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Public Draft

2025 Urban Water Management Plan

8 June 2026

Prepared for

South Tahoe Public Utility District
1275 Meadow Crest Drive
South Lake Tahoe, CA 96150

KJ Project No. 2668001*00

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Abbreviations

AB	Assembly Bill (California)
Act	DWR 2020 Urban Water Management Planning Act
AF	acre-feet
AFY	acre-feet per year
Alternate GSP	Alternate Groundwater Sustainability Plan
AMI	Advanced Metering Infrastructure
AWWA	American Water Works Association
Basin	Tahoe Valley Groundwater Basin
CASGEM	California Statewide Groundwater Elevation Monitoring
CCR	Consumer Confidence Report
CIMIS	California Irrigation Management Information System
Compact	Tahoe Regional Planning Compact
CREAT	Climate Resilience Evaluation and Assessment Tool
CWC	California Water Code
CWUO	California Water Use Objective
CY	Calendar Year
District	South Tahoe Public Utility District
DMM	Demand Management Measures
DOF	Department of Finance (California)
DVR	Diamond Valley Ranch
DWR	Department of Water Resources (California)
DWR Guidebook	DWR Guidebook for Urban Water Suppliers
Eto	evapotranspiration rate
GPCD, gpcd	gallons per capita per day
gpm	gallons per minute (U.S.)
GWMP	Groundwater Management Plan
kWh	kilowatt hour
µg/L	micrograms per liter
MGD	million gallon per day
ml	milliliter
MPN	Most Probable Number

MTBE	Methyl Tert Butyl Ether
PCE	tetrachloroethylene
PWS	public water system
SBX7-7	Senate Bill 7 of Special Extended Session 7, 20x2020
SGMA	Sustainable Groundwater Management Act
SWRCB	State Water Resources Control Board
TM1	Technical Memorandum 1 – Existing System Summary and Demands
TRPA	Tahoe Regional Planning Agency
TSS	Tahoe South Subbasin 6-5.01
UWMP, Plan	Urban Water Management Plan
WSCP	Water Shortage Contingency Plan
WWTP	Wastewater Treatment Plant
WY	Water Year

Section 1: Introduction/Lay Description

1.1 Overview

This document presents the 2025 Urban Water Management Plan (UWMP or Plan) for the South Tahoe Public Utility District (District) service area, which includes most of the City of South Lake Tahoe and portions of unincorporated El Dorado County. This chapter describes the general purpose of the UWMP. A list of acronyms and abbreviations is provided at the end of the table of contents.

1.2 Purpose

An UWMP is a planning tool that generally guides the actions of water management agencies. It provides managers and the public with a broad perspective on water supply issues. It is not a substitute for project-specific planning documents, nor was it intended to be when mandated by the State Legislature. For example, the Legislature mandated that a plan includes a section which "describes the opportunities for exchanges or water transfers on a short-term or long-term basis." (California Urban Water Management Planning Act, Article 2, Section 10630(d).) The identification of such opportunities, and the inclusion of those opportunities in a general water service reliability analysis, neither commits a water management agency to pursue a particular water exchange/transfer opportunity, nor precludes a water management agency from exploring exchange/transfer opportunities not identified in the plan. When specific projects are chosen to be implemented, detailed project plans are developed, environmental analysis, if required, is prepared, and financial and operational plans are detailed.

In short, this Plan is a management tool, providing a framework for action, but not functioning as a detailed project development or action. It is important that this Plan be viewed as a long-term, general planning document, rather than as an exact blueprint for supply and demand management. Water management in California is not a matter of certainty, and planning projections may change in response to a number of factors. From this perspective, it is appropriate to look at the Plan as a general planning framework, not a specific action plan. It is an effort to generally answer a series of planning questions including:

- What are the potential sources of supply and what is their reasonable probable yield?
- What is the probable demand, given a reasonable set of assumptions about growth and implementation of good water management practices?
- How well do supply and demand figures match up, assuming that the various probable supplies will be pursued by the implementing agency?

Using these "framework" questions and resulting answers, the implementing agency will pursue feasible and cost-effective options and opportunities to meet demands.

The California Urban Water Management Planning Act (Act) became part of the California Water Code with the passage of Assembly Bill (AB) 797 during the 1983-1984 regular session of the California Legislature. The Act requires that every urban water supplier providing water

for municipal purposes, either directly or indirectly, to more than 3,000 customers, or supplying more than 3,000 acre-feet (AF) of water annually, to prepare a plan that:

- Accomplishes water supply planning over a 20-year period in 5-year increments (the District is going beyond the requirements of the Act by developing a plan which spans 25 years).
- Identifies and quantifies adequate water supplies, including recycled water, for existing and future demands, in normal, single-dry, and multiple-dry years.
- Implements conservation and efficient use of urban water supplies.

State legislation, Senate Bill 7 of Special Extended Session 7 (SBX7-7) was signed into law in November 2009, which calls for progress towards a 20 percent reduction in per capita water use statewide by 2020. The legislation, known as 20x2020 mandated each urban retail supplier develop and report an interim 2015 water use target, their baseline daily per capita use and 2020 compliance daily per capita use, along with the basis for determining those estimates. This UWMP reports on the District's continued compliance with meeting the SBX7-7 targets since 2020 in Section 5.2.

State legislation, *Making Water Conservation a California Way of Life* (Assembly Bill 1668 and Senate Bill 606) concluded rulemaking in July 3, 2024. For simplicity, the *Making Water Conservation a California Way of Life* regulation is hereafter referred to as the California Water Use Objective (CWUO). The CWUO framework establishes individual efficiency goals for each urban retail water supplier based on unique characteristics of the supplier's service area. The intent is to reduce urban water use and adapt to climate change. In some instances, suppliers may adjust their objective to account for direct potable reuse, seasonal tourism, and emergency response. Starting in 2027 suppliers need to meet the overall objective. The CWUO regulation also has provisions requiring water suppliers to undertake Commercial, Industrial and Institutional (CII) performance measures. The District is subject to CWUO.

In short, the Plan answers the question: *Will there be enough water for the area served by the District in future years, and what mix of programs should be explored for making this water available?*

The analysis in this Plan documents that the District has the necessary existing and projected water supplies to meet normal and dry-year demands.

The primary requirements for the UWMP include:

- A description of the water service area.
- A description of the existing and planned water supply sources.
- Estimates of past, present, and projected water use.
- SBX7-7 (20x2020) analysis and target compliance.
- An assessment of water supply reliability.
- A description of the conservation program and demand management measures.

- A description of plan adoption, submittal, and implementation.

The 2025 UWMP must submit data in specific tables to the California Department of Water Resources (DWR), which has provided these tables, and this UWMP utilizes the provided tables without changes to format or organization. The District 2025 UWMP presents each required element per the DWR 2025 Urban Water Management Plan Guidelines.

This UWMP is organized to follow the DWR 2025 UWMP Guidelines recommended organization and data tables. Appendix A contains the DWR Checklist providing the location of the content that meets the UWMP legislative requirements.

During assessment of the District's 2014 Groundwater Management Plan (2014 GWMP), DWR recommended that differing water demand projections used in the 2014 GWMP and the UWMP be reconciled (DWR, 2019). DWR also recommended that the reconciled water demand projections be incorporated into the projected water budgets used in each document. In order to satisfy this recommendation, both the updated 2014 GWMP and the 2025 UWMP use the same population growth rate (California Department of Finance El Dorado County 50-year population growth rate) as a basis for projecting future water demands. In addition, projected total supplies and supply/shortfall estimates provided in this UWMP are calculated using the same storage threshold developed for the updated 2014 GWMP, which was carried forward to the Alternate Groundwater Sustainability Plan (Alternate GSP) that was submitted in 2016, approved by DWR. The storage threshold represents the total amount of groundwater available for groundwater extraction in the Tahoe South Subbasin (TSS), without any undesirable results to all beneficial users and uses of groundwater within the TSS. However, as differences in the Alternate GSP and UWMP reporting requirements (calendar year [CY] versus water year [WY]) do occur, there is not a direct comparison between the projected future water demands presented in the 2025 UWMP with the projected water demands to be presented in the Alternate GSP.

Section 2: Plan Preparation

The District provides potable water service to over 3,000 connections per year and supplies over 3,000 acre-feet per year (AFY) and is therefore required to complete the UWMP process. Table 2-1 through Table 2-4 list the UWMP background information as required by DWR.

Table 2-1: Retail: Public Water Systems (DWR Table 2-1)

Public Water System Number	Public Water System Name	Number of Municipal Connections 2025	Volume of Water Supplied 2025 (AF)
91002	South Tahoe PUD	14,295	4,055
	Total	14,295	4,055

NOTES: Volume of water supplied is for potable water only to active connections. Neither raw nor recycled water is used within the District.

Table 2-2: Plan Identification (DWR Table 2-2)

Select One	Type of Plan		Name of Regional Alliance or RUWMP
X	**Individual UWMP**		
		If Water Supplier is also a member of a SB X7-7 Regional Alliance, select name from the drop-down.	
	Regional Urban Water Management Plan (RUWMP)		
		If Supplier selected RUWMP, select name from the drop-down.	

Table 2-3: Supplier Identification (DWR Table 2-3)	
Type of Supplier (select one or both)	
	Supplier is a wholesale supplier
X	Supplier is a retail supplier
Fiscal or Calendar Year (select one)	
X	UWMP Tables are in calendar years
	UWMP Tables are in fiscal years
Units of measure used in UWMP	
Unit	AF

Table 2-4: Retail: Water Supplier Information Exchange (DWR Table 2-4)
Water Code Section 10631(h)
The retail Supplier has informed the following wholesale supplier(s) of projected water use.
Wholesale Water Supplier Name
None. The District does not receive supply from wholesale sources.

