

Section 3: Relation to Local Planning

This section provides an overview of the relationship between this IRWM Plan (Plan) and the local water planning efforts, the current state of the relationships between local water and land use planning entities, and steps to foster more collaborative and proactive relationships in the future. This Plan is intended to support and incorporate local planning efforts by cities, counties, water agencies, federal agencies, and other local entities rather than replacing or overriding them. By providing a forum for interaction and communication, the IRWM process can assist local planning bodies in becoming more consistent and proactive, and thereby better able to protect and manage water resources.

Local planning efforts and documents have been integral to the development of the original Plan and this update. Partners and stakeholders that have participated in the development of this Plan include representatives of the counties (Alpine, El Dorado, Nevada, Placer, Sierra), cities, major communities, and major water suppliers within the Region as well as representatives of Tahoe Regional Planning Authority (TRPA), a bi-state regional agency. TRPA was created by Congress in 1969 as a separate legal entity comprised of members from both California and Nevada, expressly “to encourage the wise use and conservation of the waters of Lake Tahoe and of the resources of the area around said lake” (US Congress 1980 [Bi-State Compact]).

This Plan was developed by drawing information from many different local planning documents including Urban Water Managements Plans (UWMPs), Groundwater Management Plans (GWMPs), city and county General Plans, Local Agency Formation Commission (LAFCO) documents, water quality plans, and others. These local plans and their relationship to the IRWM effort are listed in Appendix 3-A, and summarized below. Many of these documents have been created or updated since the 2007 IRWM Plan was developed, and this update to the Plan has incorporated the new and updated documents. In addition, state and federal agencies manage over 70 percent of the Region’s land therefore their respective plans must also be considered. During future review cycles of the Plan, any updated versions of these local planning documents will be reviewed for inclusion or modification of the Plan.

Most of the original agencies have continued to participate in the IRWM Plan update. In addition, local water agencies will continue to coordinate with land use managers through review and participation in LAFCO Municipal Service Reviews, preparation of UWMPs, local Community Plans, and review of project-specific documents.

3.1 Relation to Local Water Planning

This section specifically describes the relationship of the plan to documents that relate directly to water planning including UWMPs, GWMPs, water quality control plans, and the Truckee River Operating Agreement (TROA).

3.1.1 Urban Water Management Plans and Water Supply Assessments

The Urban Water Management Planning Act of the Water Code requires development of an UWMP by water suppliers that deliver at least 3,000 acre-feet of water per year or serve at least 3,000 connections. These UWMPs are to be updated every five years. UWMP requirements

include: assessment of water supply reliability over a 20-year horizon, and development of water conservation programs to meet statewide goals established by SBx7-7 to reduce water consumption by 20% per capita by 2020. The five water districts in the Region that meet the requirement to develop UWMPs are North Tahoe Public Utility District (North Tahoe PUD), South Tahoe Public Utility District (South Tahoe PUD), Tahoe City Public Utility District (Tahoe City PUD), Truckee Donner Public Utility District (Truckee Donner PUD), and Placer County Water Agency (PCWA). Most of the water districts are active partners or stakeholders in the Plan and have partnered to provide regional water use efficiency programs. The supply and demand projections which reflect current and future water use and supplies from the UWMPs have been incorporated into the Region Description (Section 2) of the IRWM Plan. Section 2 indicates that agencies are able to meet future demands resulting from modest growth with existing supplies. UWMPs also often support water supply assessments and verifications under SB 221 and SB 610 as discussed below.

Two water supply planning bills passed by the state legislature, SB221 and SB610, also address the need for coordination between water suppliers and local land use planning agencies. SB221 requires projects that include subdivisions with more than 500 proposed dwelling units to obtain verification from the water supplier to ensure it has sufficient water supply over a 20-year period. This verification requirement also applies to increases of at least 10% of service connections for public water systems that have fewer than 500 service connections. SB610 requires that public water systems prepare a water supply assessment for use by the lead planning agency for any proposed project consisting of more than 500 dwelling units or more than 10% increase in service connections for the water system.

