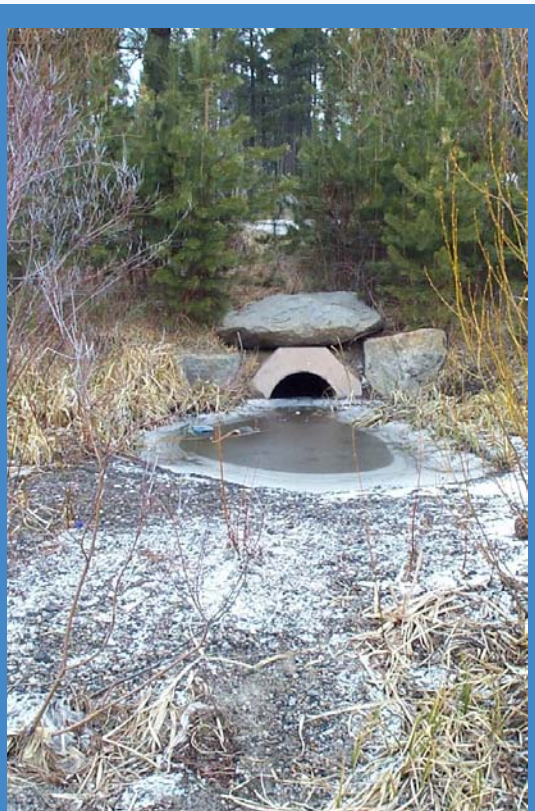
TAHOE REGIONAL PLANNING AGENCY

# Lake Tahoe Water Quality Management Plan

TAHOE REGIONAL PLANNING AGENCY || lake Tahoe



FINAL DRAFT

DECEMBER 12, 2012

***Note:** This "Track Change" version of the Final Draft 208 Water Quality Management Plan shows changes from the November 15, 2012 version. It is formatted such that **black** is for unchanged text, **green** is for relocated but unchanged text, **blue underlined** is for new text and **red strikethrough** is for deleted text.

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# CHAPTER 1: INTRODUCTION

The Lake Tahoe Water Quality Management Plan (also known as the 208 Plan or WQMP) is a framework that sets forth the components of the water quality management system in the Lake Tahoe Region, the desired water quality outcomes for the Tahoe Basin, and the mechanisms adopted by all the relevant entities to achieve and maintain those outcomes. The WQMP is organized to reflect the water quality management plan elements required by the U.S. Environmental Protection Agency's (U.S. EPA) regulations at 40 C.F.R. Section 130.6, which implements Sections 208 and 303(e) of the Clean Water Act, as well as the unique situation in the Lake Tahoe Region.

Because Lake Tahoe is located in both California and Nevada, to protect and enhance the unique environment in the Lake Tahoe Basin, the respective State legislatures approved a bi-state compact, which was ratified by the US Congress in 1969. The Lake Tahoe Regional Planning Agency Compact created a unique bi-state regional planning agency, the Tahoe Regional Planning Agency (TRPA), which has the responsibility to set environmental carrying capacity thresholds for water quality and other aspects of the environment, create and keep updated a regional plan and regulations to attain and maintain the thresholds, and implement the regional plan and regulations through various permitting processes and memoranda of understanding. Given that the Regional Plan includes bi-state water quality policies and the TRPA implements regulations to realize the objectives of those policies, in the 1970's, both Governors also designated, with approval by the U.S. EPA, the TRPA as the area-wide planning agency for the Tahoe Region under Section 208 of the Clean Water Act.

Since that designation more than 30 years ago, water quality administration has grown in complexity and programs have been added to make the management system more comprehensive. Water quality improvement programs are administered, managed, and implemented today in the Tahoe Region by a multitude of agencies at different levels of government under a wide array of statutory and regulatory authorities. Table 1 at the end of this Chapter summarizes the various roles and responsibilities of different entities involved in this water quality management system.

Furthermore, since the last comprehensive revision of the WQMP was approved in 1988, the State of California and the State of Nevada have determined the total maximum daily load (TMDL) of fine sediment particles, total phosphorus, and total nitrogen ~~and nutrient pollutants~~ that may enter the Lake in order to restore the desired water clarity. The TMDL effort was the result of ~~after~~ more than 10 years of research and analysis at a cost of approximately $10 million. The U.S. EPA approved the Lake Tahoe TMDL in 2011. Both States are now working with their respective local governments, state transportation agencies and other resource management agencies in the Lake Tahoe Region on an ongoing basis to identify and implement the necessary steps to reduce pollutant loads. Concurrent with WQMP adoption, the TRPA Regional Plan is being updated to complement and support TMDL implementation.

In light of the changes in the approach to managing water quality, the unique arrangement for planning, and the new requirements, the Lake Tahoe WQMP is updated to better serve as a living and relevant framework within which the distinct, but interrelated programs and efforts at the various government levels work in a coordinated and complementary fashion as the major components of the Region's water quality management system. Each of the major individual

components has been approved and may be amended in accordance with the required processes associated with that component. For example, the Lake Tahoe Total Maximum Daily Load (TMDL) is subject to approval by both States and the U.S. EPA; the Tahoe Regional Plan is subject to approval by the TRPA Governing Board; and local government Codes that may act to implement a portion of their respective load reduction plans are subject to approval by local government elected officials. To ensure timely implementation and, where necessary, timely revision of these components and to improve the functionality and relevance of the WQMP, in lieu of re-adoption of individual components~~,~~ this WQMP incorporates by reference those documents listed in Table 2. The following components and their subsequent duly adopted and approved revisions and amendments are integral parts of this WQMP. As an example, periodic updates and improvements of the TRPA Best Management Practices Handbook to reflect latest thinking and approaches are automatically incorporated as part of this WQMP and subject to implementation.

Should future changes be made to the underlying water quality regulatory authorities or key policy concepts or approaches that may affect the overall implementation of the Lake Tahoe Region water quality management system, the WQMP will be reviewed and updated as needed. ~~appropriate, i~~In accordance with Chapter 10 of this document and other applicable regulations, the WQMP will "automatically" update to include relevant plan or policy changes. Such automatic updates will not require WQMP recertification by the States of California or Nevada unless additional review and consideration is triggered by the conditions outlined in Chapter 10.

## TABLE 1 - SUMMARY OF LAKE TAHOE WATER QUALITY MANAGEMENT ROLES AND RESPONSIBILITIES

| Geographic Level | Functions | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Set Thresholds and/or Standards | Prepare and Adopt Plan Policies | Prepare and Adopt Code | Review and Permit Projects | Monitoring | Enforcement | Prepare Improvements Program | Complete Projects | Perform Operations and/or Maintenance |
| Region/Basin | ○ | ○ | ○ | | ○ | | ○ | ○ | |
| California Portion | □ | | | | | | □ | □ | □ |
| Nevada Portion | □ | | | | | | □ | □ | □ |
| City/County/District | | Δ | Δ | | | ○, □ | Δ | Δ | Δ |
| Catchment | Δ | Δ | | | Δ | | Δ | □, Δ | □, Δ |
| Area-wide (multi-parcel) | | | | ○, □, Δ | Δ, ◊ | ○, □, Δ | | □, Δ, ◊ | □, Δ, ◊ |
| Parcel | | | | ○, □, Δ | Δ, ◊ | ○, □, Δ | | □, Δ, ◊ | □, Δ, ◊ |

**Type of Entity**

○ = Regional: Entity has jurisdiction for the Tahoe Region as defined by the bi-state Compact (e.g., TRPA, Federal agencies such as USFS, NRCS, etc.).

□ = State: Entity has jurisdiction for only the California or Nevada portion of the Region (e.g., Lahontan Regional Water Quality Control Board, Nevada Division of Environmental Protection, State Departments of Transportation).

**Δ** = County/City/District: Entity has jurisdiction over the unincorporated part of a county in the Region, a City within the Region (i.e., City of South Lake Tahoe), or a district within the Region (e.g., Resource Conservation District, Stormwater Utility District, General Improvement District).

**◊** = Private Party: Entity has ownership and/or jurisdiction over a single parcel or area comprised of a grouping of contiguous parcels and rights-of-way (e.g., property owner, developer, property or homeowner association).

## TABLE 2 – WQMP COMPONENTS AND SUBSEQUENT AMENDMENTS INCORPORATED BY REFERENCE

| AGENCY | DOCUMENT |
|---|---|
| TRPA | July 26, 2012 Bi-State Recommendations |
| | Regional Plan |
| | Code of Ordinances |
| | Regional Plan EIS |
| | BMP Handbook |
| Lahontan Regional Water Quality Control Board | Water Quality Control Plan for the Lahontan Region (Lahontan Basin Plan) |
| | Lake Tahoe TMDL for the California portion of the Region |
| | Lake Tahoe TMDL Substitute Environmental Document |
| | Other TMDLs for California 303d listed waters in the Region |
| Nevada Division of Environmental Protection | Lake Tahoe TMDL for the Nevada portion of the Region |
| | Other TMDLs for Nevada 303d listed waters in the Region |
| The Counties, City of South Lake Tahoe, and State Departments of Transportation | Load Reduction Plans |
| | Conforming Area Plans |
| U.S. Forest Service | U.S. Forest Service Forest Plan for the Lake Tahoe Region |
| | Conforming Area Plans |
| | U.S. Forest Service Soil and Water Conservation Handbook in California |
| | U.S. Forest Service BMP Manual in Nevada |

# CHAPTER 2: TOTAL MAXIMUM DAILY LOADS (TMDL)

The Code of Federal Regulation (CFR) requires water quality management plans (WQMPs) to include as a plan element any TMDL programs developed in accordance with Section 303 of the Clean Water Act (CWA).[1]

Under section 303(d) of the CWA, the U.S. EPA requires states, territories, and authorized tribes to identify impaired waters not meeting water quality standards and establish TMDL water quality restoration plans to address their impairments. A TMDL, or Total Maximum Daily Load, is a calculation of the maximum amount of pollutants that a water body can accept while still meeting water quality standards.[2] It identifies the key pollutants as well as the point and nonpoint sources contributing to the impairment and serves as the basis for the development of a watershed-based plan to reduce pollutant loads and restore water quality.

