollution Control	Truckee, Nevada County, Placer County	Project planning, design and implementation require additional funding.	2007-2009	• Town of Truckee • Truckee River Watershed Council
Angora Creek Fisheries Enhancement	• Ecosystem Restoration • Habitat Protection	El Dorado County	Project planning, design and implementation require funding.	2007-2009	• El Dorado County
Comprehensive Water Quality Monitoring for the Truckee River TMDL	• Water Quality Protection and Improvement	Nevada County, Placer County, and Sierra County	Project planning, design and partial implementation are in progress. Final implementation requires funding.	2006-2008	• Truckee River Watershed Council • Sierra Watershed Education Partnerships
Golden Bear ECP	• NPS Pollution Control	El Dorado County	Project planning, design and implementation require funding.	2008	• El Dorado County
Water Supply Line Replacement and Meter Installation	• Water Supply Reliability • Water Quality Protection and Improvement	El Dorado County	Phased project. Phase 1, 2 & 3 in progress. Further implementation requires funding.	2006-2011	• South Tahoe Public Utility District
Water Meter Installations	• Water Supply Reliability	Placer County	Phased project. Phase 1 & 2 complete. Further implementation requires funding	2004-2009	• Tahoe City Public Utility District
Water Supply Line Replacement	• Water Supply Reliability • Water Quality Protection and Improvement	Placer County	Phased project. Phase 1 & 2 require funding.	2008-2009	• Tahoe City Public Utility District
McKinney/Quail Water Treatment Facility	• Water Supply Reliability • Water Quality Protection and Improvement	Placer County	Project planning, design and implementation require funding	2008-2009	• Tahoe City Public Utility District
Bijou Area ECP	• NPS Pollution Control • Storm water	El Dorado County	Project planning and design in progress.	2007-2009	• City of South Lake Tahoe

TABLE G.1
Projects that Implement the Tahoe Sierra Plan

PROJECT NAME	PRIMARY PROJECT PURPOSE	PROJECT LOCATION	PROJECT STATUS	PROJECT TIMELINE	IMPLEMENTING AGENCY
	capture and management		Implementation Requires funding.		
Upper Truckee River Restoration	• SEZ Restoration	El Dorado County	Project planning and design in progress. Implementation Requires funding	2007-2010	• City of South Lake Tahoe
Al Tahoe ECP	• NPS Pollution Control • Storm water capture and management	El Dorado County	Project planning and design in progress. Implementation Requires funding	2007-2009	• City of South Lake Tahoe

As demonstrated by the projects listed in Table G.1, implementation of the Tahoe Sierra Plan is comprehensive and interdependent. The projects achieve a variety of water management throughout the four counties in the region, and are frequently managed collaboratively by more than one agency and more than one level of government. Even when a project is not managed by more than one agency or level of government, there are often direct linkages and interdependencies with other Tahoe Sierra Plan projects. For instance, the UC Davis Fish Hatchery, BMP Implementation, Wetland Restoration and Educational Interpretation Center Project; Backyard Conservation Program; and Schoolyard BMP Project educate members of the public on the value of installing BMPs for improving water quality. These education and outreach projects are directly linked to the BMP Retrofit Project for the Lake Tahoe Region and the Stormwater Management and Residential BMP Retrofit projects. These projects rely on an educated public willing to properly install and routinely maintain BMPs on their property. In turn, the BMP Retrofit projects are directly linked to the erosion control projects. Water quality benefits from erosion control on public rights-of-way are complemented by erosion control measures (BMPs) installed on adjacent private properties. The three waterline projects are part of a region-wide approach to providing urban-wildfire interface protection as well as water savings. Finally, all of education, outreach and non-point source control projects combine to strengthen the fisheries enhancement and TMDL water quality monitoring projects, as reductions in pollutant and sediment loads result in improved water quality and fisheries habitat function.

The interdependence, collaborative nature, and regional scope of Tahoe Sierra Plan implementation is intentional, as water management issues are rarely confined to one jurisdiction. The implementing projects show that there is an existing working system for achieving mutual water management goals through partnerships and cost sharing among agencies and organizations.

Tahoe Sierra Plan Economic and Technical Feasibility

The Tahoe Sierra Plan is soundly based on economic and technical feasibility. The regional and local planning documents that were utilized to develop regional water strategies for the IRWMP were established through peer review, technical consulting, public processes, and financial analysis prior to adoption. When choosing water management strategies to utilize in the Tahoe Sierra IRWMP, economic and technical feasibility of each strategy was analyzed. Partners felt comfortable with choosing those strategies that had already been through an intensive planning and evaluating process prior to inclusion in the IRWMP. During this intensive planning process, feasibility issues were addressed. Periodically, the regional and local plans are updated to reflect changes in technical and economic feasibility. For example, the EIP (described above), was originally estimated to cost approximately 700 million dollars. This was economically feasible at the time it was created in 1992. With changes in materials costs and cost of living, the economical feasibility has changed. It is now estimated to cost 1.5 billion dollars to implement all of the projects in the Program. As these updates are discovered, the IRWMP can be revised and adapted to reflect them. For instance, in terms of economic feasibility, many Tahoe Sierra Plan implementing projects are fully funded and underway. The majority of projects listed in Table G.1, however, are partially funded and will likely not meet their intended water management objectives without further financial assistance.

Specific implementing projects are assessed for technical feasibility and alignment with current scientific research prior to implementation. For example, the most recent scientific investigations affirm that improving water quality, drinking water supplies, and habitats begins with controlling pollution at its source. There is a range of available technology that is currently being used throughout the region to control erosion at its source by promoting stormwater infiltration. These technologies are often inexpensive and simple to install. They include rip rap, seeded erosion control blankets, willow rolls, gravel armoring, and vegetation. More complex, engineered technologies are also available when conditions require them. To ensure that the most appropriate technologies are used, the Tahoe Sierra Plan relies on open and flexible terms such as "Best Available Technology" and "Best Management Practices." By not defining specific technologies to use, the Plan allows for the use of new technologies that respond to the most recent scientific information.

World-renowned scientific research institutions and laboratories, including UC Davis and University of Nevada, work in collaboration with implementing agencies to provide technical assistance and access to the most recent scientific findings.

Institutional Structure Ensuring Plan Implementation

The Tahoe Sierra IRWMP is designed to allow for flexibility in implementation while also guaranteeing that implementation will occur. The partners are committed to providing resources to the implementation of the IRWMP and each agency has assigned a representative to attend meetings, provide information and serve as a resource for their

individual agency. The partners have agreed to sign MOU's committing them to the process of ongoing plan development and execution. Lead roles are assigned based on agency resources available, level of involvement during implementation phases and ability to serve. TRCD took the lead agency (applicant) role for the Prop 50 IRWMP Implementation grant funding and agreed to ensure plan implementation, execute contract agreements, and track the progress of partners. TRCD will coordinate with the Tahoe Sierra Group partners primarily through email. Individual partners implementing a project under the Plan will submit digital quarterly progress reports to TRCD, who will then collate them into one progress report and make available to all Tahoe Sierra Group partners. Through email, individual partners will be able to broadcast important changes in their local areas to keep all partners updated. In addition, TRCD will forward to the Sierra Group Partners any appropriate information from list-serve email services from the USDA Forest Service, Lahontan RWQCB, SWRCB, DWR, TRPA, and California Tahoe Conservancy. In this way, partners will be aware of regional changes and the implementation status of projects under the Plan. STPUD agreed to take the lead agency (applicant) role for Prop 50 IRWMP Implementation grant funding, Round 2 and will provide the same services for this round that TRCD is providing for the first funding round. It is expected that as the Tahoe Sierra plan is implemented and future funding sources develop, other partner agencies will take lead roles as appropriate. The Tahoe Sierra group is committed to true collaboration by sharing lead role responsibilities and has demonstrated the ability to achieve this successfully on other integrated planning and implementation projects (see Introduction for specific discussion on historical collaboration between partners).

SECTION H

Impacts and Benefits

Implementation of the Tahoe Sierra Plan provides regional, interagency, and local impacts and benefits. This section discusses the regional water management strategies that will be implemented to meet the objectives of the Tahoe Sierra Plan, as presented in Section D, and the potential benefits and negative impacts of implementing such strategies. Additionally, a screening analysis of each of the selected prioritized projects is included to demonstrate the multiple impacts and benefits (i.e., resource benefits, interregional benefits) resulting from implementation of each project (Table H.1).

Regional Water Strategy Impacts and Benefits

As discussed in Section C, the five objectives of the Tahoe Sierra Plan are to: 1) Protect and improve water quality, 2) Protect community water supply, 3) Manage groundwater for sustainable yield, 4) Contribute to ecosystem restoration, and 5) Implement integrated watershed management throughout the region. The plan objectives are demonstrated through regional water management strategies as listed below. The benefits and impacts of implementing the plan, as well as the impacts of not implementing the plan are discussed for each objective listed below.

1. Water Quality Objectives

As discussed in Section E, the objective will be met by projects that employ the following water management strategies:

- Ecosystem restoration
- Environmental and habitat protection and improvement
- Flood management
- Groundwater management
- Recreation and public acces
- Storm water capture and management
- Water conservation
- Water quality improvement and protection
- Wetland enhancement and creation
- Land use planning
- NPS pollution control
- Watershed planning
- Water and wastewater treatment

The water quality management strategies listed above directly benefit the water quality of Lake Tahoe and its tributaries in multiple regions. Studies by the University of California Davis Tahoe Research Group (TRG) indicate that Lake Tahoe waters have been losing transparency at an average of about one foot each year since the late 1960s. Much of the clarity loss is attributed to algal growth, which is particularly responsive to the combination of nutrients, trace elements, and natural organic compounds released by the erosion of Tahoe watersheds. As Lake Tahoe and its tributaries are a multi-regional

water system, this objective necessitates a regional solution. Ecosystem restoration, flood management, and wetland enhancement and creation all directly benefit the multi-regional tributaries to and from Lake Tahoe by restoring natural and self sustaining river and floodplain processes and functions, which deposit fine suspended sediments and nutrients onto active flood plains, rather than carrying the sediment/nutrients into downstream lakes and tributaries. Flood management, storm water capture and management, water quality improvements and protection, and land use planning benefit the water quality of Lake Tahoe and its tributaries by reducing and preventing erosion, reducing runoff volumes generated, and treating storm water to remove pollutants.

The potential negative impacts caused by implementing the water quality management strategies listed above are relatively minor and are far outweighed by the benefits of implementing the plan. Temporary negative impacts may result from land disturbance necessary for construction of restoration and water quality improvement projects. These impacts are typically mitigated through proper planning and construction techniques. The potential for long-term negative regional impacts is minimal as projects must undergo the California Environmental Quality Act (CEQA) review process prior to implementation, which serves to mitigate potential negative impacts.

The regional impacts of not implementing the water quality management strategies would result in significant delays to development of the TMDL standards for multiple basins represented by the Tahoe Sierra Plan. These standards are necessary to determine the health of various water bodies and tributaries, in order to guide the prioritization and selection of water quality improvement projects. Regional impacts of not implementing the selected prioritized projects (Table H.1), include but are not limited to continued sedimentation and loss of clarity to Lake Tahoe and its tributaries, reduced public outreach and education regarding regional water quality issues, and reduced flood control and flood mitigation. See Table H.1 for project-specific benefits and impacts.