These two state requirements for verification of adequate water supply only apply to developments consisting of more than 500 dwelling units or increasing the number of water system service connections by 10%. Smaller development projects do not trigger these verification requirements, however land use planning agencies, through their General Plans, require that adequate water supply be available currently and in the future for development projects of all sizes. Within the Region, some development projects may be large enough to trigger the water supply verification requirements, but much smaller-scale development occurs for which such requirements must be made at the local level. For example, the area with the highest potential for a development requiring SB221/SB610 compliance is in Martis Valley while TRPA notes that there are a total of 482 developable parcels in South Lake Tahoe which even if aggregated, would be below the 500 dwelling unit threshold. It is likely that most of the development of the Region will likely occur on an individual home basis, rather than multi-home developments. That said, local government has applied the concepts of SB221/SB610 in developments at Homewood and other larger developments.

Plan objectives that relate to UWMPs include *WS1 Provide water supply to meet projected demands for a 20-year planning horizon*, and *WS3 Implement and promote water conservation measures and practices to meet state goals*.

3.1.2 Groundwater Management Plans

There are four DWR-recognized groundwater basins in the Region; the Tahoe Valley groundwater basin with three sub-basins: Tahoe South, Tahoe West, and Tahoe North; the Martis Valley and Olympic Valley groundwater basins and the Carson Valley groundwater basin. GWMPs have been prepared for the Tahoe South, Martis Valley, and Olympic Valley basins, each of which is described below. These basins are where much of the population in the Region is concentrated therefore interest in the groundwater resource is also a focal point.



Barton Meadows
(Photo courtesy of California Tahoe Conservancy)

Guidelines for the development of GWMPs include collaboration between all public water systems and other public entities overlying the particular groundwater basin, presentation of historical data (i.e., groundwater level, groundwater quality, and pertinent surface water parameters), and establishment of management objectives and monitoring protocols. Groundwater basin conditions including general descriptions, quality, and quantity available for use have been incorporated into the Plan.

A GWMP has been developed by South Tahoe PUD for the Tahoe South groundwater sub-basin, which underlies much of South Lake Tahoe. The key concerns in the South Tahoe groundwater basin are related to water quality as there is ample supply. South Tahoe PUD is currently in the process of updating its GWMP to conform to current standards.

Squaw Valley Public Service District (Squaw Valley PSD) prepared a GWMP in 2007 for the Olympic Valley groundwater basin. In Olympic Valley, the key concerns are avoiding impacts of drought and future demand increases, since groundwater quantity on an annual basis and quality are generally sufficient to meet current needs.

PCWA/Truckee Donner PUD/Northstar Community Services District (Northstar CSD) jointly prepared a GWMP in 2013 for the Martis Valley groundwater basin. Similar to Olympic Valley, Martis Valley groundwater concerns are managing pumping to meet the stakeholders' needs as well as the requirements of the TROA.

Alpine County prepared a GWMP in 2007 for the entire area of Alpine County including the portion of the Carson Valley groundwater basin in California. The management objectives established in the GWMP are minimizing long-term drawdown of groundwater supplies, protecting groundwater quality, preventing land subsidence, and protecting against undesirable surface-ground water interactions.

South Tahoe PUD, Squaw Valley PSD, and Alpine County are active partners and PCWA, and Truckee Donner PUD are stakeholders in the IRWM Plan.

The Washoe Tribe has developed a *Wellhead Protection Plan: 2005 (Washoe 2005)* for the groundwater underlying the Washoe Tribe's Woodfords Community, which used a two-dimensional groundwater model to delineate the 2, 5, and 10-year wellhead protection areas for the Washoe Tribe's Woodfords Community's two drinking water wells.