2.1 Coordination and Outreach

The Tahoe Regional Planning Agency (TRPA) is a two-state regional environmental planning agency tasked with planning efforts in the Tahoe Basin. The District regularly participates in the TRPA water, wastewater, and environmental planning efforts. The District notified TRPA, City of South Lake Tahoe, El Dorado County, and the El Dorado County Water Agency of the UWMP preparation and contacted each respective agency as necessary to develop the UWMP. Agency and public outreach efforts are presented in Section 10 per the UWMP Guideline requirements.

Section 3: System Description

The District is a California public utility district that was established in 1950. The District provides water and sewer service throughout the South Lake Tahoe area. The District is the largest water purveyor in the Lake Tahoe Basin. The District maintains a total of 13 wells, with water supply currently provided by 11 active supply wells and two standby wells. In addition to the supply wells, the District, as a monitoring entity, maintains thirty (30) observation wells for groundwater level monitoring under the California Statewide Groundwater Elevation Monitoring (CASGEM) program. The storage and distribution system is comprised of 16 booster pump stations, 20 storage tanks, 21 pressure regulating stations, and 251 miles of potable water pipe. Due to the topography of the District's service area, the overall distribution system is separated into 30 pressure zones.

3.1 Service Area Description

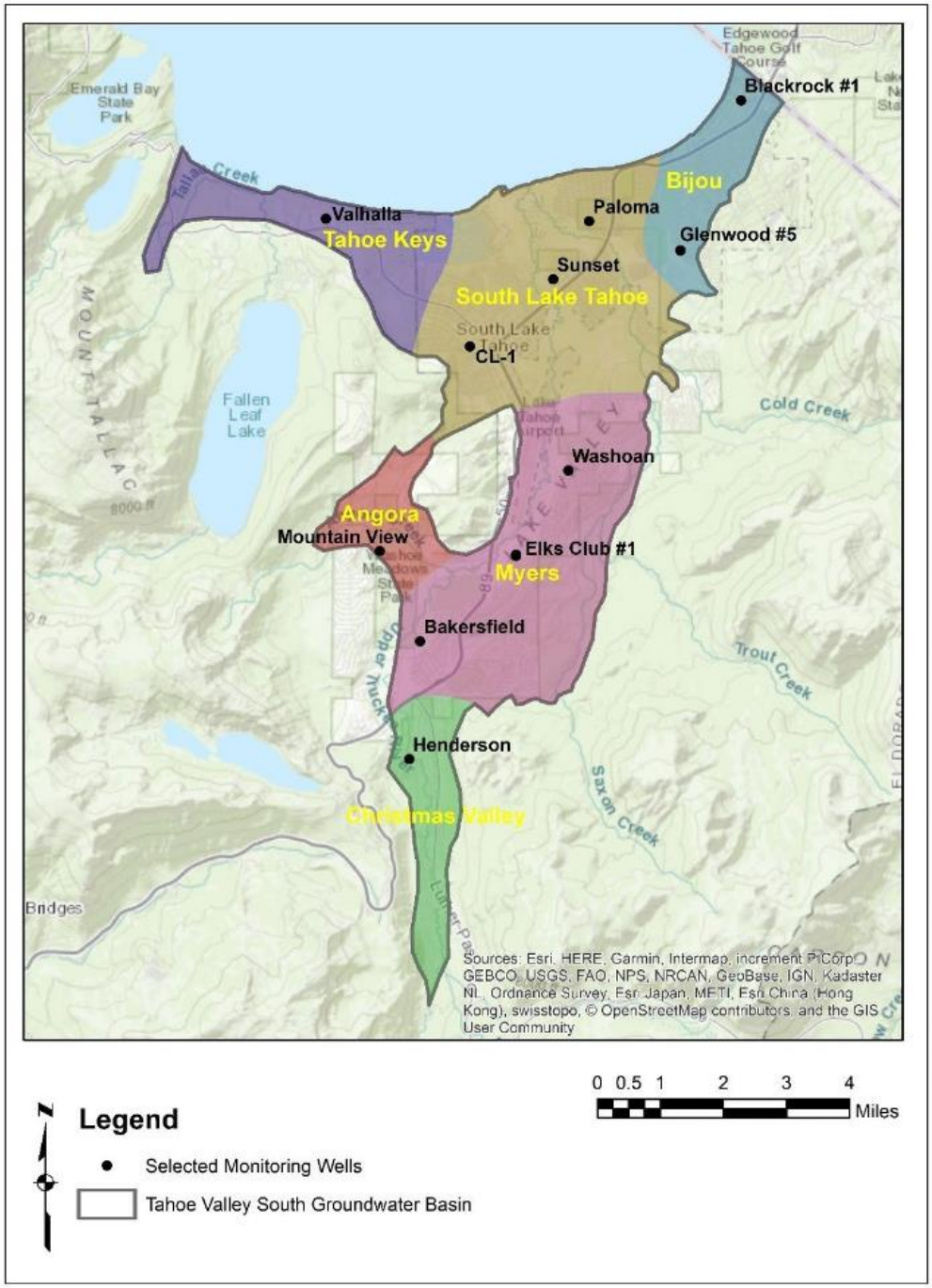
The District's service area encompasses 27,000 acres in eastern El Dorado County on the southern shore of Lake Tahoe. The service area extends west to include Emerald Bay, east to the California Nevada State Line, and south to include Christmas Valley. The service area includes most, but not all, of the City of South Lake Tahoe and portions of unincorporated El Dorado County. Figure 3-1 illustrates the District boundaries.

The District provides water supply within the incorporated City of South Lake Tahoe and the unincorporated communities of Montgomery Estates, Tahoe Paradise, Meyers, Angora Highlands, Fallen Leaf Lake, and Christmas Valley. Lukins Brothers Water Company, Lakeside Water Company, and Tahoe Keys Water Company are small private water providers within or adjacent to the District's service area. These private water companies are mostly built out and serve approximately 3,000 connections total.

The service area has a unique customer base. The area is a tourist destination with extensive lodging facilities and vacation homes. Correspondingly, land use within the service area is primarily residential, with some mixed-use, recreation, and tourist areas, as well as a small portion set aside for conservation. The seasonal fluctuations in the tourist season also affect the seasonal nature of the workforce. These demographics affect the District's water demands resulting in seasonal and weekly variations much different than a typical California city.

All land in the Lake Tahoe region, including the City and the District's service area, falls under the jurisdiction of the TRPA as defined in the Tahoe Regional Planning Compact (Compact). The Compact requires that all local jurisdiction planning be consistent with a series of Environmental Thresholds. The TRPA Environmental Thresholds effectively provide a growth control mechanism for the region, which in turn impacts projected water demands.

Figure 3-1: South Tahoe Public Utility District Boundary



The District's service area receives significant precipitation during the winter in the form of snow. Some precipitation occurs during the other seasons in the form of rain. The monthly temperature ranges from an average low of 34 degrees to an average high of 54 degrees Fahrenheit (2020 District UWMP). The historical annual average precipitation is 34.2 inches,

and the historical average annual evapotranspiration rate (ETo) is 60.6 inches (California DWR CIMIS Reference Evapotranspiration Zones Map). As described in the District's 2019 Climate Action Plan for the Capital Improvement Program, climate change projections include increased temperature, with a 2.1-2.5ºF increase by 2035, changes in precipitation, decreased snowpack, increased climatic water deficit, changes in flooding and runoff, increase in wildfires, and increased kinetic energy of raindrops (Kennedy/Jenks Consultants, Inc., 2019).

3.2 Population

The District service area boundary does not match up exactly with census tract or block group zones. The 2025 UWMP methodology for projecting the District's future water service area populations will align with the methodology used in Technical Memorandum 1 – Existing System Summary and Demands (TM1). As discussed in Section 4.1, the methodology for projecting the District's future water demands included projecting their population to account for future growth. The population projections in TM1 assumed a growth rate of 0.46% per year.

The District's 2025 water service area population was calculated using populations in City of South Lake Tahoe and unincorporated areas of El Dorado County. The corresponding yearly percent change based on the Department of Finance's (DOF) growth rates for El Dorado County as a proxy for the entire service area were then used to calculate the final 2025 population.

The 2025 UWMP utilized the District's 2025 water service area population and a 0.46% population growth rate to project the District's population out to 2050. Resulting population projections are presented in Table 3-1.

The District is using the calculated 2025 population to demonstrate continued compliance with the 20x2020 demand reduction goals in this UWMP and demand management compliance reporting, as needed. The District acknowledges the population served is larger than the permanent resident population. However, as demand reduction compliance is based on relative reductions over time, the District anticipates no significant differences in compliance requirements. The District will continue to track this issue and modify its served population estimates in the future if necessary.

Table 3-1: Retail: Population - Current and Projected (DWR Table 3-1)

Water Code Section 10631(a)

	2025	2030	2035	2040	2045	2050(opt)
Population Served	30,089	30,788	31,503	32,234	32,982	33,748

NOTES: 2025 population calculated using DOF growth rate for El Dorado County. Projected population assumes a growth rate equal to that used in the water demand projections calculated in Technical Memorandum 1 – Existing System Summary and Demands.

Section 4: System Water Use

This section presents past and projected water demands. The District serves a wide range of customer types, from small older lots with little landscape to newer larger residences with extensive landscaping and a large resort area with snowmaking.