2. Water Supply Objectives

As discussed in Section E, the objective will be met by projects that employ the following water management strategies:

- Water supply reliability
- Groundwater management
- Water conservation
- Water recycling
- Conjunctive use
- Surface storage
- Watershed planning
- Water and wastewater treatment
- Water transfers

Water supply reliability, water conservation, water recycling, conjunctive use, watershed planning, and water transfers directly benefit the Tahoe Sierra Regional Water Group by encouraging water conservation through public education and outreach, and tracking of water usage. This helps reduce the current demand for water, and provides additional

resources for future planning. As use of the Tahoe Sierra water bodies for water supply sources extends beyond the Tahoe Sierra Plan boundaries, this objective provides important multi-regional benefits.

The potential negative impacts caused by implementing the water quality management strategies listed may include temporary construction impacts to landowners adjacent to existing and future water infrastructure, and concern and conflict between users of a shared water source. Temporary negative impacts may result from land disturbance necessary for construction of restoration and water quality improvement projects. Temporary construction impacts can be mitigated through proper planning, public outreach, and construction techniques. Potential conflicts between users of a shared water source can be mitigated through extensive outreach activities and well-defined water conservation plans.

The regional impacts of not implementing the water quality management strategies may result in decreased water quality and future availability for regions both included and not included in the Tahoe Sierra Plan. Regional impacts of not implementing the selected prioritized projects (Table H.1) include but are not limited to increased maintenance cost to repair failing infrastructure that is at the end of its useful life, and increased consumer costs due to increased demand caused by lack of conservation measures. See Table H.1 for project-specific benefits and impacts.

3. Groundwater Management Objectives

As discussed in Section E, the objective will be met by projects that employ the following water management strategies:

- Water supply reliability
- Groundwater management
- Storm water capture and management
- Water conservation
- Water quality protection and improvement
- Conjunctive use
- NPS pollution control
- Surface storage
- Watershed planning

The water quality management strategies listed above directly benefit multiple regions within the Tahoe Sierra Plan, as most Tahoe Sierra residents get their municipal water from groundwater extraction wells. NPS pollution controls, such as erosion and sediment control, wellhead protection programs, cleanup of leaking underground storage tanks, and other groundwater protection efforts are in place to ensure clean drinking water for all residents in the region. Storm water capture, management, and surface storage provides for detention, treatment, and recharge of surface water to groundwater. The need for high quality groundwater is mutually dependant throughout the region, therefore managing groundwater through the water management strategies provides multi-regional benefit.

The potential negative impacts caused by implementing the water quality management strategies listed may include temporary impacts resulting from land disturbance necessary for construction of water quality improvement and NPS pollution control projects and concern and conflict between users of a shared water source. Temporary construction impacts can be mitigated through proper planning, public outreach, and construction techniques. Potential conflicts between users of a shared water source can be mitigated through extensive outreach activities and well-defined water conservation plans.

The regional impacts of not implementing the water quality management strategies may result in decreased groundwater quantity and quality, thereby affecting the regions water supply reliability. This could impede future development and economic growth in the region. Regional impacts of not implementing the selected prioritized projects (Table H.1) include but are not limited to increased cost to treat impacted groundwater to current drinking water standards and reduced availability of groundwater for irrigation, fire flow, and other beneficial uses.

4. Ecosystem Restoration Objectives

As discussed in Section E, the objective will be met by projects that employ the following water management strategies:

- Ecosystem restoration
- Environmental and habitat protection and improvement
- Flood management
- Recreation and public access
- Storm water capture and management
- Water conservation
- Water quality improvement and protection
- Wetland enhancement and creation
- Land use planning
- NPS pollution control
- Watershed planning

The water quality management strategies listed above directly benefit multiple regions within the Tahoe Sierra Plan, since as much as 70% or Sierra wildlife depend upon SEZ habitat for associated food sources. Ecosystem restoration, environmental and habitat protection and improvement, and wetland enhancement and creation benefit the region by improving riparian and meadow vegetation, raising groundwater table elevations, enhancing fisheries, and increasing macro-invertebrate populations. Restoration and enhancement of fish and wildlife habitat enhances the terrestrial and aquatic habitat of a river for supporting native wildlife, invertebrates, amphibians, and fish passage to upstream spawning areas, thereby increasing the viability of native fish populations. Additionally, flood management, storm water capture and management, and water quality improvement and protection restore natural and self-sustaining river and floodplain processes and functions. A properly functioning floodplain stores water and sediment and provides a medium for wetland plants. This reduces nutrients and fine sediment input from adjacent upland areas and reduces transport of the nutrients and fine sediment to downstream lakes and tributaries.

The potential negative impacts caused by implementing the water quality management strategies listed above may include land and habitat disturbance necessary for construction of ecosystem/habitat restoration and water quality improvement projects. These impacts are typically mitigated through proper planning and construction techniques. The potential for long-term negative regional impacts is minimal as projects must undergo the California Environmental Quality Act (CEQA) review process prior to implementation, which serves to mitigate potential negative future impacts.

The regional impacts of not implementing the water quality management strategies would result in the further eroding of highly incised river channels, which will continue to produce and transport large amounts of sediments and nutrients to downstream water bodies and tributaries. Without SEZ restoration, areas downstream of an improperly functioning floodplain may be subject to additional flooding hazard, and habit for the unique Tahoe Sierra sensitive species and wildlife will continue to be jeopardized. Regional impacts of not implementing the selected prioritized projects (Table H.1), include but are not limited to reduced water quality in Lake Tahoe and its tributaries, and reduced recreational benefits, which educate public about the ecosystem services provided by healthy wetland and SEZs. See Table H.1 for project-specific benefits and impacts.

5. Integrated Water Management Objectives

As discussed in Section E, the objective will be met by projects that utilize all of the water management strategies described thus far. The added benefits of integrating multiple water management strategies are discussed in detail in Section E. The primary benefit is the alignment of water management strategies to watershed and regional boundaries, as opposed to individual jurisdictional boundaries. As multiple jurisdictions often govern shared watersheds, and the TRPA and LRWQCB develop plans based on watershed and/or regional boundaries, it makes sense to implement projects through an integrated regional water management plan rather that separate jurisdictions.

The potential negative impacts caused by implementing an integrated regional water management plan may include conflict between partners caused by divergent statutory obligations and agency culture. Additionally, coordinating meetings and agendas across a broad geographic region may be challenging. These conflicts can be mitigated by designating a lead agency to provide guidance on conflict resolution and coordination issues. Additionally, all partners will need to be flexible and to allow for compromise between the partnering agencies and jurisdictions.

The regional impacts of not implementing an integrated regional water management plan would result in projects that focus on project-specific objectives rather than objectives which benefit the greater watershed or regional area. These projects with project-specific objectives may not provide as much long-term benefit to the region. Additionally, project scope and costs may increase due to the lack of cost, resource, and information sharing amongst jurisdictions, which is encouraged a part of the integrated water management objectives.

Advantages of the Regional Plan

The advantages of the regional focus of the Tahoe Sierra Plan, as opposed to individual local efforts, include the following:

- Cost- and information-sharing across multiple jurisdictions and among partners;
- More holistic environmental improvements that meet regional objectives;
- Streamlined efforts and reduced overlap of projects;
- Identification of regional priorities that guide project development and implementation;
- Increases probability of meeting State and Federal funding guidelines;
- Allows for watershed management planning on an environmentally-effective geographic scale;
- Improved scientific and technical data dissemination to implement more effective projects;
- Utilization of a data clearinghouse to provide partners and the public with regional monitoring information; and,
- Breaking down political and geographic barriers to achieve mutual environmental goals.

Project Impacts and Benefits

Table H.1 describes at a screening level the impact and benefits from Tahoe Sierra Plan implementation, including resource benefits, disadvantaged community benefits, and interregional benefits. The table also identifies which Plan objectives are addressed by each project and whether each project necessitates a regional solution.

TABLE H.1
Impacts and Benefits of the Projects that Implement the Tahoe Sierra Plan

PROJECT NAME	PLAN OBJECTIVES ADDRESSED	REGIONAL SOLUTION REQUIRED?	IMPACTS	BENEFITS
Trout Creek Flood Control and Restoration	WQ2 WQ5 WQ6 ER1 ER2 ER3 IWM1 IWM2 IWM3	No.	Temporary construction impacts including traffic, air quality, and noise; Temporary hydrology and habitat impacts during dewatering.	**Resource Benefits:** bank stabilization, SEZ restoration, enhanced fish habitat, newly created riparian habitat, public outreach and education, improved water quality of Truckee River, and flood protection for Truckee River corridor. **Disadvantaged Community Benefit:** Project benefits disadvantaged communities in South Lake Tahoe by providing outreach and education.
BMP Retrofit for the Lake Tahoe Region	WQ2 WQ3 WQ6 WS3 ER5 IWM1 IWM2 IWM3	Yes.	Short term economic impact to property owners associated with costs of BMP Retrofit; Temporary soil disturbance during construction.	**Resource Benefits:** managed stormwater runoff, erosion control, increased property values, NPS pollution control, aesthetic improvements, improved water quality of Lake Tahoe and its tributaries, and reduced fugitive dust emissions. **Disadvantaged Community Benefit:** Project benefits disadvantaged communities in South Lake Tahoe and Kings Beach, by providing free technical assistance and education to historically underserved people.
Indian Creek TMDL Implementation	WQ1 WQ2 WQ3 ER1 IWM1 IWM2 IWM3	Yes.	Temporary construction impacts including traffic, air quality, and noise	**Resource Benefits**: meet the State TDML standards, reduce nutrient and sediment loads, protect aquatic habitat, recreational access, stakeholder involvement in NPS pollution control, and improved water quality for Indian Creek reservoir. **Interregional Benefit:** Project will improve water quality of Indian Creek, which is a tributary to the East Fork Carson River in California and Nevada.
Christmas Valley II Erosion Control Project (ECP)	WQ2 WQ3 GWM2 IWM1 IWM2	No.	Temporary construction impacts including traffic, air quality, and noise; Temporary soil disturbance and sediment export to	**Resource Benefits:** capture and treatment of surface water runoff, bank stabilization, erosion control, reduced fugitive dust emissions, and improved water quality of Lake Tahoe and its tributaries.

