South Tahoe Public Utility District

Final 2010 Urban Water Management Plan

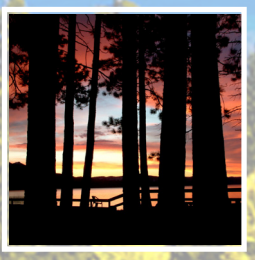
June 2011

WINZLER & KELLY

MADDAUS WATER MANAGEMENT





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ACKNOWLEDGEMENTS

Winzler & Kelly and Maddaus Water Management acknowledge the thoughtful contributions of Mr. Randy Curtis, Ms. Lynn Nolan and Ms. Sarah Johnson of the South Tahoe Public Utility District for their review of and contributions to this document.

KEY ACRONYMS AND ABBREVIATIONS USED IN THIS DOCUMENT

Act	Urban Water Management Planning Act
AF	Acre-feet
AFY	Acre-feet per year
Bgs	Below Ground Surface
BMP(s)	Best Management Practice(s)
City	City of South Lake Tahoe
CUWCC	California Urban Water Conservation Council
DHS	California Department of Public Health
District	South Tahoe Public Utility District
DMM	Demand Management Measure
DWR	California Department of Water Resources
EIR	Environmental Impact Report
ERP	Emergency Response Plan
ETo	Evapo-transpiration of Common Turf Grass
GIS	Geographical Information System
Gpcpd	Gallons per capita per day
HET(s)	High Efficiency Toilet(s)
Mgd	Million gallons per day
MOU	Memorandum of Understanding
MTBE	Methyl Tertiary Butyl Ether
O&M	Operations and Maintenance

STEEC	South Tahoe Environmental Education Coalition
SWRCB	California State Water Resources Control Board
TDS	Total Dissolved Solids
TRPA	Tahoe Regional Planning Authority
UFW	Unaccounted for Water
USGS	United States Geological Survey
UWMP	Urban Water Management Plan

SECTION 1.0 PLAN PREPARATION

1.1 INTRODUCTION

1.1.1 Purpose

The purpose of developing an Urban Water Management Plan (UWMP) is to evaluate whether a water supplier can meet the water demands of its water customers as projected over a 20- or 25-year planning horizon and under a range of water supply scenarios. This evaluation is accomplished through analysis of current and projected water supply and demand for normal, single-dry and multiple-dry water year conditions. In addition, the purpose of the UWMP is to:

- Identify measures to be implemented or projects to be undertaken to reduce water demands and address water supply shortfalls;
- Identify stages of action to address up to 50 percent reduction in water supplies during dry water years;
- Identify actions to be implemented in the event of a catastrophic interruption in water supplies;
- Assess the reliability of the sources during normal, single-dry and multiple-dry water years; and
- Identify when, how and what measures the water supplier could undertake in order to meet the State Legislature's call for a 20 percent per capita reduction in urban water use statewide by 2020, as prescribed in Senate Bill SBx7-7.

1.1.2 Law

The California's Urban Water Management Planning Act (Act) is codified in California Water Code Sections 10610 though 10656. The Act requires urban water suppliers that have 3,000 or more connections, or that supply at least 3,000 acre-feet per year (AFY) of water, to submit a UWMP to the California Department of Water Resources (DWR) every five years. The South Tahoe Public Utility District (District) provides potable water delivery to just under 14,000 connections [1] and delivers a little less than 7,000 acre-feet of water annually. The District meets the thresholds for this State requirement.

The Act was modified in 2009 by Senate Bill x7-7 (SBx7-7). SBx7-7 requires a 20 percent statewide reduction in per capita urban water use by the year 2020. The percent reduction required by each water supplier varies by region and includes water savings targets, measured in daily per capita use, to be met by 2020 as well as an interim water savings target to be met by 2015. Each water supplier's 2010 UWMP will establish the baseline use from which targeted reductions are made, making the 2010 UWMP a particularly important document. Because of the new requirements, SBx7-7 extended the due date for adoption of the UWMP until July 1, 2011.

[1] Figure from 2009 Public Water System Statistics report

1.1.3 **Structure of the Plan**

The outline of this UWMP generally follows the *Guidebook to Assist Water Suppliers to Prepare a 2010 Urban Water Management Plan* developed by DWR. The guidelines can be found in the following website link: *http://www.water.ca.gov/urbanwatermanagement/guidebook/*.

This UWMP organized in six (6) sections and appendices as shown on the table below. The table also includes a description of the key elements in the sections. All of the information requested in the UWMP guidelines and Act is provided within this document.

Table 1.1
Structure of the Plan

Section	Title	Key Elements
1	Introduction and Plan Preparation	Introduction
		Coordination
		Plan Adoption, Submittal and Implementation
2	Service Area	Service Area Physical Description
		Service Area Population
		Other Demographic Factors Affecting Water Planning
3	System Demands	Baselines and Targets
		Water Demands
		Water Demand Projections for Retailers
		Water Use Reduction Plan
4	System Supplies	Overview
		Surface Water
		Groundwater
		Transfer Opportunities
		Desalinated Water Opportunities
		Recycled Water Opportunities
		Future Water Supply Projects
5	Water Supply Reliability and Shortage Contingency Planning	Supply Reliability
		Supply and Demand Comparisons
		Water Shortage Contingency Planning
6	Demand Management Measures	Description of Demand Management Measures
		Implementation of DMMs

1.1.4 **Level of Planning**

The Act specifies the required content of each UWMP and allows for the level of detail provided in each UWMP to reflect the size and complexity of the water supplier. The Act requires projections in five-year increments for a minimum of 20 years. This UWMP considers a 25-year planning horizon through year 2035.

The Act does not require that a UMWP contain the level of system-specific detail that would be included in a water system master plan. Also, the Act specifically exempts UWMPs from review under the California Environmental Quality Act (CEQA)[2]. In addition Water Supply Assessments (Water Code Section 10631) and

[2] Water Code Section 10652

Water Supply Verifications (Water Code Section 66473.7) may rely on the UWMP as a foundational document for findings required in these documents.

1.1.5 Assumptions

The evaluation and projections in this document are based on the District's current understanding of land use planning in the region and its groundwater supply. This document is a "living" document (i.e., intended to be updated every five years). As the District's water supply picture changes, the updated UWMP will incorporate those changes accordingly.

1.2 COORDINATION

1.2.1 Agency Coordination

The District provides water to portions of the City of South Lake Tahoe and portions of unincorporated El Dorado County. The District is also a member of the bi-state Tahoe Region Planning Authority (TRPA), a regional planning agency which oversees development at Lake Tahoe. The District staff meets regularly with the other members of the TRPA to coordinate on issues affecting the water quality of Lake Tahoe, including development.

On April 15, 2011, the District sent a letter to the agencies listed in Table 1.2 below, notifying them that the District's 2005 UWMP was being reviewed and updated. A copy of the letter is included in Appendix A.

Table 1.2 (DWR Table 1)
Coordination with Appropriate Agencies

Coordinating Agencies	Participated in developing the plan	Commented on the draft	Attended public meetings	Was contacted for assistance	Was sent a copy of the draft plan	Was sent a notice of intention to adopt	Not involved/ No information
City of South Tahoe				Yes		Yes	
County of El Dorado				Yes		Yes	
Tahoe Regional Planning Agency				Yes		Yes	
United States Forest Service						Yes	
Lukins Brothers Water System						Yes	
Tahoe Keys Water System						Yes	
Edgewood Water Company						Yes	
Lakeside Park Mutual Water Company						Yes	
General Public						Yes	

1.2.2 Public Participation

Urban water suppliers are required by the Act to encourage active involvement of the community within the service area prior to and during the preparation of its UWMP. The Act also requires urban water suppliers to make a draft of the UWMP available for public review and to hold a public hearing regarding the findings of the UWMP prior to its adoption. The District considered the plan at a Board Workshop on May 5, 2011, and at a Public Hearing which occurred during its June 16, 2011, Board Meeting. Copies of the public notices are also included in Appendix A.

1.3 PLAN ADOPTION, SUBMITTAL AND IMPLEMENTATION

1.3.1 Plan Adoption and Submittal

The findings of the Draft UWMP were presented before the District Board in May and June of 2011. The meetings were publicly noticed and the public was given the opportunity to offer comments to the UWMP and to ask questions regarding the findings. A copy of the Board agenda packet, presentation materials and the resolution of adoption are included in Appendix B.

The Final UWMP incorporates comments made by the District Board and the public. The Final UWMP is available on the District's website and at the District's main office during normal business hours. A copy of the Final UWMP will be submitted to DWR, the California State Library, the City of South Lake Tahoe and El Dorado and Alpine Counties no later than 30 days after adoption by the Board. Comments to the Final UWMP made by DWR and the District's responses to the comments will be added to the website for the public's information.

1.3.2 Plan Implementation

Implementation of the 2010 Final UWMP will be the responsibility of the Manager of Field Operations and consists of the activities shown in Table 1.3.

Table 1.3
Plan Implementation

Description	Guidance Document(s)	Activity	Timeframe
Capital Improvement Program (CIP)	South Tahoe Public Utilities Annual Budget	Preparation of Annual CIP for water supply projects	March, 2011-2015
Water supply reliability	Final UWMP	Continued efforts to protect and improve the water quality of the South Lake Tahoe Basin	Ongoing
Water demand reduction targets	Final UWMP, District Water Conservation Program	Ongoing tracking of GPCD and modifying Water Use Reduction Plan as needed	15% reduction by 2015; 20% reduction by 2020
Voluntary and mandatory water conservation policies and procedures	Water shortage contingency plan in Final UWMP		Ongoing

SECTION 2.0 SYSTEM DESCRIPTION

2.1 SERVICE AREA PHYSICAL DESCRIPTION

A special district established in 1950, the South Tahoe Public Utility District encompasses a 27,000 acre service area in eastern El Dorado County on the southern shore of Lake Tahoe. The service area limits extend west to include Emerald Bay, east to the California-Nevada State Line, and south to include Christmas Valley. Figure 2.1 illustrates the District service area and its boundaries. The service area includes most, but not all, of the City of South Lake Tahoe and portions of unincorporated El Dorado County.

The District is the largest water purveyor in the Lake Tahoe Basin. Water supply is provided by 13 active supply wells. The District's Domestic Water Supply Permit lists a total of 23 wells within the service area. In addition to the supply wells, the District maintains several standby wells, several sampling and monitoring wells and several inactive wells. Section 4 provides additional detail on well status and use.

The storage and distribution system is comprised of 16 booster pump stations, 23 storage tanks, 26 pressure reducing valves and 320 miles of potable water pipe. Due to the topography of the District's service area, the overall distribution system is separated into 15 pressure zones to prevent over or under pressurization of the neighborhoods served.

Figure 2.2 illustrates the major water supply features and pressure zones.

2.1.1 Climate

The District's service area is within the Sierra Nevada Range and included in the North Lahontan Hydrologic Region of California. The summers are typically dry with occasional thunderstorms. Most of the precipitation occurs in the fall and winter as snow.[3] The average annual mean temperature for Tahoe City is 44 degrees Fahrenheit and annual precipitation is 33 inches[4]. There is no CIMIS station located within Tahoe City which could provide localized reference evapotranspiration (ETo) data; however the average annual reference ETo for the Northern Sierra Nevada hydrologic region is 54.3 inches.[5] The regional averages for ETo, rainfall, and temperature are summarized in Table 2.1 below.

[3] California Water Plan, Update 2009.

[4] California Department of Water Resources, Flood Management website.

[5] California Irrigation Management Information System (CIMIS), Department of Water Resources, Reference Evapotranspiration (ETo) Zones map

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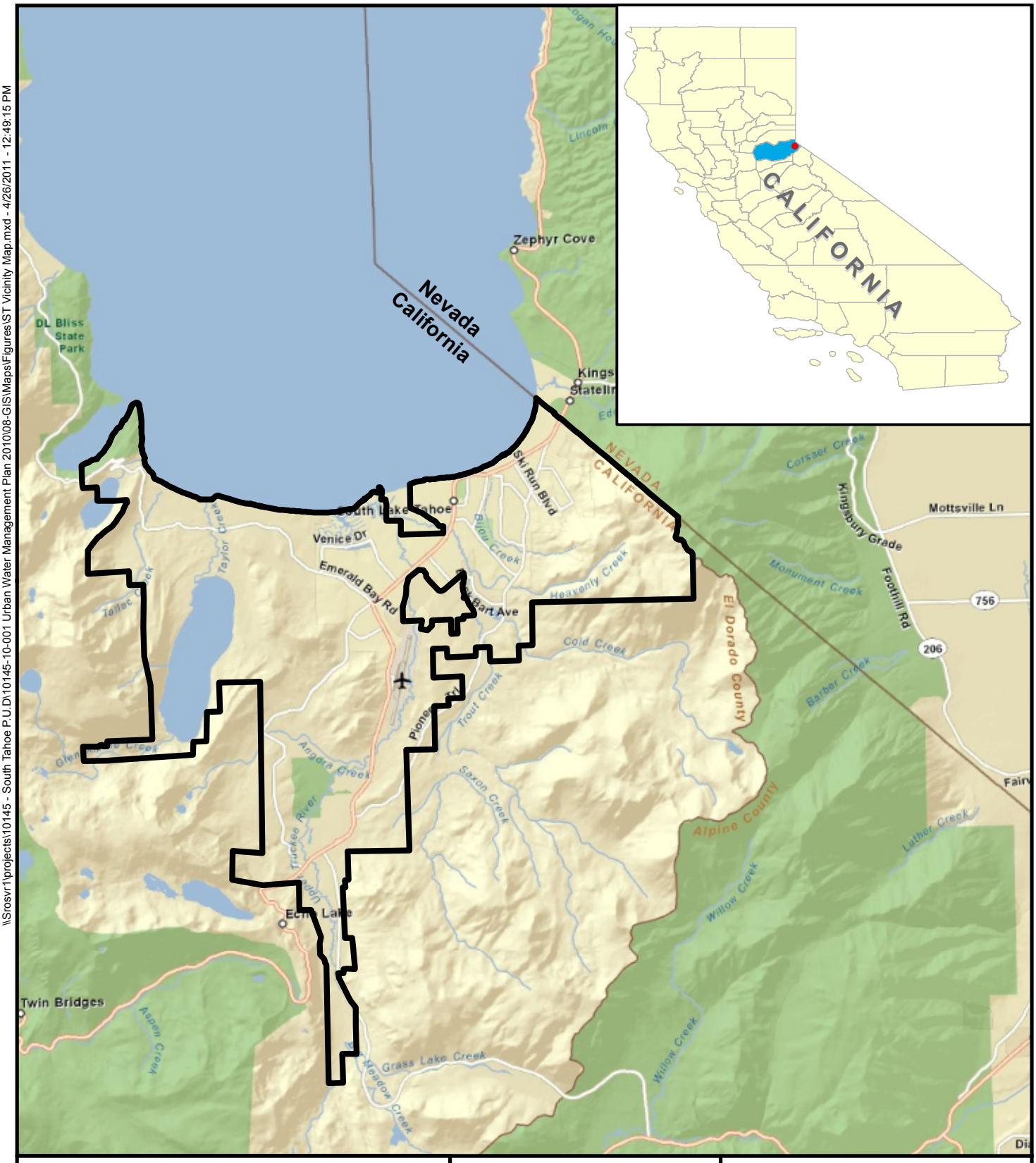

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Cartography: RMR

Legend

- South Tahoe P.U.D.Boundary
- El Dorado County

0 1 2 Miles

1 inch = 2 miles

N

Sources: ESRI Basemap:Streets, STPUD GIS: Parcels, City Limits, District Boundaries, Pressure Zones, City Limits.

Figure 2.1
Vicinity Map

South Tahoe Public Utilities District
Urban Water Management Plan

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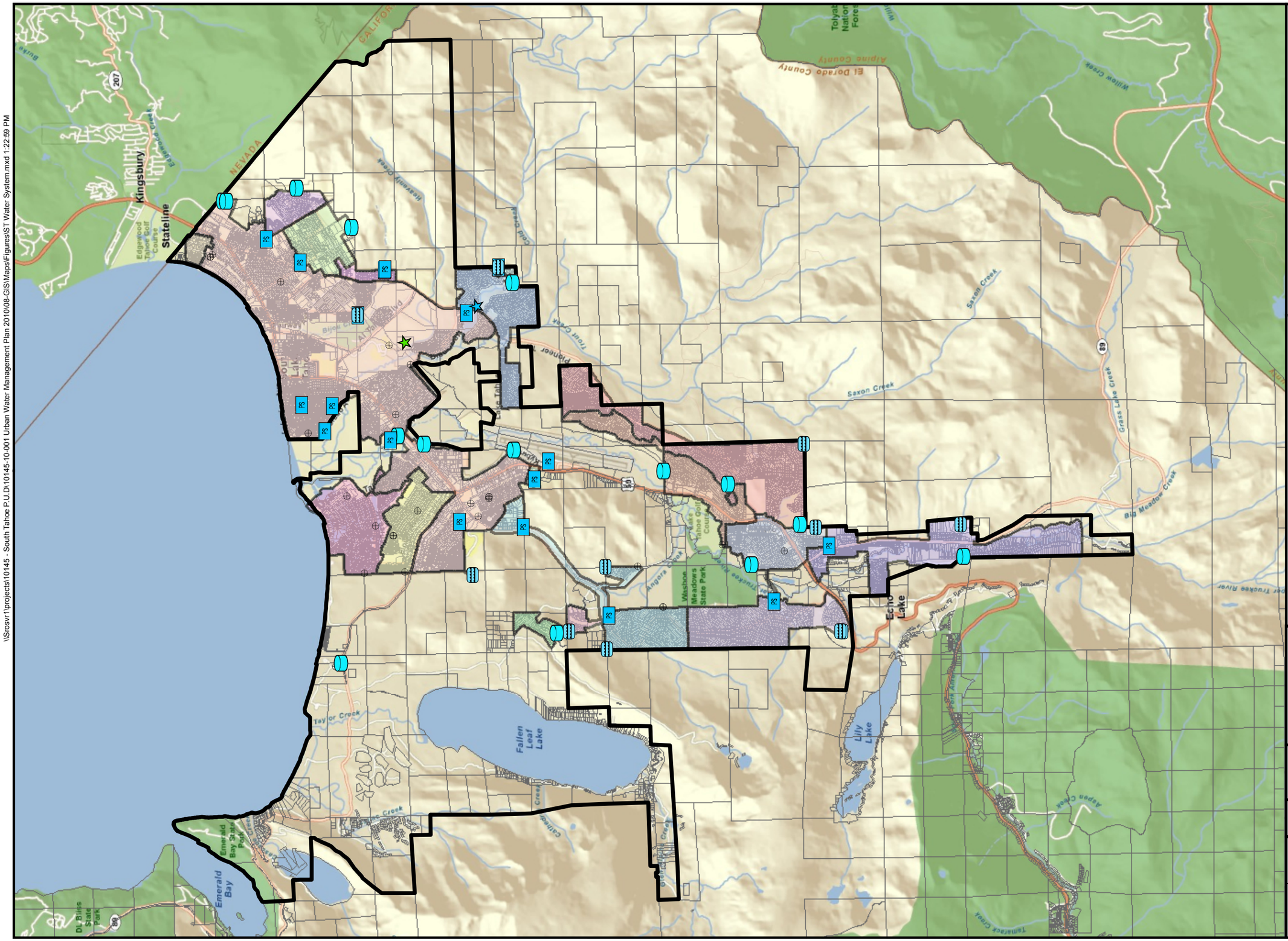

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Table 2.1
Climate

	Standard Average ETo[a], inches North Lahonton Hydrologic Region	Average Rainfall, inches, Tahoe City	Average Temperature, °F Tahoe City and N. Lahonton Hydrolgic Region
January	1.2	6.0	30
February	2.0	5.7	32
March	3.1	4.6	35
April	4.8	1.8	40
May	6.5	1.2	47
June	7.8	0.8	54
July	9.0	0.3	61
August	7.8	0.5	61
September	5.7	0.9	55
October	3.7	2.0	46
November	1.8	4.3	37
December	0.9	4.7	31
Annual	**54.3**	**32.7**	**44**

[a] ETo, or evapotranspiration, is the loss of water from evaporation and transpiration from plants.