4.1 Current and Projected Water Demands

Projected water demands were calculated in a water demand study by Carollo. They were projected by applying the DOF 50-year population projection growth rate for El Dorado County of 0.46% to the average day demand (ADD) multiplied by the average percentage attributed to each customer class from the 2022 and 2024 water consumption data. As of 2025, the District has 97 unmetered customers and has plans to install meters for the remaining unmetered customers in 2026. Since 2009 when the District initiated metering, water usage per account has decreased almost 43% from 0.498 AFY per account in 2009 when 6% of the accounts were metered to 0.285 AFY per account in 2025 when 100% of the accounts were metered. Reduced demand per account can be attributed both to conservation and increased precipitation, especially in recent years. Metering has been an effective means of conservation; these savings are likely a function of the metering and the ability for District staff to be able to communicate directly to customers regarding water use and leaks, as well as provide education and resources to increase water conservation. Since the projections are based on the ADD multiplied by the average percentage attributed to each customer class from the 2022 and 2024 water consumption data, which incorporates these savings achieved since 2009, the projections include the effects of water conservation into the future.

Actual 2025 water demands per category are presented in Table 4-1. As the tables indicate, the majority of the District's customers are residential. The District commercial category includes office and retail, as well as the resort accounts including hotels, restaurants, and snowmaking. "Losses" account for unbilled water use such as firefighting, flushing, leaks, water theft, or meter inaccuracies characterized as "real losses" in the DWR/AWWA Water audit. As seen in Appendix B, water losses in the District's system have been trending downwards over the previous 5 years. This reduction in water loss can be correlated with the installation of customer water meters beginning in 1993 and the District's leak detection program that utilizes aerial imagery to detect chlorine from chlorinated water leaking from the distribution system.

Projected customer water demands through 2050 are summarized in Table 4-2. There are no recycled water demands as discussed in Section 6. Water loss for 2020-2024 was calculated per the DWR/American Water Works Association (AWWA) water audit methodology and provided in Appendix B. The water loss audit reporting for 2020-2024 is summarized in Table 4-3.

Water Code Section 10608.34 requires compliance with a water loss standard. The State Water Resources Control Board Water Loss Performance Standard is composed of the real water loss standard and the apparent water loss standard, and this standard must be met by 2028. Pursuant to Water Code Section 10631(d)(3)(C), Retail Suppliers are required to include data in their 2025 UWMPs demonstrating whether they met the 2028 water loss standard.

A comparison of results from the CY2024 AWWA Water Loss Audit to the 2028 standard is summarized in Table 4-4. Based on the calculated 2024 water loss, the District meets its Real Water Loss Performance Standard and its Apparent Water Loss Performance Standard. The District must be in compliance with both water loss standards by January 1, 2028. Compliance will be reevaluated with the District's future annual water loss audits.

Table 4-1: Retail: Total Uses for Potable and Non-Potable Water – Actual (DWR Table 4-1)

Water Code Section 10631(d)(1)

Use Type	2025 Actual Water Use		
	Additional Description *(as needed)*	Potable or Non-Potable	Volume (AF)
Single Family		Potable	2,038
Multi-Family		Potable	699
Commercial	Includes Institutional and Tourism	Potable	1,317
Distribution System Water Loss		Potable	826
		Total	4,880

Table 4-2: Retail: Demands for Potable and Non-Potable Water – Projected (DWR Table 4-2)

Water Code Section 10631(d)(1)

Use Type	Additional Description *(as needed)*	Projected Water Use *(Report To the Extent that Records are Available)*				
		2030 (AF)	2035 (AF)	2040 (AF)	2045 (AF)	2050 opt (AF)
Single Family		2,980	3,036	3,092	3,148	3,204
Multi-Family		963	1,008	1,008	1,008	1,008
Commercial	Includes Institutional and Tourism	1,523	1,579	1,635	1,680	1,680
Distribution System Water Loss		868	893	910	926	935
Total		6,334	6,516	6,646	6,762	6,827

NOTES: Projections are based on average day demand.

Table 4-3: Retail: Water Loss Audit Reporting (DWR Table 4-5)		
Water Code Section 10631(d)(3)(A)		
Public Water System ID # Reported in Table 2-1 R	Reporting Period	Submitted to DWR Water Loss Audit Program (yes/no)
91002	2020	Yes
	2021	Yes
	2022	Yes
	2023	Yes
	2024	Yes

Table 4-4: Retail: Progress Towards 2028 Water Loss Standard (DWR Table 4-6)

Water Code Section 10631(d)(3)(C)

Public Water System ID # Reported in Submittal Table 2-1 R	Did the Water Board Calculate a Water Loss Standard for this Public Water System?	Real Water Loss					Apparent Water Loss				
		State Water Board Standard		Most Recent AWW Water Loss Audit			State Water Board Standard		Most Recent AWW Water Loss Audit		
		2028 Real Water Loss Standard per Unit per day	Units for Real Water Loss	Number of Units (Connections or Miles corresponding with units selected)	Volume of Total Real Loss (from AWWA Water Loss Audit) (AF)	Real Water Loss Per Unit per Day	2028 Apparent Water Loss Standard per Unit per Day	Units for Apparent Water Loss	Number of Connections	Volume of Total Apparent Loss (from AWWA Water Loss Audit) (AF)	Apparent Water Loss Per Unit per Day
91002	Yes	60.2	Gallons per Service Connection per Day (GPSCD)	18,545	566	27.2	3.8	Gallons per Service Connection per Day (GPSCD)	18,545	64.3	3.1

NOTES: Number of units include active and inactive connections

4.2 Water Use for Low Income Households

The City of South Lake Tahoe's 2022 adopted General Plan and Housing Element noted that the Sacramento County Of Governments (SACOG) Regional Housing Needs Projection for City of South Lake Tahoe projects a total of 162 affordable housing units to meet the regional housing share target (2022 City of South Lake Tahoe General Plan Housing Element). These affordable housing units are assumed to be multi-family units. Using the multi-family unit water demand of 0.62 AFY per connection[1], the estimated low-income household water demand is 96.1 AFY. These demands are embedded in the projected demands presented throughout this UWMP. The required information for factors to include in water use projections is presented in Table 4-5.

Table 4-5: Retail Only: Inclusion in Water Use Projections (DWR Table 4-3)	
Water Code Section 10631 (a), 10631 (d)(4)(A), and 10631 (d)(4)(B)	
Are Future Water Savings Included in Projections?	Yes
If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, or otherwise are utilized in demand projections are found.	Section 4.1
Are Lower Income Residential Demands Included In Projections?	Yes

4.3 Climate Change Considerations

Increased temperatures and drought may warrant additional water conservation efforts, especially for outdoor irrigation which can increase in multiple dry years, unless efforts are made to reduce water use. Indoor water conservation efforts, however, can lead to complications and changes in wastewater treatment operations from high strength raw wastewater, damage to systems, and increased cost. Lower wastewater flows also reduce the volume of water available for agricultural irrigation applications of recycled water outside of the District service area.

[1] From the analysis completed in 2020 documented in the Technical Memorandum: Total District Water Production Requirements within the Boundaries of the Public Utility Districts Located in the California Portion of the Lake Tahoe Basin (Kennedy/Jenks Consultants, Inc., 2020)

Section 5: Baseline and Targets

State law requires that urban water agencies demonstrate a 20 percent reduction in per capita water use by 2020, from the baseline period. DWR has incorporated these requirements into the UWMP requirements. The required demand reduction is based on an agency's gallons per capita per day (gpcd). Specific methodologies for estimation and analysis of population and demands to determine gpcd targets are provided in the 2025 UWMP Guidebook and Appendices.

5.1 2020 Baseline Demand and Target

The DWR UWMP Guidebook methodologies for calculating baseline and reduction targets were used to update the baseline and targets for the 2015 UWMP as described in Section 5.2. The District was not required to update its baseline and targets for 2020 UWMP and 2025 UWMP.

5.2 SB X7-7 Tables and Methodology

The 20x2020 process requires that a baseline demand be calculated from which target water demands are determined. The baseline demand is taken as the 10-year average gpcd, ending no earlier than 2004. The baseline demand calculation is based on total supply into the system and estimated service population for each year. The 2020 goal must be no more than 95 percent of a 5-year gpcd average ending no earlier than 2007. Target Method 1, 20 percent of the baseline value, is the selected target. Resulting targets and compliance are summarized in Tables 5-1 and 5-2 of the District's 2015 and 2020 UWMP.

5.3 Compliance Water Use Targets

The District's 2020 Compliance Water Use Target for the District is 181 gpcd as determined for the 2015 UWMP. The actual 2020 water use was 173 gpcd and was determined using methodologies for estimation and analysis of population and demands. The actual 2020 water use was below the 2020 Compliance Water Use Target; therefore, no additional assessment of present and proposed future measures, programs, or policies have been considered to achieve further water use reductions. The District is not a wholesale supplier.

5.4 Achievement of Target

As shown in Table 5-1, the District met their 2020 Compliance Water Use Target in 2020. The District will continue to monitor water use and utilize water use reduction methods to maintain this baseline reduction in future water years.

Table 5-1: Retail: SB X7-7 2020 Target Progress (DWR Table 5-1)				
Water Code Section 10608.40				
	Check the box if the Supplier was not an Urban Water Supplier during or before the 2020 UWMP reporting cycle. Supplier will not complete this table			
Was Supplier part of a merger or consolidation since 2020?	Regional Alliance Target or Individual Target?	2020 Target	Actual 2020 GPCD	Did Supplier Achieve Targeted Reduction for 2020?
No	Individual Target	181	173	Yes
NOTES: All values are in gpcd				

Section 6: Water Supply Characterization

The District is 100% reliant on groundwater sources to meet its water system demands. The District does hold some California State Water Resources Control Board (SWRCB) surface water permits and has a SWRCB surface water application in progress but currently does not divert or use surface water. This section presents the supply analysis and discussion.

6.1 Surface Water

The District previously held a permit to divert surface water from Cold Creek (2015 District UWMP), but it discontinued this diversion in 1991 due to water quality constraints and has since cancelled that permit. The District also previously held six (6) permits for surface water diversion of the Upper Truckee River and tributaries for up to 4,424 AFY and limited to a maximum diversion of 2,760 by SWRCB Decision D 1152. The District has discontinued this diversion due to supply reliability concerns and has since cancelled these six (6) permits.