			neighboring communities.	
UC Davis Fish Hatchery, BMP Implementation, Wetland Restoration and Educational Interpretation Center	WQ2 WQ3 WQ5 WQ6 ER1 ER2 ER4 ER5 IWM1 IWM2 IWM3	No.	Temporary construction impacts including traffic, air quality, and noise; Temporary soil disturbance and wetland impacts during construction.	**Resource Benefits:** restoration of previously channelized creeks and waterways, capture and management of storm water, NPS pollution control, erosion control, restore SEZ, restore wetland habitat, public outreach and education, improve quality of Polaris Creek, Burton Creek, and Lake Tahoe, recover native fish populations to historic range, provide recreation and public access, and create community outdoor learning center.
Markleeville Pipeline Replacement and Water Meter Installation	WS1 WS2 WS3 WS4 IWM2 IWM3	No.	Temporary construction impacts including traffic, air quality, and noise.	**Resource Benefits:** provide safe and reliable drinking water supply, water conservation, and SEZ protection. **Interregional Benefit:** Project protects the East Fork Carson River, which flows into Nevada.
Schoolyard BMPs	WQ2 WQ3 WQ6 ER3 IWM2 IWM3	Yes.	Temporary construction impacts including traffic, air quality, and noise; Temporary soil disturbance during construction.	**Resource Benefits:** stormwater management, erosion control, place-based service learning for community, increased public education and awareness, increased civic participation by K-12 students, and improved water quality of Lake Tahoe. **Disadvantaged Community Benefit:** Project benefits disadvantaged communities in Kings Beach by focusing education and outreach to historically underserved people. **Interregional Benefit:** Educating younger generation regarding watershed stewardship, which they will take with them to other communities.
Cold Creek Fisheries Enhancement	WQ2 WQ3 WQ5 GWM2 ER1 ER2 IWM1 IWM2 IWM3	No.	Temporary construction impacts including traffic, air quality, and noise.	**Resource Benefits:** capture and treatment of surface water runoff, bank stabilization, erosion control, restore SEZ, improved aquatic habitat, improved water quality of Lake Tahoe and its tributaries, and increase viability of native fish populations.
Squaw Valley Water	WQ4	No.	Temporary	**Resource Benefits:** improve and

Supply Enhancement	WS1 GWM1 GWM2 GWM3 ER1 IWM1 IWM2 IWM3		construction impacts including traffic, air quality, and noise	provide a safe and reliable water supply, ensure adequate water for multiple uses, and enhanced stream flow.
South Lake Tahoe Water Conservation Incentives Project	WQ6 WS3 IWM2 IWM3	Yes.	Short term economic impact to property owners associated with replacing wasteful water appliances and their disposal.	**Resource Benefits:** water conservation, public education and outreach, provide safe and reliable water supply, and energy benefits through encouraging the use of Energy Star appliances and reducing the energy necessary for pumping in water supply and exporting wastewater. **Disadvantaged Community Benefit:** Project benefits disadvantaged communities in South Lake Tahoe by focusing education and outreach to historically underserved people.
South Upper Truckee ECP	WQ2 WQ3 GWM2 IWM1 IWM2	No.	Temporary construction impacts including traffic, air quality, and noise; Temporary soil disturbance during construction and soil export to neighboring communities.	**Resource Benefits:** capture and treatment of surface water runoff, bank stabilization, erosion control, reduced fugitive dust emissions, and improved water quality of Lake Tahoe and its tributaries.
Town of Truckee Stormwater Management Retrofits	WQ2 WQ3 WQ6 ER3 ER5 IWM1 IWM2 IWM3	Yes.	Temporary construction impacts including traffic, air quality, and noise. Short term economic impact to property owners associated with costs of BMP Retrofit.	**Resource Benefits:** capture and management of stormwater, flood management, erosion control, water quality protection and improvement, public outreach and education, and improved water quality of Donner Lake and the Middle Truckee River. **Interregional Benefit:** Improved water quality of the Truckee River will benefit downstream water users in Reno, Nevada.
Truckee River Voluntary BMP Retrofit	WQ2 WQ3 WQ6 WS3 ER5 IWM1 IWM2 IWM3	Yes.	Short term economic impact to property owners associated with costs of BMP Retrofit; Temporary soil disturbance during construction.	**Resource Benefits:** managed stormwater runoff, erosion control, increased property values, NPS pollution control, aesthetic improvements, and improved water quality of Truckee River and tributaries. **Interregional Benefit:** Improved water quality of the Truckee River

				will benefit downstream water users in Reno, Nevada.
Angora Creek Fisheries Enhancement	WQ2 WQ3 WQ5 GWM2 ER1 ER2 IWM1 IWM2 IWM3	No.	Temporary construction impacts including traffic, air quality, and noise. Temporary soil disturbance during construction and sediment export to neighboring communities.	**Resource Benefits:** capture and treatment of surface water runoff, bank stabilization, erosion control, restoring SEZ, improved water quality of Lake Tahoe and its tributaries, improving aquatic habitat, and increasing viability of native fish populations.
Comprehensive Water Quality Monitoring for the Truckee River TMDL Development	WQ1 WQ2 WQ3 IWM1 IWM2 IWM3	Yes.	Temporary sediment disturbance during monitoring activities.	**Resource Benefits:** meet the State TDML standards, use sound science to determine implementation measures to reduce nutrient and sediment loads, protect aquatic habitat, develop stakeholder involvement and improve water quality for the Truckee River. **Interregional Benefit:** Determining water quality protection measure needs upstream will benefit downstream communities.
Golden Bear ECP	WQ2 WQ3 GWM2 IWM1 IWM2	No.	Temporary construction impacts including traffic, air quality, and noise; Temporary soil disturbance and sediment transport to neighboring communities.	**Resource Benefits:** capture and treatment of surface water runoff, bank stabilization, erosion control, reduced fugitive dust emissions, and improved water quality of Lake Tahoe and its tributaries.
South Tahoe Supply Line Replacement and Meter Installation	WS1 WS2 WS3 GWM1 GWM2 GWM3 IWM1	Yes.	Temporary construction impacts including traffic, air quality, and noise	**Resource Benefits:** efficient use of water supply, improved water supply infrastructure, water supply reliability, water conservation, and reduced energy consumption for pumping in water supply and exporting wastewater. **Disadvantaged Community Benefit:** Project benefits disadvantaged communities in South Lake Tahoe by providing safe and reliable drinking water without increasing the financial burden to low-income households. **Interregional Benefit:** Project serves residents of both South Lake Tahoe and El Dorado County.

TCPUD Water Meter Installations	WS1 WS3 WS4 IWM1	Yes.	Temporary Installation impacts; minor inconvenience to homeowner during installation	**Resource Benefits:** water conservation, track water usage, consistent consumption based billing. **Interregional Benefit:** water conservation for the region.
TCPUD Steel Pipeline Replacement	WS1 WS2 WS3 GWM1 GWM2 GWM3 IWM1	Yes.	Temporary construction impacts including traffic, air quality, and noise	**Resource Benefits:** efficient use of water supply, improved water supply infrastructure, water supply reliability, water conservation, and reduced energy consumption. **Interregional Benefit:** water conservation, improved quality of water supply reliability within the region.
McKinney/Quail Water Treatment Facility	WS1 WS2 WS3 WQ4 GWM1 GWM2 GWM3 IWM1	Yes.	Temporary construction impacts including traffic, air quality, and noise	**Resource Benefits:** efficient use of water supply, improved water supply infrastructure, water supply reliability, water conservation, and expanded service area. **Interregional Benefit:** water conservation, improved quality of water supply reliability within the region.
Bijou Area ECP	WQ2 WQ3 WQ5 WQ6 GMW1 GMW2 ER1 ER2 ER3 ER5 IWM1 IWM2	Yes.	Temporary construction impacts including traffic, air quality, and noise	**Resource Benefits:** storm water management, capture and treatment of surface water runoff, flood management, erosion control, restore SEZ, create wildlife habitat, improved water quality of Lake Tahoe and its tributaries **Interregional Benefit:** improved quality of surface water runoff to Lake Tahoe will benefit downstream water users in Lake Tahoe and it's tributaries
Upper Truckee River Restoration	WQ1 WQ2 WQ5 WQ6 GWM2 ER1 ER2 ER3 ER5 IWM1 IWM2 IWM3	Yes.	Temporary construction impacts including traffic, air quality, and noise; Temporary soil disturbance and wetland impacts during construction.	**Resource Benefits:** bank stabilization, restore SEZ, create riparian habitat, public outreach and education, improve natural function of Upper Truckee River, improve water quality of Lake Tahoe and its tributaries, flood protection for Upper Truckee River corridor, improving aquatic habitat, and increasing viability of native fish populations. **Interregional Benefit:** improved natural function of the Upper

				Truckee River will benefit downstream water users in Lake Tahoe and it's tributaries
Al Tahoe ECP	WQ2 WQ3 WQ6 GMW2 ER2 ER3 ER5 IWM1 IWM2 IWM3	Yes.	Temporary construction impacts including traffic, air quality, and noise	**Resource Benefits:** storm water management, capture and treatment of surface water runoff, erosion control, reduced fugitive dust emissions, and improved water quality of Lake Tahoe and its tributaries. **Interregional Benefit:** improved quality of surface water runoff to Lake Tahoe will benefit downstream water users in Lake Tahoe and it's tributaries

SECTION I

Technical Analysis and Plan Performance

The Tahoe Sierra Plan is firmly based on sound science. All of the regional foundation plans used to create the Tahoe Sierra Plan (Introduction Table 1) were developed based on the most recent data, technical methods and analyses. Because the local and regional plans were adopted at different times, there is some variance in the scientific basis, as knowledge and technology advances. However, almost all of these plans have been updated and amended since their initial adoption. During the amendment process, all relevant data, technical methods and analyses were considered and have been incorporated into the Tahoe Sierra Plan. The scientific studies used for local and regional plan development have historically fallen along basin lines, that is, the Lake Tahoe Basin, the Truckee River Basin and the Carson River Basin. Although the studies usually focus on one of the three basins, the data, technical methods and analyses are often applicable to neighboring watersheds and incorporated. Bibliographies of related studies are included in the foundation plans.

Lake Tahoe Scientific Basis

There is a long history of scientific study, data gathering, and technical analysis of the water resources of the Lake Tahoe Basin. The UC Davis Tahoe Research Group (TRG) has been studying Lake Tahoe clarity for over 40 years. The use of a secchi disc to study lake clarity has shown a loss at an average of 1 foot of clarity per year. The TRG has conducted pioneering research on the physics, chemistry and biology of Lake Tahoe. After analyzing their data, the TRG and agency and interest group partners have identified a brief 10 to 12 year window of opportunity before irremediable damage is done.

The Lake Tahoe Interagency Monitoring Program (LTIMP) consists of federal, state and local agencies with the directorship residing in the TRG. Since 1980, the Lake Tahoe Interagency Monitoring Program (LTIMP) has been measuring stream discharge and concentrations of nutrients and sediment in up to ten tributary streams in the Lake Tahoe Basin, California-Nevada. The LTIMP data set is comprised of greater than 15,000 samples representing about 250 station-years of record for up to six water quality constituents. LTIMP gives guidance to agencies for conducting monitoring in the Lake Tahoe Basin.

The Basin Plan for the Lahontan Region is the basis for the Regional Board's regulatory program. Based on best available scientific data at the time of its adoption, it set forth implementation measures and water quality standards for surface and groundwaters of the Region. This included both designated beneficial uses of water and the narrative and numerical objectives which much be maintained or attained to protect those uses. As new data becomes available, the Basin Plan can be amended to incorporate this data as appropriate. The Basin Plan lists approximately 80 sources of data and other information that were used in its development. These 80 sources of data can be found in the bibliography to the Basin Plan (the section which precedes the Appendices). Sources of this data include the CA Department of Water Resources, CA Department of Fish and

Game, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service and other sources. All data considered in Basin Plan amendments is subject to meeting State Water Resources Control Board standards for Quality Assurance/Quality Control. In addition, all amendments to the Basin Plan are subject to compliance with CEQA through use of environmental documents that are functionally equivalent to environmental impact reports.