Plan objectives that relate to groundwater management planning include *GWM1 Maintain and monitor groundwater supply to assure future reliability, GWM2 Promote groundwater protection activities for high quality groundwater, and advocate for improvements to impacted groundwater quality through public education, and GWM3 Manage groundwater for multiple uses.*

3.1.3 Water Quality Control and Management Plans

The Water Quality Control Plan for the Lahontan Region (Basin Plan [Regional Board 1995 with amendments through 2011]) is the primary regional water quality planning document and is also the basis for regulation by the Regional Water Quality Control Board, Lahontan Region (Regional Board), including the Tahoe-Sierra IRWM Plan Region. The Basin Plan establishes beneficial uses and water quality objectives of both surface water bodies and groundwater basins. It also outlines implementation programs such as control and enforcement actions, and describes current monitoring activities. Programs used to implement Basin Plan objectives include waste discharge prohibitions; spills, leaks, investigations, and cleanups; stormwater, erosion, and sedimentation control measures; wastewater treatment, disposal, and reclamation measures; oversight of land disposal of solid and liquid waste; groundwater protection and management; total maximum daily loads (TMDLs); and other measures related to specific resource uses and development activities. The Basin Plan is periodically amended to clarify and modify provisions, including modifications of beneficial use designations, water quality objectives, and the addition of new TMDLs.

Water quality standards and control measures for the Lake Tahoe Basin are addressed separately from the rest of the Lahontan Region in the Basin Plan due to the unique sensitivities and concerns for Lake Tahoe and the surrounding tributaries. The TRPA Regional Plan, discussed in Section 3.2 further addresses water quality and other development-related topics for the Lake Tahoe Basin.

The Section 2 of this Plan incorporated information from the Basin Plan including beneficial uses and water quality objectives for waterbodies in the Region, and the current listing of impaired waterbodies including Lake Tahoe, Upper Truckee River and the West Fork Carson River and associated TMDLs for those water bodies.

In addition, Clean Water Act Section 208 requires preparation of Water Quality Management Plans to promote efficient and comprehensive programs for controlling water pollution in a defined geographic area. In the Tahoe-Sierra Region, there are Water Quality Management Plans (WQMPs) for both Lake Tahoe and the Carson River, which are described below.

The Lake Tahoe Water Quality Management Plan (208 Plan), updated by the TRPA in 2012, describes the water quality management system in the entire Lake Tahoe Basin, the desired water quality outcomes, and the methods to achieve those outcomes. The 208 Plan incorporates by reference many documents by local, state, and federal agencies including the TRPA Regional Plan and Regional Plan Environmental Impact Statement, Lahontan Basin Plan, Lake Tahoe Basin Management Unit Land and Resource Management Plan, and area plans for the City of South Lake Tahoe and the counties in the basin. Roles and responsibilities for water quality management in the Lake Tahoe Basin are laid out in the 208 Plan with different federal, state (California and Nevada), county, city, and private entities responsible for establishment of standards and policies, monitoring, enforcement, completion of projects, and operations and maintenance activities. The 208 Plan also summarizes the TMDLs for Lake Tahoe established by both the Lahontan Regional Board and the Nevada Department of Environmental Protection, lists the general and specific National Pollutant Discharge Elimination System (NPDES) permits that have been issued in the Basin, lists the wastewater and solid waste collection agencies in the Basin, describes the programs and best management practices (BMPs) that are used in the Basin to protect water quality, and summarizes existing programs to protect groundwater.

The Water Quality Management Plan for the Carson River was prepared in 2005 for the Carson Water Subconservancy District, which includes Alpine County. The East and West Fork Carson River HUs in California are a small area of the overall Carson River HU. The Carson River 208 Plan focuses more on larger and higher density population areas of Nevada. For the California portion of the HU, the Carson River 208 Plan lists the TMDLs, wastewater treatment facilities, nonpoint sources, and BMPs in place.