2.2 SERVICE AREA POPULATION

As noted above, the District provides water supply within the incorporated City of South Lake Tahoe (City) and the unincorporated communities of Montgomery Estates Tahoe Paradise, Meyers, Angora Highlands, Fallen Leaf Lake and Christmas Valley, all in eastern El Dorado County. Other water purveyors within the City's limits are Lukins Brothers and Lakeside Water Companies, which together serve approximate 1,100 largely non-residential connections, and Tahoe Keyes Water Company which serves 1,529 water connections in the largely built-out Tahoe Keyes community.

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. It is generally acknowledged that the TRPA Environmental Thresholds effectively provide a growth control mechanism for the region.[6]

2.2.1 Estimating Current Population

In its 2005 UWMP, the District estimated it served a year-round population of slightly over 32,000 and it anticipated a growth rate of 0.4% annually based on past trends and coordination with TRPA. According to the District's 2010 Public Water System Reports the District provides water to 13,232 single-family and multi-family accounts and 679 commercial and public accounts. California Department of Finance (DOF)

[6] City of South Lake Tahoe, General Plan Background Report – 2009 Adopted Housing Element page 4-17 and following

data[7] sets the average household size in the South Lake Tahoe area at 2.46 persons per household. When the average household size is applied to the District's service area, current population can be estimated at 34,580, which is within 5% of the estimates developed in the 2005 UWMP and translates into an average annual growth rate of about 1% per year. This growth rate is consistent with the projections of a 0.9% annual growth rate for the area.

The District has also purchased population data from Demographics Now which keeps updated Census Tract Information. According to the Demographics Now data, the 2009 population in the nine Census Tracts that make up the District's Service Area is 33,124, which is within 1% of the estimates developed in the 2005 UWMP. For purposes of this analysis, the Demographics Now data will be used as the basis for current population because it represents a more discrete focus on the District's particular service area.

For comparison, the City's current population is estimated at approximate 24,000, which indicates that approximately two-thirds of the District's served population is within the City and approximately one-third is within the unincorporated County. In addition to its permanent population, the District is a tourist destination and anecdotal reports indicate that population can double during peak tourism periods. This anecdotal information is supported by the City of South Lake Tahoe's General Plan Housing Element (December 2008) which documents that one-quarter of the City's housing stock is "seasonal housing" and almost 10% of the housing stock is used exclusively as vacation rentals.

2.2.2 **Estimating Population Growth**

The population projections developed in this 2010 UWMP are based on current population data from Demographics Now, described above, and the information presented in the City's 2030 General Plan Background Reports and Public Review drafts. Population growth rates were developed to be consistent with the City's 2030 General Plan. Because the City's land use strategies are anticipated to be consistent with the TRPA Regional Plan, the growth rates calculated for the City are used to estimate overall population growth within the District's service area. This estimating method acknowledges that planned growth rates within the City of South Lake Tahoe are being applied to the unincorporated area within the District's service area. Because the other water companies serving the City either serve built-out subdivisions or commercial development, it is reasonable to anticipate that the majority of the planned residential growth will occur in the District's service area.

The City's 2030 General Plan provides a very clear and descriptive analysis of planned growth in both the residential and nonresidential sectors. The following descriptions of planned land uses are from the Public Review Draft of the City's 2030 General Plan[8] and were used to estimate demands on the District's water supply in the future. Specifically, General Plan Policy LU-19, reproduced below, provides a description of future growth in the residential sector.

"Policy LU-1.9: Future Residential Development Rights (RDR) Commodities: The City shall pursue the maximum amount of available residential unit allocations from the Tahoe Regional Planning Agency in

[7] City of South Lake Tahoe, General Plan Background Report – 2009 Adopted Housing Element page 4-17 and following.

[8] City of South Lake Tahoe, 2030 General Plan Background Report –page LU -10

order to use them as an incentive for revitalization, including workforce housing, up to an additional 940 market rate units and 222 affordable units."[9].

Based on this policy, the number of new residential units that can be anticipated in the City by 2030 is 1,162 (940 market rate units + 220 affordable units). According to DOF, the current number of units in the City is 15,098[10]; planned growth would result in that number increasing to 16,260. The average annual growth rate planned in the City can be calculated as follows:

((Total Residential Units in 2030)-(Total Residential Units in 2010)/(Total Residential Units in 2010))/20 years
or
((16,260-15,098)/15,098))/20 = 0.36% growth annually

This planned growth rate is very consistent with the 0.4% annual growth rate that the District utilized in its 2005 UWMP. As noted above, this growth rate will be applied to the District's entire service area. The average number of new residential units added in the City over the next twenty years would be 58 (1162/20) and the average annual population growth associated with these new residential units would be 143 (58 * 2.46 persons per household). As discussed above, the population in the City comprises two-thirds of the over the overall District population. If the growth rate in the City is assumed to apply to the District's overall service area, annual population growth will be 214 people on average.

Table 2.1 applies these growth rates to the base population rate in the District.

Table 2.2 (DWR Table 2)
Population – Current and Projected

	2010	2015	2020	2025	2030
Service Area Population[a]	33,124	34,194	35,264	36,334	37,404

[a] Service area population is defined as the population served by the distribution system.

2.3 OTHER DEMOGRAPHIC FACTORS AFFECTING WATER PLANNING

The Lake Tahoe Region is known for its exceptional recreational opportunities and tourism is a significant aspect of the region's economy. Visitors to the District's service area, especially during the summer season, can easily double the population numbers presented in Table 2.2. In addition, there is a significant amount of existing and planned nonresidential development that serves the visiting population. In the District's service area, non-residential land uses are primarily concentrated in the City of South Lake Tahoe and City's General Plan serves a good basis for employment projections. The Background Report for the General Plan[11] includes information on developed non-residential square footage within the City and provides clear policy direction on future planned development. The Table 2.3 below presents nonresidential square footage in 1989 and 2005 from the General Plan Background Report. This information is used to calculate an annual growth rate for that 16 year period and estimate the total nonresidential square footage in 2007, which coincides with available data on employees. Table 2.3 also presents the square footage additions

[9] GPU Consultants

[10] Department of Finance 2009

[11] General Plan Background Report, Public Review Draft (June 2008)

allowed by General Plan LU-1.7 and uses this information to calculate total nonresidential square footage that can be estimated at General Plan buildout in 2030.

Table 2.3
Nonresidential Square Feet – Existing and Planned

Location	1989	2005	Annual Growth Rate	2007 Estimate	General Plan Additions	2030 Projections
Tahoe Valley Community Plan Area	445,200	447,200	0.03%	447,451	211,000	658,451
Sierra Area	152,150	154,000	0.08%	154,234	0	154,234
Bijou/Al Tahoe Community Plan Area	282,500	296,000	0.30%	297,768	55,000	352,768
Stateline/Ski Run Community Plan Area	300,600	378,000	1.61%	390,166	55,000	445,166
Tahoe Keys Area	30,700	30,700	0.00%	30,700	0	30,700
Other Areas (includes the "Y")	NA	NA	0.00%	-	65,000	65,000
Total	**1,211,150**	**1,307,650**		**1,320,759**	**361,000**	**1,706,319**

The General Plan Background Report provides information on total employees in the City which is presented in Table 2.4 below. New employees can be projected by applying the current ratio of employees per 1,000 square feet (tsf) to the total nonresidential square footage projected in 2030.

Table 2.4
Employees – Current and Projected

2007			2030		
Employees	Nonresidential Development (tsf)	Employees per tsf	Nonresidential Development (tsf)	Employees per tsf	Employees
17,072	1,321	12.9	1,667	12.9	21,504

SECTION 3.0 SYSTEM DEMANDS

This section describes the urban water system demands, including calculating its baseline (base daily per capita) water use and interim and final water use targets. It includes a detailed description of how the baseline and targets were calculated. The calculations follow the guidance developed in DWR's publication *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use For the Consistent Implementation of the Water Conservation Bill of 2009*. Background information and the approach used to develop baselines and targets are also included.

This section quantifies the current water system demands by category and projects them over the planning horizon of the UWMP. These projections include water sales to other agencies, system water losses, and water use target compliance. The future water demands are based on the assumed reduction in per capita daily use determined from planning for and implementing actions associated with SBx7-7.

3.1 BASELINES AND TARGETS

The evaluation of baseline water use and the target reduction methodologies is based on information provided by the District including:

- Historical water production
- Historical water demand
- Historical connections and population

3.1.1 Baseline Daily Per Capita Water Use

The purpose of developing a baseline daily per capita water use figure is to have a baseline from which to derive the 2015 and 2020 water use targets. The baseline water use is the water supplier's average gross daily per capita use in gallons. The baseline includes all water entering the delivery system, including water losses, except for recycled water delivered within the supplier's service area, water placed into long-term storage or water conveyed to another urban water suppliers.

The methodology used to determine the baseline water use is outlined in SBx7-7 and calculations are generally made over a 10-year period beginning no earlier than 1994 and ending no later than 2010. A 15-year baseline may be used, if the water supplier delivers a significant volume of recycled water in its service area. In addition, a recent 5-year average is calculated in order to determine the maximum allowable 2020 target.

For the development of the District's base daily per capita water use, a 10-year average was used because the Basin Plan for the Lake Tahoe area prohibits the use of recycled water within the basin. The baseline year checks are illustrated in Table 3.1.

Table 3.1 (DWR Table 13)
Base Period Ranges – AFY

Base	Parameter	Value	Units
10- to 15-Year Base Period	2008 total water deliveries	6,918	AFY
	2008 total volume of delivered recycled water	0	AFY
	2008 recycled water as a percent of total deliveries	0	percent
	Number of years in base period[a]	10	years
	Year beginning base period range	1999	--
	Year ending base period range[b]	2008	--
5-Year Base Period	Number of years in base period	5	years
	Year beginning base period range	2004	--
	Year ending base period range[c]	2008	--

[a] If the 2008 recycled water percent is less than 10 percent of total water deliveries, then the first base period is a continuous 10-year period. If the amount of recycled water delivered in 2008 is 10 percent or greater, the first base period is a continuous 10- to 15-year period.

[b] The ending year must be between December 31, 2004 and December 31, 2010.

[c] The ending year must be between December 31, 2007 and December 31, 2010.

The District's baseline has been calculated over the ten year period from 1999 to 2008. As shown in Table 3.2, the base daily per capita water use is 201 gallons per capita per day (gpcpd). The base daily per capita water use was developed using the total service area population. The gross water use includes all water entering the water delivery system, including water losses.

Table 3.2 (DWR Table 14)
Base Daily Per Capita Water Use — 10- to 15-Year Range – AFY

Base Period Year		Distribution System Population	Daily System Gross Water Use (mgd)	Annual Daily Per Capita Water Use (gpcd)
Sequence Year	Calendar Year			
Year 1	1999	33,672	3.94	188
Year 2	2000	34,042	3.9	203
Year 3	2001	33,938	4.02	213
Year 4	2002	33,835	4.25	207
Year 5	2003	33,731	4.26	188
Year 6	2004	33,627	4.48	199
Year 7	2005	33,524	4.5	184
Year 8	2006	33,420	4.17	199
Year 9	2007	33,316	4.21	219
Year 10	2008	33,213	4.22	205
Base Daily Per Capita Water Use				**201**

Each urban retail water supplier must reduce its daily per capita water use by at least 5 percent of the 5-year base daily per capita water use. This 5 percent minimum generally affects water suppliers who are using water at or below their hydrologic region's 2020 water use target. For the District, the 2020 water use target cannot exceed 201 gpcpd, which is also the current baseline. This calculation is illustrated in Table 3.3 below.

Table 3.3 (DWR Table 15)
Base Daily Per Capita Water Use — 5-Year Range – AFY

Base Period Year		Distribution System Population	Daily System Gross Water Use (mgd)	Annual Daily Per Capita Water Use (gpcd)
Sequence Year	Calendar Year			
Year 1	2004	33,627	4.26	199
Year 2	2005	33,524	4.48	184
Year 3	2006	33,420	4.5	199
Year 4	2007	33,316	4.17	219
Year 5	2008	33,213	4.21	205
Base Daily Per Capita Water Use				**201**

3.1.2 Water Use Targets

The purpose of SBx7-7 was to establish requirements for the state of California to reduce its statewide urban per capita water use by 20 percent by the year 2020. An interim target is set for 2015 which requires a 10 percent reduction in urban per capita water use. After year 2021, failure to meet the 2020 water use target constitutes a violation of law. Compliance of the 2015 and 2020 water use targets is also a requirement for eligibility for state grants and loans.

3.1.2.1 *Individual Targets*

There are four methods that an urban water supplier may use to develop their 2015 and 2020 water use targets. Three methods are provided in SBx7-7 and the fourth was subsequently established by DWR. The four methods are generally described below. A more complete description can be found in DWR's *Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan* dated March 2011.

- Method 1: 80 percent of Base Daily Per Capita Use;
- Method 2: Performance standards based on actual water use data for indoor residential water use, landscaped area, and commercial, industrial and institutional (CII) water use;
- Method 3: 95 percent of the North Lahontan hydrologic region; and
- Method 4: Savings by water sector (indoor residential and CII) and landscape and water loss savings

The District determined it did not have the data to perform calculations consistent with Method 2 as they are not fully metered and do not have current means to verify indoor residential water use and landscape water use. However, potential targets for the District were calculated using the other three methods.

Urban Water Use Target Method 1 Evaluation: 80% of Base Daily per Capita Water Use

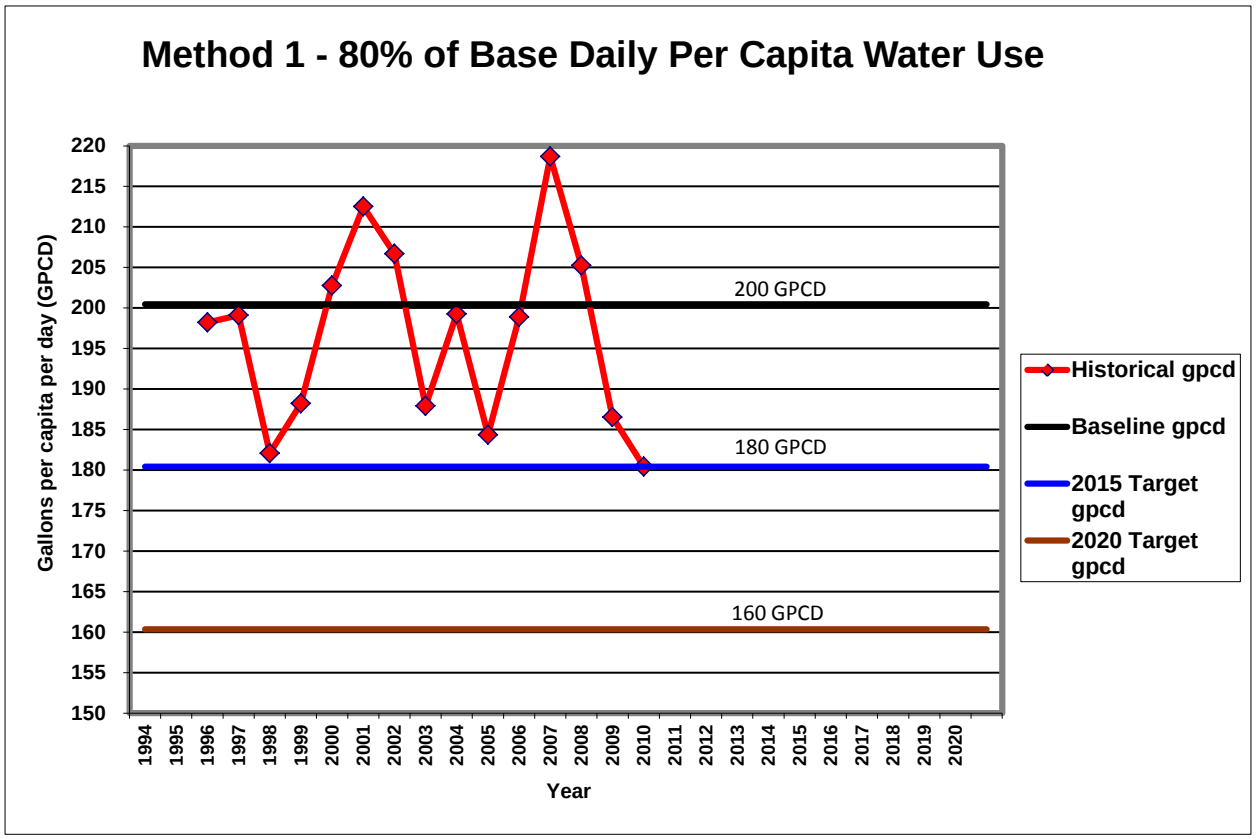
As part of the Urban Water Use Target Method 1 evaluation, the District's historical water use in terms of gpcpd was evaluated using total gross treated water production for each year and estimated population in each year based on the California Department of Finance data.

The value of 201 gpcpd shown in Table 3.2 is considered the base daily per capita water use for Method 1.

- Based on a 10 percent reduction of the base daily per capita water use, the 2015 interim target is 180 gpcpd
- Based on a 20 percent reduction of the base daily per capita water use, the 2020 target is 160 gpcpd

Figure 3.1 shows the historical demand and 2015 and 2020 targets as determined using Method 1.

Figure 3.1 Historical Demand Compared to Baselines and Targets Using Method 1



Urban Water Use Target Method 3 Evaluation: 95 Percent of Hydrologic Region Target

The third method allows the water supplier to select 95% of the hydrologic region's target as its gpcpd goal. The applicable Hydrologic Region for the District's service area is Region 8 – North Lahontan, as shown on Figure 3.2.

- Based on meeting the regional hydrologic target, the 2015 the interim target is 198 gpcpd
- Based on meeting the regional hydrologic target, the 2020 the target is 164 gpcpd

Urban Water Use Target Method 4 Evaluation: Water Savings (Provisional)

DWR developed Provisional Target Method 4 with the assistance of the California Urban Water Conservation Council, the California State Water Resources Control Board, and the Urban Stakeholder Committee, composed of technical experts and representatives of water suppliers and environmental and other organizations.

It is anticipated that improvements will be made to the target method based on new data and analytical techniques in the update. Provisional Target Method 4 described in this UWMP will be in effect until the 2015 update. Urban retail water suppliers that adopt Target Method 4 to determine their 2020 urban water use target must use the provisional procedures provided by DWR.

A Target Method 4 Calculator (Calculator) using an Excel spreadsheet was developed for use with Provisional Target Method 4. The Calculator will be required to accomplish some of the procedures for this method. Other procedures may be accomplished without use of the Calculator but have been incorporated into the Calculator to automate the calculation of the 2020 target.

For this target method, savings are assumed between the baseline period and 2020 due to metering of unmetered water connections and achieving water conservation measures in three water use sectors as shown below for residential, commercial and industrial and landscape. The results of the calculator for the District are provided below.