## 2.1 LAKE TAHOE TMDL

~~Inputs of fine sediment particles less than 16 micrometers in size and nutrients threatening~~ Loss of Lake Tahoe's clarity and deep water transparency resulted in its listing as a 303(d) impaired water body.[3] Lake Tahoe is one of 41,237 impaired waters in the United States listed in the U.S. EPA's National Summary of Impaired Waters and is required to identify pollutants of concern and develop and implement TMDL plans and programs.[4] While both California and Nevada have identified Lake Tahoe as an impaired water body, they used different scientific bases for the impaired classification:

- California has identified Lake Tahoe's lack of transparency as the primary basis for its impaired status under its Section 303(d) impaired water listings filed with U.S. EPA. To comply with California's Lake Tahoe transparency standard, a 25-centimeter (10-inch) white Secchi disk would need to be visible 29.7 meters (97.4 feet) below the surface of Lake Tahoe on an average annual basis. [5]
- Nevada has identified Lake Tahoe's lack of clarity as the primary basis for its impaired status under its Section 303(d) impaired water listings filed with U.S. EPA. Clarity is defined as a quantitative measure of the vertical extinction of light (VEC) per meter of depth. A lower VEC reading indicates more clarity to the water. To comply with Nevada's Lake Tahoe clarity standard, a VEC of 0.08 per meter is necessary. [6]

The science supporting the Lake Tahoe TMDL was developed collaboratively by the Lahontan Regional Water Quality Control Board (LRWQCB) and the Nevada Division of Environmental Protection (NDEP) and provides the framework for a comprehensive water quality restoration plan to reduce loads from identified pollutant sources of fine sediment particles (FSP) less than 16 micrometers in size and nutrients, and to ultimately achieve the Lake Tahoe transparency and clarity water quality objectives.[7] As part of that effort, LRWQCB and NDEP jointly developed the following components of the Lake Tahoe TMDL:

- Lake Tahoe TMDL Pollutant Reduction Opportunity Report[8]
- Integrated Water Quality Management Strategy Report[9]

- Lake Tahoe TMDL Technical Report[10]

While much of the Lake Tahoe TMDL was collaboratively developed by California and Nevada, TMDLs established under CWA Section 303(d) function primarily as planning devices and are not self-executing.[11] Each TMDL represents a goal that may be implemented by adjusting pollutant discharge requirements in individual National Pollutant Discharge Elimination System (NPDES) permits or establishing nonpoint source controls. Because California and Nevada must comply with, administer, and enforce their own state laws and policies, each state has developed its own Lake Tahoe TMDL to address the impairment of Lake Tahoe as addressed in each state's Section 303(d) filings with EPA. [12]

The following items highlight the differences in implementation approaches between the two states:

- California's Lake Tahoe TMDL (dated November 2010 and approved by EPA in 2011) requires attainment of the California transparency objective for Lake Tahoe over a 65-year implementation period. Based on California law, LRWQCB has the obligation to implement and enforce the California Lake Tahoe TMDL through NPDES discharge permits (over which U.S. EPA has jurisdiction) issued to California governmental entities (City of South Lake Tahoe, Placer County, El Dorado County, and the California Department of Transportation), which are discussed in Chapter 3, below. [13]
- Nevada's Lake Tahoe TMDL (dated August 2011 and approved by U.S. EPA in 2011) is a modified version of the California Lake Tahoe TMDL. The Nevada Lake Tahoe TMDL clarifies Nevada's regulatory structure and approach to implementation and emphasizes that the proposed implementation timelines may need to be adjusted for a variety of reasons, but particularly based on the availability of future funding. NDEP's stated plan for implementing the Lake Tahoe TMDL with Washoe County and Douglas County is through Memoranda of Agreement (MOA) which are currently being developed with each jurisdiction.[14] MOAs are a collaborative, legally non-binding approach to implementing a TMDL. NDEP regulates the Nevada Department of Transportation and the Stateline Stormwater Association with NPDES discharge permits, discussed in Chapter 3, below. [15]

Stormwater runoff from urbanized land uses is identified by the Lake Tahoe TMDL Technical Report as the largest source of ~~fine sediment particles (~~FSP~~)~~ and phosphorous to Lake Tahoe. [16] Stormwater runoff occurs when precipitation from rain and snowmelt flows over land and does not infiltrate into the ground. As the runoff flows over the land and impervious surfaces such as streets, parking lots, and rooftops, it accumulates debris, chemicals, sediment or other pollutants that impact water quality if left untreated.[17] In the Lake Tahoe Basin, urban stormwater runoff is regulated both as a point source as described in Chapter 3, and by means of MOAs as described above.

The TRPA Regional Plan recognizes the respective authorities of California and Nevada in establishing and regulating under the TMDL and plays a supportive role that facilitates implementation of the TMDL. TMDL load allocations, milestones, and related National Pollutant Discharge Elimination System (NPDES) permit or Memoranda of

Agreement (MOA) requirements are not included as part of the Final Regional Plan or Code or Ordinances.

To improve coordination between the Lake Tahoe TMDL and the TRPA Regional Plan, TMDL, regulatory agencies have agreed to provide TRPA annual progress reporting and analysis, and copies of all MOAs and NPDES permits.[18]

Coordination between the Regional Plan and the Lake Tahoe TMDL is further reflected by language in the Regional Plan Introduction and Water Quality Subelement. The Regional Plan ensures consistent requirements and eliminates duplicative reporting with the Lake Tahoe TMDL in cases where the existing requirements are functionally the same. These include allowing local jurisdictions to submit their annual TMDL reports to TRPA instead of a separate Maintenance Efficiency Plan[19], allowing large users of road deicers and abrasives to provide TRPA with information on their use through reporting required by permits or agreements rather than through a separate report[20], and adopting stormwater requirements consistent with TMDL standards in special circumstances where TRPA's infiltration standards cannot be met.[21] The TRPA Regional Plan is further discussed in Chapter 8, below.

## 2.2 REGIONAL STORMWATER MONITORING PROGRAM (RSWMP)

The Regional Stormwater Monitoring Program is currently under development and is intended to focus on characterization and effectiveness monitoring of urban stormwater runoff throughout the Lake Tahoe Region.[22] The monitoring program focuses on information at three scales:

- BMP effectiveness monitoring
- Project scale monitoring
- Catchment scale monitoring

The monitoring information will be used to calibrate and validate TMDL load reduction estimation tools within the adaptive management process.[23]

~~The TRPA Regional Plan recognizes the respective authorities of California and Nevada in establishing and regulating under the TMDL and plays a supportive role that facilitates implementation of the TMDL. TMDL load allocations, milestones, and related National Pollutant Discharge Elimination System (NPDES) permit or Memoranda of Agreement (MOA) requirements are not included as part of the Final Regional Plan or Code or Ordinances.~~

~~To improve coordination between the Lake Tahoe TMDL and the TRPA Regional Plan, TMDL regulatory agencies have agreed to provide TRPA annual progress reporting and analysis, and copies of all MOAs and NPDES permits.[24]~~

~~Coordination between the Regional Plan and the Lake Tahoe TMDL is further reflected by language in the Regional Plan Introduction and Water Quality Subelement. The Regional Plan ensures consistent requirements and eliminates duplicative reporting with the Lake Tahoe TMDL in cases where the existing requirements are functionally the same. These include allowing local jurisdictions to submit their annual TMDL reports to~~

~~TRPA instead of a separate Maintenance Efficiency Plan[25], allowing large users of road deicers and abrasives to provide TRPA with information on their use through reporting required by permits or agreements rather than through a separate report[26], and adopting stormwater requirements consistent with TMDL standards in special circumstances where TRPA's infiltration standards cannot be met.[27] The TRPA Regional Plan is further discussed in Chapter 8, below.~~

## 2.3 OTHER TMDLS IN THE REGION

Other 303(d) listed water bodies in the Lake Tahoe Region include the following:

| California[28] | Nevada[29] |
|---|---|
| Blackwood Creek | First Creek |
| Cold Creek | Incline Creek |
| General Creek | Second Creek |
| Heavenly Valley Creek | Spooner Lake |
| Tallac Creek | Third Creek |
| Trout Creek | Unnamed Creak near Diamond Peak |
| Ward Creek | Unnamed Tributary to Incline Creek |
| Upper Truckee River | Wood Creek |

Of these listed water bodies, TMDLs were developed by the LRWQCB for Blackwood Creek in Placer County and for Heavenly Creek in El Dorado County. The U.S. EPA approved Blackwood Creek's Bedded Sediment TMDL in 2008[30] and Heavenly Creek's Sediment TMDL in 2002. The 2010 State Water Board Status Report determined the Heavenly Creek TMDL to be in compliance [31] Although TMDLs do not exist for every 303(d) listed water body in the Tahoe Region, some may be addressed through revisions of the water quality objective rather than through a TMDL[32], and others may be addressed by demonstrating that implementation of the Lake Tahoe TMDL also achieves the necessary load reductions to manage those impairments.