Several Plan objectives (Section 4) relate directly or indirectly to standards or programs outlined in the Basin Plan and 208 Plans including *WQ1 Meet approved TMDL standards in accordance with the attainment date, and participate in the development of future TMDLs; WQ2 Reduce pollutant loads by implementing measures such as storm water LID retrofits, erosion control/restoration to meet Water Quality Objectives (WQOs) for receiving water bodies established in the water quality Control Plan for the Lahontan Region within the planning horizon; and WQ3 Implement water quality monitoring programs through planning horizon, and coordinate annually throughout the Region.*

3.1.4 Truckee River Operating Agreement

Water planning within the Region also must take into account the Truckee River Operating Agreement (TROA), an agreement for the allocation of the waters of Lake Tahoe and the Truckee River between California and Nevada users. Parties to the TROA include the United States; State of California; State of Nevada; Truckee Meadows Water Authority; Pyramid Lake Paiute Tribe of Indians; Washoe County Water Conservation District; City of Reno, Nevada; City of Sparks, Nevada; City of Fernley, Nevada; Washoe County, Nevada; Sierra Valley Water Company; Truckee Donner PUD; North Tahoe PUD; Carson-Truckee Water Conservancy District; and PCWA. Key elements of the TROA are that it allows storage of water in Truckee River reservoirs (including Lake Tahoe) for new purposes and operational flexibility, provides a permanent allocation of water between California and Nevada from Truckee, Carson, and Lake Tahoe waters with tracking and measurement requirements, and protects Lake Tahoe elevation so that shoreline erosion would not increase and water quality is not affected.

The Plan objective (Section 4) that relates directly to the complex relationship between TROA and the IRWM is *IWM6 Monitor water storage, release and exchange activities in order to improve coordination with regional planning.*

3.2 Relation to Local Land Use Planning

Land use decisions can have significant effects on water resources and local water management planning, yet land use planning and water management planning are commonly not done in a collaborative and proactive fashion. In a largely rural area such as the Region, state policies that attempt to link land use and water management planning and decisions have limited effect because they are primarily meant for urban areas or rural areas undergoing significant development. Within the Region, the majority of the land is public open space with a few clustered areas of urban development. The rate of growth in the Region is relatively low and as a result significant changes in land use are not projected.

Generally, water management and land use planning in the Region are conducted by separate entities. Currently in California, general planning by counties and municipalities, and urban water management planning by water suppliers are the primary means of collaboration between

these water management and land use planning entities. State law requires that every county and municipality adopt a long-term General Plan that includes seven required elements. Water-related issues are generally addressed directly in the Conservation element but may also be addressed directly or indirectly in Land Use, Circulation, Housing, Open Space, Noise, Safety, or other elements.

Additionally, LAFCOs provide municipal service reviews (MSR) that evaluate how local water and wastewater districts serve the needs of their communities. As noted in Appendix 3-A, the El Dorado County LAFCO has water-related MSRs for South Tahoe PUD and the City of South Lake Tahoe. Nevada County has MSRs for East County and Eastern Nevada County. The Placer County LAFCO has MSRs for North Lake Tahoe and Martis Valley, Alpine and Sierra Counties have LAFCO which are not active. Individual agencies also prepare water and wastewater system infrastructure planning documents such as master plans and optimization plans.

3.2.1 Local Land Use and Land Management Summary

Land use and land management agencies in the Region, including the five counties, the City of South Lake Tahoe, Town of Truckee, the TRPA, and the national forests including such as the Lake Tahoe Basin Management Unit (LTBMU) have planning documents that include goals and policies related to water supply, wastewater collection, stormwater management, and protection of water resources. Elements of these and other management plans and studies by partners and stakeholders of this IRWM Plan have also been incorporated into this IRWM Plan. Several of these land management agencies are partners in the IRWM Region or have otherwise participated in this Plan.

Within the Lake Tahoe Basin, local land use planning has taken into account regional water issues for decades under the jurisdiction of the TRPA. TRPA was created by the Bi-State Compact in 1969 and was granted the authority to adopt and implement environmental threshold carrying capacities for the entire Lake Tahoe Basin through the development and enforcement of a regional plan and ordinances. The primary purpose of environmental threshold carrying capacities was to provide for growth and development while maintaining the environmental and ecological conditions of the Lake Tahoe Basin. Therefore, development in the Lake Tahoe Basin is strictly regulated to protect water quality in the stream environment zones (SEZs) and Lake Tahoe.