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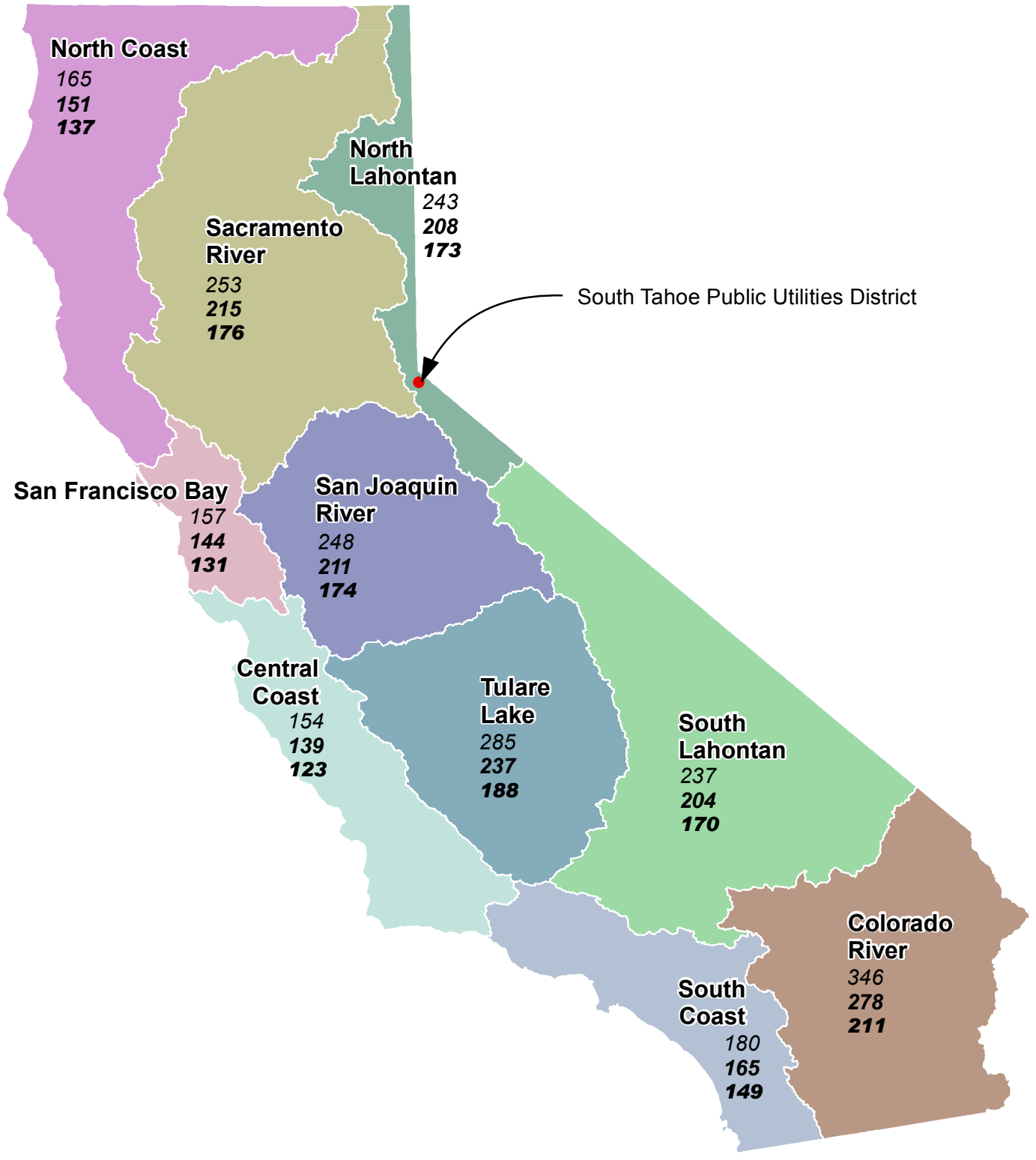

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Cartography: RMR

Legend

Statewide Conservation Goals

192 Baseline (1995-2005)

173 Interim Target (2015)

154 2020 Target

in gallons per capita per day

0 40 80 Miles

1 inch = 81 miles

N

Sources: USDA: Aerial NAIP 2009 1 meter resolution; Humboldt County GIS: Parcels, Blueline Streams.

Figure 3.2
Hydrologic Region Map

South Tahoe Public Utilities District
Urban Water Management Plan

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Target Calculation -- Provisional Method 4 Target

Step 1. Calculation of Landscape Water Use and System Water Loss

Urban Supplier	1999-2008 Baseline GPCD	—	Assumed Indoor Residential per Capita Water Use GPCD	—	CII per Capita Water Use GPCD	=	Estimated Landscape Water Use and System Water Loss GPCD
South Tahoe Public Utlities District	200.5		70.0		40.3		90.2

Step 2. Calculation of Savings Using BMP Calculators (Alternate) STEP 2 BEING USED TO CALCULATE TARGET

Urban Supplier	Indoor Residential Savings Calculators					+	Metering Savings BMP 1.3	+	CII Savings BMP 4	+	Land-scape + Water Loss Savings 21.6%	=	Total Savings GPCD
	Single Family Toilets	Multi Family Toilets	Resi-dential Washers	Resi-dential Showers	Total IR Savings								
South Tahoe Public Utlities District	XXXX	XXXX	XXXX	XXXX	XXXX		XXXX		XXXX		XXXX		XXXX

(Alternate) Step 2. Calculation of Savings Using Default Indoor Residential Savings

Urban Supplier	Default Resi-dential Indoor Savings	+	Metering Savings BMP 1.3	+	CII Savings BMP 4	+	Land-scape + Water Loss Savings 21.6%	=	(alt) Total Savings GPCD
South Tahoe Public Utlities District	15.0		28.3		4.0		19.5		66.8

Step 3. Calculation of Urban Water Use Targets

Urban Supplier	1999-2008 Baseline GPCD	—	Total Savings GPCD	=	**Computed 2020 Target GPCD**	⇒	**Less Than 95% of 5-Year Baseline**	⇒	**Final 2020 Target**	⇒	**Final 2015 Target**
South Tahoe Public Utlities District	200.5		66.8		**133.7**		**TRUE**		**133.7**		**167.1**

Selected 2015 and 2020 GPCPD Targets

Methods 1, 3 and 4 were compared to determine which option would provide the best end result for the District.

- Method 1 - the difference between the baseline 201 gpcpd and the 2020 target value of 160 gpcpd represents a reduction of 41 gpcpd
- Method 3 – the difference between the baseline 201 GPCD and the 2020 target value of 164 gpcpd represents a reduction of 37 gpcpd
- Method 4 - the difference between the baseline 201 gpcpd and the 2020 target value of 134 gpcpd represents a reduction of 67 gpcpd.

At the Board Workshop on May 5, 2011, the Method 3 target of 164 gpcpd was selected when compared to Method 1, 2 and Method 4 gpcpd targets.

3.1.2.2 *Regional Targets*

SBx7-7 provides that urban water retail suppliers may plan, comply and report on the 2020 water use target on a regional basis, an individual basis, or both. The District is one of a number of water agencies in the Lake Tahoe Basin that already work together to develop and implement their Integrated Regional Water Management Plan. This group could be eligible to form a regional alliance which may simplify compliance for all purveyors.

While the District has not had time to evaluate a potential regional alliance during this UWMP cycle, it reserves the option to conduct this analysis over the next several years and present a regional target and regional compliance as part of its 2015 UWMP.

3.2 WATER DEMANDS

Historical potable water consumption by customer type, within the District's service area, for the ten years from 2001 through 2010 is shown in Table 3.4. Water consumption was developed from the District's water production records.

Table 3.4

		Historical Total Water Pumped (Acre Feet)									
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Total Use	7,732	8,079	7,833	7,100	7,506	6,922	7,445	8,161	7,635	6,918	6,546

From District's Pumpage Records

Past and projected District potable water uses for the various customer types metered are shown in Tables 3.5 to 3.9. All District accounts are expected to be metered by the year 2020. The demand projections for the years 2015 to 2035 were created by the Least Cost Planning Decision Support System Model (DSS Model). The DSS Model is Excel based proprietary software created by Maddaus Water Management and is currently endorsed by the California Urban Water Conservation Council. The demand model utilizes the population and employment forecasts, plumbing code and planned conservation measures.

The DSS model does not include water used for fire fighting. Water Code Section 10608.24 (d) (1) (C) allows water supplier to make adjustments for compliance years when water is used for fire suppression. While DWR has not yet drafted guidance on how to implement these adjustments, DWR has indicated that it expects it will allow water used for fire suppression to be excluded from gross water use for the purposes of assessing compliance with water use targets (personal communication with Peter Brostrom, June 7, 2011).

The District has recently entered into an agreement to provide water for artificial snow making under certain conditions. The District has not delivered any water under this agreement and the DSS model does not include this water use. Water Code Section 10608.24 (d) (1) (B) allows an urban water supplier to adjust its estimate of compliance with its water use targets for "substantial changes to commercial or industrial water use resulting from increased business output and economic development". In addition, Water Code Section 10608.24(e) allows the exclusion of industrial process water use from the calculation of gross water use to avoid placing a disproportionate burden on other customer sectors.

Taken together, Water Code Section 10608.24(d) and (e) provide the District with the opportunity to review and adjust its target compliance calculations for substantial water deliveries associated with fire or economic development activities.

Table 3.5 (DWR Table 3)
Water Deliveries — Actual, 2005 – AFY

	2005				
	Metered		Not Metered		Total
Water Use Sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	21	10	11,826	Not Available	Not Available
Multi-family	146	396	459	Not Available	Not Available
Duplex/Triplex	0	0	826	Not Available	Not Available
Commercial	462	1,460	670	Not Available	Not Available
Industrial	0	0	0	0	0
Institutional/Governmental	0	0	0	0	0
Landscape	0	0	0	0	0
Agriculture	0	0	0	0	0
Other	7	28	6	Not Available	Not Available
Total	**636**	**1,894**	**13,787**	**4,366**	**6,260**

Table 3.6 (DWR Table 4)
Water Deliveries — Actual, 2010 – AFY

	2010				
	Metered		Not Metered		Total
Water Use Sectors	# of Accounts	Volume*	# of Accounts	Volume	Volume
Single family	1876	25	10,232	Not Available	Not Available
Multi-family	289	337	843	Not Available	Not Available
Duplex/Triplex	0	0		Not Available	Not Available
Commercial	542	1,186	140	Not Available	Not Available
Industrial	0	0	0	0	0
Institutional/Governmental	0	0	0	0	0
Landscape	4	0	0	0	0
Agriculture	0	0	0	0	0
Other				Not Available	Not Available
Total	**2711**	**1,548**	**11,215**	**4,352**	**5,920**

* District began volumetric billing in 2011. Individual account consumption data from 2011 may not be inclusive of all demand at that account

Table 3.7 (DWR Table 5)
Water Deliveries — Projected, 2015 – AFY

	2015				
	Metered		Not Metered		Total
Water Use Sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	7,799	1,544	4,724	935	2,479
Multi-family	556	335	86	52	387
Duplex/Triplex	357	78	503	110	189
Commercial	835	1,092	387	505	1,597
Industrial	0	0	0	0	0
Institutional/Governmental	0	0	0	0	0
Landscape	0	0	0	0	0
Agriculture	0	0	0	0	0
Other	55	22	56	22	44
Total	**9,602**	**3,070**	**5,756**	**1,625**	**4,695**

Table 3.8 (DWR Table 6)
Water Deliveries — Projected, 2020 – AFY

	2020				
	Metered		Not Metered		Total
Water Use Sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	12,915	2,190	0	0	2,190
Multi-family	662	363	0	0	363
Duplex/Triplex	887	153	0	0	153
Commercial	1,285	1,411	0	0	1,411
Industrial	0	0	0	0	0
Institutional/Governmental	0	0	0	0	0
Landscape	0	0	0	0	0
Agriculture	0	0	0	0	0
Other	117	36	0	0	36
Total	15,866	4,153	0	0	4,153

Table 3.9 (DWR Table 7)
Water Deliveries — Projected, 2025, 2030, and 2035 – AFY

	2025		2030		2035	
	Metered		Metered		Metered	
Water Use Sectors	# of Accounts	Volume	# of Accounts	Volume	# of Accounts	Volume
Single family	13,306	1,971	13,698	1,998	14,090	2,031
Multi-family	682	343	702	341	723	341
Duplex/Triplex	914	127	941	126	967	126
Commercial	1,349	1,326	1,412	1,388	1,475	1,451
Industrial	0	0	0	0	0	0
Institutional/Governmental	0	0	0	0	0	0
Landscape	0	0	0	0	0	0
Agriculture	0	0	0	0	0	0
Other	123	32	128	34	134	35
Total	16,374	3,800	16,882	3,887	17,390	3,984

Table 3.10 below presents the estimated low income demand within the District's service area. The estimate was based the City of South Lake Tahoe's Draft General Plan and Housing Element which estimates that there will be 291 affordable housing units within the District's service area by 2013, which meets the regional housing-share target. These are largely multi-family units. Review of the District's water delivery records indicates that the average delivery to multi-family unit is 0.6 AFY per year (calculated by dividing total water deliveries to the MFR sector by the number of accounts in the MFR sector). With 291 accounts the total use is 175 AFY per year (291 account x 0.6 AFY/account) or about 4% of the District's total demands. This UWMP estimates that this percentage will stay constant over time. As the District implements volumetric billing, this estimate can be adjusted to reflect actual recorded use.

Table 3.10 (DWR Table 8)
Lower-Income Projected Water Demands as a Percent of Total

Water Distributed	2015	2020	2025	2030	2035
Single-family residential					
Multi-family residential	4%	4%	4%	4%	4%
Total	**4%**	**4%**	**4%**	**4%**	**4%**

The District does not regularly sell water to other agencies currently, and has no plans to do so in the future, which is illustrated in Table 3.11.

Table 3.11 (DWR Table 9)
Sales to Other Water Agencies – AFY

Water Distributed	2005	2010	2015	2020	2025	2030	2035
None sold	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Presented in Table 3.12 includes "lost" water projections. For 2005 and 2010, lost water can be calculated as the difference between water production and water consumption. For the period from 2010 through 2035, the lost water is estimated to remain at a fixed percentage of total water use. As the District continues to implement both its main replacement and metering programs these estimated values can be updated based on actual data for water production and water use.

Table 3.12 (DWR Table 10)
Additional Water Uses and Losses – AFY

Water Use	2005	2010	2015	2020	2025	2030	2035
Saline barriers	**0**	0	**0**	**0**	**0**	**0**	**0**
Groundwater recharge	0	0	0	0	0	0	0
Conjunctive use	0	0	0	0	0	0	0
Raw water	0	0	0	0	0	0	0
Recycled water	0	0	0	0	0	0	0
System losses	662	626	658	671	684	700	717
Total	662	626	658	671	684	700	717

Total water use including water losses is projected to decrease to 4,701 acre feet in 2035 as shown in Table 3.13. The total water use is the sum of water use by customer categories, sales to other agencies and additional water uses and losses.

Table 3.13 (DWR Table 11)
Total Water Use – AFY

Water Use	2005	2010	2015	2020	2025	2030	2035-opt
Total Water Deliveries (from Tables 3 to 7)	6,260	5,920	4,695	4,153	3,800	3,887	3,984
Sales to Other Water Agencies (from Table 9)	-	-	-	-	-	-	-
Additional Water Uses and Losses (from Table 10)	662	626	658	671	684	700	717
Total	**6,922**	**6,546**	**5,353**	**4,824**	**4,484**	**4,587**	**4,701**

3.3 WATER DEMAND PROJECTIONS FOR RETAILERS

The District is both the wholesaler and retailer in its service area. Table 3.14 below presents its demand projections.

Table 3.14 (DWR Table 12)
Retail Agency Demand Projections Provided to Wholesale Suppliers – AFY

Wholesaler	Contracted Volume	2010	2015	2020	2025	2030	2035-opt
South Tahoe Public Utilities District		6,546	5,353	4,824	4,484	4,587	4,701

3.4 WATER USE REDUCTION PLAN

As part of the 2010 UWMP Plan all retail water suppliers are to develop an implementation plan for compliance with SBx7-7. The plan described below includes a general description of how the District intends to reduce per capita water use to meet its urban water use target. In developing the implementation plan, the District was careful to avoid placing a disproportionate burden on any customer sector.

SBx7-7 requirements for the District provide an overall goal for community-wide water demand reduction. The state requirements refer to the metric on a per person (capita) amount of water demand per day, which is based on total water demand in the service area divided by number of days in the year, divided by the total number of persons served, presented in terms of gallons per capita per day. The compliance with gpcpd targets required by SBx7-7 is voluntary on behalf of each individual water customer, and the District will need to proceed with more conservation measures over time, if monitoring of progress of the total annual water demand in the service area indicates that targets are not forecasted to be achieved.

The District will be encouraging reductions in customer water demand through mainly the implementation of the 14 Demand Management Measures (DMMs) included in this plan with a particular focus on DMM D (Metering with commodity rates for all new connections and retrofit of existing connections). There are currently approximately 4,800 metered residential customers in the service area. The District is will being billing these customers by volumetric rates in 2011 (volumetric residential rates have been identified as a key area of importance for the District's service area).

Over the course of the next nine years, the District's Board may also strengthen some existing policies or adopt new policies to help achieve these targets. Compliance with some of these Board policies may not be voluntary, such as requirements to avoid wasteful practices (e.g., enforcement of the District Board's policy associated fines for water waste violation).

Detailed descriptions of the water reduction plan elements, including intervention targets and budgets for each DMM, are included in Section 6.

SECTION 4.0 SYSTEM SUPPLIES

4.1 OVERVIEW

This section describes the District's water supply system. Currently the District's supply is entirely comprised of groundwater, which is pumped from District-owned wells in the Tahoe Valley South Subbasin of the Tahoe Valley Groundwater Basin (DWR Basin 3 6-5.01). The District has had as many as 34 active wells in the basin but has had to reduce the use of its well field because of water quality issues associated with widespread methyl tertiary butyl ether (MTBE) contamination. Arsenic and uranium levels in some wells have also limited their use.

The District is both a wholesaler and a retailer, producing potable water as well as supplying water directly to customers. The District does not receive potable water from other water suppliers. Although the District produces recycled water, this water cannot be used in the Lake Tahoe hydrologic basin because of restrictions in the Porter Cologne Water Quality Act and the Basin Plan adopted by the Lahontan Regional Water Quality Control Board. The District does put its recycled water to beneficial use in Alpine County, outside of the Lake Tahoe hydrologic basin. Table 4.1 provides highlights of the various water supply sources. These are discussed in detail in the remainder of this Chapter.

Table 4.1 (DWR Table 16)
Water Supplies – Current and Projected – AFY

Water Supply Sources							
Water Purchased From:	Wholesaler Supplied Volume (Y/N)	2010	2015	2020	2025	2030	2035-opt
Wholesaler 1 (agency name)	NA						
Wholesaler 2 (agency name)	NA						
Wholesaler 3 (agency name)	NA						
Supplier-produced groundwater		9,528	9,528	9,528	9,528	9,528	9,528
Supplier-produced surface water		0	0	0	0	0	0
Transfers in		0	0	0	0	0	0
Exchanges In		0	0	0	0	0	0
Recycled Water		0	0	0	0	0	0
Desalinated Water		0	0	0	0	0	0
Other		0	0	0	0	0	0
Other		0	0	0	0	0	0
Total		**9,528**	**9,528**	**9,528**	**9,528**	**9,528**	**9,528**

4.2 SURFACE WATER SUPPLY AGREEMENTS AND RIGHTS

The District holds a permit to divert up to 2,718 AFY from Cold Creek (UWMP, 2005), however it discontinued this diversion in 1991 due to water quality constraints. The District also has diversion rights to the Upper Truckee River and tributaries for up to 4,424 AFY. These rights have not been utilized in the past and are not planned for use in the future due to supply reliability concerns (UWMP 2005). One issue of concern for the utilization of surface waters is the availability of a consistent and adequate in-stream flow at diversion points during peak summer months. The District has filed for rights to divert surface water from Lake Tahoe under the Truckee River Operating Agreement (TROA) for a total of 12,100 AFY. These

permit applications are in review by the State Water Resources Control Board and are therefore not currently a supply source. Table 4.2 presents the data on surface water supplies for the District.