# CHAPTER 3: EFFLUENT LIMITATIONS

Effluent limitations are restrictions imposed on quantities, discharge rates, and concentrations of pollutants discharged into waters of the United States.[33] The CFR requires WQMPs to include water quality based effluent limitations as a plan element in accordance with CWA Section 303.[34]

## 3.1 NPDES PROGRAMS

Section 402 of the CWA establishes the National Pollutant Discharge Elimination System (NPDES) permit program to regulate discharges of pollutants into waters of the United States. An NPDES permit sets specific pollutant discharge limits, monitoring and reporting requirements, and other special conditions as appropriate. [35] The CWA allows the U.S. EPA to authorize state and other governments to implement the NPDES Program, including permit issuance and enforcement authorities. The U.S. EPA has oversight responsibilities and works closely with the authorized states and tribes on strategic planning, priority-setting and measurement of results.[36] Since its introduction in 1972, the NPDES permit program is responsible for significant improvements to water quality in the United States.[37]

The States of California and Nevada are approved by the U.S. EPA to implement the NPDES Program in their respective states and their NPDES permits are subject to U.S. EPA review. The LRWCB administers the NPDES program for the California portion of the Lake Tahoe Region and the NDEP Bureau of Water Pollution Control administers it for the Nevada portion.

The NPDES program regulates both stormwater and non-storm discharges from point sources and issues stormwater permits for the following:

- Municipal Separate Storm Sewer Systems (MS4s) of certain sizes or as designated by the permitting authority;
- Industrial facilities in any of the 11 designated categories that discharge to an MS4 or to waters of the United States; and
- Construction activity that disturbs one or more acres of land or disturbs less than one acre but is part of a larger plan of development.[38] All eligible discharges must prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that includes a monitoring and reporting program. [39]

The following NDPES permits, which may be subject to change through the permit modification, reissuance and termination process, are currently either applicable state-wide or to the Lake Tahoe Region specifically:

California NPDES Permits

- The Lake Tahoe Municipal NPDES Permit for storm water/urban runoff discharges from El Dorado County, Placer County, and the City of South Lake Tahoe.[40]
- NPDES permit for stormwater discharges associated with construction activity in the Lake Tahoe Hydrologic Unit, Counties of Alpine, El Dorado, and Placer.[41] This

permit regulates construction activities resulting in the disturbance of one or more acres of soil.

- Lake Tahoe NPDES Permit for Discharges of Storm Water Runoff Associated with Industrial Activities and Maintenance Dredging at Marinas.[42]
- NPDES for Discharges of Storm Water Associated With Industrial Activities, Excluding Construction Activities.[43]
- National Pollutant Discharge Elimination System Permit for Surface Water Disposal of Treated Ground Water[44]
- Statewide NPDES Permit for the California Department of Transportation.[45]
- NPDES General Permit for Discharges of Aquatic Pesticides to Waters of the U.S. for Vector Control[46]

Nevada NPDES Permits

- Statewide NPDES Stormwater General Permit associated with construction.[47]
- Statewide MS4 NPDES permit for the Nevada Department of Transportation[48]
- Statewide General Permit for Stormwater Discharges Associated with Industrial Activities[49]
- NPDES permit NV0023051 for the Stateline Stormwater Association. The association consisting of Mont Bleu (formerly Caesar's), Harrah's, Harvey's, Horizon, Wells Fargo Bank, Park Cattle Company, Douglas County, and the Nevada Department of Transportation for the purpose of constructing, operating, and maintaining the stormwater system.[50]

While NDEP maintains a General NPDES permit for Small Municipal Storm Sewer Systems (Small MS4s), they do not cover communities in the Lake Tahoe Region. As stated previously, the Lake Tahoe TMDL will be implemented through an agreement approach within these communities.

## 3.2 STATE 401 CERTIFICATION REQUIREMENTS

Under CWA Section 401, applicants for a federal license or permit for any activity which may result in a discharge to a water body under federal jurisdiction must obtain certification that the proposed activity will comply with state and federal water quality standards. The certification must be obtained from the state in which the discharge would originate or, if appropriate, from the interstate water pollution control agency with jurisdiction over the affected waters at the point where the discharge would originate. States may grant a certification with conditions to ensure compliance with water quality standards; states may also waive or deny certification as appropriate. Therefore, a federal permit, such as the CWA Section 404 permit issued by the Army Corps of Engineers that is further discussed in Chapter 7below, must comply with CWA Section 401.

LRWQCB administers the State Water Quality Certification process for proposed activities with the potential to discharge pollutants to California Lake Tahoe waters.[51]

NDEP administers the State Water Quality Certification process for proposed activities with the potential to discharge pollutants to Nevada Lake Tahoe waters.[52]

## 3.3 TRPA STANDARDS

The TRPA Regional Plan Water Quality Subelement includes goals and policies to reduce or eliminate point sources of pollutants. The TRPA Code of Ordinance Chapter 60 outlines concentration-based stormwater effluent limits that apply to all stormwater discharges.[53] A discharge occurs when a project cannot meet TRPA infiltration requirements for stormwater treatment, which are discussed in Chapter 5 below.

TRPA's concentration-based standards are not directly comparable with the more contemporary particle number- and mass-based standards used to assess water quality compliance with the TMDL. They are based on two different approaches to measuring water quality. Hence, when a TMDL load reduction plan and program is in place for a catchment, the TMDL plan and program supersede the TRPA requirements. Where a TMDL load reduction plan and program are not in place, the TRPA concentration-based standards remain in effect. For project review and conformance review of area plans, TRPA will utilize the pollutant load reduction plan standards for TMDL registered catchments or TRPA default standards ~~when there are no~~for projects and activities outside of ~~-~~registered catchments.

# CHAPTER 4: MUNICIPAL AND INDUSTRIAL WASTE TREATMENT

The CFR requires WQMPs to identify municipal and industrial waste treatment operations in accordance with Section 208 of the CWA.[54]

California prohibited the discharge of treated wastewater into Lake Tahoe through enactment of the Porter-Cologne Act, and Nevada did the same through the Executive Order by the Governor of Nevada dated January 27, 1971.[55] Both states prohibited septic tanks and required that all sewage generators be connected to an existing sewage system.[56]

The TRPA Regional Plan Public Services and Facilities Element includes goals and policies that provide for adequate level of public services while the Water Quality Subelement includes provisions that protect Lake Tahoe's water quality.

The TRPA Code of Ordinances Chapter 60 – Water Quality prohibits the discharge of domestic, municipal, or industrial wastewater to Lake Tahoe and its tributaries.[57] Chapter 32 of the Code of Ordinances includes wastewater service requirements for projects proposing construction of a new structure or reconstruction or expansion of an existing structure.[58]

The TRPA BMP Handbook includes technical guidance on best practices for waste management and material pollution prevention.[59]

## 4.1 LARGE UTILITIES, PUBLIC UTILITY DISTRICTS AND GENERAL IMPROVEMENT DISTRICTS

Wastewater treatment in the Tahoe Region is provided by public utility districts (PUDs) and general improvement districts (GIDs). Districts are bound by service areas and directed through boards created by local governments.

On the California side of the Region, PUDs may acquire, construct, own, complete, use, and operate a variety of services, including water, electricity, recreational facilities, drainage facilities, street lighting, and fire protection. The following Public Utility Districts operate various wastewater collection and treatment operations in the California portion of the Lake Tahoe Region in accordance with federal, state and regional law:

North Tahoe Public Utility District (NTPUD) provides sewer services to the residents of the north shore of Lake Tahoe. The District's boundary ranges from the Nevada state line in Crystal Bay to Dollar Hill in California and includes the communities of Kings Beach, Tahoe Vista, Brockway Vista, Carnelian Bay, Cedar Flat and Agate Bay.[60]

South Tahoe Public Utility District provides sewage collection, treatment, and export to protect Tahoe's delicate ecosystem for portions of El Dorado County within the Tahoe Region.[61]

Tahoe City Public Utility District (TCPUD) provides sewer services for a 31 square mile area within both Placer and El Dorado Counties, extending from Emerald Bay to Dollar Hill, and along the Truckee River to the Nevada County line.[62]

In Nevada, maintenance of public facilities including sewers within private developments is the responsibility of the property owners within the development. Under the authority of NRS, a county may establish a General Improvement District (GID) for this purpose.[63] Nevada GIDs oversee the development, maintenance, and use of public facilities such as water and sewer systems, streets and sidewalks, and parks and open space.[64] The following GIDs operate various wastewater collection and treatment operations in the Nevada portion of the Lake Tahoe Region in accordance with federal, state and regional law:

Cave Rock Estates GID serves approximately 80 properties in Douglas County adjacent to Lake Tahoe Cave Rock formation.[65]

Douglas County Sewer Improvement District operates a sewer treatment facility for portions of Douglas County within the Lake Tahoe Region.[66]

Kingsbury General Improvement District (KGID) provides sewer collection services to Stateline Nevada residences off of State Route 207 or Kingsbury Grade.[67]

Incline Village General Improvement District (IVGID) is responsible for processing and removing sewage and wastewater for communities of Incline Village and Crystal Bay, Nevada.[68]

Lakeridge GID[69] and Logan Creek Estates GID[70] serve portions of Douglas County.