City of South Lake Tahoe Welcome Sign
(Photo courtesy of the City of South Lake Tahoe)

It is important to note that while this IRWM Plan is specifically focused only on the California portion of the Lake Tahoe Basin, coordination between land use planning agencies and water management agencies is equally important throughout the entire Lake Tahoe Basin, including the Nevada portion. Water related goals and policies involving collaboration between water management agencies are outlined in planning documents for the land management agencies within the Region. They are summarized below with formal coordination efforts between land use and water management agencies. Additionally, there are many other opportunities for

collaboration of land use and water management agencies. Public meeting attendance, public document feedback, and CEQA involvement are just a few examples.

There are several Plan objectives that address land use planning and coordination with water management including *IWM2 Ensure collaboration among multiple jurisdictions within the Region for information exchange*, as well as those addressing ecosystem restoration efforts (WQ5, ER1, ER3, ER4), and conservation (WS3). Through these efforts, it is expected that future collaboration between land use planning agencies and water management agencies will continue.

The various land-use management documents are identified in Appendix 3-A including key documents for each County in the Region. Water-related policies and objectives for each Document are described below.

Alpine County General Plan: Approximately 90% of Alpine County within the Region is managed by the US Forest Service (USFS) or Bureau of Land Management (BLM). There are no incorporated cities; therefore, the remaining land is governed by the County's General Plan (revised 2009). As there are no large public water agencies in Alpine County, the County's General Plan is also the main water management planning tool. Policies in the County's General Plan address: changes in stormwater and surface water flows due to development (Policies 4b and 4c), overpumping of groundwater (Policies 5a and 5b), minimizing decreases in groundwater recharge due to development (Policy 5c), identification of acceptable water supplies and wastewater disposal methods for new development (Policies 5d and 7b), prevention of areas with a high concentration of individual sewage disposal systems (Policy 7c), minimizing development in or conversion of wetlands (Policy 8), small scale hydroelectric power development where water loss will be insignificant (Policy 17a), flood zone identifications and development prohibitions (Policies 23a, b, c, and d), and land designated as stream environment. The public services section of the Land Use Element and the needs assessment section of the Circulation Element in the General Plan present concerns regarding the capacity, maintenance, and financial viability of the Markleeville Mutual Water Company and the Markleeville Public Utility Company. The Housing Element identifies availability of water and wastewater service as a limiting factor to development both generally in the County, and in the communities of Markleeville and Woodfords (Alpine County community near Alpine Village, not the Washoe Tribe's Woodfords Community).

El Dorado County General Plan: The land area of El Dorado County contained within the Region is located within the Lake Tahoe Basin. As a result land use regulation outside of the City of South Lake Tahoe is shared by the County and TRPA. The County's General Plan regarding land area in the Region emphasizes coordination with TRPA and other state and federal agencies with land use jurisdiction in the Lake Tahoe Basin (Policies 2.10.1.1 through 5, Measure LU-O). The General Plan also requires buffers to be established around future water supplies (Policy 2.2.5.14).

City of South Lake Tahoe General Plan: Land use regulation is shared by the City and TRPA because the City of South Lake Tahoe is located within the Lake Tahoe Basin. The City's General Plan (adopted 2011) contains many mutually-adopted policies of the two bodies. In addition to coordination with TRPA, coordination with South Tahoe PUD and other water providers is highlighted in the General Plan (Goal PQP-2 and Policies PQP-2.2, 2.5, and 2.7). Other policies related to protection of water quality include protection of the groundwater basin from overdraft and contamination (Policy PQP-2.9), protection of Lake Tahoe and other surface

water streams from stormwater pollution through stormwater management (Goals PQP-4 and NCR-2, and Policies PQP-4.1 through 4.3, NCR-2.1 through 2.5, NCR-2.13 and NCR-2.14), considerations of snow removal practices (Policy PQP-11.8), and protection and restoration of SEZs and floodplains (Goal HS-4, Policies HS-4.1, 4.2, and 4.4, NCR-2.9 and NCR-2.12).