6.2 Groundwater

The District draws its groundwater supply from the TSS underlying its service area. The California Department of Water Resources Groundwater Update 2003 Bulletin 118 defines the basin as the Tahoe Valley South Subbasin (Basin 6-5.01).

6.2.1 Basin Description

As described in the District's Alternate GSP and Bulletin 118, the groundwater basin is primarily unconsolidated sedimentary deposits within the TSS of the Tahoe Valley Groundwater Basin (Basin). Glacial deposits are predominant and include moraines and outwash that make up the predominant aquifers. The outwash deposits are generally sand, gravel, and cobble layers that are interbedded with silt and clay layers. Glacial melt waters and streams that drained moraines to the south produced outwash deposits. Later, glacial outwash deposits in some areas were eroded and replaced with stream channel deposits. Hardrock assemblages, including granitic, metamorphic, and volcanic rocks, are also common to the District and in the Basin. Granitic outcrops are common over a large area east, and within most of the District.

In 1996, the fuel additive Methyl Tert-Butyl Ether (MTBE) was detected in one of the District's wells. Gasoline/MTBE leaking from local gas station tanks travels easily through porous granitic soil into groundwater supplies. MTBE is a suspected carcinogen and even at low levels the chemical causes a foul taste and odor. The District has made significant efforts to combat this contaminant and, since 1996, MTBE has been one of the limiting factors to the District's supply and operations. Since 1997, more than fifteen public water supply wells have been removed from service due to MTBE contamination.

The District has been very proactive in addressing the challenges that MTBE contamination has caused. The District lobbied legislators and government officials to ban the use of MTBE as a fuel additive. The District was successful in enlisting the help of El Dorado County and the City of South Lake Tahoe to create an MTBE-free zone at South Lake Tahoe beginning in

April 1999. In 2000, the District completed a comprehensive Master Plan Update, MTBE Water System Impacts and Mitigation Evaluation addressing the restoration of water production lost to MTBE contamination. Options studied included

- constructing new wells,
- securing surface water rights,
- purchasing water,
- rehabilitating its wells,
- conserving water, and
- installing treatment facilities to remove MTBE from wells.

The District continues to implement and modify this plan as needed.

In addition to wellhead treatment, the District has pursued a new drinking water well development program. The Bayview Well, put online in summer of 2007, produces 3,600 gallons per minute (gpm), and is the District's highest producing well. South Upper Truckee Well No. 3, put online in 2008, adds another 1,200 gpm of supply. The District is currently planning the Tanglewood Well with a goal of achieving 2,000 gpm of supply. The District is also planning to redrill Sunset Well with a goal of achieving 2,000 gpm of supply. With these new wells and recent distribution system improvements, the District has completely returned to pre-MTBE production capability.

Currently, there is a known tetrachloroethylene (PCE) plume within the west central portion of the TSS northeast of the Emerald Bay Road and South Lake Tahoe Boulevard Y area (also known as the South Y Area). Chlorinated hydrocarbons have been detected in the public water system (PWS), monitoring, and private wells north and south of the South Y Area since 1989, when these compounds were required to be first tested in regulated drinking water sources. Many of the PWS wells have since ceased operating due to PCE concentrations exceeding the drinking water standard of 5 micrograms per liter (µg/L). The majority of these South Y Area wells have been disconnected and many have been taken offline (i.e., ceased operation).

PCE groundwater contamination has impacted the beneficial use of groundwater in the South Y Area. In order to address these impacts, Kennedy/Jenks Consultants, Inc. completed a Feasibility Study (South Y PCE Facilities Feasibility Study [Agreement D1712508], 2020) that evaluated the feasibility of cost-effective means of removing PCE from groundwater and manage existing groundwater sources to maintain adequate drinking water supply and quantity. The Feasibility Study evaluated remedial alternatives that will prevent further migration of contaminants and potential future impacts to downgradient water supply wells.

Three different alternatives were considered in the Feasibility Study and it was determined that the preferred remedial alternative was targeted pumping with potable reuse, based on the evaluation and ranking of alternatives. Targeted pumping with potable reuse will best meet the Feasibility Study goals, control or remove PCE from groundwater and prevent further migration of contaminants and potential future impacts to downgradient water supply wells that serves or has served as a source of drinking water; and replace lost drinking water production caused by

the impairment of groundwater sources in the South Y Area (Kennedy/Jenks Consultants, Inc., 2020a).

During 2022, the District and the Lahontan Regional Water Quality Control Board (LRWQCB) continued a variety of plume characterization efforts including:

- October 2021 and April 2022 sampling of sentry wells installed upgradient of drinking water supply wells
- Non-municipal well sampling in July 2022
- A soil gas investigation to evaluate the potential human health risks associated with potential soil vapor intrusion resulting from the South Y Plume in August 2022
- Proposed Cleanup and Abatement Orders for three additional sites: Lake Tahoe Laundry Works, Big O Tires, and Former Norma's Cleaners.

The District's water quality is reported in the Consumer Confidence Report (CCR), distributed to each customer annually. The latest CCR is included in Appendix C.

6.2.2 Groundwater Management

The District first developed and adopted the GWMP in 2000, then updated it in 2005. This Plan was later updated again in December 2014 in accordance with the Groundwater Management Act (AB3030). The Sustainable Groundwater Management Act (SGMA) was adopted by the State in 2014. In 2015 the District was recognized by DWR as the Groundwater Sustainability Agency (GSA) for the portion of the TSS lying within its service area. In 2019, DWR approved the 2014 GWMP as an Alternate GSP for the TSS (DWR, 2019). The District and El Dorado Water Agency completed the first five-year update of the Alternate GSP which was accepted DWR by June 27, 2024. Groundwater management information is available at:

https://www.stpud.us/groundwater-management.

Within the 2005 GWMP, the District established a safe pumping yield of 9,528 AFY for its operation. Historical and current demand is below the safe yield and has been declining since 2007SGMA legislation and rules contain more detailed analysis requirements and criteria for managing groundwater. The 2016 Analysis of Basin Conditions report states that under the SGMA, the sustainable yield be at a minimum, less than or equal to the amount of groundwater recharge. The average recharge in the basin between 1983 and 2015 was 39,000 AFY. The available groundwater for extraction in the TSS is 32,050 AFY. The District operates well below this value and is expected to remain within the sustainable yield well into the future.

In addition to developing the Alternate GSP and implementing SGMA, the District is also the reporting agency for the CASGEM program. Per the 2018 SGMA and CASGEM 2015 reporting, Basin 6-5.01 is a medium priority basin for the following reasons:

1) High reliance on Groundwater;
2) High Density of Public Supply Wells;
3) High Density of Production Wells;

4) Population Density; and
5) Documented Impacts/Impaired Water Quality (PCE and MTBE Contamination)

As stated previously, the District has been, and continues to be, proactive in addressing groundwater contamination.

6.2.3 Overdraft Conditions

The overall trend of the groundwater elevation data indicates that groundwater pumping is not causing any long-term declines in groundwater levels, or overdraft, in the Tahoe Valley South Basin. The water balance summary supports that the overall groundwater withdrawals are below the level that would result in an overdraft condition. As part of the groundwater annual report, review of water levels and groundwater modeling are conducted and would highlight any significant declines early so that management actions can be taken if needed. The most recent groundwater annual report for Water Year 2023 indicates that since WY2005, there is a cumulative change of groundwater in storage for the TSS of +15,357 AF indicating that overdraft is not a concern, Also, even with the high reliance on groundwater use within the TSS, the regulatory policies restricting growth throughout the Lake Tahoe Basin, will help to ensure that overdraft conditions do not develop in the future (TSS [6-5.01], Kennedy/Jenks Consultants, Inc., 2014).

6.2.4 Historical Pumping

The District maintains 11 active supply production and two standby groundwater wells as of the end of 2025. Well production capacity ranges from 90 gpm up to 3,000 gpm. The District has reported as many as 34 wells from historic records. However, wells are abandoned over time due to age, failing production, and water quality issues such as the MTBE and PCE contamination issues.

Past groundwater usage from 2021-2025 is presented in Table 6-1. Water quality and well age issues will continue to impact supply capacities. The District will continue to monitor water quality and well performance and implement treatment and/or new well programs to maintain supply reliability.

Table 6-1: Retail: Groundwater Volume Pumped (DWR Table 6-1)

Water Code Section 10631(4) and 10631(4)(c)

	Check the box if the Supplier does not pump groundwater.						
Groundwater Type	Potable or Non-Potable	Location or Basin Name	2021	2022	2023	2024	2025
Alluvial Basin	Potable	Tahoe South Sub-basin 6-5.01	5,503	5,139	4,846	4,956	4,880
		Total	5,503	5,139	4,846	4,956	4,880

6.3 Wastewater and Recycled Water

The District owns and operates the wastewater collection and treatment system. The system produces effluent at recycled water standards. However, the Porter-Cologne Water Quality Act prohibits the use of recycled water within the Lake Tahoe Basin. Therefore, all the wastewater treatment plant effluent is pumped to Alpine County and stored and used for agricultural purposes (i.e. beneficial reuse). This section presents the required information per the Guidelines.

6.3.1 Wastewater Collection, Treatment, and Disposal

The District provides all wastewater treatment, collection, and disposal within its service area. The wastewater collection, treatment, and recycling disposal processes can treat 7.7 million gallon per day (MGD) and serves approximately 18,000 connections. The District's award-winning collection system and wastewater treatment plant produces an average 4 MGD, 100 percent of which is recycled. However, the Basin Plan promulgated by the Lahontan Regional Water Quality Control Board prohibits reuse of treated wastewater within the Lake Tahoe Basin watershed, leaving no opportunities for re-use within the service area.