The Lake Tahoe Watershed Assessment (US Forest Service January 2000), was a comprehensive interdisciplinary effort to collect information and key scientific findings about air and water quality, ecosystem integrity, biological diversity and socioeconomics into one place for the use of resource managers and decision makers in Tahoe. The Watershed Assessment Team consisted of fifteen scientists and researchers. This information, considered the state of the science at Lake Tahoe, is now extensively used in foundation plan updates.

The Science Advisory Group (SAG) advises the Tahoe Regional Planning Agency (TRPA) on expenditures for Threshold Update research that could relate to all nine TRPA environmental thresholds and economic models for the Basin.

The following plans are bound to research and recommendations that come out of the abovementioned data and methods: the Basin Plan, the 208 Plan, and the TRPA Regional Plan. The interpretation of the results coming out of TRG and LTIMP provide guidance for how these plans are revised and implemented.

Truckee Scientific Basis

The Truckee River and its tributaries, the only outflow system of Lake Tahoe, are source waters for the state of Nevada according to the provisions of the Orr Ditch Decree/Settlement Act (and in the future, The Truckee River Operating Agreement). As a result, there is great emphasis on ensuring that all existing relevant data and technical methods are incorporated into the Truckee foundation plans. Being the neighboring watershed to Lake Tahoe, a watershed that has received funding support for scientific research, much of this data is relevant for the Truckee region and therefore has been shared and utilized. For example, to develop Truckee TMDL standards, Lake Tahoe TMDL technical methods and analyses can be used as the model.

Carson River Scientific Basis

Alpine County encompasses the headwaters of both the West and the East fork of the Carson River. Much data collection has been focused on assessing the water quality status of these waters, including preparing for TMDL development. Indian Creek Reservoir was constructed in 1967-68 on an ephemeral tributary of Indian Creek, which is a tributary of the East Fork Carson River. The reservoir was designed to store tertiary treated wastewater effluent exported from the Lake Tahoe watershed for subsequent reuse in pasture irrigation. South Tahoe Public Utility District is responsible for operating and monitoring water quality at the reservoir. The reservoir became eutrophic during the 1970s and was placed on the California Section 303(d) list of water quality impaired water bodies in the 1980s. The reservoir was converted from a treated effluent

receiving reservoir to a freshwater recreation reservoir in 1989. Since then, its level is maintained with water diverted from the West Fork Carson River and Indian Creek. Kennedy/Jenks Consultants have prepared some of the scientific basis of this research, which is located in a technical memorandum that reviewed and evaluated potential mitigation alternatives for the Indian Creek Reservoir. The reservoir has been monitored extensively in recent years, and this data, collected with EPA-approved technical methods and analysis, directs implementation of the TMDL.

Measures that will be used to Evaluate Project/Plan Performance:

- Length of streams restored;
- Acres of wetlands restored;
- Increase in fish populations as demonstrated by pre- and post-project fish counts
- Reduction of stormwater runoff in cubic feet;
- Discharge concentrations meeting TMDL standards;
- Increased public awareness of water-related issues demonstrated through pre- and post-project surveys;
- Length of eroding road cut slopes stabilized;
- Length of water supply infrastructure pipes replaced or upgraded;
- Increased student knowledge and awareness of water-related issues demonstrated by pre- and post-tests;
- Amount of water conserved in gallons per day;
- Number of vouchers redeemed through water conservation incentive program; and
- Reduction of number of water main breaks per year.

Monitoring Systems used to Gather Performance Data:

- Stream surveys;
- Fish counts;
- Measurement of amount of impervious surface infiltration;
- Water quality monitoring;
- Public opinion surveys;
- CIP tracking program;
- Student test scores; and
- Water conservation program monitoring by utility districts.

Mechanisms to Adapt Project Operations:

Project operations will be measured through appropriate monitoring systems to ensure that all relevant data necessary to determine success or failure are collected, analyzed, and reviewed. This information will be shared between the members of the Tahoe Regional Water Management Group to facilitate a project adaptive management feedback loop. The data, technical methods and analyses will be published on the Tahoe Interagency Information Management System.

SECTION J

Data Management

Numerous Federal, State, regional and local agencies within the Tahoe Sierra Region are involved in implementing the Tahoe Sierra Plan. These planning and restoration efforts throughout the region range from permitting to regulatory enforcement to maintaining and improving the quality of surface and groundwater resources. Each entity collects, analyzes and disseminates environmental data to support these efforts. In 2001, it was recognized that an integrated data sharing mechanism was necessary and imperative to assist the myriad efforts in the Tahoe Sierra Region. A multitude of agencies met and agreed to develop such a web-based integrated information storage and dissemination system, called the Tahoe Integrated Information Management System (TIIMS). The partnering agencies include: the Tahoe Regional Planning Agency (TRPA), the Nevada Division of Environmental Protection (NDEP), the California State Water Resources Control Board (SWRCB), the U.S.D.A. Forest Service (USFS), the U.S. Geological Survey (USGS), U.S. Army Corps of Engineers, and the Desert Research Institute (DRI). The mechanism, while specifically designed to support the Lake Tahoe Basin, is proposed to be enhanced in scope to support Tahoe Sierra Plan implementation for the region.

The Tahoe Integrated Information Management System (TIIMS) is a web-based, interactive data sharing and repository tool that allows users to access all kinds of information, mostly in the Lake Tahoe Basin. The information housed on the web-based system is accessible by the public, agency staff, and researchers. TIIMS is supporting statewide data needs by housing information on the following large initiatives:

- Development of Total Maximum Daily Loads (TMDLs) in compliance with Section 303(d) of the Clean Water Act;

- Implementation of Environmental Improvement Program (EIP) which has identified nearly 800 projects to be completed over a 20-year period. These projects support the long-term restoration of Lake Tahoe and are the central means of attaining the environmental thresholds for the region;

- Implementation of Lahontan Regional Water Quality Control Board Watershed Management Initiative Chapters, plans, and policies;

- Implementation of the SWRCB's NPS Pollution Plan;

- Integration of data into SWRCB's Surface Water Ambient Monitoring and Groundwater Ambient Monitoring Assessment Programs; and,

- Clearinghouse for all regional monitoring data including water supply and water quality.

TIIMS is intended to be the gateway for information needed to implement restoration and planning efforts and to support the Tahoe Sierra Plan. Through collection of this information, any gaps in data and additional monitoring needs will be identified and addressed. The TIIMS prototype is live at www.tiims.org. The Tahoe Sierra Plan is available for public viewing at the TIIMS website.

Lake Tahoe Basin

Current Monitoring.

At Lake Tahoe, a regional water quality monitoring effort, called the Lake Tahoe Interagency Monitoring Program (LTIMP), has been sampling thirty-two tributary sites in fourteen watersheds for many years. LTIMP members include the Tahoe Regional Planning Agency (TRPA), US Geological Survey, Tahoe Research Group (TRG), US Forest Service, US Environmental Protection Agency, the State Water Resources Control Board, the Department of Water Resources, the Department of Transportation, Air Resources Board, Department of Fish and Game, Nevada Division of Environmental Protection, and local counties and cities. LTIMP utilizes standardized monitoring and analysis protocols to ensure consistency between partners. Appropriate quality control techniques are employed. Constituents that are monitored include nutrients, sediment, and physical parameters. Specifically, the constituents are:

Table J.1 Constituents monitored by LTIMP

Nutrients	• Total Kjeldahl Nitrogen • Dissolved ammonium nitrogen • Dissolved nitrite plus nitrate • Total Phosphorus • Dissolved orthophosphate phosphorus • Total biologically reactive iron
Sediment	• Suspended sediment concentration • Suspended sediment discharge • Sand break

Physical	• Water temperature • Air temperature • Gage height • Discharge • Specific conductance • Weather • Hydrologic event • Stage conditions • pH • Dissolved oxygen • Barometric pressure • Dissolved oxygen percent saturation

Water quantity and drinking water quality is monitored by local water purveyors, including the South Tahoe Public Utility District. Quality of water supply is monitored and must meet EPA standards for drinking water. Quantity is monitored in acre feet or million gallons per day (mgd) and a 20-year forecast is determined (see Section B) by evaluating supply versus use, future demand estimates based on population, and environmental factors such as precipitation trends. Additionally, groundwater is monitored by STPUD in order to track the movement of MTBE plumes in the groundwater supply, which has closed many wells in the district.

Data Gaps.
Data gaps in the Lake Tahoe region include:

- Consistent BMP effectiveness monitoring;
- Impacts of infiltration of pretreated storm water on groundwater and/or source water quality;
- Effects of wetland restoration on surface and groundwater quality;
- Impacts of treating storm water in sensitive areas such as wetlands and riparian areas;
- Filtering and infiltrative capacity of various vegetation types;
- Impacts of turf grass on water supply and water quality; and
- Effects of various recreational activities on water quality.

Truckee River Basin
Current Monitoring. Current water monitoring efforts in the Truckee River Basin fall into three areas: surface water quality and flow, ground water quality and supply, and river and habitat health.

Surface water quality and flow are monitored under the regulations of the LRWQCB Basin Plan and the Orr Ditch Decree. For surface water quality, individual dischargers monitor per their permits requirements, against the Basin standards. Typically this monitoring is for sediment and nutrient levels. Flows are measured by DWR (or their

designee) and US Geologic Survey against the rights outlined in the Orr Ditch Decree and associated agreements.

Groundwater quality and supply are monitored under the regulations of LRWQCB and DWR. Water purveyors monitor groundwater wells against drinking water standards and to insure supply can be met against seasonal and long term conditions.

River and habitat health are monitored for specific plans by resource agencies. For example, USFWS conducts monitoring against its Recovery Plan for Lahontan Cutthroat Trout and USFS Tahoe National Forest conducts monitoring for protection of special status species in context of land management practices (i.e. forest thinning). River health is also monitored by two citizen's efforts: Truckee River Aquatic Monitors macro invertebrate monitoring and Clean Water Team Snapshot Day monitoring of chemical and physical variables of water quality.

Data Gaps. Two significant gaps exist: TMDL monitoring and cumulative effects monitoring.

Five water bodies in the Truckee basin are 303(d) listed for sedimentation (Truckee River, Bronco Creek, Gray Creek, Squaw Creek, and Bear Creek). Inadequate monitoring is in place to establish baseline sediment conditions. For a brief period (approximately 2001-2003) DWR in cooperation with LRWQCB, operated continuous turbidity monitors. A one year macro invertebrate study on the mainstream of the Truckee River is concluding and a two year macro invertebrate study on the Squaw Creek has been completed. None of these efforts are adequate to support the continued listing or de-listing of the water bodies. Furthermore none of these efforts can distinguish if the sedimentation is due to "legacy" land uses (railroad, mining, timber harvesting) or current land uses.

Development in the Truckee River basin has been proceeding at a rapid pace. Both the Town of Truckee and the Martis Valley, for example, will achieve build out 10-15 years ahead of the general plan forecasts. **No** monitoring of the cumulative effects of this change in land use is in place. LRWQCB has stated the need for such monitoring (March and May 2004) but has not budgeted or staffed this effort.

A project in this proposal addresses the TMDL monitoring gap. It is hoped the TMDL monitoring effort can at least in part address the cumulative effects monitoring.

Alpine County

Current Monitoring. Local, state, and federal agencies and private entities are involved with the collection of data on water quality, fisheries, aquatic insects, habitat conditions, hydrology, and other watershed issues within the Upper Carson River watershed. These entities include, but are not limited to, the California Department of Fish and Game, the USEPA, California Water Quality Control Board, Alpine County, the United States Forest Service, etc. A few on the ongoing water quality monitoring programs are outlined below.