Table 4.2 (DWR Table 17)
Surface Water Supplies – Existing and Planned Sources of Water – AFY

Wholesale Sources	Contracted	2015	2020	2025	2030
Wholesaler	NA	0	0	0	0

4.3 GROUNDWATER

4.3.1 Introduction

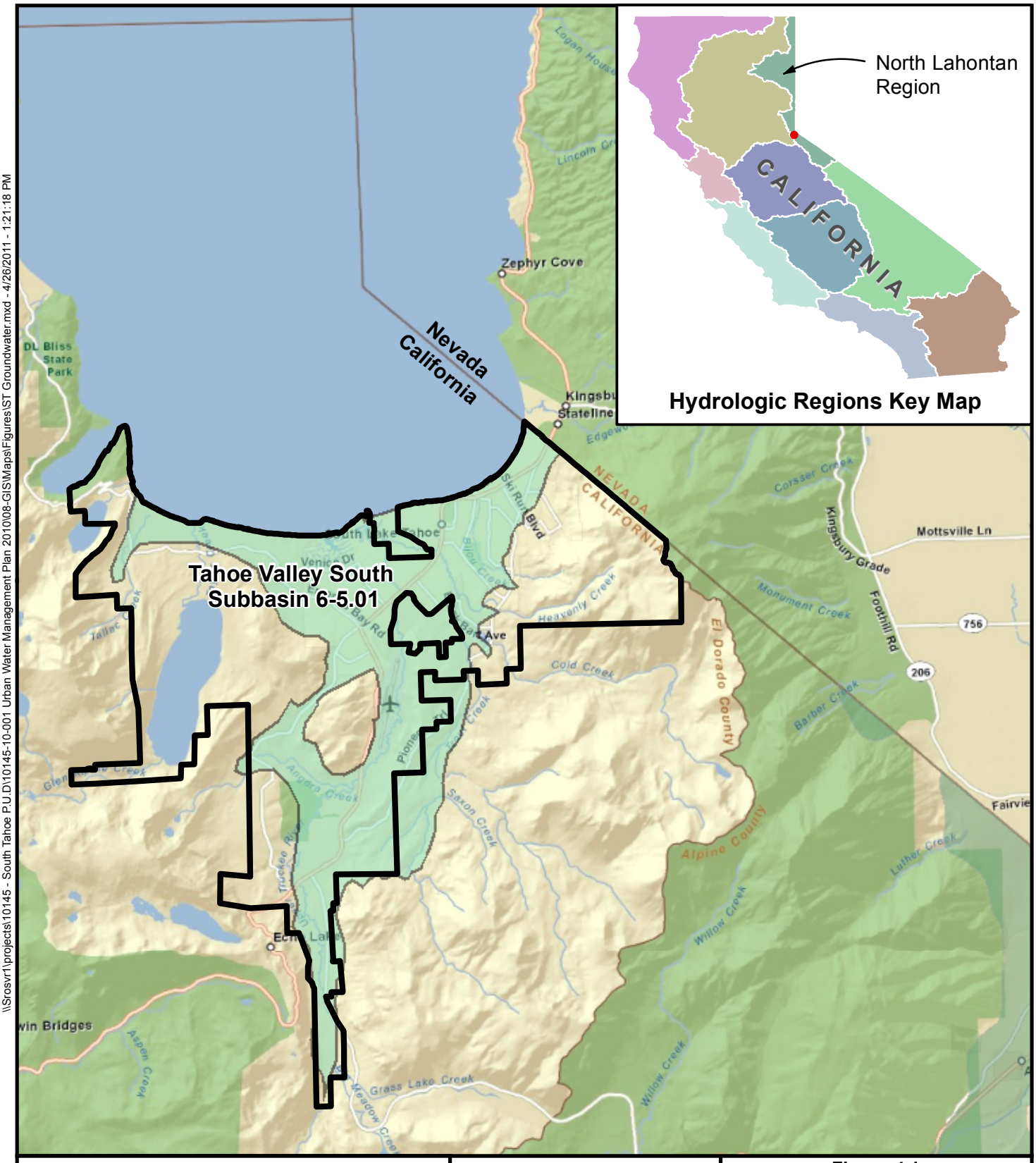
The Act requires the following items to be addressed for water suppliers that obtain groundwater.

- Indicate whether or not the water supplier directly obtains its own groundwater, or if it plans to develop groundwater resources within the planning horizon of the UWMP or if they obtain water from another supplier.
- Provide an electronic copy of any groundwater management plan
- Provide a description of any groundwater basin or basins from which the urban water supplier pumps groundwater.
- If basin is adjudicated, provide an electronic copy of the order or decree adopted by the court or the board and provide a description and the volume of groundwater the urban water supplier has the legal right to pump under the order or decree.
- Provide information as to whether DWR has identified the basin as overdrafted or projected overdraft. Describe the efforts being undertaken to eliminate the long-term overdraft condition.
- Provide a detailed description, analysis, amount and sufficiency of groundwater pumped by the urban water supplier for each of the past five years.
- Describe whether there were limitations or challenges obtaining groundwater in the last five years to indicate the sufficiency of groundwater pumped.
- Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier.

4.3.2 Groundwater Management Plan

The District draws its water supply from the Tahoe Valley South Subbasin of the Tahoe Valley Groundwater Basin, which is illustrated in Figure 4.1. The District developed an adopted a Groundwater Management Plan in 2005. An electronic copy of the Groundwater Management Plan can be viewed or downloaded from the District's website at the following location:
http://www.stpud.us/plan_doc_Groundwater_Management_Plan.pdf.

Within the 2005 Groundwater Management Plan, 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 2007.



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Cartography: RMR

Legend

- Tahoe Valley South Subasin 6-5.01
- South Tahoe P.U.D. Boundary

0 1 2 Miles

1 inch = 2 miles

N

Sources: ESRI Basemap:Streets, STPUD GIS: Parcels, City Limits, District Boundaries, Pressure Zones, City Limits.

Figure 4.1
Groundwater Basin/ Subbasin Map

South Tahoe Public Utilities District
Urban Water Management Plan

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This observed reduction maybe a result of combined groundwater management practices, water conservation measures and/or the result of reduced economic activity. The current groundwater production trend and planned development should continue to fall within the range outlined in the Groundwater Management Plan, because of the requirements of SBx7-7.

4.3.3 **Description of Groundwater Basin**

4.3.3.1 ***Hydrogeology of Basin***

As described in the District's Groundwater Management Plan and Bulletin 118, groundwater has been developed in the District's service area primarily from unconsolidated sedimentary deposits within the Tahoe Valley South Subbasin of the Tahoe Valley Groundwater Basin (Basin). Glacial deposits are predominant and include moraines and outwash that make up the predominant aquifers. Glacial outwash is more widespread in the District than moraines. The outwash deposits are generally sand, gravel, and cobble layers that are interbedded with silt and clay layers. The outwash deposits were produced by glacial melt waters and streams that drained moraines to the south. Later, glacial outwash deposits in some areas were eroded and replaced with stream channel deposits.

Lake bed (lacustrine) deposits in the District are composed primarily of interbedded fine sand, silt, and clay layers with some interbedded coarse-grained deposits. These lake-bed deposits were deposited during periods of high lake levels, and have been partly preserved along the Upper Truckee River and Trout Creek stream courses. Lake-bed deposits below an elevation of 6,280 feet in and near the District have been referred to as "recent lake-bed deposits". Hardrock assemblages (also known as crystalline rock) include granitic, metamorphic, and volcanic rocks are also common to the District and in the Basin. Granitic out crops are common over a large area east, and within most of the District.

4.3.3.2 ***Groundwater Quality and Quantity Issues***

In 1996, the fuel additive 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 enormous efforts to combat this contaminant and since 1996 MTBE has become the primary limiting factor to the District's supply and operations.

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 a 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 changed operational criteria to meet water demand.

The District had historically reported as many as 34 supply wells within its network. The 2005 UWMP reported that 13 previously active wells had been shut down due to MTBE contamination. It documented 19 active wells, two standby wells and one well under construction. In 2010, the District reports 13 active wells, 2 limited-use or stand-by wells and 5 wells used for sampling/monitoring purposes.

The District is a leader in MTBE treatment technology. The advanced oxidation MTBE treatment systems placed at the Arrowhead and Bakersfield Wells in 2002 and 2004, are the only MTBE treatment systems approved by California Department of Health Services (DHS) to treat to non-detect levels and then safely return the treated water into the potable water supply.

In addition to wellhead treatment, the District has pursued a new drinking water well development program. The Bayview Well, put on line in summer of 2007, produces 3,600 gallons of water per minute, and is the District's highest producing well. Its strategic location is in the heart of the water distribution system. South Upper Truckee Well No. 3, put on line in 2008, adds another 1,200 gallons per minute of supply. These new supplies were accompanied by distribution system improvements the District has nearly returned to pre-MTBE production capability.

Table 4.3 provides a comparative summary of well status between the 2005 and 2010 UWMPs.

Table 4.3
Groundwater Resources 2005 to 2010 Comparison

Well Name	Status		Capacity (gal/min.)	Max. Production (MG/day)	Max. Production (ac-ft/day)	Comments
	2005	2010				
Airport [a]	Standby	Standby	920	0.723	2.219	As > MCL.
Al Tahoe No. 2	Active	Active	2,500	3.6	11.048	Pumps to Main Zone.
Arrowhead No. 3	Active	Active	800	1.152	3.535	Treating for MTBE. As > MCL. Pumps to Arrowhead Zone.
Bakersfield	Active	Active	1,500	2.16	6.629	Treating for MTBE. Pumps to Arrowhead Zone.
Bayview	Active	Active	3,500	5.184	15.909	Pumps to Main Zone.
Blackrock No. 2	Active	Off-line	90	0.13	0.399	MTBE threatened. Used as sampling/monitoring well.
Chris	Active	Active	117	0.169	0.519	Pumps to Main Zone.
Clement	Active	Off-line	180	0.26	0.798	MTBE threatened. Used as sampling/monitoring well.
College [a]	Standby	Standby	0	0	0.000	Uranium > MCL. Uses as sampling/monitoring well.
Elks Club No. 2	Active	Active	300	0.432	1.326	Pumps to Country Club Zone
Glenwood No. 5	Active	Active	1,100	1.44	4.419	Pumps to Main Zone.
Helen No. 2	Active	Active	260	0.374	1.148	MTBE threatened. Pumps to Main Zone.
Industrial No. 2	Active	Off-line	110	0.158	0.485	
Mountain View	Active	Active	150	0.216	0.663	Pumps to Twin Peaks Zone.
Paloma	Active	Active	2,500	3.6	11.048	MTBE threatened. Pumps to Main Zone.
South Upper Truckee No. 1	Active	Off-line	406	0.585	1.795	
South Upper Truckee No. 3 [b]	Under Construction	Active	1,200	2.016	6.187	Installed in 2008. Pumps to Christmas Valley Zone
Sunset	Active	Active	594	0.855	2.624	Pumps to Main Zone.
Tata No. 1	Active	Inactive [c]	308	0.444	1.363	MTBE contamination. As > MCL. Used as sampling/monitoring well
Tata No. 2	Active	Inactive [c]	73	0.105	0.322	MTBE contamination. Used as sampling/monitoring well
Tata No. 3	Active	Inactive [c]	168	0.242	0.743	MTBE contamination. Used as sampling/monitoring well
Valhalla	Active	Active	650	0.972	2.983	Pumps to Main Zone.
Total Installed Capacity			**17,426**	**24.817**	**76.161**	
Total Active Capacity			**15,171**	**22.170**	**68.037**	

Notes (Source - District Water Operations)

[a] Operated only for short-term emergencies of 5 consecutive days and for less than 15 days per year; source capacity of this source is 1,100 gpm (1.584 MGD).

[b] Estimated from design information.

[c] Well removed from service May 2008.

4.3.3.3 *Adjudication*

Neither the Tahoe Valley Groundwater Basin nor the Tahoe Valley South Subbasin is adjudicated (*Water Facts, Adjudicated Basins in California*, Department of Water Resources, April 2004).

Based on the Bulletin 118, neither the Tahoe Valley Groundwater Basin nor the Tahoe Valley South Subbasin are in overdraft conditions.

4.3.4 Sufficiency of Groundwater

The District has been pumping below the estimated basin safe yield of 9,528 AFY throughout its history. In 2005, the District pumped a total of 6,923 AF. At that time, it was expected that 2010 water production would be 7,585 AF. However, water production dropped each year from 2007 through 2010. As Table 4.4 illustrates below, the actual usage for 2010 was 6,546 AF.

Table 4.4 (DWR Table 18)
Groundwater – Volume Pumped – AFY

Basin Name(s)	Metered or Unmetered	2005	2006	2007	2008	2009	2010
Tahoe Valley South		6,923	7,445	8,161	7,635	6,920	6,546
Total groundwater pumped		6,923	7,445	8,161	7,635	6,920	6,546
Groundwater as a percent of total water supply		100%	100%	100%	100%	100%	100%
Source: 2006-2009 annual PWSS reports submitted to the DWR. District 1985-2010 water production spreadsheet.							

As noted above, the challenges the District has faced with potable water production have been primarily related to water quality associated with leaking underground storage sites and to a lesser extent arsenic and uranium within the Basin.

4.3.5 Projected Groundwater Pumping

The District's projected groundwater pumping will meet the projected demands together with the system losses. Table 4.5 illustrates the projected pumping pattern.

Table 4.5 (DWR Table 19)
Groundwater – Volume Projected to be Pumped – AFY

Basin Name(s)	2015	2020	2025	2030	2035 - opt
Tahoe Valley South Subbasin	5,353	4,824	4,484	4,587	4,701
Total groundwater projected to be pumped	5,353	4,824	4,484	4,587	4,701
Percent of total water supply	100%	100%	100%	100%	100%

4.3.6 Planned Groundwater Supply Projects and Programs

Based on the District's June 2010 Ten Year Financial Plan and verbal operational plans, no new supply wells are planned to be installed, however, four supply wells are planned to be destroyed during the fiscal year 2015-2016. Additional groundwater treatment for MTBE is expected during fiscal year 2016-2017. Water distribution and supply piping upgrades as well as new booster stations and improvements are planned for the 2010-2011 budget year.

4.4 TRANSFER OPPORTUNITIES

There are four water suppliers adjacent to the District's service area. While there are five emergency interties between the various suppliers, there are currently no viable opportunities or plans for long term transfer or exchange from these suppliers under normal operating conditions. This is illustrated in Table 4.6.

Table 4.6 (DWR Table 20)
Transfer and Exchange Opportunities – AFY

Transfer Agency	Transfer or Exchange	Short Term or Long Term	Proposed Volume
Edgewood Water Company	0	0	0
Lakeside Park Mutual Water Company	0	0	0
Lukins Brothers Water Company	0	0	0
Tahoe Keys Mutual Water Company	0	0	0
Total	**0**	**0**	**0**

4.5 DESALINATED WATER OPPORTUNITIES

There are no opportunities for desalinated water projects in the District's service area.

4.6 RECYCLED WATER OPPORTUNITIES

This section describes the wastewater characteristics, flows, and treatment facilities within the District's service area. It outlines the regulatory environment that constrains recycled water use within the service area and describes how the recycled water is put to beneficial use outside of the service area. The UWMP Act requires the following items to be addressed for recycled water:

- Information on the recycled water supply including coordination with dischargers
- Description of the wastewater collection and treatment systems in the service area
- Quantity of treated wastewater that meets recycled water standards
- Recycled water currently being used in the service area
- Potential for recycled water use in the service area
- Actions to encourage recycled water use

- Plan for optimizing recycled water use.

4.6.1 **Overview and System Description**

In addition to supplying water, the District provides all wastewater treatment, collection and reuse within its service area. From very modest beginnings in 1951, which included two 18,000 gallon redwood septic tanks, the District's wastewater collection, treatment and recycling processes have grown to a 7.7 million gallon per day (MGD) advanced secondary operation serving 17,000 customers. The District's award winning collection system and wastewater treatment plant produces an average 4.5 MGD, 100 percent of which is recycled. However, both the Porter Cologne Water Quality Act and 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 lift of 1,200 feet), to Alpine County. The recycled water is stored during the winter months in 3,800 acre-foot Harvey Place Reservoir and distributed to six ranches for irrigation purposes in the dry summer months.

Despite the prohibition on recycling within the District's own service area, through a special legislative act in 2000, the District was able to install 6 fire hydrants along a short section of its 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 in Alpine County provide similar fire protection as the export line makes its way to Harvey Place Reservoir.

Table 4.7 below provides data on planned wastewater production and the volume suitable for recycling.

Table 4.7 (DWR Table 21)
Recycled Water – Wastewater Collection and Treatment – AFY

Type of Wastewater	2005	2010	2015	2020	2025	2030 [a]
Wastewater collected & treated in service area	4,593	4,606	5,004	5,401	5,799	6,196
Volume that meets recycled water standard	4,593	4,606	5,004	5,401	5,799	6,196

[a] Wastewater Collection System Master Plan, Table 3.10, December 2009

4.6.2 **Recycled Water Use – Existing and Planned**

The District's recycled water facilities include its Luther Pass Pump Station, C-Line Export Pipeline, Harvey Place Reservoir (HPR), Diamond Valley, Diamond Ditch, and contract land application sites. The recycled water system provides an irrigation supply in Alpine County, which is otherwise quite limited so the District does not have any incentives to encourage recycled water use since 100 percent of the available water is consumed by existing contracts. However, as the volume of recycled water increases over the next 20 years

and the available irrigated lands diminish due to development, then additional users may be required to dispose of the annual production.

Table 4.8 below summarized planned recycled water use.

Table 4.8 (DWR Table 22)
Recycled Water – Disposal Outside of District's Service Area -AFY

Method of Disposal	Treatment Level	2010	2015	2020	2025	2030
Export to Alpine County	Secondary 23	4,606	5,004	5,401	5,799	6,196
	Total	**4,606**	**5,004**	**5,401**	**5,799**	**6,196**

4.6.3 Comparison of Previously Projected Use and Actual Use

Because of the Basin Plan restrictions on recycled water use within the District's service area, the 2005 UWMP did not document recycled water as a potential supply and the District has not developed that supply. Tables 4.9 and 4.10 summarize this in DWR's required format.

Table 4.9 (DWR Table 23)
Recycled Water – Potential Future Use – AFY

User Type	Description	Feasibility[a]	2015	2020	2025	2030
Agricultural irrigation	Recycled Water use with the District's service area is not feasible because of restrictions in the Regional Board's Basin Plan for the Lake Tahoe area.		0	0	0	0
Landscape irrigation[b]			0	0	0	0
Commercial irrigation[c]			0	0	0	0
Golf course irrigation			0	0	0	0
Wildlife habitat			0	0	0	0
Wetlands			0	0	0	0
Industrial reuse			0	0	0	0
Groundwater recharge			0	0	0	0
Seawater barrier			0	0	0	0
Getothermal/Energy			0	0	0	0
Indirect potable reuse			0	0	0	0
Other (type of use)			0	0	0	0
		Total	**0**	**0**	**0**	**0**

[a] Technical and economic feasibility

[b] Includes parks, schools, cemeteries, churches, residential, or other public facilities

[c] Includes commercial building use such as landscaping, toilets, HVAC, etc., and commercial uses (car washes, laundries, nurseries, etc.)

Table 4.10 (DWR Table 24)
Recycled water — 2005 UWMP Use Projection Compared to 2010 Actual – AFY

User Type	2010 Actual Use	2005 Projection for 2010 [a]
Agricultural irrigation	0	0
Landscape irrigation[b]	0	0
Commercial irrigation[c]	0	0
Golf course irrigation	0	0
Wildlife habitat	0	0
Wetlands	0	0
Industrial reuse	0	0
Groundwater recharge	0	0
Seawater barrier	0	0
Getothermal/Energy	0	0
Indirect potable reuse	0	0
Other (type of use)	0	0
Total	**0**	**0**

[a] From the 2005 UWMP. There has been some modification of use types. Data from the 2005 UWMP can be left in the existing catagories or modified to the new
[b] Includes parks, schools, cemeteries, churches, residential, or other public facilities
[c] Includes commercial building use such as landscaping, toilets, HVAC, etc., and commercial uses (car washes, laundries, nurseries, etc.)

4.6.4 Promoting Recycled Water Use

While it may be appropriate, from time to time, for the District to promote recycled water use with interests outside of its service area, the District has no existing or planned programs to promote recycled water use within its service area, because of the regulatory prohibitions. Table 4.11 summarizes this in DWR's required format.

Table 4.11 (DWR Table 25)
Methods to Encourage Recycled Water Use – AFY

Actions	Projected Results				
	2010	2015	2020	2025	2030
Financial Incentives	NA	NA	NA	NA	NA

4.7 FUTURE WATER PROJECTS

The District does not currently have any future water supply projects planned beyond the projects described above in Section 4.3.6.

SECTION 5.0 WATER SUPPLY RELIABILITY AND WATER SHORTAGE CONTINGENCY PLANNING

This section compares the water demand information developed in Section 3 and the water supply information developed in Section 4. Comparisons are provided under DWR's required range of hydrologic conditions including the Normal, Single Dry Year and Multiple Dry Year scenarios. This section also describes the District's water shortage contingency and drought planning as required by Water Code Section 10632.

5.1 SUMMARY OF SUPPLY

The District's supply is provided by local groundwater. The "safe yield" of this supply has been quantified in the District's Groundwater Management Plan. The single largest source of risk for the water supply is groundwater contamination from MTBE, which has required the District to take some wells out of service and carefully plan the location of new wells. As described in Section 4, the District has developed a master plan for mitigating MTBE impacts and this risk is not expected to substantially impact supplies over the period of this UWMP. Table 5.1 summarizes the factors that could result in supply inconsistency.

Table 5.1 (DWR Table 29)
Factors Resulting in Inconsistency of Supply

Water Supply Sources [a]	Specific Sources	Limitation Quantification	Legal	Environmental	Water Quality	Climatic	Additional Information
Supplier Produced Groundwater	Tahoe Valley South Subbain	9,528			x		MTBE with lower risk from arsenic and uranium

[a] From Table 16

5.2 RELIABILITY OF SUPPLY

5.2.1 Hydrologic Reliability

Unlike many of California's water retailers, the District's water supply is not severely 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 Lake Tahoe, the largest alpine lake in North America. With a depth of 1,646 feet, surface area of 191 square miles, Lake Tahoe contains about 39.8 trillion gallons of water. 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.