Marla Bay GID serves residents of Marla Bay, Nevada.[71]

Oliver Park GID serves a portion of Douglas County, Nevada off of Kahle Drive.[72]

Round Hill General Improvement District provides wastewater collection service to 470 private residential customers and 50 commercial customers in Zephyr Cove, Nevada.[73]

Zephyr Heights GID[74], Zephyr Cove GID[75] and Zephyr Knolls GID[76] serve portions of Douglas County.

Treatment plants of four local districts (Tahoe-Truckee Sanitation Agency, IVGID, Douglas County Sewer Improvement District #1, and STPUD) are retrofitted with export pipelines and pump stations to transport treated effluent out of the Region.[77] Since 1968, all wastewater in the Tahoe Region is pumped from treatment plants out of the Region to avoid discharge into the Lake.[78]

## 4.2 LOCAL SOLID WASTE COLLECTION AND DISPOSAL

South Tahoe Refuse (STR) provides refuse and recycling service within the City of South Lake Tahoe, the unincorporated El Dorado County areas and the Tahoe Township area of Douglas County.[79] STR collects more than 100,000 tons of waste each year. This waste is collected and sorted for recycling at the South Tahoe Refuse Materials Recovery

Facility (MRF) located at STR's transfer station in South Lake Tahoe, California. The MRF initiates or improves separation of aluminum cans, glass, plastics, cardboard, different grades of paper, tin, metals, appliances, milled wood, green waste, stumps, construction debris (concrete, asphalt), and tires.[80]

Incline Village General Improvement District (IVGID) with Waste Management, Tahoe Truckee Sierra Disposal (TTSD)[81], and the WASTE NOT program provides trash and recycling services for communities of Incline Village and Crystal Bay, Nevada.[82]

The Tahoe-Truckee Sierra Disposal Company, Inc. (TTSD) provides waste removal services for the Lake Tahoe Region from Emerald Bay to Crystal Bay. The company handles approximately 63,000 tons of solid waste per year. All materials collected by TTSD, including garbage and recyclables, are hauled to the Eastern Regional Materials Recovery Facility (MRF), located between Truckee and Squaw Valley in Placer County, where they are sorted in an effort to meet California's mandatory solid waste diversion requirements. The MRF, which was built in 1994–1995, handles household recyclables, including plastics, aluminum, tin, glass, cardboard, newspaper, carpet, and computers. Also, the facility recycles "white goods," such as refrigerators and freezers, and waste wood, which includes dimensional wood (e.g., construction remnants) and lot clearing debris. Material that is not recyclable is treated as solid waste and taken to the Western Regional Sanitary Landfill in Roseville or to the Lockwood landfill in Nevada.[83]

# CHAPTER 5: NON-POINT SOURCE MANAGEMENT AND CONTROL

The Code of Federal Regulation (CFR) requires WQMPs to describe the regulatory and non-regulatory programs, activities and Best Management Practices (BMPs) which control nonpoint source pollution (NPS) where necessary to protect water quality.[84] NPS pollution occurs when diffuse sources of pollution are picked up by rainfall or snowmelt runoff moving over and through the ground and depositing them into lakes, rivers, wetlands, coastal waters, and ground waters.[85]

## 5.1 REGULATORY AND NON-REGULATORY PROGRAMS

The CWA primarily addresses NPS water pollution through non-regulatory means, which include providing assistance to states from federal planning and grant programs.[86] The U.S. EPA administers the CWA Section 319 Nonpoint Source Management Program, which provides grant funds to states, territories and tribes to address water quality impacts resulting from NPS pollution.[87] The program supports a wide variety of activities including watershed and land use planning, best management practices (BMPs), technical assistance programs, financial assistance, education, training and technology transfer, and monitoring to assess the success of specific nonpoint source implementation projects.[88]

In California, the State Water Resources Control Board California NPS Program allocates CWA Section 319(h) funding annually to support implementation and planning projects addressing NPS water quality problems in surface and ground water. [89] Projects are required to be located in a watershed that has an adopted or nearly adopted Total Maximum Daily Load (TMDL) and are identified in the NPS Program Preferences.[90] The State Water Resources Control Board also maintains a policy document to guide how the California NPS Program Plan will be implemented and enforced to fulfill California Water Code (CWC) requirements.[91]

The NDEP Bureau of Water Quality Planning administers Nevada's NPS Program.[92] Through the NPS program, NDEP provides 319(h) Nonpoint Source Grant funds to qualifying local governments, conservation districts, higher education institutions, nonprofit organizations, and tribes for projects addressing NPS pollution. These include implementation projects aimed at improving Nevada's watersheds and protecting them against NPS pollution, education of Nevada's citizens about NPS pollution, and completion of watershed improvement plans intended to reduce NPS pollution impacts.[93]

TRPA's Regional Plan includes goals and policies that directly address NPS pollution in the Water Quality Subelement and are implemented through Water Quality Chapter 60 in the Code of Ordinances.

## 5.2 BEST MANAGEMENT PRACTICES (BMPS)

As part of the WQMP NPS Management and Control section, the CFR requires Best Management Practices, or BMPs, to achieve water quality goals that are identified for specified sources of nonpoint pollution in accordance with section 208 of the CWA.[94]

These sources of nonpoint pollution include Residual Waste and Land Disposal, Agriculture and Silviculture, Mines, Construction, and Urban Stormwater.

The TRPA Regional Plan Water Quality Subelement and Water Quality Chapter 60 of the Code of Ordinances include significant policies and code, often referred to as best management practices or BMPs, addressing how existing and new development must offset, or mitigate water quality impacts of that development. TRPA's BMP requirements apply to all properties in the Lake Tahoe Region. They may be implemented through parcel specific requirements or through participating in an area-wide water quality treatment as specified by a conforming Area Plan or by state approved TMDL load reduction plans and crediting programs.

BMP requirements must be satisfied by new development through the applicable permitting process. Where a TMDL load reduction plan and crediting program is not in place and where existing development has not complied with TRPA BMP requirements, TRPA standards apply.

### 5.2.1 Residual Waste and Land Disposal

The TRPA BMP Handbook provides technical guidance on BMPs for waste management and materials pollution prevention. Municipal and industrial wastes are addressed in Chapter 4 above and Land Disposal in Chapter 9 below.

### 5.2.2 Agriculture and Silviculture

While no large scale agriculture is currently permitted in the Lake Tahoe Region, impacts from historic grazing are still being addressed by the Environmental Improvement Program. The EIP is covered in more detail in Chapter 6 below. A few small scale or domestic grazing operations still exist in the Tahoe Region. Chapter 64 of the TRPA code of Ordinances regulates Livestock Grazing within the Lake Tahoe Region.[95] The TRPA BMP Handbook includes guidance for livestock facility management as well as other small scale operations like nursery facility management and pet waste management.[96]

The U.S. Forest Service defines silviculture as "the art and science of controlling the establishment, growth, composition, health and quality of forests and woodlands to meet the diverse needs and values of landowners and society on a sustainable basis."[97] The U.S. Forest Service Lake Tahoe Basin Management Unit (LTBMU) maintains a Memorandum of Understanding (MOU) with TRPA to facilitate coordination, support and assistance towards the cooperative attainment and maintenance of applicable thresholds. Under this MOU the LTBMU implements forest management water quality BMPs in accordance with the USFS Soil and Water Conservation Handbook in California[98] and the USFS BMP Manual in Nevada.[99] More information on the LTBMU is covered in Chapter 8 below.

The TRPA Regional Plan Conservation Element includes goals and policies in the Vegetation Subelement that apply to forest management and water quality protection including hazardous fuels reduction, revegetation and vegetation manipulation.[100] Provisions are implemented through TRPA Code of Ordinances Chapter 61 – Vegetation and Forest Health.[101]

### 5.2.3 Mines

While no mining activities are currently permitted in the Lake Tahoe Region, impacts from historic gravel mine operations are still being addressed by the Environmental Improvement Program (EIP). These include large scale restoration efforts by the U.S. Forest Service, California Tahoe Conservancy and other EIP partners on Blackwood Creek. The EIP is covered in more detail in Chapter 6 below.

### 5.2.4 Urban Stormwater

As part of the Environmental Improvement Program and through 319(h) Nonpoint Source and other grant funding awarded by, and administered through the two states, TRPA's Stormwater Management Program (SMP) facilitates implementation of TRPA's Best Management Practices Requirements under Chapter 60 of the Code of Ordinances.[102] SMP staff provides technical assistance to property owners, private businesses, and government agencies and permits BMP retrofit projects to advance effective BMP design and implementation on developed properties.[103] To the degree funding is available, the SMP, in coordination with partner agencies implements a compliance program to insure existing public and private development fulfill BMP requirements. The SMP also implements TRPA Regional Plan Water Quality Subelement policies by maintaining the Best Management Practices Handbook.