Nevada County General Plan: Outside of the Town of Truckee sphere of influence, the Nevada County General Plan, which was approved in 1996, governs private land use in Nevada County. Coordination between Nevada County and water agencies is primarily focused on water supply and water quality. General Plan objectives and policies direct the County to adopt Site Development Standards that would require all development projects to protect environmentally sensitive resources such as wetlands, riparian corridors, and floodplains (Policy 1.17), encourage use of community and public water systems instead of individual water supplies where possible (Policies 3.16 through 19), protect and improve water quality through cooperation for both point and non-point source pollution, enforce regulation of septic systems (Objective 11.2 and Policies 11.4 through 11.6B), and preserve floodplains (Objective 11.4, and Policies 11.9 through 11.9B).

Town of Truckee General Plan: The Town of Truckee General Plan (adopted 2006) includes the preservation of the Truckee River corridor and its tributary drainages as one of its guiding principles. Coordination with state and local agencies including the Regional Board and Truckee Donner PUD is a major focus of the General Plan's Conservation and Open Space Element. Policies in the General Plan related to water supply and quality include requiring sufficient water service capacity prior to rezoning and development (Policies P4.3 and P11.7), minimizing pavement and other development that may increase runoff and decrease groundwater recharge, implementing Best Management Practices, and cooperating with state and local agencies for pollution control and cleanup (Policies P11.1 through 11.9 and Actions A11.1 through 11.9).

Placer County General Plan: Part of the land area in the Region within Placer County is located within the Lake Tahoe Basin, where land use regulation is shared by the County and TRPA. Coordination between Placer County and water agencies is primarily focused on water supply. Policies in the Placer County General Plan (updated 2013) related to water supply concerns include: requiring new development to demonstrate the availability of a reliable water source with a focus on reliance on surface water provided through public water systems where possible, and requiring development near water bodies to mitigate water quality impacts from grading, impervious surfaces, and stormwater runoff, or septic systems (Policies 4.C.1 through 13). Policies related to drainage and water quality include maintenance of natural drainage channels, improvement of the quality of urban runoff, prohibition on underground storm drains in rural areas, requirements to mitigate impacts to stormwater quantity or quality, and consideration of the use of stormwater to replenish groundwater basins (Policies 4.E.1 through 20, and 4.F.1 through 14). Other water resource related policies include stream protection through buffers and restoration, minimization of impacts due to erosion, sedimentation, or pollutants in stormwater, and groundwater protection (Policies 6.A.1 through 15), as well as protection of riparian and fish habitats (Policies 6.B.1 through 5 and 6.C.1 through 14).

Placer County Community Plans: Several unincorporated communities in Placer County have developed community plans that supplement the Placer County General Plan with locally-focused specifics. Communities and areas within the Region that have developed community plans include Alpine Meadows, Carnelian Bay, Kings Beach, Martis Valley, North Stateline, North Tahoe Area, Squaw Valley Area, Tahoe City Area, Tahoe Vista, and West Shore Area.

The community plans provide additional goals and policies related to the specific concerns in each area, including coordination needs between County agencies and local water suppliers.

Sierra County General Plan: Approximately 80% of the area of Sierra County within the Region is managed by the USFS. The County's General Plan, which was adopted in 1996, is the primary land use management tool for the remainder of the area because the outskirts of Verdi, Nevada is the only community within Sierra County that is in the Region. As presented in Section 2, there are no community water systems in this area, and only a few non-community water systems for campgrounds. Goals of the General Plan include watershed protection and maintenance of the quality of the water resources in the County. Consideration of and coordination with other agencies is a focus of the General Plan (Policy LU-M and Implementation Measure LU-M, and Policies WR-1, 7, 17, 18, and 30a).