Alpine County, in conjunction with the California State Water Resource Control Board, Carson Water Sub conservancy District, South Tahoe Public Utility District, Desert Research Institute, Celio & Sons, Inc, Sierra Environmental Monitoring and the Alpine Watershed Group are conducting a comprehensive water quality monitoring program for the Upper Carson River Watershed (Watershed) in Alpine County, California. The purpose of this project is to identify causes of water quality problems and provide current information on water quality conditions on the West Fork and East Fork of the Carson River and Indian Creek, a tributary to the East Fork. It is imperative that monitoring studies be performed on these water bodies to provide input on the health of the Watershed and to provide the data to guide prioritization of potential future projects and total maximum daily load (TMDL) development.

In the mid-1960s, the wastewater treatment facility in South Lake Tahoe began a program to transfer the treated effluent to Alpine County where it was stored in reservoirs for eventual use as irrigation water. Regulatory authority for the discharge of treated wastewater to agricultural lands is held by the Lahontan Region of the California State Water Resources Control Board. A condition of the discharge permit states that STPUP is to perform regular (monthly) monitoring of the County's groundwater, surface water, and soils within the wastewater re-use area. In addition to STPUD's monitoring, the County performs its own, independent monitoring for quality assurance.

The Alpine Watershed Group is conducting a volunteer monitoring program funded in part by the U.S. Environmental Protection Agency and supported by the State Water Resources Control Board. This project will supplement existing agency information by monitoring streams in Alpine County watersheds. The focus of the project is on habitat, chemical and physical water quality measures that will help identify the status of aquatic resources in the watershed. The Group will be initiating a bioassessment program to monitor the health and diversity of the benthic macro invertebrate populations throughout the Carson River watershed to complement the efforts of the California Department of Fish and Game.

Data Gaps.

- Hydrologic impacts due to utilizing treated effluent and increasing water quantity from relocating water from one watershed to another;
- TMDL development and monitoring; and
- Impacts of recreational activities on water quality.

SECTION K

Financing

Agency	Projects	Total Project Funding Needed	Prop 50 Funding Requested
Alpine County	o Markleeville Pipeline Replacement and Water Meter Installation	1.2 Million	$550,000
Alpine County Watershed Group	o Markleeville Pipeline Replacement and Water Meter Installation		No funding requested. Collaborative partnership.
City of South Lake Tahoe	o Upper Truckee River Restoration o Bijou Area Erosion Control o Al Tahoe BMP Erosion Control	$4,617,270 $1,090,150 $725,000	$1,100,000 for Upper Truckee River Restoration
El Dorado County	o Cold Creek Fisheries Enhancement South Upper Truckee Erosion Control Project o Christmas Valley Phase 2 Erosion Control Project o Gold Bear Erosion control Project o Angora Creek Fisheries Enhancement		No financing requested this funding cycle.
Lake Tahoe Unified School District (LTUSD)	o Lake Tahoe Schoolyard BMP Implementation	$717,000	No funding requested
Markleeville Water Company	o Markleeville Pipeline Replacement and Water Meter Installation	Partnership only	

Sierra Watershed Education Partnerships (SWEP)	o Lake Tahoe Schoolyard BMP Implementation	$862,575	No funding requested this round
South Tahoe Public Utilities District (STPUD)	o Indian Creek Reservoir TMDL Implementation o South Lake Tahoe Water Conservation Incentives Project o South Tahoe Supply Line Replacement and Meter Installation	$1,217,821 $352,010 $12,700,000	$1,100,000 for waterlines
Squaw Valley Public Service District	o Squaw Valley Water Supply Enhancement	Collaborative partnership. See Truckee River Watershed Council below.	$1,200,000
Tahoe City Public Utility District	o Water Meter Installations o Steel Pipeline Replacement o McKinney/Quail Water Treatment Facility	$4,000,000 $2,500,000 $1,700,000	$1,100,000 for water meter installation
Tahoe Regional Planning Agency (TRPA)	o BMP Retrofit for Lake Tahoe	$2,500,000	No funding requested in Round 2
Tahoe Resource Conservation District (TRCD)	o South Lake Tahoe Water Conservation Incentives Project o BMP Retrofit for Lake Tahoe o Lake Tahoe Schoolyard BMP Implementation o Invasive Weed Program	$484,397 $3,479,242 $20,000 $800,000	No funding requested in Round 2
Tahoe Truckee Unified School District (TTUSD)	o Lake Tahoe Schoolyard BMP Implementation	$523,000	No funding requested in Prop 50

			Round 2
Town of Truckee	o Truckee River Watershed Voluntary BMP Retrofit o Town of Truckee Stormwater Management Retrofits o Trout Creek Flood Control and Restoration	Collaborative partnership. See Truckee River Watershed Council below.	$1,300,000 for Trout Creek Flood Control and Restoration
Truckee River Watershed Council (TRWC)	o Trout Creek Flood Control and Restoration o Squaw Valley Water Supply Enhancement o Town of Truckee Stormwater Management Retrofits o Truckee River Watershed Voluntary BMP Retrofit o Comprehensive Water Quality Monitoring for the Truckee River TMDL	$2,743,000 $2,485,000 $300,000 $1,257,500	$200,000 for Voluntary BMP Retrofits
University of California, Davis Tahoe Environmental Research Center (TERC)	o UC Davis Fish Hatchery Site Wetland Restoration, BMP Implementation, and Interpretive Center	$1,748,796	No funding In Round 2

Financing for plan implementation will consist of the following:

Cash

- Proposition 50.
- Local cost share through community foundations, residents and landowners, businesses
- Local agency general and capital funds.
- Federal agencies (NRCS, EPA, USBR, Forest Service).
- California Tahoe Conservancy funds.

In-Kind

- Agency staff time.
- Local organization and jurisdiction staff time.
- Resident match through BMP implementation, time, volunteering.
- Use of borrowed/donated equipment and resources.

Match

- Over 3 million dollars in matching funds for all projects proposed in Proposition 50 Round 2. Matching funds will fluctuate as different funding sources are identified for each project but generally include agency capitol funding, federal, state and non-profit grant funding (matched where appropriate and allowable) and general operating funds.

Ongoing Support and Financing for Operation and Maintenance:

Implementation projects generally include a maintenance plan and schedule. Maintenance funds for projects in public rights-of-way and on public property will come from local agency general funds. For projects that involve implementation on private lands, the owner will be responsible for the financing of any upkeep and maintenance. Community volunteers may be organized and utilized for upkeep and maintenance on some projects that have some merit for this type of activity.

SECTION L

Statewide Priorities

As shown in the table and narrative below, specific projects that make up the Tahoe Sierra Proposal were developed considering many statewide priorities.

Table L.1. Tahoe Sierra Proposal Projects That Support Statewide Priorities

Statewide Priorities → **Twenty-three Specific Projects of the Proposal ↓**	**Reduce conflict between water users/resolve water rights disputes**	**Implement TMDLs established or under development**	**Implement RWQCB WMI chapters, plans and policies**	**Implement SWRCB NPS Plan**	**Implement recommendations of floodplain management task force and recycling task force**	**Address environmental justice concerns**
1.Trout Creek Restoration	x	x	x	x	x	x
2. BMP Retrofit for the Lake Tahoe Region	x	x	x	x		x
3. Indian Creek Reservoir TMDL	x	x	x	x		x
4. Christmas Valley Phase 2 Erosion Control Project	x	x	x	x		x
5.UC Davis Fish Hatchery Site Wetland Restoration, BMP Implementation, Demonstration and Interpretive Center	x	x	x	x	x	x
6. Markleeville Pipeline Replacement and Water Meter Installation	x		x			x
7. Lake Tahoe Schoolyard BMP Implementation	x	x	x	x	x	x
8. Cold Creek Fisheries Enhancement	x	x	x	x		x
9. Squaw Valley Water Supply Enhancement	x	x	x	x		x
10. South Lake Tahoe Water Conservation Incentives Project	x	x	x		x	x

Statewide Priorities → **Twenty-three Specific Projects of the Proposal ↓**	**Reduce conflict between water users/resolve water rights disputes**	**Implement TMDLs established or under development**	**Implement RWQCB WMI chapters, plans and policies**	**Implement SWRCB NPS Plan**	**Implement recommendations of floodplain management task force and recycling task force**	**Address environmental justice concerns**
11. South Upper Truckee Erosion Control Project	x	x	x	x		x
12. Town of Truckee Stormwater Management Retrofits	x	x	x	x	x	x
13. Truckee River Watershed Voluntary BMP Retrofit	x	x	x	x	x	x
14. Angora Creek Fisheries Enhancement	x	x	x	x		x
15.Comprehensive TMDL Water Quality Monitoring for the Truckee River	x	x	x	x		x
16.Golden Bear Erosion Control Project	x	x	x	x		x
17.South Tahoe Supply Line Replacement and Meter Installation	x		x	x	x	x
18. Upper Truckee River Restoration	x	x	x	x	x	x
19. Bijou Area Erosion Control	x	x	x	x		x
20. Al Tahoe BMP Erosion Control	x	x	x	x		x
21. Water Meter Installations	x	x	x		x	x
22. Steel Pipeline Replacement	x	x	x		x	x
23. McKinney/Quail Water Treatment Facility	x	x	x		x	x

Reduce conflict between water users/resolve water rights disputes: Improved quantity and quality of water will serve to reduce conflict between water users. All of the projects are in waters tributary to important local and regional water supplies (Lake Tahoe, Truckee River, East and West Fork Carson River). The waters of the Truckee and

Carson Rivers and of Lake Tahoe are allocated among users in California and Nevada. The projects in Table L-1 above will all result in improving the quality and/or quantity of these waters. Four projects (Nos. 6, 9,10, and 17 above) focus mainly on improving supply through aquifer enhancement, replacement of leaking pipes, meter installation and other water conservation measures. The remaining 13 projects will result in water quality improvements through measures such as stormwater treatment, erosion and sediment control, and restoration of creek, wetland or reservoir habitat. Many of the projects also include an education and outreach component that will help to foster environmental stewardship within the community, thus also contributing to the long-term reduction of conflict between water users.

Implement TMDLs established or under development: TMDLs have been adopted for Indian Creek reservoir and are in development for Lake Tahoe and the Truckee River. The restoration work, stormwater control, and erosion control elements (including BMP retrofit) of many of the projects listed above will reduce sediment and nutrients in these impaired waters, as will the education and outreach components to foster environmental stewardship. Thus, many of the above projects are implementing the TMDLs adopted for Indian Creek Reservoir, and under development for Lake Tahoe and the Truckee River.

Implement RWQCB WMI chapters, plans and policies: The Lahontan Regional Water Quality Control Board's Watershed Management Initiative Chapter (WMI) is designed to integrate various surface and ground water regulatory programs while promoting collaborative and cooperative efforts within a watershed context. The WMI chapter also includes priorities on which to focus resources. The suite of projects above will be implemented in a collaborative and cooperative manner, thus implementing a key goal of the WMI chapter. Specifically, the WMI chapter identifies as priorities those projects that: implement TMDLs, reduce sediment loading and improve stormwater controls in the Truckee River watershed, maximize pollutant reduction in the Lake Tahoe watershed by restoration and stormwater treatment/erosion control projects, improve surface and ground water monitoring, increase education/outreach and stakeholder involvement and promote water conservation and recycling. The suite of projects in the Tahoe Sierra proposal addresses these WMI priorities.