The BMP Handbook provides guidance for selecting and implementing water quality BMPs that reduce or prevent the pollutants of concern from entering surface and ground waters. It is also provided to assist property owners with planning and implementing proper inspection, maintenance, and monitoring of their BMP improvements. The intended users of the manual include developers, planners, design engineers, contractors, subcontractors, construction staff, and agency staff involved in BMP retrofits, new development, redevelopment, and public projects within the Lake Tahoe Region.[104]

The TRPA Regional Plan Water Quality Subelement includes goals and policies that require installation of BMPs to control urban stormwater runoff in accordance with the BMP Handbook. Alternatively, area-wide treatments may be implemented in lieu of certain site specific BMPs where area-wide treatments can show equal or greater water quality benefits. Chapter 60 of the TRPA Code of Ordinances outlines standard BMP requirements for conditions of project approval.[105] Chapter 13 of the TRPA Code of Ordinances outlines alternative development standards and guidelines required for conforming Area Plans proposing area-wide BMPs.[106]

#### 5.2.4.1 Stormwater infiltration standards

The TRPA Code of Ordinance Chapter 60 outlines TRPA infiltration requirements for stormwater treatment. Under these requirements, infiltration facilities shall be designed to accommodate the volume from a 20-year, one-hour storm.[107] Additionally, the bottom of infiltration systems must be a minimum of one foot above the seasonal high water table. If TRPA finds that runoff from impervious surfaces from a 20-year, one-hour storm will infiltrate naturally on the parcel, the requirement to install infiltration facilities may be waived. In special circumstances where infiltration requirements cannot be met,

TRPA Code requires stormwater to meet TRPA concentration-based standards or be part of an area-wide BMP that contributes to meeting local jurisdiction TMDL load reduction requirements.

#### 5.2.4.2 Education and outreach

The U.S. EPA recognizes that efforts to control stormwater pollution must consider individual, household, and public behaviors since these activities generate pollution from dispersed land surfaces including pavement, yards, driveways, and roofs.[108]

BMP public education and outreach to land managers, owners, organizations, and residents in the Lake Tahoe Region, involves a number of agencies and occurs through a variety of methods. Under the TRPA EIP, the TRPA Stormwater Management Program leads the education and outreach effort with assistance from Conservation Districts in California and Nevada, the Universities of Nevada and California Cooperative Extensions, and the Natural Resources Conservation Service. Outreach efforts include providing online resources and materials to facilitate BMP selection, design and installation, such as the Home Landscaping Guide for Lake Tahoe and Vicinity[109], the Contractors Manual[110], and the BMP Handbook[111]; participating in and hosting local community outreach events including the annual contractors workshop and the refresher workshop, Earth Day, and other events at the California and Nevada BMP demonstration gardens; individual consultations with property owners to provide technical assistance on BMP installation, local jurisdiction trainings, and routine public service announcements.

#### 5.2.4.3 Vegetation protection and re-vegetation

The TRPA Regional Plan includes goals and policies in the Conservation Element and Vegetation Subelement to protect, restore and manage Lake Tahoe's vegetation resources. TRPA's Code of Ordinances regulates vegetation protection and revegatation in Chapter 61, Vegetation and Forest Health.[112]

#### 5.2.4.4 Fertilizer restrictions and management

Lake Tahoe is naturally nutrient-poor due to the geology of the Basin, which is responsible for the Lake's remarkable water clarity. Increasing inputs of both phosphorous and nitrogen into the Lake over time have created a nutrient imbalance, and contributed to the degradation of both pelagic lake clarity and nearshore water quality. The Lake Tahoe TMDL Pollutant Reduction Opportunity Report[113] cites fertilizer application in urban areas as one of many controllable sources of phosphorus loading to Lake Tahoe and its use has been increasing over time.[114] In addition, fertilizers are largely used to support non-native vegetation, which increases erosion in stream environment zones, shorezones and other sensitive areas, supports invasive aquatic and terrestrial plants, and increases water consumption.[115]

The TRPA Regional Plan Water Quality Subelement includes policies that restrict the use of fertilizer within the Lake Tahoe Region. Additionally, provisions exist to encourage phasing out the sale and use of chemical fertilizer containing phosphorous by 2017.[116]

The TRPA Code of Ordinances, Chapter 60 regulates fertilizer management within the Lake Tahoe Region and requires that site-specific management approaches be in accordance with the Handbook of Best Management Practices.[117] The TRPA BMP

Handbook Soil and Vegetation Management Chapter provides guidance on appropriate fertilizer application as well as outlines requirements for large properties with over one cumulative acre of turf to account for their fertilizer use through a Fertilizer Management Plan.[118]

## 5.3 SEZ PROGRAM

Multiple Tahoe Basin agencies, including TRPA, have goals and policies related to the conservation and restoration of stream environment zones (SEZs). The Regional Plan Conservation Element recognizes the essential role SEZs play in maintaining Lake Tahoe's water quality and includes numerous provisions to protect them. The Stream Environment Zone Subelement provides goals and policies intended to preserve and restore SEZs in order to meet and achieve threshold standards related to stream zones.[119] TRPA's Code of Ordinances includes various provisions to protect and enhance SEZs, including prohibitions against additional SEZ land disturbance, limitations to various activities in the SEZ, protection of SEZ vegetation, and requirements for restoration and delineation of SEZs. Additionally, implementing SEZ restoration projects is a central component of the Environmental Improvement Program, discussed more in Chapter 6 below.

## 5.4 OTHER NON-STORMWATER PROGRAMS

The TRPA Regional Plan includes other non-stormwater programs that benefit Lake Tahoe's water quality. The Land Use and Soils Subelements include goals and policies that restrict the amount of impervious coverage allowed in the Lake Tahoe Basin consistent with the report "Land Capability Classification of the Lake Tahoe Basin, California-Nevada, A Guide for Planning".[120]

Given pollutant load impacts associated with land use change, the TRPA Regional Plan also includes goals and policies regulating land uses and impervious coverage to protect water quality in the Lake Tahoe Region. These are addressed in detail under the TRPA Regional Plan section in Chapter 8 below.

Other non-stormwater programs include a new management standard for Lake Tahoe's nearshore. The new standard was advanced as part of the 2012 TRPA Regional Plan update, to protect the exceptional scenic quality and significant recreational and ecological values the nearshore provides.[121]

# 6 IMPLEMENTATION

The CFR requires the WQMP to identify measures necessary to implement the plan, in accordance with Section 208 of the CWA.[122]

## 6.1 IMPLEMENTATION ROLES AND RESPONSIBILITIES

With the broadening of water quality regulations and management in the Lake Tahoe Region, implementation roles and responsibilities are shared by a broad range of agencies and land managers.

Nevada and California are the lead water quality agencies regulating TMDL implementation in their respective states. See Chapter 2 above for more detail on the Lake Tahoe TMDL. Under NPDES permit or MOA with the states, local governments and the California and Nevada Departments of Transportation are responsible for TMDL implementation in their respective jurisdictions, while meeting other state and federal water quality requirements.

Federal and state land managers like the U.S. Forest Service and State Parks coordinate with California and Nevada and implement the TMDL on their land using established best practices.

Other localized land managers and service providers, like Public Utility Districts (PUDs) in California and General Improvement Districts (GIDs) in Nevada, meet state and federal water quality requirements and assist with TMDL implementation.

TRPA advances attainment of water quality thresholds through the Regional Plan and its implementing Code of Ordinances. The Regional Plan Implementation Element identifies the necessary coordination, collaboration and commitment from broad inter-agency partnerships needed to implement the Regional Plan.[123] More detail on TRPA thresholds, Regional Plan and Code of Ordinances is included in Chapter 8 below.

The Lake Tahoe Environmental Improvement Program (EIP) is a set of wide-ranging programs to restore Lake Tahoe environment and achieve the Regional Plan. A partnership among TRPA, federal, state, and local agencies, organizations, private interests, and the Washoe Tribe implements the program.[124] TRPA provides overall administration and coordination of all EIP programs and facilitates implementation through project review and permitting, as well as through strategic funding plans, technical assistance, and education and outreach, with support from a broad range of agencies and entities.[125]

## 6.2 FINANCING, SCHEDULE AND IMPACTS

LRWQCB and NDEP developed TMDL cost estimates for implementing actions to achieve the Clarity Challenge, which is the first 15 year phase of the TMDL.[126] Cost estimates considered both capital and annual operations and maintenance costs, including planning, design, acquisition, and replacement cost when the useful life of a given control measure is less than 20 years.[127] Additional detail regarding estimated implementation costs can be found in the Lake Tahoe TMDL associated documents:

Integrated Water Quality Management Strategy and Pollutant Reduction Opportunity Report[128]. For more detail on the Lake Tahoe TMDL, see Chapter 2 above.

The TRPA Regional Plan includes a Financing Subelement within the Implementation Element. The Financing Subelement set forth the financing policies and programs to implement the Regional Plan. The Subelement provides for the creation of new revenue sources, the phasing of expenditures to meet performance targets, and coordination of financing programs with other agencies.[129]

The EIP Update Finance Plan identifies program funding needs among federal, state, local government, and private sector partners for implementation through 2018.[130] The document also incorporated the most up to date TMDL cost estimates. For more information on the EIP, see Chapter 6 below.