The District's treatment plant is currently permitted for "secondary 23" recycled water. This means the water has been oxidized and disinfected so that the median concentration of total coliform bacteria does not exceed a Most Probable Number (MPN) of 23 per 100 milliliters (ml) and the single day maximum does not exceed a MPN of 240 per 100 ml in any 30-day period. This quality of water is generally suitable for agricultural and some industrial uses. It is not suitable for unrestricted irrigation use. Since 1968, the District has delivered its treated effluent through a 26-mile export system, over Luther Pass (a vertical lift of 1,200 feet), to Alpine County. The recycled water is stored during the winter months in the 3,800-acre-foot Harvey Place Reservoir and distributed to six ranches and the District property in Alpine County for agricultural irrigation purposes in the dry summer months.

Despite the prohibition on recycled water use within the District's own service area, through a special legislative act in 2000, the District was able to install six fire hydrants along a short section of its recycled water export pipeline. These hydrants provide emergency fire suppression to a small residential community (that does not have municipal water service) and the District's critical wastewater pumping station at the base of Luther Pass. The availability of recycled water in the event of a catastrophic fire in this heavily forested area provides a level of security to the residents, the District, and the Lake Valley Fire Department.

Four additional hydrants were installed in Alpine County to provide similar fire protection as the export line makes its way to Harvey Place Reservoir. A 2015 project resulted in the use of recycled water for irrigation at the District's Diamond Valley Ranch (DVR), located outside the Tahoe Basin. DVR has been used for producing alfalfa since 2017. In 2025, 147 AF of recycled wastewater was used in the irrigation of DVR between April 23rd and September 30th. Tables 6-2 and 6-3 present the required information regarding the wastewater collection, treatment, and discharge within the service area.

Table 6-2: Retail: Wastewater Collected Within Service Area (DWR Table 6-2)				
Water Code Section 10633(a)				
	Check the box if there is no wastewater collection system.			
Wastewater Collection			**Recipient of Collected Wastewater**	
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated?	Volume of Wastewater Collected from UWMP Service Area 2025 (AF)	Name of Wastewater Treatment Plant (WWTP) and Place ID Number	Is WWTP Located within UWMP Area
South Tahoe PUD	Estimated	3,326	STPUD Wastewater Treatment Plant, Place ID 259230	
Total Wastewater Received from UWMP Service Area in 2025:		3,326		

Table 6-3: Retail: Wastewater Treatment and Outcomes Within UWMP Service Area (DWR Table 6-3)

Water Code Section 10633(b)

☐ Check the box if no wastewater is treated or disposed of within the UWMP service area.

Wastewater Treatment Plant Name and Place ID Number	Does This Plant Treat Wastewater Generated Outside the UWMP Service Area?	2025 Volume of Wastewater Received from UWMP Service Area (As Reported in Submittal Table 6-2 R) (AF)	Total 2025 Volume of Water Treated (AF)	2025 Outcomes of Treated Wastewater										
				Water Recycled Within UWMP Service Area (enter data as applicable)		**Water Recycled Outside of UWMP Service Area** (enter data as applicable)		**Effluent Discharge that is not a Permitted Recycled Water Use** (enter data as applicable)		**Required Discharge for Instream Flow** (enter data as applicable)		**Delivered to Another Entity for Additional Treatment** (enter data as applicable)		
				Treatment Level	Volume (AF)	Treatment Level	Volume (AF)	Treatment Level	Volume (AF)	Treatment Level	Volume (AF)	Treatment Level	Volume (AF)	Name of other entity
STPUD Wastewater Treatment Plant, Place ID 259230	No	3,326	3,326			Secondary, Disinfected - 23	3,326							
Total		3,326	3,326		0		3,326		0		0		0	
Total		3,326	3,326		0		3,326		0		0		0	

NOTES: 3,179 AF of treated wastewater was sent to the Harvey Place Reservoir; 147 AF of treated wastewater was sent to the Diamond Valley Ranch

6.3.2 Actions to Encourage and Optimize Future Recycled Water Use

The Porter-Cologne Water Quality Act prohibits the use of recycled water within the Tahoe Basin. The District's only option, at this time is to pump the treated wastewater to Alpine County for agricultural reuse. As reflected in Tables 6-4 and 6-5, the District plans to continue this practice for the foreseeable future.

Table 6-4: Retail: Recycled Water Direct Beneficial Uses Within Service Area (DWR Table 6-4)	
Water Code Section 10633 (c),(d),(e)	
X	Check the box if recycled water is not used and is not planned for use within the service area of the supplier. The supplier will only complete the column on "Potential Recycled Water Use" and submit an accompanying narrative on the feasibility of that potential recycled water use.
Potential Recycled Water Use	
Volume	Narrative Page Number (Optional)
0	Page 6-8

Table 6-5: Retail: 2020 UWMP Recycled Water Use Projection Compared to 2025 Actual (DWR Table 6-5)		
Water Code Section 10633(e)		
X	Check the box if recycled water was not used in 2025 nor previously projected for use in 2020. The supplier will not complete the table below.	
Use Type	2020 Projection for 2025 (AF)	2025 Actual Use (AF)
Total	0	0

Table 6-6 lists the current methods and programs to encourage recycled water use as not applicable (N/A) as there are no current plans for recycled water supply use in service area as it is illegal.

Table 6-6: Retail: Methods to Expand Future Recycled Water Use (DWR Table 6-6)			
Water Code Section 10633(f)			
X	Check the box if the Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
Page 6-8	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use (AF)
		Total	0

6.4 Desalinated Water Opportunities

There are no opportunities for desalinated water projects for the District.

6.5 Transfer Opportunities

The District relies on its own produced groundwater for its water supply. The District does not transfer or exchange any of its groundwater to other water agencies on a long-term basis although they have supplied neighboring water companies through emergency interties on an as-needed basis. Should transfer opportunities arise in the future, the District will evaluate the opportunities at that time.

6.6 Emergency Interties

The District maintains interconnections with the smaller private water companies within its service area. The interconnections are mostly intended to provide supply to the private companies during an emergency. The use of these connections during an emergency is not considered transfers or exchanges that provide additional supply on a regular basis.

6.7 Energy Intensity of the District Water System

Water energy intensity is the amount of energy, calculated on a whole-system basis, required for use of water in a specific location, such as the District service area. DWR provides guidance for calculating the operational energy intensity of water, defined as the total amount of energy expended by the urban water supplier on a per AF basis to take water from the location where the urban water supplier acquires the water to its point of delivery. DWR requires that urban water suppliers only report the energy intensity associated with water management processes occurring within their operational control and not include energy embedded in water supplies purchased from a wholesale water agency. Table 6-7 below provides an estimate, using the total utility approach, of the water energy intensity of the District's potable water system.

Table 6-7: Energy Intensity of the District Potable Water Supply - Total Utility Approach (DWR Table O-1B)				
Start Date for Reporting	01/01/2025	Sum of All Water Management Processes	Non-Consequential Hydropower	
End Date for Reporting	12/30/2025	**Total Utility**	**Hydropower**	**Net Utility**
Volume of Water Entering Process (AF)		4,880	0	4,880
Energy Consumed (kWh)		3,577,486	0	3,577,486
Energy Intensity (kWh/MG)		2,250	0	2,250

6.8 Future Water Supply Projects

District plans to rehabilitate and replace existing wells to add well capacity. Additionally, the District plans to drill another well. Table 6-8 illustrates the District's planned additional supply projects.

Table 6-8: Retail: Expected Future Water Supply Projects or Programs (DWR Table 6-7)						
Water Code Section 10631(f)						
	Check the box if there is no expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply.					
	Check the box if some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
Page 6-10	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	Joint Project with other suppliers?	Additional Description (as needed)	Potable or Non-Potable	Planned Implementation Year	Planned for Use in Year Type	Expected Increase in Water Supply to Supplier (AF)
Al Tahoe Well Rehabilitation	No	Project will increase maximum capacity to 3,300 GPM	Potable	2026	Average Year	800
Tanglewood Well	No	Installing a new well	Potable	2028	Average Year	1,936
Sunset Well Replacement	No	Increasing capacity to 2,000 gpm	Potable	2030	Average Year	1,400

6.9 Summary of Existing and Planned Sources of Water

The District's source water demand is met entirely by groundwater. The District intends to continue its groundwater program and does not plan to use any additional sources of water for the foreseeable future. Table 6-9 summarizes the 2025 supply volumes. Projected supply availability is summarized in Table 6-10.

Table 6-9: Retail: Water Supplies — Actual (DWR Table 6-8)

Water Code Section 10631(b)

Water Supply	Additional Description (as needed)	2025		
		Potable or Non-Potable	Actual Volume (AF)	Total Entitlement
Groundwater (not desalinated)		Potable	4,880	
		Total	4,880	0

Table 6-10: Retail: Water Supplies — Projected (DWR Table 6-9)												
Water Code Section 10631 (b)												
Water Supply	Additional Detail on Water Supply	Potable or Non-Potable	**Projected Water Supply** (Report to the Extent Practicable)									
			2030		**2035**		**2040**		**2045**		**2050 (opt)**	
			Reasonably Available Volume (AF)	Total Entitlement (optional)	Reasonably Available Volume (AF)	Total Entitlement (optional)	Reasonably Available Volume (AF)	Total Entitlement (optional)	Reasonably Available Volume (AF)	Total Entitlement (optional)	Reasonably Available Volume (AF)	Total Entitlement (optional)
Groundwater (not desalinated)		Potable	6,334		6,516		6,646		6,762		6,827	
Total			6,334		6,516		6,646		6,762		6,827	

6.10 Climate Change Effects

A topic of growing concern for water planners and managers is climate change and the potential impacts it could have on California's future water supplies. Climate change models have predicted that potential effects from climatic changes will result in increased temperature, early snow melt, and more intense storm events.