The reliability of the District's water sources is summarized in Tables 5.2 and 5.3.

Table 5.2 (DWR Table 27)
Basis of Water Year Data

Water Year Type	Base Year(s)	Historical Sequence
Average Water Year	2005	Series of Normal Years
Single-Dry Water Year	1985	First in series of dry years
Multiple-Dry Water Years	1985-1991	Normal Year followed by series of dry years

Table 5.3 (DWR Table 28)
Supply Reliability – Historic Conditions – AFY

Water Supply Sources [a]	Average/Normal Water Year Supply [b]	Single-Dry Water Year	Multiple-Dry Water Years		
			Year 1	Year 2	Year 3
Tahoe Valley South Subbasin	9,528	**9,528**	**9,528**	**9,528**	**9,528**
Percent of Average/Normal Year		**100%**	**100%**	**100%**	**100%**

[a] From Table 16

[b] See Table 27 for basis of water type years.

5.2.2 Legal & Environmental Constraints

The District has an adopted Groundwater Management Plan and operates in accordance with that plan. There are no anticipated legal or environmental constraints to the District's supply.

5.2.3 Water Quality Constraints

The quality of the District's water deliveries is regulated by DHS, which requires regular collection and testing of water samples to ensure that the quality meets regulatory standards and does not exceed MCLs.

As discussed throughout this UWMP, water quality presents the single largest challenge to the District's water supply. Groundwater contaminations from MTBE, together with naturally occurring arsenic and uranium, have combined to reduce the number of active District wells from 34 to 13. As illustrated in Table 4.3, the District's active well capacity is approximately 2,000 gpm or approximately 9 AF per day lower than its installed capacity, reflecting wells that have been taken off line due to water quality issues. However, due to ongoing operational practices, the District does not anticipate any additional restrictions on pumping capacity.

The District has developed a master plan for managing groundwater quality and the noted reductions in active well field capacity have not impacted the District's ability to meet demands. The currently active installed capacity of 68 AFY per day is more than sufficient to allow the District to pump its allowable sustained yield.

Table 5.4 summarizes the current and projected water supply changes due to water quality.

Table 5.4 (DWR Table 30)
Water Quality – Current and Projected Water Supply Impacts

Water source	Description of condition	2010	2015	2020	2025	2030	2035 - opt
Supplier-produced groundwater	Impairment due to MTBE, Arsenic or Uranium	0	0	0	0	0	0

5.3 SUPPLY AND DEMAND COMPARISONS

The analysis compares the projected water supply available to the projected customer demands over a series of hydrologic conditions. The projected Normal and Dry Year supplies available to the District are presented in Table 5.5, below.

Table 5.5 (DWR Table 31)
Supply Reliability – Current Water Sources – AFY

Water Supply Sources [a]	Average/Normal Water Year Supply [b]	Multiple-Dry Water Year Supply		
		2011	2012	2013
Supplier Produced Groundwater	9,528	9,528	9,528	9,528
	-	-	-	-
	-	-	-	-
	Percent of Normal Year	**100%**	**100%**	**100%**

[a] From Table 16

[b] See Table 27 for basis of water type years.

Comparisons of supply and demand under Normal, Single Dry and Multiple Dry Years are included in Table 5.6 through 5.8. These tables illustrate the fundamental resiliency of the District's supply to a range of hydrologic conditions.

Table 5.6 (DWR Table 32)
Supply and Demand Comparison – Normal Year – AFY

	2015	2020	2025	2030	2035-opt
Supply Totals (from Table 16)	9,528	9,528	9,528	9,528	9,528
Demand Totals (from Table 11)	5,353	4,824	4,484	4,587	4,701
Difference (supply minus demand)	4,175	4,704	5,044	4,941	4,827
Difference as % of Supply	44%	49%	53%	52%	51%
Difference as % of Demand	78%	98%	112%	108%	103%

Table 5.7 (DWR Table 33)

Supply and Demand Comparison – Single Dry Year – AFY

	2015	2020	2025	2030	2035-opt
Supply Totals	9,528	9,528	9,528	9,528	9,528
Demand Totals	5,353	4,824	4,484	4,587	4,701
Difference (supply minus demand)	4,175	4,704	5,044	4,941	4,827
Difference as % of Supply	44%	49%	53%	52%	51%
Difference as % of Demand	78%	98%	112%	108%	103%

[a] Consider the same sources as in Table 16. If new sources of water are planned, add a column to the table and specify the source, timing, and amount of water.

[b] Provide in the text of the UWMP text that discusses how single-dry-year water supply volumes were determined.

[c] Consider the same demands as in Table 3. If new water demands are anticipated, add a column to the table and specify the source, timing, and amount of water.

[d] The urban water target determined in this UWMP will be considered when developing the 2020 water demands included in this table.

Table 5.8 (DWR Table 34)

Projected Supply & Demand Comparison during Multiple Dry Year Periods – AFY

		2015	2020	2025	2030	2035-opt
Multiple Dry Year - First Year Supply	**Supply Totals**	9,528	9,528	9,528	9,528	9,528
	Demand Totals	5,353	4,824	4,484	4,587	4,701
	Difference (supply minus demand)	4,175	4,704	5,044	4,941	4,827
	Difference as % of Supply	44%	49%	53%	52%	51%
	Difference as % of Demand	78%	98%	112%	108%	103%
Multiple Dry Year - Second Year Supply	**Supply Totals**	9,528	9,528	9,528	9,528	9,528
	Demand Totals	5,353	4,824	4,484	4,587	4,701
	Difference (supply minus demand)	4,175	4,704	5,044	4,941	4,827
	Difference as % of Supply	44%	49%	53%	52%	51%
	Difference as % of Demand	78%	98%	112%	108%	103%
Multiple Dry Year - Third Year Supply	**Supply Totals**	9,528	9,528	9,528	9,528	9,528
	Demand Totals	5,353	4,824	4,484	4,587	4,701
	Difference (supply minus demand)	4,175	4,704	5,044	4,941	4,827
	Difference as % of Supply	44%	49%	53%	52%	51%
	Difference as % of Demand	78%	98%	112%	108%	103%

[a] Consider the same sources as in Table 16. If new sources of water are planned, add a column to the table and specify the source, timing, and amount of water.

[b] Provide in the text of the UWMP text that discusses how single-dry-year water supply volumes were determined.

[c] Consider the same demands as in Table 3. If new water demands are anticipated, add a column to the table and specify the source, timing, and amount of water.

[d] The urban water target determined in this UWMP will be considered when developing the 2020 water demands included in this table.

5.4 WATER SHORTAGE CONTINGENCY AND DROUGHT PLANNING

This section provides information required by Water Code Section 10632. The District has adopted Water Shortage and Drought Response Standards within Section 3.4 of its Administrative Code, which is included in Appendix C.

5.4.1 Actions in Response to Water Supply Shortages (Water Code 10632(a))

Water Code Section 10632(a) requires a description of the actions to be undertaken by the urban water supplier in response to water supply shortages of up to 50%. This section also requires the water supplier to outline the specific water supply conditions that are applicable at each stage of action. The District's strategy for managing water supply reductions includes water supply reliability and authorized mandatory demand management measures. Each of these strategies is outlined below. When actions are required to manage the supply reductions, these are also described.

Supply Reliability

As evidenced by Tables 5.6 through 5.8, the District's supply is highly reliable. The District's developed supply exceeds demand by 44% to over 50% throughout the UMWP planning period which provides a significant buffer against hydrologic variability.

Description of Actions to be Taken

Although the District's supply is hydrologically robust, The District has identified catastrophic loss of supply, particularly from groundwater contamination, as a significant threat to its customers. The District balances this risk through the use of its Emergency Response Plan, which describes a series of operational modifications that can be undertaken to respond to contamination in individual wells and its Water Shortage and Drought Response Standards. Table 5.9 summarizes the consumption reduction methods that the District has the authority to use.

Table 5.9 (DWR Table 35)

Water Shortage Contingency – Rationing Stages[a] to Address Water Supply Shortages

Stage No.	Water Supply Conditions	% Shortage
Continuous	Water Waste Prohibited	NA
1 Normal Conditions	Prohibition against runoff from site	10%
	Prohibition against irrigating non-landscaped property except to mitigate fire risk	
	Inspection/repair/adjustment of irrigation systems	
	Shutoff nozzle required on hoses used for vehicle washing	
	Encouragement to report water leaks/waste	
2 Minor Water Supply Shortage	All Stage 1 Restrictions	20%
	Designated irrigation days	
	Prohibition against washing hard surfaces except to mitigate fire or sanitation concerns	
	Restaurant water service on request	
3 Severe Water Supply Shortage	All Stage 1 and 2 Restrictions	30%
	Weekend irrigation prohibition	
	Prohibition agains filling outdoor swimming pools	
	Prohibition against operating non-recirculating fountains and ornamental water features	
4 Critical Water Supply	All Stage 1, 2 and 3 Restrictions	40%
	Outdoor irrigation limited to once per week	
	Prohibition against water use for landscaping for new construction	
	Prohibition against hydrant use except for fire fighting	
5 Water Emergency	All Stage 1, 2, 3 and 4 Restrictions	50%
	Prohibition against water use for other than domestic and commercial purposes (no irrigation)	
	Prohibition against water use for construction dust control	
	Prohibition against hydrant flushing	
	Prohibition against water use for air conditioning where an alternate source of fresh air is availalble	

[a] One of the stages of action must be designed to address a 50 percent reduction in water supply.

5.4.2 Minimum Water Supply during the Next Three Years (Water Code 10632(b))

The minimum water supply available during the next three years during a multiple year drought is shown in Table 5.5, above.

5.4.3 Catastrophic Supply Interruption Plan (Water Code 10632(c))

In accordance with the Emergency Services Act, the District has developed an Emergency Operation Plan (EOP). This EOP guides response to unpredicted catastrophic events that might impact water delivery including regional power outages, earthquakes or other disasters and outlines standard operating procedures for all levels of emergency, from minor accidents to major disaster. In addition, in accordance with the federal Disaster Mitigation Act of 2000, the District has prepared a Local Hazard Mitigation Plan. These plans have been coordinated with neighboring agencies. Table 5.10 provides a summary of the actions included in the EOP and Local Hazard Mitigation Plan. The Local Hazard Mitigation Plan can viewed at www.stpud.us/plan_doc_Local_Hazard_Mitigation_Plan.pdf.

Table 5.10
Preparation Actions for Catastrophes

Possible Catastrophe	Summary of Actions
Fire	Storage supplies for fire flows
	Mutual aid plans and responders identified
	Portable and emergency generators available for District facilities
	Create defensible space by eliminated fuel sources including trees and vegetation adjacent to structures
	Install solar-powered battery backup at critical facilities
	Examine options for burying power lines
	Guide fire-flow improvement project with hydraulic model results
	Improve fire-flows by increasing water delivery pipe size and number of pumps/pump capacity
	Add/upsize wells, tanks and hydrants to provide fire flow
	Partner with Fire Safety Council to protect District structures
	Determine high risk areas close to wildlands and improve water supply
Severe Winter Storms	Portable and emergency generators available for District facilities
	Review snow removal equipment, snow storage and drainage capabilities
	Assess older structure for snow and wind load capacity
	Assess and remove hazard trees
Earthquake	Shut-off isolation valves
	Storage supplies for service interruption
	Portable and emergency generators available for District facilities
	Evaluate and where necessary upgrade facilities
	Distribute employee guide on techniques to prepare for earthquake
	Purchase pumps and hoses to improve response
	Procedures for assessing water quality, notifying public and disinfecting system
Flooding	Portable and emergency generators available for District facilities
	Storage supplies for service interruption
	Procedures for assessing water quality, notifying public and disinfecting system
	Match exposure of personnel, facilities and equipment to flood risk
	Build inventory of pumps, standbags and related equipment to combat erosion. Designate a quick response team
	Establish a safety zone and evacuation plan
	Consider upgrades of pump stations with 45 feet of maximum lake level to resist waves
Landslide	As part of District Erosion Control Program, inspect road cuts and fills for signs of slope failure and stabilize if necessary
	Identify questionable hillsides and stablize
Drought	Develop and distribute resident's guide to water conservation
	Initiate landscaping rebates, commercial water savings program and incentives
	Improve back-up well capacity
Avalanche	Educate District personnel on survival techniques Train personnel in operation of Snow Cat Vehicles and become a mutual aid resource Assess threat to District facilities and install additional protection where appropriate
Security	Perform SCADA vulnerability assessment and add upgrades
	Perform security fence assessment and install upgrades

5.4.4 **Prohibitions, Penalties and Consumption Reduction (Water Code 10632(d)-(f))**

As noted above, Section 3.4 of the District's Administrative Code outlines the prohibitions and rationing stages that the District can enforce. These are summarized in Table 5.9 above. Table 5.11 below summarizes the penalties that the District has the authority to enforce.

Table 5.11 (DWR Table 38)
Water Shortage Contingency – Penalties and Charges

Penalty or Charge	Stage When Penalty Takes Effect
First Violation - written warning	Any Stage
Second Violation - $100 fine	Any Stage
Third Violation - $200 fine and installation of flow restricting device	Any Stage
Fourth Violation - $500 fine and discontinuance of service	Any Stage

5.4.5 **Effect on Revenues and Expenditures (Water Code 10632 (g))**

Based on the analysis presented above, the most challenging situation for the District to manage would be a catastrophic supply interruption that required it to reduce demands. Theoretically, reduced demands would result in reduced water sales revenue. However, because about two-thirds of the customer base pays flat rates rather than metered rates, even this situation is unlikely in the near term.

As noted throughout this section, the largest threat to the District's supply is MTBE contamination. In order to counter this risk, the District has established a water rate stabilization reserve. In order to allow for prudent management of its enterprise funds, the District has also prepared a 10-year financial plan that models the performance of its enterprise (operating funds) and capital outlay funds. The modeled financial performance for Fiscal Years 2010-11, 2014-15 and 2019-20 are illustrated in Table 5.12 below.

Table 5.12

Water Shortage Contingency – District's 10-Year Financial Model

	2010-11		2014-15		2019-20	
	Enterprise Fund	Capital Outlay Reserve	Enterprise Fund	Capital Outlay Reserve	Enterprise Fund	Capital Outlay Reserve
Beginning Cash Balances	$ 1,700,535	$ 11,037,698	$ 1,930,092	$ 7,517,985	$ 2,164,305	$ 8,353,904
Revenues (1)	$ 16,977,965	$ 2,387,000	$ 11,619,000	$ 2,723,000	$ 13,271,000	$ 2,602,000
Borrowings	$ -	$ -		$ -		
Availalable Funds	**$ 18,678,500**	**$ 13,424,698**	**$ 13,549,092**	**$ 10,240,985**	**$ 15,435,305**	**$ 10,955,904**
Salaries (2)	$ 3,138,700	$ 760,501	$ 3,562,884	$ 872,692	$ 4,231,589	$ 1,036,485
Benefits (2)	$ 1,677,050	$ 289,000	$ 2,052,415	$ 358,020	$ 2,682,425	$ 467,918
Operations & Maintenance (2)	$ 3,230,880	$ 121,750	$ 3,258,894	$ 131,786	$ 3,698,159	$ 145,503
Capital Outlay	$ -	$ 10,628,600		$ 1,292,200	$ -	$ 2,760,700
Debt Service (2)	$ 311,000	$ 838,000	$ 430,000	$ 1,120,000	$ 616,000	$ 293,000
Total Cash Outlays	**$ 8,357,630**	**$ 12,637,851**	**$ 9,304,193**	**$ 3,774,698**	**$ 11,228,173**	**$ 4,703,606**
Balance Before Transfers	$ 10,320,870	$ 786,847	$ 4,244,899	$ 6,466,287	$ 4,207,132	$ 6,252,298
Capital Outlay Fund Transfers	$ (8,649,610)	$ 8,649,610	$ (2,296,322)	$ 2,296,322	$ (2,011,952)	$ 2,011,952
Accrual to Cash Adjustment	$ 56,553	$ (148,800)	$ 15,873	$ (148,800)		
MTBE Contamination/Rate Stabilization Fund	$ -	$ (3,233,304)	$ -	$ (2,264,565)		$ (2,755,190)
Operating and Capital Outlay Reserves (3)	**$ 1,727,813**	**$ 6,054,353**	**$ 1,964,450**	**$ 6,349,244**	**$ 2,195,180**	**$ 5,509,060**
Reserves for MTBE Remediation		$ 3,233,304				
Rate Stabilization Reserve (4)				$ 2,264,565		$ 2,755,190
Total Reserve Balances	**$ 1,727,813**	**$ 9,287,657**	**$ 1,964,450**	**$ 8,613,809**	**$ 2,195,180**	**$ 8,264,250**

1. Enterprise revenue includes service charges, interest and misc. revenue. Capital fund revenue includes capacity charges, grants and capital improvement charges. Service chrage rates increase 2% in 2010/11 and 4% thereafter. Investsments earn 3%. Capacity fees based on projected commercial projects and 30 to 56 residential permits per year

2.)&M and depreciation increase @ 2% per year. Benefits increase at 5.5% per year beginning in 2011/12. Salaries incuse 3.5% escalator

3. Operating reserve is equal to two montsh of oeprating costs. Remaining reserves are for capital projects

4. Per District Policy, a water rate stabliszation reserve will be implemented when the MTBE Reserve drops below $2.0 million

The financial model illustrates that the District is planning for a 22% drop in regular revenues, reflecting the planned reduction in use to comply with SB x7-7. The financial model also illustrates that the District maintains between $ 4 and $ 5 million in operational reserves, MTBE reserves, and rate stabilization reserves as well as $8 to $9 million in capital reserves. The financial plan results in reserve balances sufficient to completely offset one year's planned revenue, if necessary, and illustrates that the District has a revenue management strategy in place that will allow to weather reduced revenues from both planned conservation activities and emergency interruptions.

5.4.6 **Water Shortage Contingency Ordinance (Water Code 10632(h))**

As noted above, the District has adopted Water Shortage and Drought Response Standards which are codified in Section 3.4 of the Administrative Code, and is included in the Appendix.

5.4.7 **Mechanisms for Determining Actual Reductions (Water Code 10632(i))**

The District's wells are all equipped with water meters. Commercial and new residential accounts are also equipped with meters. The District has begun an active program of installing meters on unmetered residential account and currently approximately one-third of the customer base is metered.

The District's Water Shortage and Drought Response Standards allow it collect the full cost of enforcing its standards from water users who violate the standards. The District also employs seasonal Water Efficiency Technicians to assist with enforcement of the standard.

SECTION 6.0 DEMAND MANAGEMENT MEASURES

The goal of the Demand Management Measure (DMM) section in a UWMP is to provide a comprehensive description of the water conservation programs that are currently implemented and those planned to be implemented. The section additionally provides general information on how the District plans to meet its urban water use target.

In March 2010, the District became a signatory to the Memorandum of Understanding (MOU) for Urban Water Conservation as overseen by the California Urban Water Conservation Council (CUWCC). The District took this action in order to meet the eligibility requirements for grants and loans administered by both the State Water Resources Control Board and the Department of Water Resources. Under current State grant and loan program rules, the District must remain in compliance with the MOU to remain eligible for California's grants and loans. At this time, CUWCC membership is not required for federal grant and loan eligibility. According the MOU, the District's base year is set at 2010 and pursuant to Exhibit 1, Section B of the MOU:

> "Implementation shall commence no later than July 1 of the first year following the latter of either: 1) the year the agency signed or became subject to the MOU, or 2) the year this Exhibit is amended."

As such July 1, 2011, is the date that the District needs to begin implementing DMMs and reporting to the CUWCC. Because of this, the District does not have reports to include in this 2010 UWMP.

Because there are no CUWCC reports to include, this section describes the DMMs according to the UWMP guidelines and cross references to the old and new CUWCC numbering scheme. It details the District's progress towards implementing each DMM and outlines the District's proposed schedule for future implementation, which will be key to meeting its water use targets. Additional detail on the conservation program is included in Appendix D.

6.1 BRIEF HISTORY OF THE DISTRICT'S WATER CONSERVATION PROGRAM

Prior to 1996, the District's water conservation efforts were largely driven by two factors. First, like many other water agencies, "water restrictions" were put in place during periods of drought. When the rain and snow finally came, the restrictions went away.