TRPA Regional Plan: TRPA is directed by the Bi-State Compact to adopt a Regional Plan and related ordinances to enforce the environmental threshold carrying capacities in the Lake Tahoe Basin, including the protection of water quality in Lake Tahoe. The TRPA Governing Board, Advisory Planning Commission, and other participants in the update of the Regional Plan (adopted 2012) include representatives of water management agencies with authority in the Lake Tahoe Basin. As noted in specific planning documents earlier, coordination with local, state, and federal agencies is considered important in order to achieve the goals of the Bi-State Compact (Goal WQ-1 and Policies WQ-1.1 through 1.7). The Regional Plan also addresses specific measures related to water quality protection and improvement (Goals WQ-2, WQ-3, SEZ-1, and PS-3; and Policies WQ-2.1 through 2.7, WQ-3.1 through 3.13, SEZ-1.1 through 1.8, and PS-3.1), as well as ensuring sufficient water supply (Goal PS-2 and Policies PS-2.1 through 2.3).

Land use planning agencies' involvement in water related issues goes beyond the general planning process in many cases. A couple examples are the *Placer County LID Guidebook* (Placer County 2012) and the *Truckee River Water Quality Management Plan (2ND NATURE 2008)* produced for Placer County and the Town of Truckee respectively. The *Placer County LID Guidebook* is intended to promote the application of principles and strategies for stormwater and water quality management and encourages collaboration between design teams and planning agencies early in the process. These principles and strategies vary in scale from community to site including such practices as designing roads to maintain predevelopment drainage patterns and incorporating bioretention areas in site landscaping. The *Truckee River Water Quality Management Plan* is intended to evaluate the current stormwater management plans and to provide a comprehensive stormwater management plan that includes monitoring with a goal of ensuring collaboration of monitoring efforts between entities.



Emerald Bay
(Photo courtesy of California State Parks)

3.2.2 Other Land Management Agency Summary

Approximately 63% of the of the Region is managed by USFS, of which half is in the Toiyabe National Forest (Toiyabe), most of the remainder is in the Tahoe National Forest (TNF) or the LTBMU, with a small area in the Eldorado National Forest. Approximately 2% of the Region is managed by the

BLM, and another 2.5% is managed by various California state agencies including the California Department of Parks and Recreation, the California Department of Fish and Wildlife, and the State Lands Commission. The remaining 22% of the Region is privately owned, and includes preserved open space, rangeland, timber harvesting land, and urban development. Approximately 5% of the Region is within the city boundaries of South Lake Tahoe and Truckee, although their planning areas including surrounding unincorporated areas cover approximately 7% of the Region. The various boundaries are shown on Figure 2-2.

Sierra Nevada Forest Plan Amendment: The Sierra Nevada Forest Plan, finalized in 2004, amended the Land and Resource Management Plans (LRMPs) for the eleven national forests of the Sierra Nevada, including those in the Region. The Sierra Nevada Forest Plan provides management direction for five problem areas including old forest ecosystems conservation; aquatic, riparian, and meadow ecosystems management; fire and fuels management; lower westside hardwood ecosystems maintenance; and integrated noxious weed management. The broad goals for the management of aquatic, riparian, and meadow ecosystems include maintaining and restoring water quality, habitat, plant and animal community diversity, special habitats, watershed connectivity, floodplain connectivity, watershed condition, streamflow patterns and sediment regimes, and stream banks and shorelines.

Tahoe National Forest Land and Resource Management Plan: As shown on Figure 2-2, the portion of the TNF that lies within the Region is very discontinuous with many areas of private land interspersed with the forest lands, and therefore forest planning efforts have involved direct contact with individual private landowners of large holdings, and public outreach for other private landowners and stakeholders. The LRMP for the TNF was finalized in 1990 and is projected to be updated within the next three years. Management objectives for the TNF as outlined in the LRMP include managing riparian areas to preserve or improve their productivity for dependent resources such as water, protect water resources, improve water quantity and the timing of flows. Where possible, achieve water quality objectives established by the Regional Board are another objective of the TNF LRMP. On a smaller scale, management plans for specific projects are regularly developed and undergo environmental analysis within the overall management framework of the TNF and the Sierra Nevada Forest Plan.