Implement SWRCB NPS Plan: The majority of the projects above implement management measures as described in the State Water Resources Control Board's *California Nonpoint Source Program Five-year Implementation Plan for July 2003 to June 2008*. Specifically, management measures that will be implemented are: No. 3.0 Urban (3.1 A-C Runoff from Developing Areas; 3.2 A-B Runoff from Construction Sites; 3.3 A Runoff from Existing Development; 3.5 A-f Transportation Development; 3.6 A Pollution Prevention and Education) and No. 6.0 Wetlands/Riparian Areas & Vegetated Treatment Systems (6. A Protection of Wetlands/Riparian Areas; 6.B Restoration of Wetlands/Riparian Areas; 6.D Education and Outreach for Wetlands/Riparian Areas)

Implement recommendations of floodplain management task force and recycling task force: Recommendations of the Recycled Water Task (RWT) Force that will be implemented by the Tahoe Sierra proposal include: 2.1 Engage the public in an active

dialogue using a community value-based decision-making model in planning water recycling projects and 4.6 Maintain strong source control programs and increase public awareness of their importance in reducing pollution and ensuring a safe recycled water supply. These recommendations of the RWT Task Force will be addressed in the implementation of two projects (Nos. 10 & 17 above) as treated wastewater leaving the Tahoe Basin is recycled for use in Alpine County. Recommendations of the Floodplain Management (FM) Task Force that will be implemented by the Tahoe Sierra proposal (Nos. 1, 5, 7, 12 & 13 above) include elements of multi-objective management approach for floodplain management, specifically restoration of floodplain ecosystems and education on importance of siting development outside of the floodplain.

Address environmental justice concerns: 58% of the population in the Tahoe Sierra Region is considered as residing in disadvantaged communities (Kings Beach and City of South Lake Tahoe.) Thus, all 11 of the projects located in the Lake Tahoe basin portion of the Tahoe Sierra Region can be considered as water quality or water supply projects that directly serve disadvantaged communities. On a broader environmental justice basis, all elements of all projects in the Tahoe Sierra proposal strive to be conducted with inclusive public input and using a transparent process resulting in the fair treatment of stakeholders of all races, cultures and incomes, and promoting and ensuring fairness to all in public outreach, participation and education. Environmental justice will be an important consideration as all parts of the Tahoe Sierra proposal are implemented. Developing guidance from the California Environmental Protection Agency (CalEPA) will be used as a model for environmental justice. This guidance will include the CalEPA Environmental Justice Action Plan and the Water Pilot Project.
The following statewide priorities were considered and found not to be applicable to the Tahoe Sierra Region:

- Assist in achieving one or more goals of the CALFED Bay-Delta Program
- Assist in meeting Delta Water Quality Objectives

SECTION M

Relation to Local Planning

The Tahoe Sierra Plan integrates both regional and local adopted planning documents and programs. Local agencies and regional agencies are collaborating, cost-sharing and information-sharing to implement the Tahoe Sierra Plan. Table M.1 lists the eleven planning documents that were referenced in the development of the Tahoe Sierra Plan, demonstrating that local land use planning decision-makers were involved in the development of the Tahoe Sierra Plan. In addition, each agency and organization has demonstrated commitment to implementing the Tahoe Sierra Plan by having either signed or committed to signing a Memorandum of Understanding by October 2007.

Table M.1 Planning Documents Referenced in the Tahoe Sierra Plan

Tahoe Sierra Existing Planning Documents	Geographic Scope
Lahontan Regional Water Quality Control Board Basin Plan (Basin Plan) • www.waterboards.ca.gov/**lahontan**	Regional Plan
TRPA Regional Plan for the Lake Tahoe Basin (Regional Plan) www.trpa.org	Regional Plan
Water Quality Management Plan for the Lake Tahoe Region ("208 Plan") www.trpa.org	Regional Plan
STPUD Urban Water Management Plan www.stpud.us	Local Plan
STPUD Groundwater Management Plan www.stpud.us	Local Plan
Placer County Urban Water Management Plan	Local Plan Available Upon Request
Squaw Valley PSD Groundwater Management Plan	Local Plan Available Upon Request
Coordinated Watershed Management Plan (Truckee River Watershed)	Local Plan Available Upon Request
Alpine County Natural Hazards Mitigation Plan	Local Plan Available Upon Request
Alpine County General Plan	Local Plan Available Upon Request
Markleeville Downtown Revitalization Plan	Local Plan Available Upon Request

The table below indicates how the twelve local and regional plans that provide scientific and technical basis for the water strategies that are the basis of the Tahoe Sierra Plan relate to the projects.

	Tahoe Sierra Implementin						
	Basin Plan	Regional Plan			208 Plan	STPUD UWMP	STPU GWM
		Goals and Policies	Code of Ordinance s	Compact			
Ecosystem Restoration Trout Creek Flood Control and Restoration Cold Creek Fisheries Enhancement Angora Creek Fisheries Enhancement	**Ch. 4** Pgs. 4.9-28 to 4.9-36	**Land Use Element** Pgs. II-41, 43 **Conservation Element** Pgs. IV- 1-5, 8-9	**Ch. 82** Pg. 82-3		**Ch. IV.A** Pg. 137		
Environmental and Habitat Protection and Improvement UC Davis Fish Hatchery, BMP Implementation, Wetland Restoration and Educational Interpretive Center	**Ch. 3** Pgs. 3-5 **Ch. 4** Pgs. 4.9-1 to 4.9-3, 4.9-18 and 4.9-19, 4.9-22 to 4.9-27 **Ch.5** Pgs. 5.8-9 and 5.8-10	**Land Use Element** II-12, 23, 43, 45-46 **Conservation Element** Pgs. IV-1-9					
Water Supply Reliability Markleeville Pipeline Replacement and Water Meter Installation	**Ch. 4** Pgs. 4.9-3 to 4.9-8 **Ch. 5** Pgs. 5.10-1 to 5.10-3					**Sec. VII** - pg. 17; **Sec. X** - pg. 23; **Sec. XIII** - pgs. 27-30.	

	Tahoe Sierra Implementin						
	Basin Plan	Regional Plan			208 Plan	STPUD UWMP	STPU GWM
		Goals and Policies	Code of Ordinance s	Compact			
South Lake Tahoe Water Supply Line Replacement and Meter Installation Tahoe City Public Utility District Water Line Replacement Project TCPUD McKinney/Quail Water Treatment Facility							
Flood Management Trout Creek Flood Control and Restoration Upper Truckee River Restoration	**Ch. 4** Pgs. 4.1-4 to 4.1-7, 4.8-1 to 4.8-5, 4.9-14 to 4.9-16 **Ch. 5** Pgs. 5.7-6 to 5.7-8						
Groundwater Management Squaw Valley Aquifer Storage Replacement	**Ch. 3** Pgs. 3-12 and 3-13 **Ch. 4** Pgs. 4.6-1 to 4.6-12	**Land Use Element** Pgs. II-41, 45 **Public Services Element** VI-3	**Chapter 81**				**Div. 7**, Section 7.1 through 7.13, pgs. 6-
Recreation and Public Access	**Ch. 4** Pgs. 4.11-1 to 4.11-12 **Ch. 5** Pgs. 5.15-1 to 5.15-11	**Land Use Element** Pgs. II-2, 12, 47 **Transportation Element** Pgs. III-4-5, III-10, III-19-21, **Conservation Element** Pgs. IV-20 **Recreation Element** Pgs. V -2-4, 7-8					
Stormwater Capture	**Ch. 4**	**Land Use**	**Chapter**		**Ch. IV.A**		

	Tahoe Sierra Implementin						
	Basin Plan	Regional Plan			208 Plan	STPUD UWMP	STPU GWM
		Goals and Policies	Code of Ordinance s	Compact			
and Management BMP Retrofit for the Lake Tahoe Region Stormwater Management and Residential BMP Retrofit for Town of Truckee	Pgs. 4.3-1 to 4.3-11 **Ch. 5** Pgs. 5.6-1 to 5.6-4	**Element** Pgs. II-41-46 **Conservation Element** Pgs. IV-4, 12	**25** **Chapter 81**		Pg. 112		
Water Conservation Water Conservation Project TCPUD Water Meter Installation Project	**Ch. 4** Pgs. 4.9-3 to 4.9-6					**Sec. XIV** pg. 31 - 32	
Water Quality Protection and Improvement BMP Retrofit for the Lake Tahoe Region Indian Creek TMDL Implementation Comprehensive Water Quality Monitoring for the Truckee River TMDL	**Ch. 2** **Ch. 3** **Ch. 4** Sections 4.1, 4.9 **Ch. 5** 5.1 and 5.2	**Land Use Element** Pgs. II 39-46 **Conservation Element** Pgs. IV-12 **Public Services Element** Pgs. VI-3	**Chapter 81** **Chapter 82**	**Article** (I)(a)(1) **Article** (V)(d)	**Ch. IV.A** Pg. 126	**Sec. VIII**, pgs 18, 20-21	**Sec. 7.6** **Sec. 7.6.1.**, **Sec. 7.6.2.,** **Sec. 7.6** pgs. 9-1 **Sec. 7.1** pgs. 20-23; Sec 7.1 pgs 21-24.
Water Recycling	**Ch. 4** Pgs. 4.4-7 to 4.4-9 **Ch. 5** Pgs. 5.9-1 to 5.9-2					**Sec. XI** pgs. 24-25.	
Wetlands Enhancement and Creation UC Davis Fish Hatchery, BMP Implementation, Wetland Restoration and Educational Interpretive Center	**Ch. 4** Pgs. 4.3-3 and 4.3-4, 4.4-32 to 4.9-34, 4.9-8 to 4.9-14 **Ch. 5** Pgs. 5.7-1 to 5.7-6	**Land Use Element** Pgs. II 41, 43, 46 **Conservation Element** Pgs. IV-5, 8-9, 22			**Ch. IV.A** pg. 135		

	Tahoe Sierra Implementin						
	Basin Plan	Regional Plan			208 Plan	STPUD UWMP	STPU GWM
		Goals and Policies	Code of Ordinance s	Compact			
Conjunctive Use	**Ch. 4** Pgs. 4.9-7						
Desalination							
Imported Water	**Ch. 1** Pgs. 1-5						
Land Use Planning	**Ch. 4** Pgs. 4.8-1 to 4.8-6 **Ch. 5** Pgs 5.4-1 to 5.4-15, 5.8-1 to 5.8-13	**Land Use Element** Pgs. II-2, 4-6, 10, 13, 17, 47	**Chapters 13-16**		**Ch. IV.A** pg. 114		
NPS Pollution Control BMP Retrofit for the Lake Tahoe Region Christmas Valley 2 Erosion Control Project UC Davis Fish Hatchery, BMP Implementation, Wetland Restoration and Educational Interpretive Center Lake Tahoe Schoolyard BMP Implementation South Upper Truckee Erosion Control Project Stormwater Management and Residential BMP Retrofit for Town of Truckee Golden Bear Erosion Control Project	**Ch. 4** Sections 4.3, 4.7, 4.8, 4.10, and 4.11 Pgs. 4-5 to 4-7, 4.9-16 to 4.9-22 **Ch. 5** Sections 5.3, 5.6, 5.12 - 5.16	**Land Use Element** Pgs. II-13, 41-41, 44-46 **Conservation Element** Pgs. IV-12	**Chapter 25** **Chapter 81**		**Ch. IV.A** pgs. 110, 108		