Second, and unique to the Lake Tahoe Basin wastewater agencies, were specific provisions of the Porter-Cologne Act that required all recycled water, regardless of the level of treatment, be exported from the Lake Tahoe Basin to protect the Lake's clarity. The District's export system is complex and requires the recycled water to be transported 26-miles into neighboring Alpine County. The costs associated with meeting these provisions of the law accounted for nearly 40% of the customer's sewer charges. Therefore, efficient indoor water use minimized the amount of wastewater that would be produced, treated, and exported and directly affected the District water conservation efforts.

During these years, water conservation was a group exercise and responsibilities were shared by the Public Information Officer, Customer Service Department, and the Water Operations Manager. Efforts included public outreach via quarterly newsletters, radio, television, and printed media, public school programs and contests, and the hiring of summertime "Water Educators." In addition the District was one of the founding members of the Lake Tahoe Community College's (LTCC) Demonstration Garden that provides hands-on examples of water efficient landscaping options that are appropriate for the Lake Tahoe Basin.

In late 1996, MTBE contaminated 12 District water supply wells with a loss of nearly 30% of the District's water production capability. Emergency water restrictions were put into place and the prospect of being unable to meet peak summertime demand became a very real possibility. The Board of Directors approved a significant increase in the public outreach budget, a new more restrictive ordinance was enacted, and the public responded very favorably by significantly decreasing water use for the next five years until the associated lawsuit was finally settled favorably. In the interim, operational changes were made, additional wells were constructed and placed into service, and the District slowly recaptured its lost capacity.

The lessons learned from the MTBE years demonstrated that water demand could be significantly reduced and, with that reduction, operational costs could be minimized. Since recycled water could not be used within the Basin, it made little sense, financially or environmentally, to produce some of the highest quality drinking water in the world and have it running down the gutters because of inefficient landscape irrigation. In 2004, the District formed a stakeholder's advisory group consisting of the District, customers, regulators, the school district, the City of South Lake Tahoe, and landscaping professionals (landscape contractors as well as landscape maintenance) to collaboratively craft a water conservation program that met the District's needs as well as the stakeholders needs. That process was complete and a new ordinance adopted in 2006.

The District's Water Conservation Program took a quantum leap forward in 2007 when the District secured a state water conservation grant that mandated hiring of a Water Conservation Specialist, a trained full-time staff person to direct and manage the water conservation program. The grant also provided significant funding for related water conservation programs that included rebates for water efficient washing machines, toilets, and other plumbing fixtures. The District introduced an innovative Turf Buy-Back program patterned after the Southern Nevada Water Authority's program that proved to be very successful. That program continues and currently the District is offering indoor and outdoor water audits for metered customers as well as an ongoing and expanded rebate program. Since 2007, both annual and peak summertime water production has decreased.

The District's current conservation program activities and opportunities are advertised on the District's website and can be viewed at www.stpud.us/water_conservation.html

The District's current metering program is dictated by AB 2572, which passed in 2004, and requires the District to meter all existing connections by 2025. The District has begun this process and a total of 4,800 residential customers and 527 non-residential customers, over one-third of the District's customer base, will begin paying volumetric rates (based on meter readings) in the year 2011.

6.2 DESCRIPTION OF DEMAND MANAGEMENT MEASURES AND ESTIMATED WATER SAVINGS

DMM A – Water survey programs for single-family and multi-family residential customers
(Old CUWCC BMP 1, New CUWCC BMP 3)

Past Residential Program Descriptions
The District received Proposition 40 grant funds to offer water efficient appliance rebate programs for homeowners to purchase water wise toilets, clothes washers, dish washers, fixtures, tank-less hot water heaters, and circulating pumps. Rebates were distributed for one hundred and eighty six low-flow toilets, two hundred and twenty four low-flow faucets, two hundred and two high efficiency clothes washers, fifteen circulating pumps, twenty three tank-less hot water heaters, and forty four water efficient dishwashers.

Water Wise House Call Program Description
The District offers single-family and multi-family residential customers water-use surveys called "Water-Wise House Calls". This program is funded by a California Proposition 50 supplemental grant. For 2011-2012 there will be a minimum of 200 Water-Wise House Calls given. The Water-Wise House Calls involve indoor and outdoor water use surveys. However, at the customer's request the survey can be done for either just indoor or just outdoor areas. At the house call, a Water Efficiency Specialist assesses water usage and provides the customer with customized water savings tips. Program participates are eligible for free water savings devices and rebates for up to $500 per household. The specialist will:

- Check meter reading and water pressure
- Check toilets and other plumbing fixtures for leaks
- Replace toilet flapper valves if needed
- Measure showerhead flow rates and install free low flow showerheads upon request
- Measure faucet flow rates and provide free faucet aerators for kitchen and bathrooms
- Evaluate the efficiency of the irrigation system and provide an appropriate irrigation schedule
- Assess irrigation sprinkler uniformity and water runoff characteristics
- Analyze irrigation and drainage systems and provide maintenance, repair or replacement recommendations
- Provide water conservation program materials, rebate applications and water-wise home and landscaping tips.

By participating in a Water-Wise House Call, customers become eligible for water saving rebates including:

- High Efficiency Toilet Rebate: $100 rebate for replacing a pre-1992 fixture with a Watersense labeled, 1.28 gallon per flush model
- Water Efficient Clothes Washers: $200 rebate for purchasing and installing high efficiency clothes washer with a water factor of 5.0 or less

- Hot Water Demand System: $100 rebate for installing an approved hot water demand system
- Irrigation Efficiency Rebate: Based on the recommendations of the Water Efficiency Specialist up to $400 for high efficiency equipment including 100% of eligible parts and 25% of the labor.

Steps to Implement Measure

Marketing Strategy:

The Water-Wise House Calls are being marketed to metered customers through bill inserts and letters and by District customer service staff.

Tracking of participation and results of participation;

The water-survey form is kept in a file and a copy is provided to the customer. The information from each water survey including APN, devices and rebates received, estimated water savings, and actual water savings will also be tracked in an excel spreadsheet to quantify overall water savings for the program. The results of the water use surveys will be tracked in the Springbrook database for each customer account.

Planned Implementation Schedule and Budget:

Implementation for this program begins in May of 2011. For 2011-2012 the budgeted amount is $90,000, with potential for targeting the top 10% of water users and offering surveys in the future. The planned surveys for 2011 and 2012 are based on grant funds. The planned interventions for 2013 to 2015 are based on the CUWCC annual coverage ratios of 1.5%.

DMM A Planned Interventions					
	2011	2012	2013	2014	2015
# of single family surveys	200	200	182	182	182
# of multifamily surveys	0	0	22	22	22
projected expenditures - $	90,000	90,000	93,000	93,000	93,000

Method for evaluation of effectiveness of DMM

One way to evaluate the effectiveness of residential surveys is to compare metered use data pre-audit and post-audit. By focusing on metered customers with the initial effort, the District has set up a system to facilitate evaluating the effectiveness of this program.

Estimated Water Savings

The water use for residential water surveys can be determined by watching the meter use before and after the survey is completed. Not all residential customers are currently metered so the program is focused on metered customers.

Turf Buy-Back Program Description

While the District recognizes that lawn areas help to provide defensible space, play areas for children and pets, and serve an integral role in a comprehensive landscaping plan, lawns are also the most water intensive landscaping option a property owner can choose. Non-functional lawns - ones that are rarely used - waste water and represent an ongoing cost in both time and resources for the home or business owner.

From an environmental standpoint, lawns tend to be over fertilized and over watered. With Tahoe's porous soils, this combination can serves to push some of the nutrients intended for the lawn past the root zones and into the watershed where they eventually make their way into Lake Tahoe. Once there, they provide nutrients for algae that have significantly affected the legendary clarity of the Lake. While lawns do serve a purpose in soil erosion control, many other combinations of trees, shrubs, and groundcovers can achieve the same soil erosion control benefits at a significantly lower water use demand.

The District ran a turf buy-back program in 2008 and 2009 that included site evaluations. The turf-buy-back program enabled 105 lawns to convert more than 123,075 square feet of landscaping to water efficient landscaping in the 2009 growing season. The program was extremely successful in educating the public on the importance of xeriscaping and providing financial incentives to encourage homeowners to invest the time and energy into a conversion. Each homeowner that had an accepted application received the following services.

- Pre-site inspection with a review using a site inspection data worksheet that also functions as an application for the turf buy-back program. The worksheet gathered irrigation data such as how many sprinklers are in a yard, how many days a week and for how long the homeowner is watering.

- A property owner information packet, which was delivered to the homeowner upon application. Packets included an informative contact sheet, a comprehensive backyard conservation brochure, a 'Home Landscaping Guide for Lake Tahoe and Vicinity', and a contact list for the buy-back program's Program Certified Landscapers.

- A final site inspection which included measuring, mapping, photographing and discussing re-vegetation and irrigation system.

In response to the success of the program and the ongoing challenges created by landscaping choices, the District applied for a grant to re-instate the program. Property owners within the District's service area can receive a rebate for removing on-site irrigated turf and replacing it with a more efficient landscape outlined by the District. By reducing the District's overall water demands, capital costs for drilling new wells and long-term operation/maintenance expenses for those wells is thereby avoided.

Marketing Strategy:

Future marketing for the Turf Buy Back Program will target more multi-family customers who have high water bills (top 10%) that are attributed to landscape irrigation. These customers will be contacted directly by the District's Water Conservation Specialist. Additionally, the Turf Buy Back Program will be advertised on local radio and television stations, through bill inserts, on the District's website and at community events as it has been in the past. The program will also be offered to eligible customers who receive a Water-Wise House Call and commercial customers who receive an irrigation audit.

Tracking and results of participation:

Results are tracked for each participant with a site plan drawing, before and after photos and information in an excel spreadsheet including name, address, APN, square feet of turf converted, rebate amount, vendor number, issue date and estimated water savings. Additionally, a post-audit is conducted to verify successful landscape conversion to issue a certificate of completion. Moving forward the post audit will include actual water savings calculations for metered customers.

Planned Implementation Schedule and Budget:

This program ended at the end of 2009 due to completion of the Proposition 50 grant. If funding is acquired the District will continue the Turf Buy Back program, the amount rebated will be $1.00 (instead of $2.00) per square foot of lawn converted. If the participant is eligible for the Turf Buy Back Program this can be incorporated with the irrigation efficiency rebate.

DMM B – Residential Plumbing Retrofit to pre-1992 single-family and multi-family residences
(Old CUWCC BMP 2, new BMP 3)

Description

The number of pre-1992 Single Family accounts is 10,320 and Multiple Family accounts is 996. Distribution of water-saving devices was started in the year 2000. A total of 4,800 Outdoor Water Savings Kits and 1,500 Low Flow shower heads were distributed prior to the year 2009. The total number of outdoor conservation kits provided for the year 2009 and 2010 was 1,000 (500 each year). For the indoor kits, the amount has increased from 200 to 400 kits per year. These 400 indoor kits will be distributed in 2011 and 2012.

Steps to Implement Measure

Marketing Strategy

The outdoor and indoor conservation kits are being given away during the Water-Wise House Calls. This program is being marketed to metered customers through bill inserts and letters and by the District's customer service staff. The indoor water conservation kits are also given to any unmetered customer who requests one, but this is not an actively marketed program because the results are hard to track. Kits will also be given out at community events such as The Landscape Conservation Tour, Earth Day, Autumn Fest and Fire Fest. Additionally, in 2010 the outdoor kits were given out at a Sierra Nevada Alliance "Garden Party" and a "Green Thumb Thursday" Master Gardeners workshop presented at Lake Tahoe Community College.

Tracking of participation and results of participation

The number and type of kits given away are tracked in an excel spreadsheet for each community event. Result are hard to quantify because it is unknown if the kits are being utilized. The number of kits given away at Water-Wise House Calls will be tracked in the Springbrook database for each customer account. Because the Water Conservation Specialist can verify the use of some of the devices in the kits such as aerators, showerheads and toilet flappers projected water savings will be estimated and then verified later during the post audit. The information from each water survey including APN, devices and rebates received, and estimated water savings and actual water savings will also be tracked in an excel spreadsheet to quantify overall water savings for the program.

Planned Implementation Schedule and Budget

This program has already been implemented and will continue with approximately 400-500 kits per year being distributed either through indoor water audits or at annual community events. The annual budget is $3,500 for kits. The District currently has a Proposition 50 grant and plans to order 200 indoor water conservation kits including free showerheads, aerators, toilet flappers, dye tablets and tips/instruction sheet

The CUWCC coverage rates are set at 7.5% of accounts per year. Once a saturation level of 75% for residences this BMP is considered complete. Based on the District's past activities, it is assumed that multifamily accounts have reached saturation levels.

DMM B Planned Interventions					
	2011	2012	2013	2014	2015
# of single family devices	500	500	500	500	500
# of multi-family devices	0	0	0	0	0
projected expenditures - $	$3,500	$3,500	$3,500	$3,500	$3,500

Method for evaluation of effectiveness of DMM

The number of kits purchased and distributed will be tracked.

Estimated Water Savings

It is difficult to know the exact number of kits installed, but estimates can be made on number installed and how much approximate water savings can be achieved based on change of the showerhead and faucet flow rates.

DMM C – System Water Audits, Leak Detection and Repair
(Old CUWCC BMP 3, New CUWCC BMP 1)

Description

The District has an active surface leak detection and repair program. The program was initially started within the Underground Repair Water crew in 2003 using two field employees trained on special audio leak detection equipment. The program was initially started to locate leaks within paved areas and minimize asphalt removal and open cut excavation sites.

The District has also used a contract leak detection company. That company surveyed 14 miles of water main in the years 2001, 02, and 03 as outlined below:

- 2001 – 5 miles water main
- 2002 – 4.5 miles water main
- 2003 – 4.5 miles water main

The District currently has a leak detection company (Utility Services Associates) under contract for services through 2011. They have provided contract services for 2009, 2010, and 2011. They survey predetermined problem areas within the District service area. To date the service has completed the following:

- 2009 - 18 miles water main
- 2010 - 20 miles water main
- 2011 – 25 miles water main projected

The District has budgeted through 2012 to continue with the contract detection services. The service has averaged 4-8 main line leaks during each inspection period. Most leaks are detected on dry barrel fire hydrants. Pre-screening system audits are completed each year.

Determining and verifying "Other Uses" within the system is a top priority for the District. Because historical was found to be data inconsistent, improvements to record keeping are being made for the future. This measure will be greatly improved after the installation of the residential meters for the entire service area.

For this plan, it is assumed that water loss is currently at and will remain approximately 10%. This value will be revised in the future when better data is available.

Steps to Implement Measure

Marketing Strategy

Not applicable, this is a measure to be done internally at the District.

Tracking of participation and results of participation

Not applicable, this is a measure to be done internally at the District. Data will be kept on miles of pipeline surveyed and repaired.

Planned Implementation Schedule and Budget

The District plans to continue this program and has contracted for its continuance through 2012.

The CUWCC now requires a methodology from the American Water Works Association for tracking water loss. As a new member of the CUWCC, the District will need to start in 2011 with testing "production" meters on all wells and surface water sources to ensure that the system input volume is accurate. The AWWA approach is a new accounting system for water meters that the District will have to review and consider in their future operations and data collection efforts.

DMM C – Planned Implementation					
	2011	2012	2013	2014	2015
% of water losses	10%	10%	10%	10%	10%
miles of distribution lines to be surveyed	25	25	25	25	25
miles of lines to be repaired	TBD	TBD	TBD	TBD	TBD
projected expenditures - $	TBD	TBD	TBD	TBD	TBD

Method for evaluation of effectiveness of DMM

The number of miles of pipeline surveyed and then repaired will be tracked, along with annual dollar expenditures.

Estimated Water Savings

The water savings from this measure is 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.

DMM D – Metering with commodity rates for all new connections and retrofit of existing connections (Old CUWCC BMP 4, New CUWCC BMP 1)

Description

All 527 commercial customers in the District's service area are metered. The District has required the installation of meters on all new construction, both residential and non residential, since 1993. Approximately 1,800 new houses have been built since 1993. An additional 3,000 residential meters (on homes built before 1993) were installed during the summer of 2010. Starting in the year 2011, all of the 4,818 residential customers, together with the commercial customers, will be billed volumetrically.

In 2011, the District's service area has total of 5,345 meters, on residential and non-residential accounts. This is more than one-third of the historically unmetered service area. The remaining residential water meter retrofits are scheduled to be installed by the year 2018 depending on available funding. The total number of existing account meters to be installed by the year 2018 is approximately 9,500. The District installs meters with its mainline replacement program and expects that this program will result in the installation of approximately 150 meters annually.

In order to meet is 2020 water use target, the District will need to complete its metering program. The District is applying for State and Federal grants to offset the large expense of water meter retrofit/installation. The District has recently completed a substantial meter retrofit project and includes meter retrofits on all of its mainline replacements. The District is targeting 2014 to implement the next phase of its meter retrofit program. These projects will be ongoing through 2025.

Steps to Implement Measure

Marketing Strategy

The District's current policies require metering on all new commercial and residential development. The District's policy for main replacement also results in meter retrofits along with main replacement. The District has aggressively sought grant funding to allow it to implement a metering retrofit program. Information about the metering program is currently on the District's website. Before the installations occur, the District will make efforts to try to inform their customers of the new meter installations.

Tracking of participation and results of participation

The number of meters installed per year and the expenditures will be recorded.

Planned Implementation Schedule and Budget

DMM D – Planned Interventions					
	2011	2012	2013	2014	2015
# of unmetered accounts	9,594	9,594	9,492	7,472	5,432
# of new and retrofit meters to be installed	0	102	102	2,020	2,020
projected expenditures - $		$170,000	$170,000	$3,400,000	$3,400,000

Method for evaluation of effectiveness of DMM

The District has a volumetric pricing rate structure, recently updated in April 2011. This type of pricing analysis has not been performed by the District in the past given residential connections were not metered, but will be considered in the future as part of the 2015 UWMP report preparation process.

Estimated Water Savings

It is assumed that an average of 20 percent water reduction will occur after a customer who previously did not have a meter becomes metered and pays water bills based on volumetric rates.

DMM E – Large Landscape Conservation Programs and Incentives
(Old and New CUWCC BMP 5)

Description

For Commercial Customers with large irrigated areas, a free irrigation audit is available as component of a CII Water- Use Survey. The Water Conservation Specialist in partnership with Tahoe Resource Conservation District will visit the site and make recommendations on adjustments for upgrades to irrigation equipment, sprinkler uniformity and plant selection.

The irrigation audit consists of:

- Site inspection and system tune-up
- System test for distribution uniformity
- Calculating a base watering schedule based on:
    - inches of water the plant needs
    - minutes of run time
    - frequency of application that matches the soil's characteristics

Benefits of an irrigation audit:

- Reduced water use and lower water bills
- Improved landscape appearance
- Reduced runoff
- Reduced water lost below the root zone
- Reduced fertilizer and chemical requirements

Based on the findings from the irrigation audit an irrigation schedule is developed and provided to the customer. The customer is eligible to receive an irrigation efficiency rebate for 50% up to $500 of the cost for irrigation equipment and installation.

Steps to Implement Measure

Marketing Strategy

The District will continue to offer this program to their customers via the website and targeted marketing efforts to the large irrigation customers.

Tracking of participation and results of participation

For each property a file is kept at the District and copies provided to the customer of the following: site inspection worksheet, precipitation rate test worksheet, base schedule, site maps, irrigation plans and water use records. A post audit is performed to quantify water savings and to verify the implementation of the irrigation schedule.

Planned Implementation Schedule and Budget

The District's program is based on CUWCC Rates for the year 2012 to 2015. The District plans to continue measuring available large landscape sites and include these sites in the program. The District plans to complete the water use comparison module on water bills for large landscape water customers.

DMM E – Planned Interventions					
	2011	2012	2013	2014	2015
# of budgets to be developed	0	120	120	120	120
# of surveys to be completed	0	20	20	20	20
# of follow-up visits	0	20	20	20	20
projected expenditures - $	0	$90,000	$90,000	$90,000	$90,000

Method for evaluation of effectiveness of DMM

One way to evaluate the effectiveness of large landscape audits and incentives is to compare metering data of a pre-audit versus a non-pre audit. The District has established recording and tracking procedures that will facilitate this.