Toiyabe National Forest Land and Resource Management Plan: The portion of the Toiyabe National Forest in the Region includes part of the Dog Valley watershed on the California-Nevada border east of the Little Truckee River, and much of the Carson River watersheds in Alpine County. These watersheds provide water for Markleeville and downstream municipalities outside of the Region in Nevada. The need to protect water quality, quantity, and timing for these municipalities is considered in the management plan. Management goals in the Toiyabe LRMP (finalized in 1986, most recently amended in 2001) for the Dog Valley and Alpine management areas of the Toiyabe include maintaining or improving the water quality of water resources and riparian areas, reintroducing the Lahontan cutthroat trout, studying the eligibility of the East Fork Carson River to be designated as a Wild and Scenic River, and completing rehabilitation of the Leviathan Mine Site.

Lake Tahoe Basin Management Unit Draft Revised Land and Resource Management Plan: The LTBMU was established to bring consistency in planning within the portions of the TNF, Toiyabe, and Eldorado National Forests that lie within the Lake Tahoe Basin. Activities and management focus in the LTBMU differ from most national forests because there is a relatively small amount of timber harvesting, grazing, or mining. The management of the LTBMU is focused on forest ecosystem and watershed restoration, with an emphasis on erosion control and water quality improvement. The LTBMU and TRPA share the same planning area, and by

law the LTBMU must cooperate with TRPA. Coordination is facilitated by a Memorandum of Understanding. Desired conditions in the LTBMU Draft Revised LRMP (published for public comment in 2013) include preserved clarity in Lake Tahoe (WQ-DC-1); maintained or improved water quality, soil function, riparian areas, and stream process to reduce erosion and maintain or improve water quality (SQ-DC-1 through 3 and 5, WQ-DC-2 and 3, HGP-DC-1 through 7); and sustained aquatic habitats including for Lahontan cutthroat trout (BR-DC-1, 2, 4, 5, 6, and 24).

Other Public Land Management Plans: Several California State Parks and Recreation Areas within the Region have established General Plans as long term management frameworks to meet the needs of the parks including resource protection, resource restoration, and public access. The California Department of Fish and Wildlife has developed a Land Management Plan for Heenan Lake Wildlife Area in the Upper Truckee River watershed, which includes a crucial egg taking station for the maintenance of Lahontan cutthroat trout stock throughout California and Nevada. Lands managed by the BLM are managed through the policies and guidance provided by the BLM manuals.

3.2.3 Climate Change Policies in Current Land Use and Management Plans

As discussed in Section 2, the Region has significant vulnerabilities to the effects of climate change, including changes to seasonal runoff timing and quantity. Across the Region, there is a range of climate change adaptation and mitigation planning by various jurisdictions. The vulnerabilities, adaptation, and mitigation strategies in various planning documents have been incorporated in the Plan in Section 2 and the Climate Change Vulnerability Checklist (Appendix 2-D).

The City of South Lake Tahoe included policies in the Natural and Cultural Resources element of its *General Plan* that consider potential adaptation and protection measures for climate change, as well as mitigation measures, emission analyses, and reduction targets. These policies also include directives to work with local and statewide greenhouse gas emission reduction efforts. The *Humboldt-Toiyabe National Forest Climate Change Vulnerability Report* (USFS 2011) identifies vulnerabilities of the Toiyabe with respect to climate change, and also forest management measures to respond to climate change. Alpine County and PCWA have completed greenhouse gas emissions inventories. PCWA's *Energy and Green House Gas Benchmark Study* (Brown and Caldwell 2009) is the first phase in a program to address climate change mitigation strategies. The report includes a greenhouse gas emissions inventory and establishes current energy use benchmarks, and identifies options for conservation and alternative sourcing. The *Sustainability Action Plan: A Sustainability Action Toolkit for Lake Tahoe (Lake Tahoe Sustainable Communities Program 2014)*, part of the cooperative Tahoe Sustainability Program in the Lake Tahoe Basin led by TRPA, includes baseline greenhouse gas inventory information, reduction targets, a menu of GHG reduction actions and climate change readiness actions, and an assessment of risks and vulnerabilities.

Future climate change responses and mitigation efforts will require continued, robust collaboration between land use planning and water management planning.

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