## 6.3 ENVIRONMENTAL IMPROVEMENT PROGRAM

The Environmental Improvement Program was created to protect and restore the extraordinary natural and recreational resources of the Lake Tahoe Region. It is implemented through a broad multi-sector partnership among TRPA, federal, state, and local government agencies, organizations, private entities, and the Washoe Tribe and represents $1.55 billion of funding invested in ecosystem restoration, other environmental improvements, and scientific study since its creation in 1997.[131]

The program encompasses hundreds of capital improvement, research, program support, and operation and maintenance program and projects in the Tahoe Region, all designed to achieve and maintain the Region's adopted environmental thresholds.[132] The EIP is made up of the following program areas:

Watershed, Habitat, and Water Quality

- Stormwater Management
- Watershed Management
- Threatened, Endangered and Sensitive Species
- Invasive Species

Forest Management;

- Forest Ecosystem Health
- Fuel Reduction

Air Quality and Transportation

Recreation and Scenic Resources

Applied Science Program

Program Support

The Lake Tahoe EIP Update identifies program accomplishments and guides program planning and priorities through 2018.[133] Fifty percent of EIP capital investment from 1997-2006 was directed to water quality related programs or projects and water quality

remains a priority for the EIP, with future goals being aligned with the Lake Tahoe TMDL.[134]

## 6.4 LOCAL JURISDICTIONS

Local government jurisdictions that play a role in implementing water quality requirements and programs in the Lake Tahoe Region include El Dorado County, Placer County, the City of South Lake Tahoe in California and Douglas County, Washoe County and Carson City in Nevada. For the purpose of the Lake Tahoe TMDL, the California and Nevada Departments of Transportation also fall in this category. Although part of Carson City is within the Lake Tahoe Region, the small area is unpopulated forested acreage almost entirely within lands managed by either the U.S. Forest Service or Nevada State Parks.

Through NPDES permits or MOA with the states, local jurisdictions including state transportation departments will develop load reduction plans and implement urban stormwater controls to help achieve the Lake Tahoe TMDL. The Carson jurisdictional lands are not subject to separate TMDL targets, and the TMDL requirements are instead implemented through the USFS and State Parks management for this area.

El Dorado County, Placer County, and the City of South Lake Tahoe must prepare a comprehensive long term plan, or General Plan, to guide future development in accordance with California State Law.[135] Douglas County, Washoe County and Carson City/County develop a Master Plan, or Comprehensive Plan, as required by Nevada Revised Statutes for the purpose of providing long-term guidance on the development of cities, counties, and regions in Nevada. [136]

All General and Master Plans include a public services and facilities element that guides activities affecting water quality such as water supply, sewage, solid waste, stormwater, and flood protection.

## 6.5 MANAGEMENT AGENCIES

Other Lake Tahoe land managers participating in the EIP program and assisting with TMDL implementation include regional public agencies, public utility districts (PUDs), and general improvement districts (GIDs):

U.S. Forest Service Lake Tahoe Basin Management Unit (LTBMU)

California Department of Forestry (CDF)

California State Lands Commission

California State Parks

California Tahoe Conservancy (CTC)

Nevada Division of Forestry (NDF)

Nevada Division of State Lands (NDSL)

Nevada State Parks

Incline Village General Improvement District (IVGID)

Kingsbury General Improvement District (KGID)

Lakeridge General Improvement District (LGID)

North Tahoe Public Utility District (NTPUD)

Roundhill General Improvement District (RGID)

South Tahoe Public Utility District (STPUD)

Tahoe City Public Utility District (TCPUD)

## 6.6 CONSERVATION DISTRICTS

Lake Tahoe is served by the Tahoe Resource Conservation District (TRCD) in California and the Nevada Tahoe Conservation District (NTCD) in Nevada. These agencies promote the conservation and improvement of the Lake Tahoe Basin's soil, water, and related natural resources, by providing leadership, education, information, programs, and technical assistance to all land managers, owners, organizations, and residents. [137] Through this role, Tahoe's Conservation Districts facilitate implementation of the TMDL.

## 6.7 PRIVATE SECTOR AND PUBLIC-PRIVATE PARTNERSHIPS

Public-private partnerships are a crucial component of the Lake Tahoe EIP program with private investment in projects representing 18 percent of targeted EIP capital investment.[138]

Current economic conditions have reduced available government funding for the EIP. The TRPA Regional Plan creates incentives and removes barriers to accelerate private investment for environmental improvement in the Lake Tahoe Region. These programs include but are not limited to land coverage and development commodities transfers, area planning, individual parcel and area-wide BMPs. For more detail on the TRPA Regional Plan, see Chapter 8 below.

# 7 DREDGE OR FILL PROGRAM

The CFR requires the WQMP to identify programs for the control of dredge and fill materials, in accordance with Section 208 of the CWA.[139]

## 7.1 CORPS OF ENGINEERS SECTION 10 PERMITS

The Army Corps of Engineers considers Lake Tahoe a Section 10 Navigable water of the United States.[140] Section 10 of the Rivers and Harbors Act of 1899 requires approval prior to the accomplishment of any work in, over or under navigable waters of the United States, or which affects the course, location, condition or capacity of such waters. Under this determination, dredging triggers an Army Corps of Engineers Section 10 permit.[141]

## 7.2 CORPS OF ENGINEERS SECTION 404 PERMITS

Under Section 404 of the CWA, the discharge of dredged or fill material into waters of the United States, including wetlands, requires permit authorization from the Army Corps of Engineers. Activities regulated under this program include fill for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports) and mining projects.[142] Pursuant to the Fish and Wildlife Coordination Act, the U.S. Fish and Wildlife Service evaluates impacts on fish and wildlife from projects subject to the requirements of 404 permitting.[143]

## 7.3 STATE 401 CERTIFICATIONS

The State of California Water Quality Certification Program regulates discharges of fill and dredged material under CWA Section 401, described in Chapter 3 above, and the Porter-Cologne Water Quality Control Act. This program also serves to protect wetlands, riparian areas, and headwaters due to their high resource value, vulnerability to filling, and absence of systematic protection by other programs.[144] The LRWQCB administers CWA Section 401 Water Quality Certification and/or waste discharge requirements for projects involving discharges of dredged and/or fill materials to waters of the U.S. and/or waters of the State in the Lahontan Region including Lake Tahoe.[145]

NDEP's Bureau of Water Quality Planning administers the 401 Water Quality Certification for activities within Nevada Lake Tahoe.[146] The Nevada Division of State Lands also permits use or activities on State-owned submerged lands, including dredging.[147]

## 7.4 TPRA CODE OF ORDINANCES

TRPA regulates filling and dredging through Code of Ordinances Chapter 84 – Development Standards Lakeward of High Water.[148] The BMP Handbook also provides standards and criteria for planning, design, and expected performance of potential shorezone projects and activities, including dredging.[149]

## 7.5 MAINTENANCE DREDGING

The LRWQCB issues permits to marina owners and operators, and private, public, or other legal entities conducting maintenance dredging in the Lake Tahoe Hydrologic Unit in the Lahontan Region of California.[150]

## 7.6 NEW DREDGING RESTRICTIONS

Under the MOU between LRWQCB and TRPA, both agencies are responsible for review, permitting and enforcement of any new dredging in the California portion of the Lake Tahoe Region.[151]

## 7.7 FISH AND GAME PERMITS

The California Department of Fish and Game (DFG) is responsible for conserving, protecting, and managing California's fish, wildlife, and native plant resources.[152] To accomplish this, DFG requires any entity to notify them of any proposed activity that may substantially modify a river, stream, or lake.[153]

# 8 BASIN PLANS

The CWA requires applicable basin plans developed under section 209 be identified and explained in the water quality management plan.[154] While no Section 209 basin plans exist for Lake Tahoe, this section identifies other regional agency planning documents and explains their relationship to the Region's water quality management system.

## 8.1 WATER QUALITY PLANNING ROLES AND RESPONSIBILITIES

With the broadening of water quality regulations and management in the Lake Tahoe Region, planning roles and responsibilities are shared by a number of agencies and land managers.

Nevada and California are the lead water quality agencies for TMDL planning and regulation in their respective states. See Chapter 2 above for more detail on the Lake Tahoe TMDL.

While TRPA regulates water quality as related to thresholds, the Regional Plan plays a supportive role to the TMDL. To improve coordination and consistency with the TMDL, TRPA aligned water quality monitoring and reporting requirements in the Regional Plan.

Local jurisdictions and the California and Nevada Departments of Transportation are responsible for load reduction planning as part of their NPDES permit or MOA requirements with California and Nevada. Land managers like The U.S. Forest Service and State Parks coordinate water quality planning with other planning efforts that regulate use on their lands.

## 8.2 TRPA REGIONAL PLAN

The TRPA, directed by the Bi-State Compact, has broad planning and regulatory authority for the Lake Tahoe Region. TRPA established Environmental Threshold Carrying Capacities ("thresholds" or "threshold standards") for nine resource areas: water quality, air quality, scenic resources, soil conservation, fish habitat, vegetation, wildlife habitat, noise, and recreation. Threshold evaluations occur every four years and the recommendations inform updates to the Regional Plan. TRPA develops a Regional Plan and corresponding Code of Ordinances to make progress toward attainment of the threshold standards.

The TRPA Regional Plan established a number of goals and policies that address water quality in the Lake Tahoe Region, which are implemented through the Code of Ordinances. The existing goals and policies for water quality protect and enhance lake clarity and beneficial uses within the following regulatory framework:[155]

- Concentration-based discharge standards and infiltration requirements for stormwater treatment that control water quality impacts associated with new development;
- Regulations requiring the retrofitting of developed properties with Best Management Practices (BMPs) that reduce erosion and stormwater runoff;

- Regulatory preservation and restoration of Stream Environment Zones (SEZs) to protect and enhance their water quality values; and
- Prohibition of the discharge of wastewater, toxic waste, and solid waste into Lake Tahoe, its tributaries, and groundwater resources.