Estimated Water Savings

Projected water savings could be estimated by subtracting post-survey water use from pre- survey actual water usage, but this calculation would not take into account changes in weather patterns which may affect overall water usage, and therefore was not made.

DMM F – High-Efficiency Washing Machine Rebate Programs
(Old CUWCC BMP 6, New CUWCC BMP 3)

Description

The District offers a $200 rebate for purchase of a water efficient clothes washer. To date a total of 311 rebates have been issued with funds provided by California's Propositions 40 and 50. In the past the clothes washer eligibility required a water factor of 8.5 or less. The water factor is based on the number of gallons of water used per cycle/ per cubic feet of laundry. The lower the water factor, the more efficient the washer is. For the current program, which began on January 15, 2010, the eligibility requirement for clothes washers was reduced to water factor of 5.0 or less. The average water factor for all 311 clothes washers purchased with the rebate is 4.11.

Steps to Implement Measure

Marketing Strategy

The program will continue to be advertised on local radio and television stations, through bill inserts, on the District website and at community events. Local appliance dealers promote the program. The current High Efficiency Washer Website can be found at the following link:
http://www.stpud.us/water_conservation_washing-machine.html

Tracking of participation and results of participation

The rebates are tracked by APN, model number, customer name and water factor in an excel spreadsheet. Copies of the customer application are kept on file at the District. Results of participation are calculated based on the average of water savings statistics provided by the CUWCC. Based on these statistics the total estimated annual water savings for the program is 2,542,736 gallons per year.

Planned Implementation Schedule and Budget

The District plans to apply for more grant funding for high-efficiency washing machine rebate program. A minimum of 109 rebates is budgeted for each year based on CUWCC target rates. The District also plans to explore a commercial clothes washer program, which would target the District's laundromat customers. The total Proposition 50 grant funds were $89,111, with a current value of $22,911. The remaining total Proposition 40 grant funds are $70, 096.

DMM F- Planned Implementation					
	2011	2012	2013	2014	2015
$ per rebate*	$0	$75	$75	$75	$75
# of rebates to be paid*	50	109	109	109	109
projected expenditures* - $	$0	$10,645	$10,645	$10,645	$10,645

*The dollars and incentive values includes incentives for laundry retrofits, car wash recycling systems

Method for evaluation of effectiveness of DMM

The number of rebates and annual expenditures will be tracked.

Estimated Water Savings

The water savings was not estimated as the data on the new machine and its projected use and the type of machine replaced was not available. An assumption must be made as to the output of the replaced models. An evaluation of water use before and after rebate could possibly provide an estimate. Another way to evaluate water savings is to compare water use ratings of the new HEW's with the ratings of the replaced washers.

Another less accurate method to evaluate the effectiveness of a rebate program is to compare the water usage of an account that did not receive a rebate, versus an account that did get a rebate. In order to track indoor water use, it would be recommended to use the winter months when there is little or no landscape irrigation, thus it would be easier to analyze indoor water use savings.

Results of participation can also be calculated based on the average of water savings statistics provided by the CUWCC.

DMM G – Public Information
(Old CUWCC BMP 7, New CUWCC BMP 2)

Description

The District distributes public information regarding water conservation in various ways including: mailings, special educational events, reminders in bills, water conservation pamphlet distribution by direct mail and at counters and water conservation booths and on its website. The District currently promotes all WaterSense labeled products to all customer sectors as appropriate. The District has been an official member of the ACWA program and has links to the public outreach information for the "Save Our Water" campaign.

For example the following is a summary of activities documented for 2008:

Workshops:

- Backyard Conservation Program Partner Training: May 22nd/ 40 attended
- Conservation Landscape Tour: August 25th/ 55 attended
- North Upper Truckee Conservation Block Party: June 7/ 30 attended
- Montgomery Estates Conservation Block Party: June 28/ 25 attended
- Angora Highlands Conservation Block Party: July 26/ 30 attended
- South Lake Tahoe Conservation Block Party: September 27/ 15 attended
- 3 Conservation Tailgates: May 29, June 11, June 26
- Conservation Joint Training for Agencies: May 22
- Invasive Weeds Training: May 28

Community Events:

- Lake Tahoe Community College Demonstration Garden's Autumn Festival: Sept 21/ 500 attended
- Fire Festival
- South Shore Earth Day: April 19/ 200 visited booth
- Chamber of Commerce Green Business Expo: March 21

Outreach Material

- Created Turf Buy Back Program: application, program description, Frequently Asked Questions and posted on website
- Created comprehensive brochure with partner agencies (Tahoe Resource Conservation District and Nevada Fire Safe Council)
- Created Water Upon Request Program: application, plaques, menu stickers, pay check stuffers
- Created Water the Right Day…and the Right Way: brochures

Media:

- Ran monthly ads in Mountain News, Tahoe Daily Tribune, KRLT/KOWL, RSN

- Submitted press releases to announce community events and workshops: Conservation Block Parties, Conservation Landscape Tour, Fire Fest, Autumn Fest, Earth Day
- Submitted article addressing Conservation Landscaping as part of the Fire PIT article series for the Tribune

Steps to Implement Measure

Marketing Strategy

Continue to market the conservation programs through television, radio and newspaper ads and passing out informational brochures at community events.

Tracking of participation and results of participation

Results of the public information program are tracked by number of participants or visitors to booths at community events. The overall success of the conservation program is attributed in part to the marketing efforts.

Planned Implementation Schedule and Budget

Public Information Budget includes advertising is approximately $25,000 per year. Implementation schedule is to continue every year.

Method for evaluation of effectiveness of DMM and Estimated Water Savings

There is no current method in the industry to evaluate this program. The popularity of public programs can be measured through the acceptance of brochures, and attendance at various water conservation related events.

DMM H – School Education
(Old CUWCC BMP 8, New CUWCC BMP 2)

Description

Currently, the District participates in Wonders of Water Week, a water education program for South Lake Tahoe students K-5 and is a member of the South Tahoe Environmental Education Coalition (STEEC). The District will continue over the next five years to participate in Wonder of Waters Week and STEEC. The Water Conservation Specialist is certified by Project Wet for professional development in water education.

The Wonders of Water (WOW) education program, based on Project WET curriculum, consists of an in-class education program coordinated by STEEC. The goal of the WOW Program is to provide hands-on, interdisciplinary activities to educate children on the importance of water. The program focuses on meeting state content standards, while providing an interactive learning experience. Students will be able to meet professionals working in the water field and begin exploring the broad range of conservation work in the Tahoe Basin. This program is modeled after the Trees are Terrific Program that was offered to South Tahoe schools in April 2009.

The classroom presentations give K-5 students information on watershed health, water conservation, fish life cycles, food webs, water cycles, and water quality. Classroom programs are grade-level specific to meet state content standards utilizing hands-on, interdisciplinary activities. Some program examples are: Project WET (Water Education for Teachers) and SRYCL (South Yuba River Citizens League). Educators from South Tahoe Environmental Education Coalition (a partnership of South Lake Tahoe environmental agencies) are

invited to assist with the program. All agency staff participating in this program are certified Project WET Educators.

Specific in-class visits (30 - 45 minutes long, depending on teacher scheduling needs and grade level) are led by trained Environmental Educators from the inter-agency partnership/South Tahoe Environmental Education Coalition (USFS, STPUD, Tahoe RCD, Cal Trout, Lahontan and others). The program is available to all interested K-5 classes in South Lake Tahoe.

Estimates of # of students reached during WOW week-October 12- October, 28th, 2010

Participating Schools	**Total Classes**
Bijou Elementary	23
Tahoe Valley	17
Sierra House Elementary	18
Meyers Magnet School	16
South Tahoe Middle School	10
Total Students Reached: 1,680 (assumes 20/class average)	
Total Volunteers: 22	

Steps to Implement Measure

Marketing Strategy

Continue participation in the STEEC to build a strong relationship with the South Tahoe Unified School District. The goal is to expand Wonders of Water Week to more middle school and high school classrooms.

Tracking of participation and results of participation

Results are compiled by the lead organizer of Wonders of Water Week and that information is provided to the District such as, total number of participating schools, classrooms and children reached. Each teacher is given an evaluation form for each presentation given. Participating agency representatives meet for a post WOW week gathering to analyze the feedback and look for ways to improve the activities and the program overall.

Planned Implementation Schedule and Budget

The District plans to continue with school workshops and kid's camps along with distribution of school-age educational materials. Budget total for this activity alone is approximately $8,500 per year.

Method for evaluation of effectiveness of DMM

The District currently provides a school education program, but it is not known what occurs once the students take the information home. Thus, it is difficult to evaluate the effectiveness of this program.

Estimated Water Savings

Considering the difficulty of placing a numerical value for water savings, an intangible method of effectiveness can be determined by the amount of voluntary classroom and school participation with

available K-12 water conservation programs. The number of students, educators, and schools involved are tracked to evaluate the success of programs.

DMM I – Commercial, Industrial and Institutional (CII) Conservation Programs

(Old CUWCC BMP 9, New CUWCC BMP 4)

South Lake Tahoe is a prime tourist destination. As a result, the District has focused their efforts for CII customers on educational efforts targeting this visiting population. The program currently consists of a commercial water user review program and two outreach programs for hotel/motels and restaurants.

Commercial Water User Review Program Description

The District will provide, upon request, a free water use survey, called a "Commercial Water-Use Review." This program will launch in May of 2011 and is funded by the Proposition 50 supplemental grant. The Water Conservation Specialist will visit the facility and provide Facility Review Report with customized water savings recommendations. Rebates are available for a wide range of commercial applications.

Available Rebates:

- High Efficiency Toilet: $150 rebate for replacing your older (pre-1992) with a new 1.28 gallon per flush, Watersense labeled model.
- High Efficiency Clothes Washer: 50% rebate up to $400 for purchasing and installing a CEE Tier– 3 commercial clothes washer.
- Water Broom: 50% rebate up to $250 for installing an approved water broom. To qualify the water broom must use less than or equal to 0.10 gallons per minute.
- Ice Making Machine: 50% rebate up to $200 for purchasing a CEE Tier-3 Ice making machine.
- Car Wash Recycling System: 50% rebate up to $1000 for an approved car wash recycling system.
- Ozone Laundry System: 50% rebate up to $400 per unit for an approved system.
- Cooling Tower Rebate: 50% rebate up to $500 per unit for an approved conductivity meter.
- Irrigation Efficiency Rebate: Based on the recommendations of the Water Efficiency Specialist, up to $500 for high efficiency equipment, covering 100% of eligible parts and 25% of labor.

Hotel/Motels Water Conservation Program Description

This program was launched on August 12, 2008, at a South Lake Tahoe Lodging Association meeting. As of the end of January 2011, there are currently 34 participating hotels with water savings education materials distributed in 1,819 hotel units. A list of participating hotels is below.

Matterhorn Hotel	A & A Lake Tahoe Inn	Best Western Timber Cove Lodge
El Nido Hotel	Highland Inn	Super 8
Skylake Lodge	Paradise Motel	3 Peaks Resort
Tahoe Valley Lodge	Tahoe Chalet Inn	Camp Richardson Resort
South Lake Tahoe Lodge	Travel Inn	Travelers Inn
Washoe Motel	Mark Twain Lodge	Quality Inn & Suites
Pine Cone Acre Inn	Quality Inn & Suites	Alpine Inn and Spa
High Country Lodge	Aston Lakeland Village	Best Western Station House
Apex Inn	Best Tahoe West Inn	Green Lantern Motel
Lazy S Lodge	Best Choice Inn	Lone Pine Lodge
Budget Inn	Alpenrose Inn	Cedar Inn
		Park Tahoe Inn

Restaurant "Water upon Request" Program Description

Updated materials for local restaurants were distributed including, 1,345 menu stickers, 406 table tents, 100 paycheck stuffers, and 8 participant plaques. Twenty-three restaurants in South Lake Tahoe are currently participating in the program. Many potential restaurants have been contacted to join the program. A list of participating restaurants is below

Swiss Chalet	SATO Japanese Restaurant	QQ Express
Denny's	Freshies Restaurant and Bar	Riva Grill
Heidi's Pancake House	Ernie's Coffee Shop	Grand Central Pizza
Margaritas Mexican Café	Lake Tahoe Pizza Company	IHOP
Echo Restaurant/Lounge	Murphy's Irish Pub	Red Hut
Meyer's Downtown Café	Burger Lounge	Bear Beach Café
Brother's Bar and Grill	Classic Cue	Mayan Mexican Café
Hunan Garden	Bob Dog Pizza	

Other Potential CII Programs

These hotel/motel and restaurants could also use upgrades of pre-rinse spray valves. It is assumed that more efficient pre-rinse spray valves are naturally being upgraded by these customers since the 2006 adoption of more efficient regulations per the California Code of Regulations for Title 20 Appliance Efficiency Standards. The retrofits are considered to be largely saturated given the 5-year useful life is ending from 2006 through 2011, and thus the District is not actively pursuing pre-rinse spray valve retrofits at this time.

It is also assumed the CII toilets and urinals have been upgraded to the national plumbing code standards since they went into effect more than 17 years ago in 1994. The District does currently promote all WaterSense labeled products including toilets.

Industrial Program Description

There are no industrial accounts in the District's service area, so the District does not have program targeted at industrial users.

Steps to Implement Measure

Marketing Strategy

This program will be marketed to commercial customers with bill inserts and direct mail and on the website. The current participants in the other CII programs will be contacted by the Water Conservation Specialist to introduce the program. In May 2011, a presentation is being given to The South Tahoe Lodging Association to gain participation by the local hotels and motels. Also, the South Lake Tahoe Chamber of Commerce will be given information about the program to share with their members.

Tracking of participation and results of participation

The number of surveys and annual data will be tracked and recorded.

Planned Implementation Schedule and Budget

The District plans to start implementation of the program in May 2011 with an annual budget of $34,500 in 2011 and 2012 based on a Proposition 50 grant funds. The values for 2013 to 2015 are based on a CUWCC Coverage annual rate of 1.5%.

Table I1 – Planned Interventions					
	2011	2012	2013	2014	2015
# of on-site surveys to be completed	0	0	18	18	18
Table I2 – Planned Interventions					
	2011	2012	2013	2014	2015
# of commercial replacements	50	50	50	50	50
# of industrial replacements					
# of institutional replacements					
projected expenditures - $	$34,584	$34,584	$110,000	$110,000	$110,000

Method for evaluation of effectiveness of DMM

It is difficult to project water savings since it's not feasible to audit behaviors of employees and patrons of hotel/motels and restaurants. In addition, the water use rating of the specific device being replaced (i.e.: type of spray rinse valve) is not documented.

Estimated Water Savings

The District does not currently track water savings from their CII water efficiency program. If a facility was tracked via meter data it would still be difficult to estimate savings due to the many variables that effect commercial water use including the economy, or change in production. For example, if a restaurant used less water, it might not be due to the District's CII program but could be a result of a decrease in the economy (i.e. less customers visit the restaurant). As a result, the District does not have the data or resources at the current time to fully evaluate projected water savings or expenditures.

DMM J – Wholesale Agency Assistance
(CUWCC BMP 10)

This DMM does not apply to the District because it is not a wholesaler.

DMM K – Conservation Pricing
(Old CUWCC BMP 11, New CUWCC BMP 1)

Description

As required by AB 2572, the District is converting existing residential connections to meters. Within 12 months of converting, these accounts will be billed on volumetric rates. The current water rate structure is uniform volumetric charge for all residential customers with no minimum usage included in the bi-monthly service charge. The District is in the process of adopting a rate schedule that incorporates conservation pricing principles.

Steps to Implement Measure

Marketing Strategy

The new rates will be discussed at Board meetings and placed on the District website.

Tracking of participation and results of participation

Not applicable, all customers with meters will be charged the new volumetric rates.

Planned Implementation Schedule and Budget

Rate schedule will go into effect in 2011.

Method for evaluation of effectiveness of DMM

Not applicable. Rates can be studied to see if they change customer water use patterns.

Estimated Water Savings

No method has been identified to determine water savings from conservation pricing at this time.

DMM L – Conservation Coordinator
(Old CUWCC BMP 12, New CUWCC BMP 1)

Description

The District has had a Water Conservation Coordinator since the year 2000. The current Coordinator is:

Sarah Jones
South Tahoe Public Utilities District
1275 Meadow Crest Drive
South Lake Tahoe, CA 96150
Phone (530) 544-6474
Fax (530) 541-0614
E-mail sjones@stpud.dst.ca.us

The Coordinator has attended numerous outreach activities locally and distributed outreach materials to include brochures, outdoor water conservation kits, and has served on several advisory and planning committees.

Current Activities	Method of Implementation
Communicate programs to District customers	Advertising for the entire water conservation program has been an ongoing task item for the water conservation coordinator. Media publications have been tracked on an on-going basis, and the water conservation specialist also does radio and local television spots to further the message on water conservation. In addition, the coordinator is responsible for one-on-one communications with customers and staffing public outreach events.
Stay informed of regulatory issues, CUWCC information, reports, and activities. Advise the District. Manage and coordinate Compliance.	
Represent the District on the local and regional water efficiency committees	
Manage and administer programs	
Track results and activities of programs	

DMM M – Water Waste Prohibition
(Old CUWCC BMP 13, New CUWCC BMP 1)

Description

The District has complied with this Demand Management Measure by the adoption of Ordinance No. 487-04 that most recently was updated effective April 1, 2004. The ordinance is summarized in Section 5, included in the appendix and can be viewed at www.stpud.us/water_conservation_ordinance.pdf

Historically, two temporary seasonal employees have been hired under the supervision of the Water Conservation Specialist to enforce the water waste ordinance. In 2010, 361 water conservation violations were issued. The enforcement has been and is currently proactive. Customer complaints are also investigated. Water Waste is part of the Public Outreach Program, the slogan is "Water the Right Day and the Right Way."

Steps to Implement Measure

Marketing Strategy

The District sends out bill inserts and reminders for customers of the water waste ordinances and water conservation. The District advertises the "Water the Right Day and the Right Way" and "There is never enough water to waste in the Sierra" on the radio, television and newspaper ads and on the District's website.

Tracking of participation and results of participation

Exemptions and violations given are tracked in an excel spreadsheet and in the Springbrook database. Additionally, any letters or correspondence are scanned and saved in Laserfiche and attached to the customer account in Springbrook.

Water use has drastically decreased on Saturdays, which is the only day of the week when irrigation is prohibited.

Planned Implementation Schedule and Budget

Enforcement is ongoing and will continue through 2015. The annual budget is $24,000.

For 2011-2012 one temporary seasonal position will be hired, a "Water Efficiency Technician." The job requirement will involve issuing citations but their time will not be fully dedicated to enforcement.

Estimated Water Savings

The District does not have estimated water savings for the violations given, however water use has gone down on Saturdays during irrigation season since watering that day has been prohibited.

DMM N – Residential ULFT Replacement Program

(CUWCC BMP 14)

Description

The number of pre-1992 Single Family accounts is 10,320 and Multiple Family accounts is 966. The District had a Proposition 40 grant to offer the water efficient appliance rebate program offered financial incentives for homeowners to purchase water wise toilets, clothes washers, dish washers, fixtures, tank-less hot water heaters, and circulating pumps. From the Proposition 40 grant rebates were distributed for one hundred

and eighty six low-flow toilets. Currently the District offers a $100 rebate for replacing an older pre-1992 model toilet with a High Efficiency toilet (1.28 gallons per flush).

Steps to Implement Measure

Marketing Strategy

The HET toilet rebate is not marketed separately but as a part of a Water Wise House Call.

Tracking of participation and results of participation

Applications and accompanying paperwork are kept on file at the district and tracked in an excel spreadsheet. Estimated water savings can be calculated based on the flush volume of the toilet replaced. Replacement is verified by the customer who has to submit a photo of the newly installed HET toilet.

Planned Implementation Schedule and Budget

This DMM is planned for implementation in the next 5 years. The target goals for this measure are provided in the table below. The HET toilet rebate program currently receives Proposition 50 Grant Funds.

DMM N – Planned Implementation					
	2011	2012	2013	2014	2015
$ per rebate	100	100	100	100	100
# of rebates to be paid	150	150	150	150	150
projected expenditures - $	15,000	15,000	15,000	15,000	15,000

Method for evaluation of effectiveness of DMM

The number of rebates will be tracked and recorded.

Estimated Water Savings

The water savings can be estimated based on the number of toilets replaced.