	Tahoe Sierra Implementin						
	Basin Plan	Regional Plan			208 Plan	STPUD UWMP	STPU GWM
		Goals and Policies	Code of Ordinance s	Compact			
Bijou Area Erosion Control Al Tahoe BMP Erosion Control							
Surface Storage	**Ch. 4** Pgs 4.9-7 to 4.9-8						
Watershed Planning	**Ch. 1** Pgs 1-1 to 1-7	**Land Use Element** Pgs. II-41-46 **Conservation Element** Pgs. IV-21					
Water and Wastewater Treatment	**Ch. 4** Sections 4.4 and 5.9	**Land Use Element** Pgs. II-41, 45	**Chapters 81-82**		**Ch. IV.C** pg. 144	**Sec XI** pgs. 24-25.	**Sec. 7.1** pgs. 20-23.
Water Transfers	**Ch. 1** Pgs 1-5 **Ch. 4** Pgs 4.9-3 to 4.9-7						

The Tahoe Sierra Group participated in the development of this Tahoe Sierra Plan through a coordinated effort demonstrated by establishing annual, bi-annual, monthly and, in some cases, weekly meetings that began in 2004 and that are still ongoing. Through this three-year process, many agencies were invited to participate, but given limited staff and resources, were unable to commit to the lengthy and detailed process involved in developing the Plan. As the Tahoe Sierra Plan evolved, however, partners that originally could not participate have chosen to send representatives and agreed to join the implementation process. The Tahoe Sierra Plan has recently been revised due to the integration of these new partners, new projects and input from public processes. The partnership developed the plan so that it could be revised at any time, allowing for an ever increasing group of partners and participants. At this time, there are 16 active partner agencies and organizations that have collectively contributed more than 420 staff hours in General Coordination meetings and approximately 588 staff hours in Tahoe Sierra Plan Development meetings. In addition to the meetings, each partner agency and organization commits immeasurable staff hours in research, documentation, editing, writing, reviewing, and coordinating public outreach and comment opportunities for the development and implementation of the Tahoe Sierra Plan. Copies of the meeting notes, agendas, public review notices, board packets, and informational notices from this collective effort are available upon request.

SECTION N

Stakeholder Involvement

Plan Development and Public Process

The Tahoe Sierra Plan researched eleven regional and local planning documents for regional water management strategies that could be incorporated within the IRWMP. These local and regional plans were developed through extensive stakeholder involvement processes and integrated by the Tahoe Sierra Group. In addition to the local and regional planning development efforts, the Tahoe Sierra plan was developed with public stakeholder processes. While the particulars of the public process differ somewhat (for example, 3-day vs. 10-day meeting notices in different jurisdictions), each organization provided at least two opportunities for public review and comment. Stakeholder meetings were noticed in local papers, via the agencys' postal and email contact lists, and on the agency's web sites; and relevant documents were made available for public review. During development of many of the local and regional plans, public consensus building workshops allowed interactive participation by interested parties. The Tahoe Sierra partners were also involved in these consensus building workshops for many of these plans.

The Tahoe Sierra IRWMP was first organized through a series of meetings as described in Section M. During this period, the Tahoe Sierra Group partners reviewed the 11 local and regional plans for opportunities to integrate regional water management priorities, strategies, and objectives, and widen the geographic scope to include Truckee, Alpine County, and California-Tahoe Basin. After developing this framework, the Tahoe Sierra Group elected eight Group members to write the Tahoe Sierra Plan. The draft Tahoe Sierra Plan was then internally reviewed by all Tahoe Sierra Group partners and externally reviewed by DWR and SWRCB.

After comments were incorporated and revisions made, the public was invited to comment on the Tahoe Sierra Plan during a month-long public comment period in Spring 2006. The Tahoe Sierra Plan and public comment forms were made available on the TIIMS website (www.tiims.org). In addition, the Tahoe Sierra Plan was presented at two local Earth Day events and public Board meetings. It is estimated that over 7,000 people were reached during the two Earth Day events. Finally, copies of the Tahoe Sierra Plan were made available at four public libraries located throughout the Tahoe Sierra Region, and Public Service Announcements (in Spanish and English) were placed in four regional newspapers (Tahoe Daily Tribune, Tahoe World, the Sierra Sun, and Moonshine Ink) and 1,300 list-serve members to alert the public to the opportunity to be involved in water management planning and comment on the Tahoe Sierra Plan. Public comments received were favorable and supported the objectives and priorities of the Plan. The Tahoe Sierra Group finalized the document and each partner within the Group formally adopted or has expressed a commitment to adopt the Plan through a Memorandum of Understanding (Appendix B).

The Plan can be revised by consensus of the partners. The Plan was revised in July 2007 to incorporate new partners and new projects. However, the basis for water management strategies region-wide within the Tahoe Sierra IRWMP was not changed and is still based on local and regional planning efforts that are capable of integration. The revision was adopted by the lead agency assigned by the group, South Tahoe Public Utility District. STPUD held a 7-day public notice of the revisions to the document, making the document available to the public, and held a public hearing at the July 19, 2007 board meeting.

Stakeholders

As described in Section A and again in the MOU, the following group of stakeholders is committed to implementing the Tahoe Sierra Plan:

- Alpine County
- Alpine County Watershed Group
- City of South Lake Tahoe
- El Dorado County
- Lake Tahoe Unified School District
- Markleeville Water Company
- Sierra Watershed Education Partnerships
- South Tahoe Public Utility District
- Squaw Valley Public Service District
- Tahoe City Public Utility District
- Tahoe Regional Planning Agency
- Tahoe Resource Conservation District
- Tahoe Truckee Unified School District
- Town of Truckee
- Truckee River Watershed Council
- UC Davis Tahoe Environmental Research Center

In addition, the following stakeholders are identified as beneficiaries of the water quality, habitat, water supply, and other environmental benefits that would result from implementation of projects under the Tahoe Sierra Plan. They include California State Parks, California Tahoe Conservancy, City of South Lake Tahoe, Contractor's Association of Tahoe Truckee, Lahontan Regional Water Quality Control Board, Lake Tahoe Basin Weed Control Group, Lake Valley Fire Protection District, Markleeville Public Utility District, Meeks Bay Fire Protection District, Natural Resource Conservation Service, North Tahoe Fire Protection District, North Tahoe Public Utility District, Placer County**,** Placer County Water Agency, Sierra Business Council, Sierra Green Building Association, Tahoe City Public Utility District, Truckee Donner Public Utility District, USDA Forest Service. These stakeholders also had the opportunity to provide comments on the Tahoe Sierra Plan through the means described above.

The residents of the region and the State of California are also identified beneficiaries of the environmental benefits that would result from the Tahoe Sierra Plan. Opportunities

for public comment and involvement in Tahoe Sierra Plan development are described above.

Formal Tahoe Sierra Plan Adoption. 14 of the 16 partner agencies adopted the original plan prior to July 2007. After the revision occurred in July 2007, the lead agency for Proposition 50 Round 2, South Tahoe PUD, held a public hearing and a public notice of the revised Tahoe Sierra Plan and adopted the final version. Public input was solicited during this process and the revised plan was made available to the public. In addition, the remaining partners have all scheduled adoption of the plan on the appropriate board meeting date prior to October 2007 and many will also hold public hearings and make the revised edition available to the public as their agency policy permits. The signed MOU and public notices are attached to this document as Appendix B.

Technical Advisory Groups, Advisory Groups, Steering Committees. The technical advisory groups that helped to form the Tahoe Sierra Plan were provided through each partner agency. Board members, engineering staff, water quality staff, etc…from each partner agency were a part of the development team and offered technical and advisory and steering committees. While these committee meetings may also be included as part of the public process, their purpose is to for participants to gain in-depth understanding and commitment. For this category of stakeholder involvement, organizations with expertise and/or directly affected by the plan were invited to participate and made the commitment of staff time and additional resources as needed.

Public Process During Tahoe Sierra Plan Implementation.
The Tahoe Sierra Plan will be implemented through a series of individual projects. The planning processes of all projects will incorporate stakeholder involvement. For example, the Golden Bear Erosion Control Project in El Dorado County is currently in the pre-planning stage. Environmental planning for this project will include public scoping meetings, workshops, document review opportunities, and a public comment period. Issues brought up by concerned stakeholders will be addressed in the planning stage. Neighboring property owners, residents, Homeowners Associations, environmental organizations, Federal, State and local agencies, and interested members of the public will be targeted with outreach such as mailings and advertisements.

During project implementation, concerned or affected stakeholders can contact the implementing agency via email, issue formal complaints, and even notify their elected representatives.

Most of the projects to be implemented under the Tahoe Sierra IRWMP will be subject to the same public planning processes. Exceptions would be several projects that provide ongoing public education and outreach and will be soliciting input for the purpose of evaluating programs for effectiveness. An example of this would be the Best Management Practices implementation project.

Partnerships Formed During Development of the Tahoe Sierra Plan.
Many partnerships formed during development of the Tahoe Sierra Plan. The Tahoe Sierra Regional Water Management Group formed a partnership to increase coordination throughout the entire region. Other partnerships that have formed include:

- EIP 16 Implementation Group (TRPA, Lake Tahoe Environmental Education Coalition(LTEEC)/University of Nevada Cooperative Extension (UNCE), TRCD, NTCD, NRCS)
- Truckee River TMDL Partnership (TRWC, Truckee Donner Land Trust, Desert Research Institute, and USFS Tahoe National Forest)
- LTEEC (30 partners including: UNCE, TRPA, TRCD, USFS, SWEP, LRWQCB, Tahoe Rim Trail Assoc., Tahoe Environmental Research Center, et. al)
- TSAG (Tahoe Science Advisory Group)
- Truckee BMP Residential Retrofit Partnership (TRWC, Town of Truckee, Placer County, Contractor's Association of Tahoe Truckee, Sierra Green Building Association)
- Cold Stream Canyon (TRWC, Donner Memorial State Park, Cold Stream Permanent Road Division, Pyramid Lake Paiute Tribe)
- TRPA Advisory Planning Commission (members from NRCS, USFS, City of South Lake Tahoe, El Dorado County, Placer County, Washoe County)

Disadvantaged Communities and Environmental Justice
In the entire Tahoe Sierra region, there are only two disadvantaged communities, Kings Beach and South Lake Tahoe. All projects planned and implemented in these areas will include outreach targeted to historically underserved populations to attempt to engage them in the stakeholder process. Appropriate avenues of communication will be utilized (e.g. bilingual public notices and outreach materials in Spanish speaking neighborhoods). Involvement of disadvantaged populations will be encouraged through engaging appropriate local non-profits that can disseminate educational materials and provide resources and opportunities to become involved in planning efforts.

During implementation of the Tahoe Sierra Plan, environmental justice issues will be considered and addressed when they arise. For example, when stormwater treatment devices such as detention basins are sited in disadvantaged communities, care and consideration will be taken in where they are located to minimize impacts to historically underserved residents.