The District prepared a Climate Action Plan for the Capital Improvement Program in December of 2019. This plan highlights the effects that climate change will have on the region and its impacts on water supply. The Climate Action Plan can be found here:

https://www.stpud.us/documents#body_file-accordion_body_4_fa319ba3-51c3-4de4-b244-cec3d3661cea

In the 2013 update of the *DWR California Water Plan*, the implications of future climate conditions are evaluated. These changing hydrological conditions could affect future planning efforts, which are typically based on historic conditions. DWR plans to update the *California Water Plan* in 2028; therefore, language from the 2013 update remains valid for this UWMP. The *California Water Plan* identifies the following probable impacts due to changes in temperature and precipitation:

- More winter runoff and less spring/summer runoff due to warmer temperatures.
- Greater extremes in flooding and droughts.
- Greater water demand for irrigation and landscape water due to increased temperatures and their impacts on plant water needs.

In the 2019 Climate Action Plan for the Capital Improvement Program, the implications of future climate conditions are evaluated. These changing hydrological conditions could affect future planning efforts, which are typically based on historic conditions. The report identifies the following probable impacts due to changes in temperature, precipitation, runoff, erosion, and other variables:

- Longer Droughts
- Lower Groundwater Table
- Increase in Wildfire Potential
- Increase in Flooding Potential
- Increase in Landslides
- Wetter and Contracted Winter Season
- Increased seasonal visitation due to increased temperatures in the other parts of the state

Even without population changes, water demand could increase. The District could face additional demands given the potential effects of climate change and will be monitoring water usage and groundwater conditions annually through the annual groundwater report preparation process.

Section 7: Water Supply Reliability and Drought Risk Assessment

This section summarizes the total water supplies for the District, describes the reliability of the supply, and presents the drought risk assessment.

7.1 Constraints on Water Sources

The District's supply is provided by local groundwater. The "safe yield" of this supply has been quantified in the District's updated Alternate GSP as described in Section 6. The greatest risk for the water supply is groundwater contamination from PCE and MTBE, as well as naturally occurring arsenic and uranium. These issues have required the District to take wells out of service and carefully plan the location of new wells. As described in Section 6, the District is assessing the feasibility of PCE mitigation and has developed a plan for mitigating MTBE as well as other constituent impacts. These risks are not expected to impact District water sources over the period of this UWMP.

The TSS historically has shown little response to hydrologic year types with groundwater levels within the TSS and the District's water supply not being significantly impacted during the most recent statewide drought emergency declared in 2021 and largely rescinded in 2023. As part of the Alternate GSP annual water year reports, the District models the recent climatic conditions to assess the impacts to groundwater in storage and to evaluate whether, over multiple dry years, groundwater management actions including water conservation messaging, is necessary to maintain a sustainable groundwater condition. For the purposes of this UWMP, the District's analysis indicates that the groundwater basin supply is highly reliable with no anticipated water supply shortage in the planning period of this Plan. The attached Water Shortage Contingency Plan, Appendix D, details actions the District can take to manage demand if supply constraints occur.

7.2 Reliability of Water Supplies

The District relies solely on groundwater to meet its water demands. A summary of the potential factors limiting District supplies is presented in Table 7-1.

Table 7-1: Factors Resulting in Inconsistency of Supply

Water Supply Source	Legal	Environmental	Water Quality	Climatic
Supplier produced groundwater	None identified	None identified	Beneficial uses may be impacted by PCE or MTBE, Uranium, or Arsenic contamination.	The TSS is largely dependent on precipitation for groundwater recharge.

District groundwater supplies are not anticipated to be susceptible to inconsistencies resulting from legal or environmental impacts. The combination of groundwater recharge, basin storage volumes, pumping capacity, treatment capacity and actions to meet basin management objectives outlined in the Alternate GSP minimize possible water quality and climatic constraints and ensure consistency of District supplies. It should be noted, however, that groundwater contamination could cause inconsistency of supply if not addressed with proper mitigation.

7.3 Supply and Demand Comparisons

The available supplies and water demands for the District's service area were analyzed to assess the District's ability to satisfy demands during three scenarios: a normal water year, single-dry year, and multiple-dry years. Table 7-2, Table 7-3, Table 7-4, and Table 7-5 in this section present the supplies and demands under the various water year scenarios for the 20-year planning period in 5-year increments. Because the TSS is not adjudicated, the District is not assigned an available supply. The District will pump sufficient supply to meet the demands during each of the single and multiple dry year scenarios, without requiring a reduction in demand or supplemental supplies. It is acknowledged that demand has been reduced during the recent drought period, but reductions have been regulatory-driven by the State Water Resources Control Board, and were not based on supply availability.

Based on the available data, the District's water supply appears to be slightly impacted by single or multiple dry water years. The District's groundwater studies confirm that the wells that serve as the water supply are supported by local recharge and, in part, by Lake Tahoe. During the drought of 1985-1991, lake levels dropped 10 feet but the static water level decline observed in District wells was less than 4 feet and observed in only a few wells (2015 District UWMP). More recently, in the TSS Annual Report for Water Year 2023, groundwater elevations within the TSS declined from between the 2020 WY and 2021 WY since they were consecutive dry years about 75% of wells experienced declines of up to 5 feet from median water levels. Although WY 2022 was an average water year, recovery was marginal until the very wet WY 2023 returned groundwater elevations similar to WY 2019 levels. It is anticipated that the more extreme precipitation events in wet years that could occur as a result of climate change will result in sufficient groundwater recharge to replenish additional pumping that could occur as a result of hotter drier conditions. With this historical data in mind, it is anticipated that although climate change will result in more frequent and severe periods of drought, the District will continue to be able to meet demands. Additional discussion regarding climate change impacts is provided in Section 7.4.1.1.

Table 7-2 presents supply volumes that are available during each of the dry year types. The District assumes the supply is 100 percent available during each year type.

Table 7-2: Retail: Basis of Water Year Data (Reliability Assessment) (DWR Table 7-1)			
Year Type	**Base Year** *If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 2024-2025, use 2025*	**Available Supplies if Year Type Repeats**	
			Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location:_____
		Quantification of available supplies is provided in this table as either volume only, percent only, or both.	
		Volume Available (AF) (b)	**% of Average Supply**
Average Year	2005	6,922	100%
Single-Dry Year	2012	6,517	94%
Consecutive Dry Years 1st Year (a)	2013	6,336	92%
Consecutive Dry Years 2nd Year (a)	2014	6,009	87%
Consecutive Dry Years 3rd Year (a)	1987	7,285	105%
Consecutive Dry Years 4th Year (a)	1988	6,782	98%
Consecutive Dry Years 5th Year (a)	1989	6,861	99%

NOTES:
(a) Consecutive Dry Years are based on the Q6 Drought Scenario of the Alternate GSP groundwater model which uses an 11-year composite recharge created from the following water years: 2012 through 2014; plus 1987 through 1994.
(b) The Tahoe South Subbasin Storage Threshold (ST) for the basin in 32,050 AF based on the WY 2005.

7.3.1 Normal Water Year

The normal water year is a year in the historical sequence that most closely represents median runoff levels and patterns. Table 7-3 summarizes the District's water supplies available over the planning period during an average/normal year and compares them to demands for the same period. The District anticipates adequate supplies for 2030 to 2050 under normal water conditions.

Table 7-3: Retail: Normal Year Supply and Use Comparison (DWR Table 7-2)					
Water Code Section 10635 (a)					
	2030 (AF)	2035 (AF)	2040 (AF)	2045 (AF)	2050 (AF)
Supply Totals (a)	6,334	6,516	6,646	6,762	6,827
Demand Totals	6,334	6,516	6,646	6,762	6,827
Surplus/(Shortfall)	0	0	0	0	0
NOTES: (a) Although the groundwater basin could produce greater supply, for the purposes of this table supply totals are shown as the volume that the District's groundwater wells would pump to meet demand.					

7.3.2 Single-Dry Year

The water supplies and demands for the District's service area over the 20-year planning period were analyzed in the event that a single-dry year occurs, similar to the drought that occurred in California in 1977. Table 7-4 summarizes the District's supplies available to meet demands during a single-dry year. It is assumed that the single-dry year supply and demand are equivalent to a normal year due to the basin's robust supply even during the driest years. The District anticipates adequate supplies for 2030 to 2050 under single-dry water conditions.

Table 7-4: Retail: Single Dry Year Supply and Use Comparison (DWR Table 7-3)					
Water Code Section 10635(a)					
	2030 (AF)	2035 (AF)	2040 (AF)	2045 (AF)	2050 (AF)
Supply Totals (a)	6,334	6,516	6,646	6,762	6,827
Demand Totals	6,334	6,516	6,646	6,762	6,827
Surplus/(Shortfall)	0	0	0	0	0
NOTES: (a) Although the groundwater basin could produce greater supply, for the purposes of this table supply totals are shown as the volume that the District's groundwater wells would pump to meet demand.					

7.3.3 Multiple-Dry Year (5-years)

The water supplies and demands for the District's service area over the 250-year planning period were analyzed to determine supply availability in the event that a multiple-dry year event occurs. The demand is assumed to increase at the DOF El Dorado County growth rate of 0.46%

annually. Supply was derived from analysis conducted for the Alternate GSP update using the Q6 (10-year drought cycle) supply-deficit calculations for the first five years of a simulated 10-year drought cycle. Table 7-5 summarizes District supplies available to meet demands during multiple-dry years. The District anticipates adequate supplies for 2025 to 2050 under multiple-dry year water conditions.