The Water Quality Subelement includes goals to reduce sediment and nutrients inputs to Lake Tahoe and to eliminate or reduce other pollutants. Water quality policies address a range of issues, including snow removal, wastewater spill prevention, underground storage tanks, dredging, and reduction of impacts from motorized watercraft.[156]

The TRPA Code of Ordinances includes a range of requirements intended to help achieve water quality threshold standards, goals, and policies. Chapter 60 of the Code is the primary chapter addressing water quality and the installation of BMPs. A number of other chapters include provisions pertaining to the protection of water resources and water quality for hydrology, coverage, and grading and excavation.[157]

Given pollutant load impacts associated with land use change, the TRPA Regional Plan and Code also include goals and policies regulating land uses and impervious coverage to protect water quality in the Lake Tahoe Region:

Coverage Transfer Limits

The TRPA Regional Plan and Code of Ordinances include key policies and regulations that limit the amount of land that can be covered by development (i.e., coverage). These policies and implementing code provisions regulate coverage on individual parcels, on larger multiple parcel areas when a coverage management plan is included in an adopted area plan that has been found in conformance with the Regional Plan, and coverage transfers. This limitation on land coverage helps to limit the amount of impervious land coverage, runoff, and potential increases in the amount of sediment reaching the Lake and resulting in degradation of water quality.

Evaluation Intervals and Targets; Assessment of Effectiveness and Adequacy

The TRPA has adopted the concept of adaptive management as part of the TRPA Regional Plan. The concept calls for periodic measurement (every four years or more frequently as needed) of the results of the Plan and implementation actions, and amendment of the Plan and implementation measures if needed. Specifically, water quality improvements will be measured as part of the TMDL programs of each state. TMDL information will be provided to TRPA annually to consider as part of the annual review and certification of local jurisdiction area plans. TRPA will also consider catchment data and reports as part of the review of the Regional Plan and this WQMP every four years.

Land Use Planning and Control

The TRPA Regional Plan and Code of Ordinances also include critical policies and rules that provide incentives and requirements to direct development to already urbanized areas or areas of consistent land use, instead of undeveloped or remote areas of the Region.

Subdivisions

In addition to the coverage limitations noted above, the TRPA Regional Plan and Code of Ordinances also include important policies and rules that limit the amount of land that can be converted from a natural state to a developed state through the subdivision of land and construction of new road networks. Like coverage limitations, this limitation on land conversion helps to limit the amount of impervious land coverage, runoff, and potential increases in the amount of sediment reaching the Lake and resulting in degradation of water quality.

Water Quality Mitigation Fees

Funds generated by water quality mitigation fees are critically important for supporting local government stormwater program requirements, including planning, and operations and maintenance activities. As part of its adaptive management process, it is anticipated that TRPA will evaluate the water quality and coverage mitigation fee programs and consider amendments to reflect water quality impacts and benefits from development and redevelopment activities

## 8.3 WATER QUALITY CONTROL PLAN FOR THE LAHONTAN REGION (LAHONTAN BASIN PLAN)

The State of California Lahontan Regional Water Quality Control Board is directed by the federal CWA, the Porter-Cologne Water Quality Control Act, and other federal and state laws to set water quality standards and to regulate activities in the Lahontan Region of California, which includes the Tahoe Region.[158]

Regional Water Quality Control Boards maintain Water Quality Control Plans (Basin Plans) for each major hydrologic basin in California. The Basin Plans list the of water bodies in each region and describe the applicable water quality standards. The Lahontan Basin Plan outlines water quality conditions, designates beneficial uses for water bodies, identifies water quality problems associated with human activities, and establishes water quality objectives and measures to protect beneficial uses. It sets forth water quality standards, waste discharge prohibitions and control measures for surface and ground waters of the Lahontan Region.[159]

Following adoption of the Lake Tahoe TMDL, described in section 2 above, the Basin Plan as it related to the Tahoe Region was amended to include a problem statement, numeric targets, source analysis, sediment loading capacity and allocations, a margin of safety, and an implementation and monitoring plan.[160]

## 8.4 U.S. FOREST SERVICE FOREST PLAN

The 1976 National Forest Management Act (NFMA) requires development of a Forest Plan to provide direction and guide activities on national forest land. The Lake Tahoe

Forest Plan geographically covers National Forest System Lands managed by the U.S. Forest Service Lake Tahoe Basin Management Unit.[161] The Lake Tahoe Basin Management Unit is the largest land manager in the region, managing 78 percent of all lands in the Lake Tahoe Basin.[162] The Forest Service maintains a Memorandum of Understanding (MOU) with TRPA to facilitate coordination, support and assistance towards the cooperative attainment and maintenance of applicable thresholds. The Forest Service cooperates with LRWCB on projects in California and with NDEP on projects in Nevada. The Forest Plan is consistent with the Lahontan Basin Plan and the California and Nevada Lake Tahoe TMDL.[163]

# 9 GROUNDWATER PROGRAMS

This section of the WQMP identifies programs that control groundwater pollution in accordance with section 208 of the CWA.[164]

The U.S. EPA administers the 1976 Safe Drinking Water Act, which regulates drinking water in the United States. Many communities obtain their drinking water from groundwater, which may be contaminated by human activities.[165]

The Lahontan Basin Plan addresses groundwater protection and management for all groundwater within the Lahontan Region.[166] NDEP oversees groundwater protection regulation and enforcement in Nevada, including the Groundwater Discharge Program.[167]

The TRPA Regional Plan and Code of Ordinances have numerous groundwater protection requirements including provisions that limit site development, land coverage, grading, and construction, provisions that control groundwater discharges and protect source water. The Public Services Element of the TRPA Goals and Policies includes goals and policies related to public services and utilities. Chapter 32, "Basic Services," of the TRPA Code establishes standards for water, wastewater treatment, and electrical services.[168]

## 9.1 LAND DISPOSAL RESTRICTIONS

In 1984, Congress authorized the U.S. EPA Land Disposal Restrictions (LDR) program to ensure toxic constituents present in hazardous waste are properly treated before hazardous waste is disposed of on land.[169] The LDR includes mandatory technology-based treatment standards for hazardous waste that must be met before the waste can be placed in a landfill.

In California, the California Department of Toxic Substances Control regulates land disposal restrictions under Chapter 18 of the California Code of Regulations (CCR).[170] NDEP Bureau of Waste Management regulates a hazardous waste program for Nevada under the Hazardous Materials Chapter of the Nevada Revised Statutes (NRS)[171].

While land disposal of waste is no longer permitted in the Lake Tahoe Basin, the effects of previous human activity remain in a few locations. The former Meyers Landfill, located on U.S. Forest Service land in El Dorado County, is associated with a contaminated groundwater plume originating at the site. The U.S. Forest Service continues to take remedial action and to monitor the site.[172]

## 9.2 GROUNDWATER DISCHARGE STANDARDS AND PERMIT REQUIREMENTS

The U.S. EPA administers the Underground Injection Control Program, which regulates activities that have the potential to move contaminants into underground sources of drinking water.[173] This includes activities that place contaminated surface water runoff underground in proximity to ground water resources.[174]

The Lahontan Basin Plan includes water quality standards and control measures for ground waters within the California portion of the Lake Tahoe Region. For more detail on the Lahontan Basin Plan, see Chapter 8 above.

The LRWQCB also administers an NPDES permit to regulate Individuals, public agencies, private businesses, and other legal entities that discharge treated ground water to surface waters. This permit regulates pollutants from ground water clean-up actions that are discharged to surface waters.[175]

Pursuant to NRS, the NDEP Bureau of Water Pollution Control is responsible for protecting groundwater resources in Nevada.[176] The Bureau of Water Pollution Control maintains discharge standards and administers the Groundwater Discharge Program by issuing groundwater discharge permits for discharges that will infiltrate into the ground.[177]

The TRPA Regional Plan Water Quality Subelement includes goals and policies that prohibit discharges of sewage and wastewater to Tahoe's groundwater resources and protects them from stormwater pollutant loads.[178] Chapter 60 of the Code of Ordinances includes water quality control measures to protect Lake Tahoe's ground water resources as well as concentration-based discharge standards that regulate discharges to groundwater.[179]

## 9.3 SOURCE WATER PROTECTION PROGRAM

Source water is untreated water from streams, rivers, lakes or underground aquifers that is used for human consumption. Although most water requires some treatment before use, protecting this source water is an important part of providing safe drinking water to the public.[180]

The U.S. EPA works with state and tribal agencies, non-governmental agencies and citizen groups to take actions that reduce potential sources of contamination and protect drinking water. The Safe Drinking Water Act requires that the states develop EPA-approved programs to carry out assessments of all source waters in the state. Source water assessments are publically available studies that define the land area contributing water to each public water system, identify the major potential sources of contamination that could affect the drinking water supply, and determine how susceptible the public water supply is to this potential contamination.[181] The Nevada Bureau of Health Protection (now NDEP -Water Bureau) and California Department of Health Services completed state source water assessments for Lake Tahoe in 2003.[182]