Possible Obstacles
Given the two decades of coordinated planning and implementation in the Tahoe Sierra region, major obstacles in implementation the Tahoe Sierra Plan are not expected. However, minor obstacles may arise, including changes to individual project scopes due to public stakeholder involvement and concerns. When stakeholders have concerns over the scope of a project, their concerns will be addressed and incorporated as appropriate.

Other obstacles that may be encountered include lack of adequate funding due to increases in material costs, potential disputes over property acquisition, obtaining appropriate easements, changes in implementation schedules due to permitting, and potential disagreements between partners.

If urban development continues at the present pace in the region, there is considerable chance that stakeholders will want to accelerate implementation of the priority projects in order to meet water supply, water quality and environmental goals. Given the shortened field and construction season at this high altitude, accelerating implementation could make the coordination of planning, permitting, and infrastructure management difficult.

The methods and strategies by which the Tahoe Sierra Group plans to overcome obstacles is described in Section C Objectives.

SECTION O
Coordination

State and Federal agencies involved in strategies, actions and projects to implement the Tahoe Sierra Plan include:

Americorps
Army Corps of Engineers
Bureau of Land Management
California Conservation Corps
California Department of Corrections Civil Conservation Corps
California Department of Fish and Game
California Department of Transportation
California Department of Water Resources
California State Parks
California Tahoe Conservancy
Lahontan Regional Water Quality Control Board
Natural Resource Conservation Service
Tahoe Regional Planning Agency (bi-state)
University of California at Davis Tahoe Research Group
US Environmental Protection Agency
USDA Forest Service
US Fish and Wildlife Service
US Geological Survey

Areas where State and Federal agencies can assist in the implementation of the Tahoe Sierra Plan are:

- Providing funding through either direct grants, in-kind project support or materials
- Providing State and Federal resources to support Tahoe Sierra projects, e.g. EPA Office of Water nonpoint source education and outreach materials
- Providing technical assistance, e.g. NRCS soil survey update for the Lake Tahoe Basin
- Providing low cost staffing assistance through Americorps
- Providing labor through Conservation Corps programs
- Sharing technical information, e.g. USGS monitoring data to determine impacts of plan implementation on Tahoe Sierra water resources
- Encouraging collaboration between groups, e.g. LRWQCB providing centralized meeting space
- Provide comments and peer review through environmental planning processes (i.e. NEPA and CEQA)
- Providing vegetation surveys for State and Federal listed species
- Mediating stakeholder negotiations
- Granting easements and rights-of-way when necessary to implement projects
- Assist with project prioritization for implementing the Tahoe Sierra Plan

- Interpret State and Federal regulations for proper project implementation
- Provide appropriate State and Federal permits as required.

State or Federal regulatory decisions are required for development and implementation of TMDLs for Lake Tahoe, Indian Creek Reservoir and the Truckee River; planning processes for National Environmental Protection Act (NEPA), California Environmental Quality Act (CEQA), and Tahoe Regional Planning Agency environmental processes.

Appendix A
Tahoe Sierra Regional Maps

Regional Boundaries
Partner Service Areas
Watersheds and Groundwater Basins
Federal Lands
Land Use/Land Cover
Project Locations
Disadvantaged Communties

(Maps are attached as separate files)

Appendix B
Memorandum of Understanding and Signatory Page

Memorandum of Understanding

Among:
Alpine County, Alpine County Watershed Group, City of South Lake Tahoe, El Dorado County, Lake Tahoe Unified School District, Markleeville Water Company, Sierra Watershed Education Partnerships, South Tahoe Public Utility District, Squaw Valley Public Service District, Tahoe City Public Utility District, Tahoe Regional Planning Agency, Tahoe Resource Conservation District, Tahoe Truckee Unified School District, Town of Truckee, Truckee River Watershed Council, UC Davis Tahoe Environmental Research Center

Regarding the Tahoe Sierra IRWM Plan
(Integrated Regional Water Management Plan)

April 28, 2007

The signatories of this Memorandum of Understanding (MOU) recognize the value of coordinating water management, planning and implementation activities within the Tahoe Sierra region of Truckee, the Tahoe Region, and Alpine County.

The signatories represent a spectrum of public agencies, special districts, non-profit organizations and education institutions throughout the Tahoe Sierra region.

This MOU is in reference to Proposition 50, the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002, which was passed by California voters in November 2002. It amended the California Water Code (CWC) to add, among other articles, § 79560 et seq. authorizing the Legislature to appropriate $500 million for Integrated Regional Water Management (IRWM) projects. The intent of the IRWM Grant Program is to encourage integrated regional strategies for management of water resources and to provide funding, through competitive grants, for projects that protect communities from drought, protect and improve water quality, and improve local water security by reducing dependence on imported water. The IRWM Grant Program is administered jointly by the Department of Water Resources (DWR) and the State Water Resources Control Board (State Water Board) and is intended to promote an integrated and regional approach to water management.

This MOU facilitates the implementation of the Tahoe Sierra Integrated Regional Water Management Plan (IRWM Plan), a set of coordinated strategies for management of water resources and for the implementation of projects that protect our Tahoe Sierra communities from drought, protect and improve water quality and improve local water security.

The Tahoe Sierra IRWM Plan integrates approximately a dozen water plans including the Tahoe Regional Planning Agency Regional Framework, Truckee River Coordinated Watershed Management Strategy and the South Tahoe Urban Water Management Plan.

Water management goals within the Tahoe Sierra IRWM Plan include but are not limited to:

- Supporting and improving local and regional water supply reliability;
- Reducing conflict between water users and resolving water rights disputes;
- Contributing measurably to the long-term attainment and maintenance of water quality standards;
- Eliminating or significantly reducing pollution in impaired waters
- Restoring and protecting sensitive habitat areas;
- Implementing the Lahontan Regional Water Quality Control Board Basin Plan;
- Implementing non-point source (NPS) pollution plans.

The Tahoe Sierra IRWM Plan is included as Appendix B.

The signatories of this MOU will:

- Foster a collaborative water management planning environment;
- Promote integration of water management across geographies of the region;
- Recommend priorities for implementation projects;
- Cooperatively apply for and obtain funding for implementation projects;
- Revise and update the Tahoe Sierra IWRM Plan as needed;
- Communicate the best available information to decision makers, stakeholders and the public

As an early step toward implementing of the Tahoe Sierra IRWM Plan, the agencies listed here under the aegis of the Tahoe Resource Conservation District, will apply for a grant from the State of California Prop 50/Chapter 8. The implementation projects as chosen by all the agencies are listed in Section G and H of the IRWMP. It is expected the signatories of this MOU will apply for additional funding under future State and Federal programs.

This MOU does not abridge any decision-making authorities of any signatory.

The Tahoe Sierra IRWM Plan and implementation guidelines developed under this MOU will not conflict with any legal obligation of any signatory, including those under contracts, licenses, permits, regulations and statutes.

This MOU is not an obligation of funds, and does not control or limit pursuit of funding for any future project of any signatory.

In the event the grant funding sought is received and prior to the execution of the grant agreement, the parties will establish a mutually acceptable structure for review of conditions of the agreement, project implementation, funding dispersal and accounting, and reporting responsibilities.

Any party to the MOU may end its participation by providing one year written notice to the other signatories at their normal business address.

We the undersigned adopt the Tahoe Sierra IRWM Plan and will act to implement it to the best of our ability in compliance with applicable legal requirements.

Future signatories to this agreement are welcome.

Tahoe Sierra IRWM Plan

Memorandum of Understanding

Signatory Page

Date signed 7.19.07

Name
Title
Alpine County

Name
Title
Alpine County Watershed Group

Name
Title
El Dorado County

Name
Title
Lake Tahoe Unified School District

Name
Title
Markleeville Water Company

Name
Title
Sierra Watershed Education Partnerships

Name
Title BOARD PRESIDENT
South Tahoe Public Utility District

Name
Title
Squaw Valley Public Service District

Name
Title
Tahoe Regional Planning Agency

Name
Title
Tahoe Resource Conservation District

Name
Title
Tahoe Truckee Unified School District

Name
Title
Town of Truckee

Name
Title
Truckee River Watershed Council

Name
Title
UC Davis Tahoe Environmental Research Center

Name
Title
City of South Lake Tahoe

Name
Title
Tahoe City Public Utility District

NOTICE OF PUBLIC HEARING

FOR

REVISED INTEGRATED REGIONAL WATER MANAGEMENT PLAN

JULY 19, 2007 – 2:30 P.M.

SOUTH TAHOE PUBLIC UTILITY DISTRICT

1275 MEADOW CREST DRIVE – SO. LAKE TAHOE, CA 96150

The Revised Tahoe Sierra Integrated Regional Water Management Plan (IRWM Plan originally adopted April 2006) is a set of coordinated strategies for management of water resources and for the implementation of projects that protect our Tahoe Sierra communities from drought, protect and improve water quality and improve local water security.

The IRWM Plan integrates approximately a dozen water plans including the Tahoe Regional Planning Agency Regional Framework, Truckee River Coordinated Watershed Management Strategy and the South Tahoe Urban Water Management Plan. The Plan is based on criteria developed under Proposition 50, the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002, which was passed by California voters in November 2002. The intent of the IRWM Grant Program is to encourage integrated regional strategies for management of water resources and to provide funding, through competitive grants, for projects that protect communities from drought, protect and improve water quality, and improve local water security by reducing dependence on imported water. The IRWM Grant Program is administered jointly by the Department of Water Resources (DWR) and the State Water Resources Control Board (State Water Board) and is intended to promote an integrated and regional approach to water management.

A copy of the plan is available for viewing, during regular business hours, at the District's Customer Service Office, located at 1275 Meadow Crest Drive in South Lake Tahoe.

RESOLUTION 2007-31

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE SQUAW VALLEY PUBLIC SERVICE DISTRICT APPROVING THE REVISED TAHOE SIERRA INTEGRATED REGIONAL WATER MANAGEMENT PLAN (IRWMP)

WHEREAS, the Squaw Valley Public Service District recognizes the value of coordinating water management planning and implementation activities within the Tahoe region; and

WHEREAS, the Board of Directors previously approved Resolution 2006-12 approving the Memorandum of Understanding for the IRWMP; and

WHEREAS, the IRWMP has been revised (on file) to refine the agencies' individual grant programs to implement the Tahoe Sierra IRWMP, to foster a collaborative water management planning environment; promote integration of water management programs across regional geographies; recommend priorities for project implementation; cooperatively apply for funding to implement projects; and communicate the best available information to decision makers, stakeholders and the public; and

WHEREAS, the Squaw Valley Public Service District adopts the revised Tahoe Sierra IRWM Plan and will act to implement it to the best of the District's ability in compliance with applicable legal requirements.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of the Squaw Valley Public Service District adopts the revised Tahoe Sierra Integrated Regional Water Management Plan, authorizes the submittal to the State of California and authorizes the Board President to execute required documents.

PASSED AND ADOPTED this 31st day of July 2007 at a regular meeting of the Board of Directors duly called and held by the following vote:

AYES:	Directors Dale Cox, Brad Dutton, John Moberly, Eric Poulsen & John Wilcox
NOES:	None
ABSENT:	None
ABSTAIN:	None

APPROVED:

Dale Cox, Board President

ATTEST:

James R Smith, Board Secretary