Table 7-5: Retail: Multiple Dry Years Supply and Use Comparison (DWR Table 7-4)						
Water Code Section 10635(a)						
		2030 (AF)	2035 (AF)	2040 (AF)	2045 (AF)	2050 (AF)
First Year	Supply Totals (a)	6,336	6,336	6,336	6,336	6,336
	Demand Totals	6,334	6,516	6,646	6,762	6,827
	Surplus/(Shortfall)	2	(180)	(310)	(427)	(491)
	Planned WSCP Actions					
	WSCP- supply augmentation benefit (b)		180	310	427	491
	WSCP- use reduction savings benefit					
	Revised Surplus/(Shortfall)		0	0	0	0
Second Year	Supply Totals (a)	6,009	6,009	6,009	6,009	6,009
	Demand Totals	6,371	6,542	6,669	6,776	6,841
	Surplus/(Shortfall)	(361)	(532)	(660)	(767)	(832)
	Planned WSCP Actions					
	WSCP- supply augmentation benefit (b)	361	532	660	767	832
	WSCP- use reduction savings benefit					
	Revised Surplus/(Shortfall)	0	0	0	0	0
Third Year	Supply Totals (a)	7,285	7,285	7,285	7,285	7,285
	Demand Totals	6,407	6,567	6,692	6,789	6,854
	Surplus/(Shortfall)	878	718	593	496	431
	Planned WSCP Actions					
	WSCP- supply augmentation benefit (b)					

	WSCP- use reduction savings benefit					
	Revised Surplus/(Shortfall)					
Fourth Year	Supply Totals (a)	6,782	6,782	6,782	6,782	6,782
	Demand Totals	6,443	6,593	6,716	6,802	6,867
	Surplus/(Shortfall)	338	188	66	(20)	(85)
	Planned WSCP Actions					
	WSCP- supply augmentation benefit (b)				20	85
	WSCP- use reduction savings benefit					
	Revised Surplus/(Shortfall)				0	0
Fifth Year	Supply Totals (a)	6,861	6,861	6,861	6,861	6,861
	Demand Totals	6,480	6,619	6,739	6,815	6,880
	Surplus/(Shortfall)	381	241	122	46	(19)
	Planned WSCP Actions					
	WSCP- supply augmentation benefit (b)					19
	WSCP- use reduction savings benefit					
	Revised Surplus/(Shortfall)					0

NOTES:
(a) Although the groundwater basin could produce greater supply, for the purposes of this table supply totals are shown as the volume that the District's groundwater wells would pump to meet demand.
(b) Supply augmentation is provided from the District's future water supply projects.

7.3.4 Summary of Comparisons

As shown in the analyses above, the District has adequate supplies and supply augmentation methods to meet demands during normal, single-dry, and multiple-dry years throughout the 20-year planning period.

7.4 Drought Risk Assessment

The Water Code requires that every urban water supplier include in its UWMP a drought risk assessment for its water service to its customers. This is to benefit and inform the demand

management measures and water supply projects and programs to be included in the urban water management plan.

7.4.1 Data and Methodologies Used

7.4.1.1 Water Demands

The water demands for this UWMP are based on 2025 actual demands derived from metered data and supply volumes. The volume of water supplied for 2025 was then escalated at the El Dorado County annual growth rate of 0.46 percent to project the water demand 25 years to 2050. For these projections, it was assumed that supply will be equal to demand and that the difference between the supply and water deliveries is the unaccounted-for water losses. The anticipated buildout water demand that was calculated in the Tahoe Demands report was not exceeded in this projection.

In the Climate Action Plan for the Capital Improvement Program prepared in 2019 for the District, the US Environmental Protection Agency's Climate Resilience Evaluation and Assessment Tool (CREAT) was applied to the District's service area to understand the impacts of extreme weather. The CREAT results for an average annual temperature scenario show projected increases of 2.1°F to 2.5°F by 2035, and 4°F to 4.8°F by 2060 (CREAT 2019). Based on the CREAT analysis, the impact of climate change on the District's water demands is not expected to be significant enough to include in the demand projections. Climate change impacts on the District's water demands may need to be considered in the future. For example, analysis of a 10-year drought cycle scenario (referred to as the Q6 supply-deficit analysis) conducted for the Alternate GSP shows that after a drought of 6 consecutive years, the groundwater pumped in the TSS approaches the storage threshold which may cause undesirable effects on beneficial uses of groundwater. Spikes in demand may occur as a result of increased wildfire frequency as discussed in Section 4.3, however these spikes are usually of relatively short duration (e.g., days to weeks) and can likely be managed by local water conservation efforts.

7.4.1.2 Water Supplies

This Drought Risk Assessment looks at the water supplies anticipated to be available 2026 through 2030 including any limitations due to infrastructure, regulations, and assuming drought conditions.

Groundwater

As described in Section 6, groundwater supplies are anticipated to be reliable sources of supply for the District. Table 7-6 reflects the anticipated supplies.

Table 7-6: Anticipated Groundwater Supplies Consecutive Dry Years 2026-2030 (AF)					
	2021	**2022**	**2023**	**2024**	**2025**
Groundwater	5,173	5,464	5,755	6,045	6,334
Total	5,173	5,464	5,755	6,045	6,334
SOURCE: Q6 (10-year drought) Supply-Deficit analysis conducted for the Alternate GSP update, which uses a 11-year composite recharge created from the following water years: 2012 through 2014; plus 1987 through 1994.					

7.4.2 Comparison of Total Water Supply Sources and Total Projected Water Use

Table 7-7: Five-Year Drought Risk Assessment (DWR Table 7-5)	
Water Code Section 10635(b)(3)	
2026	**Total**
Total Water Use (AF)	5,175
Total Supplies (AF)	5,173
Surplus/Shortfall w/o WSCP Action	(2)
Planned WSCP Actions (a) (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	2
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	0
2027	**Total**
Total Water Use (AF)	5,466
Total Supplies (AF)	5,464
Surplus/Shortfall w/o WSCP Action	(2)
Planned WSCP Actions (a) (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	2
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	0
2028	**Total**
Total Water Use (AF)	5,757
Total Supplies (AF)	5,755
Surplus/Shortfall w/o WSCP Action	(2)

Planned WSCP Actions (a) (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	2
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	0
2029	**Total**
Total Water Use (AF)	6,047
Total Supplies (AF)	6,045
Surplus/Shortfall w/o WSCP Action	(2)
Planned WSCP Actions (a) (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	2
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	0
2030	**Total**
Total Water Use (AF)	6,334
Total Supplies (AF)	6,334
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (a) (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	0
NOTES: (a) Supply augmentation is provided from the District's future water supply projects.	

The above and other DWR Standardized Tables are found in Appendix E.

7.5 Regional Supply Reliability

As discussed previously, the TRPA planning and regulatory process limits growth in the Lake Tahoe Basin. Within the District service area, there is sufficient groundwater supply for the projected water demands. In addition, there are very limited opportunities for additional supplies to be imported from other regions. The District will continue to monitor projected demands and supply reliability and assess needs to develop additional supplies as they arise.

Section 8: Water Shortage Contingency Planning

The District has prepared a separate stand-alone Water Shortage Contingency Plan (WSCP), contained in Appendix D. The WSCP was adopted by the District Board on June 18, 2026. This section includes a brief description summary of the WSCP; the WSCP includes the drought risk assessment, described in Section 8 as required by the UWMP Guidelines.

8.1 Purpose of the WSCP

The District has developed a WSCP to provide guidance if triggering events occur - whether from reduced supply, increased demand, or an emergency declaration - and to identify corresponding actions to be taken during the various stages of a water shortage. The plan includes voluntary and mandatory stages which are intended to be fair to all water customers and users while having the least impact on business, employment and quality of life for residents.

8.2 Annual Assessment

Provisions in Water Code Section 10632.1 require that an urban water supplier such as the District, conduct an annual water supply and demand assessment ("Annual Assessment"), on or before July 1 of each year, to be submitted to DWR. As part of the WSCP, the District has identified the timeline, staff and outside agency coordination, and other actions necessary to conduct the Annual Assessment.

8.3 Shortage Stages

The WSCP describes six water shortage stages corresponding to progressive ranges of up to 10, 20, 30, 40, and 50 percent shortages and greater than 50 percent shortage. For the District, water shortages are likely to be fire and/or infrastructure related and of short duration. The redundancy provide by multiple groundwater wells minimizes the shortages related to infrastructure. Water supply shortages because of drought are unlikely because of the robust aquifer supply.

8.4 Water Shortage Response Actions

The WSCP identifies water shortage response actions, including:

- Consumption Reduction Method
  - Public outreach
  - Communication with Customers
- Operational changes
- Customer Compliance, Enforcement and Appeal and Exemption Procedures for Triggered Response Actions
- Supply augmentation
- Prohibitions on End Uses
- Penalties, Charges, Other Enforcement of Prohibitions

Section 9: Conservation and Demand Management

9.1 Demand Management (2020 - 2025)

The purpose of the Demand Management Measures (DMM) section of this UWMP is to (a) provide a description of the past water conservation programs that the District has implemented since 2007 to meet its urban water use reduction targets and (b) describe the activities and actions the District plans to use in the future to continue to maintain urban water use reduction. For the purposes of this UWMP the DMMs are categorized as "Foundational" and "Other". Foundational DMMs, listed below, are those DMMs that the UWMP Act and Water Code specifically mention:

a. Water waste prevention ordinances
b. Metering
c. Conservation pricing
d. Public education and outreach
e. Programs to assess and manage distribution system real loss
f. Water conservation program coordination and staffing support

Activities outside of the Foundational DMMs that encourage less water use in the District service area fall in the "Other DMM" category.