TRPA Code of Ordinances Chapter 60 – Water Quality addresses source water protection to prevent contamination.[183] In 2000, TRPA developed a Lake Tahoe Source Water Protection Program to coordinate protection activities and utilize information generated in the state source water assessments. The program integrated elements of the Safe Drinking Water Act (SDWA) and the Clean Water Act (CWA) to protect Lake Tahoe's surface waters and groundwater as inextricably related resources.[184]

Water suppliers operating under the Safe Drinking Water Act non-filtration permit must complete a Sanitary Survey and Watershed Control Plan (WCP) for the U.S. EPA every five years with annual updates. The purpose of the WCP is to prevent contaminants from potentially harming sources of drinking water. A Watershed Control Program (WCP) for the Lake Tahoe Region was established by the Tahoe Water Suppliers Association

(TWSA) [185]. The TWSA consists of the following public water suppliers operating in the Lake Tahoe Region whose source of drinking water is Lake Tahoe:[186]

Cave Rock Water System
Edgewood Water Company
Glenbrook Water Company
Incline Village General Improvement District
Kingsbury General Improvement District
North Tahoe Public Utility District
Round Hill General Improvement District
Skyland Water Company
Tahoe City Public Utility District
Zephyr Water Utility
Lakeside Park Association
South Tahoe Public Utility District

# 10 UPDATING AND AMENDING THE WATER QUALITY MANAGEMENT PLAN

## 10.1 INTRODUCTION

This section details the relationship between this WQMP and the TRPA's Regional Plan and provides a clear bi-state framework for more streamlined and timely implementation of the CWA requirements concerning the 208 water quality management plan in the Lake Tahoe Region. It does not in any way modify or supersede those CWA requirements. For more than 20 years, the WQMP has included multiple provisions of the Regional Plan. In order to make effective amendments to those provisions of the Regional Plan that also appeared in the WQMP, the WQMP would have to be amended as well, a process requiring approval of both NDEP and the SWRCB and the U.S. EPA. This WQMP significantly streamlines this process. As more fully set forth below, until January 1, 2017, the WQMP limits the circumstances under which the WQMP must be amended to occasions when Regional Plan changes relate to six specific topics listed below. On January 1, 2017, the above limitation automatically sunsets for five of those six topics, excluding subdivisions. For subdivisions, the States will caucus after January 1, 2017, to determine whether the referenced subdivisions sections will sunset based on progress toward attaining improved water quality in Lake Tahoe, and any other factors the States deem relevant.

With several exceptions noted below, the terms of the July 26, 2012, Bi-State Recommendations are herein incorporated by reference to this WQMP and will not be changed for four years. On January 1, 2017, this provision expires.

Amendment of the WQMP before January 1, 2017, is automatic upon amendment of the Regional Plan for five topics as noted below, unless the person objecting to amendment proves based on substantial evidence to the States that the amendment to the Regional Plan is reasonably expected to lead to the degradation of water quality. There is no special amendment provision for subdivisions.

Any reference to the "States" herein means one representative each from Nevada and California as designated by that State.

## 10.2 SPECIFIC TERMS AND PROCESS

**A.** The WQMP incorporates by reference not only the Regional Plan and Code of Ordinances, as amended by the 2012 Regional Plan Update process, but also the July 26, 2012, Bi-State Recommendations.

**B.** The WQMP shall not be amended before January 1, 2017, to alter the terms of the Bi-State Recommendations incorporated herein, with the understanding that the terms of the Bi-State Recommendations: (1) allow adoption and updating of Area Plans by local governments as appropriate, and (2) shall not be used to support or deny applications for "Resort Recreation" designation.

C. Prior to January 1, 2017, and absent a WQMP amendment, the "Resort Recreation" land use designation shall in addition to including the Heavenly and Edgewood parcels, allow for no more than one additional area of a comparable size to be added to that designation. If the subdivision amendment procedures of the WQMP do not sunset after January 1, 2017, pursuant to Section G below, at that time the States will caucus in a manner similar to Section G to further address the "Resort Recreation" designation.

D. Except for amendments concerning subdivisions, which are addressed in Section F below, prior to January 1, 2017, the WQMP need only be amended if an amendment to the Regional Plan involves one of the Regional Plan or Code of Ordinance sections or chapters listed below:

1. BMPs (Goals and Policies WQ 3-11, 3-12; Code Chapter 60.4);

2. Land Use Planning and Control (Goals and Policies LU 1 - 4.4 (excluding LU 2.2 (Subdivision) and any reference to or definition of Resort Recreation); Code Chapters 20 - 22 (excluding any reference to or definition of Resort Recreation));

3. Coverage Transfer Limits (Goals and Policies LU 2-11; Code Sections 30.4.2 - 30.4.4);

4. Evaluation Intervals and Targets: Assessment of Effectiveness and Adequacy (Goals and Policies DP 2.1; Code Section 16.5.2);

5. Development Limits (Goals and Policies, DP 1-4; Code Chapter 50 (excluding those provisions of Section 50.5.1.C.1 regarding the distribution of the up to 130 residential annual allocation among jurisdictions and Section 50.6.4.E regarding the distribution of commercial floor area among jurisdictions.)

E. To determine whether amendment of the WQMP is necessary prior to January 1, 2017, the following process will be followed:

1. Does the Regional Plan amendment involve one of the six topics (the five listed above and the subdivision provisions listed below)?

   a. If no, then no WQMP amendment is necessary;

   b. If yes, then a WQMP amendment is necessary;

   c. If the change relates to the subdivisions provisions, skip to Section F below, otherwise continue.

2. Does a person object to amending the WQMP to be consistent with the Regional Plan change?

   a. If no, then the WQMP is automatically amended;

   b. If yes, then the objecting person has the burden of providing substantial evidence to the States that the Regional Plan change

may reasonably be expected to lead to the degradation of water quality. The States must determine unanimously whether the objecting person has met the burden of proof. The States may consider evidence from any person, including themselves, that they collectively or individually deem appropriate.

3. Do the States, within 60 days of the objection to the WQMP amendment, unanimously determine that the objecting person met the burden?

    a. If no, then the WQMP is automatically amended;

    b. If yes, then the WQMP is not amended and the decision is remanded to TRPA for further action;

    c. If the States do not agree and cannot resolve the disagreement within 60 days of the objection to the WQMP amendment, absent agreement between the States to extend for a reasonable period the time in which to attempt to reach agreement, the WQMP is not amended and the proposed WQMP amendment is remanded to TRPA for further action. At this point, either State may give notice that it intends to pursue revocation of the designation of TRPA as its WQMP planning agency for the Lake Tahoe Basin.

4. After January 1, 2017, except for amendments concerning subdivisions, relevant amendments made to TRPA's Regional Plan and/or Code are automatically made to the WQMP.

**F.** Until January 1, 2017, any amendments made by TRPA to subdivision policy as set forth in Regional Plan Goals and Policies LU 2.2 (as amended by the RPU, and excluding Attachment 2-A (list of TRPA approved subdivisions)) and Code Chapter 39 (as amended by the RPU), other than allowing the subdivision of one area in addition to Heavenly and Edgewood parcels after it is added to the Resort Recreation designation, will require amendment of the WQMP. If no person objects to amending the WQMP to be consistent with the amendment to the Regional Plan and/or Code regarding subdivisions, then the WQMP is automatically amended. If a person does object to amendment of the WQMP, then such amendment shall only be made through the past WQMP amendment process, not those set forth above.

**G.** After January 1, 2017, the States will caucus to determine whether changes made to TRPA's Regional Plan and/or Code concerning the subdivision provisions set forth above are automatically made to the WQMP. The States shall base their determination to sunset the subdivision amendment procedures of the WQMP on whether progress is being made toward attaining improved water quality and any other factors the States deem relevant. The States shall conduct their caucus process as follows:

1. Does a State object to the sunset of the subdivision amendment procedures of the WQMP?

a. If no, then the subdivision amendment procedures of the WQMP automatically sunset;

b. If yes, then the objecting State has the burden of proving to the other State that progress is not being made toward attaining improved water quality. The States must agree whether the objecting State has met the burden of proof. The States may consider any information they deem relevant.

c. Do the States, within 60 days of the objection to the sunset of the subdivisions section of the WQMP:

i. Agree that the objecting State has not met its burden? If so, then the subdivision amendment procedures of the WQMP do automatically sunset;

ii. Agree that the objecting State has met its burden? If so, then the subdivision amendment procedures of the WQMP do not sunset;

iii. Cannot agree whether the objecting State has met its burden? If so, then the subdivision amendment procedures of the WQMP do not sunset. Either State may then give notice that it intends to pursue revocation of the designation of TRPA as its CWA Section 208 water quality planning agency.

**H.** Nevada and California intend to continue their involvement in pursuing progress towards attaining water quality standards as established by the States and TRPA. The States will pursue achievement of all water quality standards as well as considering additional steps that would accelerate improved water quality. These efforts will build on the coordination and cooperation achieved in the bi-state consultation process for the TRPA RPU.

# 11 CONCLUSION

The WQMP revises the previous 1988 version to address adoption of Total Daily Maximum Loads for Lake Tahoe in California and Nevada as well as updates to Lake Tahoe's Regional Plan. The updated WQMP incorporates planning and management of all water pollution sources in the Lake Tahoe Region and fulfills the minimum regulations outlined the U.S. EPA regulations implementing Sections 208 and 303(e) of the Clean Water Act[187]. Based on the information included within the WQMP, as a result of the above described coordinated efforts, water quality will be protected and restored to standards within the foreseeable future.

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