9.2 Foundational DMMs

9.2.1 Water Waste Prohibition

The water waste prohibition is part of the District's Administrative Code included in Appendix F, which includes designated irrigation days. The program is managed by the Water Conservation Specialist. With access to Automatic Metering Infrastructure (AMI) data, the District hires a seasonal Water Efficiency Technician and a seasonal Water Educator to lead the turf buyback program, offer Water Wise Landscape Consultations, coordinate individual conservation plans for high water use customers, process water conservation rebate applications,and enforce the water waste ordinance. The District can advertise the water waste ordinance in the local newspapers, social media, radio stations, and television station, as well as including reminders via bill inserts and emails through the Water Use portal and can increase outreach if needed. Exemptions and violations given are tracked in a Microsoft Excel™ spreadsheet and in the customer database. Enforcement is ongoing and is independent of water shortage stages.

The District also has the Water Use portal where customers can view their water use, apply for conservation rebates and services, and receive automated leak alerts. The Water Conservation Specialist manages the Water Use program and actively contacts and follows-up with customers to locate leaks. Once a leak has been fixed, the customer can submit a copy of their invoices to be reimbursed through the leak repair rebate and can apply for a leak adjustment on their bill.

9.2.2 Metering

The District has required the installation of meters on all new construction, both residential and non-residential, since 1993. As of 2025, the District is estimated to be 99.9% metered. Once a meter is installed, the customer is switched to volumetric billing per the current rate structure.

The District does not evaluate metering for water savings as it provides an indirect benefit to the other quantifiable programs. The District utilizes meters and tiered pricing to develop a value of water for its customers who then can utilize the quantifiable programs to reduce their water use. The installation of meters and AMI is also a direct positive use of grant funding. As noted in Section 4.1, installation of metering and implementation of the District's comprehensive conservation program has contributed to +over 43% reduction in water use per account.

9.2.3 Conservation Pricing

As required by AB 2572, the District is converting existing residential connections to meters. Within 12 months of converting, these accounts are billed on volumetric rates. The current water rate structure includes a two-tier volumetric charge for all residential customers. The current rate structure is available on the District's website at:

https://www.stpud.us/rate-changes

As of July 1, 2025, the residential consumption rates are divided into two tiers, with a higher rate for usage exceeding 15 hundred cubic feet (CCF) per month. The District will continue to update its rate structure as necessary and when all customers become metered.

The District does not evaluate conservation pricing for water savings as it provides an indirect benefit to the District's other quantifiable programs. The District utilizes meters and tiered pricing to develop a value of water for its customers who then can utilize the other programs to reduce their water use.

Conservation is also achieved through the automatic water leak system and metering within the District.

9.2.4 Public Education and Outreach

The District provides information on its water conservation program and on water conservation to the public through speakers for community groups, events, and schools.

In addition, customers receive information through paid and public service advertising. The District coordinates with other governmental agencies, industry groups, public interest groups, and the media to continue offering information to customers. The District also uses social media and digital ads to provide information to customers. Additionally, the District also maintains a school education program as part of its outreach efforts. The District is a member of the South Tahoe Environmental Education Coalition and educates students through the Coalition's programs. Programs include annual tours of the wastewater treatment plant for 5th graders and

select 9 – 12th graders, Wonders of Water curriculum for K – 6th graders, Woods, Water and Wildlife programs for K – 2nd graders, Children's Forest programs for 3rd – 4th graders, and the Environmental Education Days for 9th – 12th grades.

The District continues to evaluate its public outreach program and will modify it as necessary.

There is no current method in the industry to evaluate this program. The outreach efforts support the District's other customer-specific programs that can be evaluated for water savings. Anecdotally, during the 2014-2017 drought, the broad statewide message regarding reduction of water use, when combined with local messages achieved the target 25% reduction in water use.

9.2.5 Programs to Assess and Manage Distribution System Real Loss

The District maintains a surface leak repair program. The program includes District staff identifying and repairing leaks in the distribution system each year. For example, 249 leaks were identified in the distribution system in 2025.

The District has budgeted to continue these services annually. The efforts result in an average of 6-10 main, service, and fire hydrant leaks detected during each inspection period. Pre-screening system audits are completed each year to prioritize areas for inspection. The District also maintains 13 District Metered Areas to assist in determining which areas of the water system are the primary sources of water loss.

The District maintains a leak data spreadsheet to track location and type of leak and other information such as pipe material. The District completes the American Water Works Association water loss audit annually. In 2024, the audit procedure identified approximately 11.4 percent unaccounted for system losses. The District will continue to conduct the AWWA water loss audit and identify and repair leaks as needed.

In addition to the leak data spreadsheet, the District tracks the number of miles of pipeline surveyed and repaired, along with annual dollar expenditures. The water savings from this measure are difficult to track at this time as the system is not fully metered. However, efforts will be made to try to determine water savings based on approximate leak rate and approximate flow volume of repairs made. As the system becomes fully metered, the estimates and calculations for the entire system will become more definitive.

9.2.6 Water Conservation Program Coordination and Staffing Support

The District's conservation program is managed by the Water Conservation Specialist who manages the District's water conservation program, including water-saving incentives, community education, outreach, and enforcement; analyzes program goals, Water Use Portal, performance measures, and sources of funding; and oversees field audits and consultations. In addition, the Customer Account Specialist is a full-time position managing the meter program, including AMI data.

In addition to the two full time staff, two seasonal workers are hired to assist with processing rebates, conducting Water Wise Landscape Consultations, public information programs, customer demand analysis, or other tasks. Water Wise house calls are done by the District and is offered during May – October.

9.3 Other DMMs

In addition to the conservation programs required by the UWMP Guidelines, the District also maintains additional programs specific to their unique customer demographics and water use. The additional programs are listed below, with additional information included on the District's website.

9.3.1 Residential Programs

- Water Wise House Call
- Water Wise Landscape Consultation
- Turf Buy-Back Program
- Irrigation efficiency evaluations
- Leak detection assistance
- Direct Distribution Program Discounts through Cal WEP

9.3.2 Commercial Programs

- Commercial water use review
- Turf Buy Back Program
- Water Wise Landscape Consultation
- Irrigation efficiency evaluations
- Leak detection assistance
- Direct Distribution Program Discounts through Cal WEP

9.4 Planned DMMs to Meet Water Use Targets

District customers have already achieved demand reductions sufficient to meet SBX7-7 water use targets. The District will continue to perform Foundational DMMs. These DMMs, as well as residential and commercial programs and meeting, will help the District keep its GPCD within or lower than the SBX7-7 water use targets.

Section 10: Plan Adoption, Submittal, and Implementation

10.1 Notice of Public Hearing

The UWMP requires specific coordination efforts as well. The agency must send a notice to all county and city governments within its service area of its intent to develop and adopt a 2025 UWMP. This notice must be sent at least 60 days prior to the public hearing to discuss the UWMP. A notice was sent to El Dorado County, City of South Lake Tahoe, TRPA, and El Dorado County Water Agency informing them of the District's UWMP process as presented in Appendix G.

A public review process was included in the UWMP development. The District held a public review of the UWMP to discuss the plan and receive comments from the public. The meeting was conducted at the June 16, 2026 Board of Directors Meeting. Public notice of the availability of the UWMP for public inspection and the public hearing was provided per the UWMP Guideline Requirements, and is included in Appendix G.

Table 10-1: Retail: Notification to Cities and Counties (DWR Table 10-1)

Water Code Section 10621(b) and 10642

City Name	60 Day Notice	Notice of Public Hearing
South Lake Tahoe	Yes	Yes
Tahoe Keys	Yes	Yes
Lukins Brothers	Yes	Yes
Lake Water Company	Yes	Yes
El Dorado Water Agency	Yes	Yes
County Name	**60 Day Notice**	**Notice of Public Hearing**
El Dorado County	Yes	Yes

10.2 Public Hearing and Adoption

The UWMP was approved at the June 16, 2026 Board of Directors meeting. The adoption resolution is provided in Appendix H.

10.3 Plan Submittal

The District will submit the UWMP electronically to DWR by July 1, 2026. Within 30 days of adoption, the District will submit a copy of the UWMP to the State Library, City of South Lake Tahoe, and El Dorado County. Appendix I includes copies of the transmittals included with the adopted UWMP. A copy of the UWMP is available for public viewing at the District Office during normal business hours located at 1275 Meadow Crest Drive, South Lake Tahoe, CA 96150.

10.4 Implementation

The 2025 UWMP presents a description of: the water service area, the existing and planned supply sources, water use, continued SBx7-7 (20x2020) gpcd compliance, water supply reliability, water conservation and demand management measures, as well as plan adoption, submittal, implementation, and economic impact. The District has continued to maintain and improve its groundwater supply infrastructure by developing new wells and conducting maintenance and improvements on existing wells.

The District has maintained its efforts for the conservation program with positive results evidenced by decreased water demands. All foundational conservation best management practices are implemented. The District will continue to monitor its gpcd water usage and investigate alternative programs based on need. The District has been a signatory of the California Urban Water Conservation Council (now California Water Efficiency Partnership) and utilizes partnership programs as necessary.

Implementation of the 2025 UWMP will be tracked through a variety of methods. Supply reliability issues will mostly be tracked through the District's water quality monitoring program, well infrastructure program, and production values. Progress and results of the conservation program will continue to be tracked and submitted to the State as required to for UWMP updates and AB 1420 compliance requirements.

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Appendix A: DWR Checklist

Appendix B: Water Loss Audit Reports

Appendix C: 2024 Consumer Confidence Report

Appendix D: 2025 Water Shortage Contingency Plan

Appendix E: DWR Standardized Tables

Appendix F: District Administrative Code

Appendix G: 60-day and Public Hearing Notifications

Appendix H: Board of Directors Acceptance and Adoption of UWMP and WSCP

Appendix I: Transmittal of Adopted UWMP and WSCP