6.3 SCHEDULE AND BUDGET FOR DMM IMPLEMENTATION

The District's schedule and budget for implementing each DMM through 2015 was outlined in Section 6.2 above. Its budget detail for Fiscal Year 2011-12 follows.

ACTUAL CURRENT YEAR BUDGET AND STAFF TIME SUMMARY

PROPOSED FY 2011 and 2012 CONSERVATION PROGRAM BUDGET SUMMARY						
CATEGORY			**DESCRIPTION**	**PROP 50 FUNDS**	**MATCH**	**TOTAL BUDGET**
Personnel (Includes Fringe Benefits)	**Hours**	**Hourly Rate**				
Water Conservation Specialist	4160	$45.17	1 WC Specialist FTE for 2 years	$187,907.20	$0.00	$187,907.20
Water Efficiency Technician	1280	$21.85	1 WE Tech FTE for 16 weeks/yr. for 2 years	$0.00	$27,968.00	$27,968.00
Grant Coordinator	82.15	$57.24	10 hours per quarter for 2 years	$2,625.00	$2,077.00	$4,702.00
Grant Program Assistant	40	$43.57	5 hours per quarter for 2 years	$0.00	$1,742.00	$1,742.00
Residential Water Audits	**No of Audits**	**Median Cost per Audit**				
Water Audit	200	$450.00	Inspection/replacement of damaged fixtures and homeowner water savings kits	$90,000.00	$0.00	$90,000.00
Water Savings Information Packets	200	$10.00	Informational handouts and brochures	$2,000.00	$0.00	$2,000.00
Commercial Water Savings Program	**No of Incentives**	**Median Cost per Incent.**				
Water Savings Incentives	50	$692.00	Incentives for laundry retrofits, car wash recycling systems, etc.	$34,584.30	$0.00	$34,584.30
Comm. Water Savings Info. Packets	50	$15.00	Informational handouts and brochures	$750.00	$0.00	$750.00
TOTAL				**$317,866.50**	**$31,787.00**	**$349,653.50**

Appendices

Appendix A Public Notices

General Manager
Richard H. Solbrig

Directors
Chris Cefalu
James R. Jones
Mary Lou Moebacher
Dale Rise
Eric Schafer

South Tahoe Public Utility District

1275 Meadow Crest Drive • South Lake Tahoe • CA 96150-7401
Phone 530 544-6474 • Fax 530 541-0614 • www.stpud.us

April 15, 2011

To: Interested Parties

Re: Notice of Review and Update to the 2005 Urban Water Management Plan

The South Tahoe Public Utilities District is currently reviewing and updating the District's Urban Water Management Plan (UWMP), as required by law. The 2010 UWMP is due to the California Department of Water Resources by July 1, 2011. The UWMP will provide an analysis of projected water demand and supply over the next 25 years as well as an updated water conservation plan.

If you are interested in providing input during the preparation of the UWMP, please contact me at (530) 543-6251 or rcurtis@stpud.dst.ca.us.

Sincerely,

Randy Curtis
Chief Water Treatment Operator
South Tahoe PUD

Distribution:

City of South Tahoe, Attention: City Manager
County of El Dorado, Attention: Board of Supervisors
Tahoe Regional Planning Agency, Attention: Joanne Marchetta
United States Forest Service, Attention: Nancy Gibson
Lukins Brothers Water System, Attention: Dan Lukins
Tahoe Keys Water System, Attention: General Manager
Edgewood Water Company, Attention: General Manager
Lakeside Park Mutual Water Company, Attention: General Manager

Hearing Notice

Search Hits: 1 of 1

Publication: **Tahoe Daily Tribune**
Publication Date: **April 29, 2011**
Agency:
Advertiser (#): **South Tahoe Public Utility Dis - 1047070 (1047070)**
Description: **Hearing Notice**
Insertion Number:
Ad Number: **6448492**
Color, Ad Size: **3 Colors, 3 columns x 7 Inches**
Sales Rep: **7TD04**
Edition:
Zone:
Section, Page: **A (A), 5**

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A4 A5 A6

Friday, April 29, 2011 Local News Tahoe Daily Tribune • 5

TRPA approves Boulder Bay after rigorous and lengthy application process

BY MATTHEW HENDA

What's next?

BOULDER BAY CONTINUED on 6

South Tahoe Public Utility District

Urban Water Mgt. Plan Public Meetings

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Appendix B Plan Adoption Materials

Minute Order
of the
South Tahoe Public Utility District Board of Directors
Approving 2010 Urban Water Management Plan and Certain Water Use Targets

The District has made its 2010 Urban Water Management Plan available since May 2010 on its website and at its offices. The District has held two publicly-noticed hearing on the 2010 Urban Water Management Plan and has reviewed its water use baseline, its 2015 and 2020 water use targets and the economic impacts of meeting the targets. The District has received no public comment.

By motion of Director Cefalu and second by Director Schafer, the District:

- Approved Method 3 and selected 198 gallons per capita per day as its 2015 water use target and 164 gallons per capita per day as its 2020 water use target, with the understanding that these will be reviewed in the 2015 Urban Water Management Plan;
- approved the 2010 Urban Water Management Plan; and
- directed staff to file the 2010 Urban Water Management Plan in accordance with Urban Water Management Planning Act.

Ayes: Rise, Cefalu, Jones, Schafer

Noes: None

Absent: Mosbacher

Date Adopted: June 16, 2011

Attest: Kathy Sharp
Kathy Sharp, Clerk of the Board
South Tahoe Public Utility District

SOUTH TAHOE PUBLIC UTILITY DISTRICT

Richard Solbrig, General Manager — Paul Sciuto, Assistant General Manager

Dale Rise, President — **BOARD MEMBERS** — Mary Lou Mosbacher, Vice President

Chris Cefalu, Director — James R. Jones, Director — Eric W. Schafer, Director

REGULAR MEETING OF THE BOARD OF DIRECTORS
SOUTH TAHOE PUBLIC UTILITY DISTRICT
JUNE 16, 2011

MINUTES

ROLL CALL

BOARD OF DIRECTORS:
President Rise, Directors Cefalu, Jones, Schafer.
Director Mosbacher was absent.

STAFF:
Solbrig, Sciuto, Sharp, Hughes, Cocking, Bergsohn, Ryan, Hoggatt, P. Lavallee, Whalen, Brown, Hussmann, Frye, Nolan, Curtis, Thiel, Bledsoe, Van Gorden, Attorney Herrema.

Attorney Kvistad participated in closed session via teleconference, from 3:15 – 3:50 p.m.

GUEST:
Peter Guth

PLEDGE OF ALLEGIANCE

Kathy Sharp led the pledge to the flag.

COMMENTS FROM THE AUDIENCE

Peter Guth relayed his dissatisfaction with the water meter rate structure. Staff will meet with Mr. Guth and review his account.

CONSENT CALENDAR

Moved Schafer / Second Jones / Mosbacher Absent / Passed to approve the Consent Calendar as submitted:

a. Annual Software Support Costs for Utility Billing Software – Approved payment to Springbrook Software, Inc., for utility billing software maintenance and support in the amount of $20,144.96;

CONSENT CALENDAR (continued)

b. 2011-2012 Bulk Sodium Hypochlorite Supplies - Awarded bid to the lowest responsive, responsible bidder, Olin Corporation, in the estimated amount of $118,428.75;

c. 2011-2012 Sodium Hypochlorite Supply Drums – Awarded bid to the lowest responsive, responsible bidder, Sierra Chemical, Co., in the estimated amount of $19,710.41;

d. 2011-2012 Sodium Hypochlorite Supply Totes – Awarded bid to the lowest responsive, responsible bidder, Sierra Chemical Co., in the estimated amount of $17,936.93;

e. ACWA (Association of California Water Agencies) Region 3 Nomination Resolution – Adopted Resolution No. 2894-11 nominating Dennis Cocking to the ACWA Region 3 Board of Directors;

f. Millich Ditch Re-Stabilization and Bijou Utility Relocates - Authorized staff to advertise for construction bids;

g. Airport Well Arsenic Evaluation Project – Approved the requested fee increase to Purchase Order No. P23721 for additional consultant and pump subcontractor services, in the amount of $16,668;

h. Cathodic Protection Installations – Authorized staff to advertise for construction bids;

i. Approved Regular Board Meeting Minutes: May 19, 2011;

j. Approved Special Board Meeting Minutes: May 24, 2011.

ITEMS FOR BOARD ACTION

ORDINANCE NO. 533-11: WATER CAPACITY CHARGES

The District's water capacity charge was to be increased by 36% on July 1, 2011, following a six month postponement of the January 1, 2011, scheduled increase. The Board expressed concern that the scheduled increase, in the present economic climate, might adversely impact development within the District's boundaries by increasing the cost of new development. In response to this concern, staff recommended adoption of this Ordinance, which would delay the increase scheduled for July 1, 2011, until January 1, 2012.

ORDINANCE NO. 533-11: WATER CAPACITY CHARGES (continued)

Moved Cefalu / Second Schafer / Jones Voted No / Mosbacher Absent / Passed to enact Ordinance No. 533-11 postponing the increase in water capacity charges scheduled for July 1, 2011, until January 1, 2012.

Director Jones voted no and stated he did not believe the postponement would provide an incentive for building, plus the District needs the revenue, and therefore could not support this Ordinance.

ORDINANCE NO. 534-11: SEWER CAPACITY CHARGE

The District's sewer capacity charge was to be increased by 16% on July 1, 2011, following a six month postponement of the January 1, 2011, scheduled increase. The Board expressed concern that the scheduled increase, in the present economic climate, might adversely impact development within the District's boundaries by increasing the costs of new development. In response to this concern, staff recommended the adoption of this Ordinance, which would delay the increase scheduled for July 1, 2011, until January 1, 2012.

Moved Schafer / Second Cefalu / Jones Voted No / Mosbacher Absent / Passed to enact Ordinance No. 534-11 postponing the increase in sewer capacity charges scheduled for July 1, 2011, until January 1, 2012.

ORDINANCE NO. 535-11: WATER CAPACITY CHARGES FOR PRIVATE FIRE PROTECTION SERVICE

Currently, any new construction over 5,000 sq. ft. is charged a fire capacity fee, and construction under 5,000 sq. ft. is not. New Fire Code provisions that took effect on January 1, 2011, require installation of fire sprinklers in all newly constructed homes and in homes that are remodeled where the area involved constitutes over 50% of the square footage of the home. The District was informed that the Fire Marshalls will require installation of a fire service connection in order to provide water for fire sprinklers. The requirement for installation of a fire service connection would no longer be based on low pressure, but based on the election of a customer to construct or remodel a home. Staff recommended removal of the square footage equation for the purpose of uniformity, and that the Administrative Code be amended to reflect that fire line capacity charges will be assessed whenever the Fire Code requires installation of a fire line.

Moved Schafer / Second Jones / Mosbacher Absent / Passed to enact Ordinance No. 535-11 to amend the District's Administrative Code regarding water capacity charges for private fire protection.

ERB (EMERGENCY RETENTION BASIN) REPLACEMENT PROJECT

Work included in this contract primarily includes liner removal and replacement, localized grading, removal or replacement of ancillary facilities, and site stabilization at the ERB.

Five bids were received at the May 27 bid opening. Staff evaluated the bids for conformance with bidding requirements, including the good-faith effort for disadvantaged businesses. The evaluation concluded:

1) The apparent low bid from Erosion Control Applications was incomplete. Four forms required for project funding were not included with the bid.

2) The State Water Resources Control Board is administering the grant for this project, which is funded by the USEPA. Therefore, the project is subject to federal guidelines for contracting, which are clearly stated in the bid documents. Any work that is procured using federal funds for construction, equipment, services and supplies is subject to the requirements stated in the contract documents. The District has included forms in the contract documents. Erosion Control Applications did not complete these forms, so the District cannot confirm their bid accounts for the funding requirements.

Staff recommended that the Board reject the bid from Erosion Control Applications as non-responsive for failing to comply with the bid requirements.

3) In addition to the standard contractual items, the funding for this project requires that the bidder comply with requirements for outreach to Disadvantaged Business Enterprises (DBEs). Staff performed a review of the apparent low bid from White Rock Construction. Staff found White Rock's "good-faith effort" to be non-responsive to the requirements of the bid documents. In their bid, White Rock named one subcontractor and two suppliers for trades for which it did not advertise and solicit, as required.

Staff recommended that the Board find the bid from White Rock Construction non-responsive for failing to fully comply with the bidding requirements for DBE outreach.

4) As indicated above, this project is funded by the USEPA. Any work that is procured using funds for construction, equipment, services and supplies is subject to the requirements for DBE outreach, which White Rock Construction failed to do completely.

ERB (EMERGENCY RETENTION BASIN) REPLACEMENT PROJECT (continued)

Staff recommends that the Board reject the bid from White Rock Construction as non-responsive for failing to comply with the bid requirements for grant funding.

5) The bid received from KG Walters Construction Company, Inc., contained three contractual irregularities, two of which were minor. The third irregularity, related to the naming of subcontractors, is more complex. In accordance with the California Public Contracting Code, all work in excess of ½% of the total bid is required to be self-performed by KG Walters. By omitting paving from the list of subcontractors, KG Walters in effect committed to perform that work itself, because the cost of that portion of the work was reported by KG Walters in their DBE paperwork to be in excess of ½% KG Walters informed staff that they intend to self-perform all work (in excess of ½%) not identified on the list of subcontractors. Staff found two minor irregularities in the DBE good-faith effort documentation, but determined KG Walters generally complied with the bidding requirements for DBE outreach.

Staff recommended that the Board find the minor irregularities described above to be immaterial, waive the immaterial irregularities, and award the project to KG Walters.

Moved Schafer / Second Rise / Mosbacher Absent / Passed to: (1) Find bid from Erosion Control Applications non-responsive; (2) Reject bid from Erosion Control Applications; (3) Find bid from White Rock Construction non-responsive; (4) Reject bid from White Rock Construction; (5) Find minor irregularities in bid to be immaterial, waive immaterial irregularities and award project to the lowest responsive, responsible bidder, KG Walters Construction Company, Inc., in the amount of $1,049,600.

HYDRO JETTING SEWER CLEANING TRUCK

Six bids were received at the May 20 bid opening. Staff reviewed the bids and determined the first, second, and third bidders were non-responsive in including all specified equipment and requirements. Specifications not met included: specified reel size and hose length required, engine horsepower, component enclosure, and truck wheel base specs.

Moved Schafer / Second Jones / Mosbacher Absent / Passed to: (1) Find bid from Dyna-Vac Equipment, Inc., non-responsive; (2) Reject bid from Dyna-Vac Equipment, Inc., (3) Find bid from Jack Doheny Supplies, Inc., (1 of 2) non-responsive; (4) Reject bid from Jack Doheny Supplies, Inc., (5) Find bid from Owen Equipment Sales non-responsive; (6) Reject bid from Owen Equipment Sales; (7) Award bid

HYDRO JETTING SEWER CLEANING TRUCK (continued)

to the lowest responsive, responsible bidder, Jack Doheny Supplies, Inc., (2 of 2) in the amount of $187,350.65, which includes the trade in value of surplus District hydro truck, in the amount of $1,000.

PAYMENT OF CLAIMS

Moved Cefalu / Second Rise / Mosbacher Absent / Passed to approve payment in the amount of $595,999.90

URBAN WATER MANAGEMENT PLAN

The Board has held two public workshops to discuss the contents of the 2010 Urban Water Management Plan. No public comments were received. The plan is due to the Department of Water Resources on July 1. The District met its 10% reduction goal.

Moved Jones / Second Schafer / Mosbacher Absent / Passed to adopt final 2010 Urban Water Management Plan as per the California Urban Water Management Act.

BOARD MEMBER STANDING COMMITTEE REPORTS

Water and Wastewater Operations Committee: The committee met on June 13. Minutes of the meeting are available upon request.

EL DORADO COUNTY WATER AGENCY PURVEYOR REPRESENTATIVE REPORT

Director Jones reported on the meeting concerning Fazio water that was held with the Bureau of Reclamation. The agency signed a lease agreement for five years and will move their office in September. The move will save $180,000 over the next five years.

BOARD MEMBER REPORT

Director Schafer reviewed an article of interest from the ACWA newsletter concerning a new accountability committee, who is talking about consolidation of special districts.

STAFF REPORTS

Assistant General Manager / Engineer: Paul Sciuto reported on the progress of developing a shared TRPA employee position dedicated to review and approval of utility district projects, and the goal to combine the various individual MOUs into one that provides consistency to all the utility districts.

District Information Officer: Dennis Cocking gave updates on: the state budget veto; the status of various bills that are pending; the District will receive $400,000 from the partnership share of the $1M federal grant procured from the USFS; the annual Tahoe Summit will be hosted by Senator Feinstein and held in Homewood; and the progress of the Tahoe Prosperity Plan development.

Chief Financial Officer: Paul Hughes gave updates on: the bond issuance for the Headworks project; and Proposition 84 water conservation funding.

3:05 – 3:15 P.M.	MEETING BREAK
3:15 – 3:50 P.M.	ADJOURNMENT TO CLOSED SESSION AND RECONVENE TO OPEN SESSION

ACTION / REPORT ON ITEMS DISCUSSED DURING CLOSED SESSION

Moved Schafer / Second Jones / Mosbacher Absent / Passed to reject the terms of the June 9, 2011, letter received from Sheppard Mullin.

Pursuant to Government Code Section 54956.9(a)/Conference with Legal Counsel-Existing Litigation re: False Claims Act Case: United States, the States of California, Delaware, Florida, Nevada, and Tennessee and the Commonwealths of Massachusetts and Virginia ex rel. John Hendrix v. J-M Manufacturing Company, Inc., and Formosa Plastics Corporation, U.S.A., Civil Action ED CV06-0055-GW, United States District Court for the Central District of California

Pursuant to Government Code Section 54956.9(a)/Conference with Legal Counsel – Existing Litigation re: Los Angeles County Superior Court Case No. BC459943, State of Nevada, et al. v. J-M Manufacturing, et al.

3:50 P.M. ADJOURNMENT

Dale Rise, Board President
South Tahoe Public Utility District

ATTEST: Kathy Sharp
Kathy Sharp, Clerk of the Board
South Tahoe Public Utility District

Appendix C Administrative Code Section 3.4: Water Shortage and Drought Response Standards

Tahoe

Section 3.4 Water Shortage and Drought Response Standards.

3.4.1 ***Purpose.*** The specific provisions of this Section are necessary and proper to conserve water resources and minimize cost to the District and expense to its customer associated with the loss of water supply sources.

WATER CONSERVATION STAGES

3.4.2 ***Water Waste Prohibited.*** No water user shall waste water or make, cause, or permit the use of water for any purpose contrary to any provision of this Section, or in quantities in excess of the use permitted by the conservation stage in effect pursuant to this Section. The conservation stage shall be determined by the General Manager with regard to supply and demand of available water supplies, except that the Board shall determine any conservation stage more restrictive than Stage 3.

3.4.3 ***Stage 1 - Normal Conditions.*** During a Stage 1 - normal conditions, when there is an adequate water supply, Water Users shall not waste water and abide by the following:

a) Water Users shall not allow water to flow from their property onto impervious surfaces or adjacent property.

b) Water Users shall repair all leaks in plumbing and irrigation systems.

c) Hoses shall not be used for washing motor vehicles without a shut-off nozzle attached to the hose. Continuous discharge from hose nozzle is prohibited. Notwithstanding any provision in this Section to the contrary, motor vehicles washing may be done at any time, subject to any other applicable laws, on the property of a commercial car wash or service station. Further, such washing is exempted from these regulations where the health, safety and welfare of the public is dependent upon frequent vehicle cleanings, such as garbage trucks and vehicles which transport food.

d) All Water Users are encouraged to report to the District all signs or indications of water leaks or water waste.

e) The use of water to irrigate non-landscaped, natural vegetation or undeveloped property is prohibited unless necessitated by fire prevention considerations in cases of severe fire danger.

3.4.4 ***Stage 2 - Minor Water Supply Shortage.*** During a Stage 2 - minor water supply shortage, Stage 1 restrictions apply, and also the following shall apply:

a) Designated irrigation days shall be established which require houses whose street addresses end with an even number to irrigate on even-numbered weekdays of the month; and require houses whose street address end with an odd number to irrigate on odd numbered weekdays of the month. In months of more than thirty (30) days, no irrigation shall be permitted on the thirty-first (31st) day. An exemption shall exist under Stage 2 restrictions for new lawns planted within thirty (30) days of commencement of Stage 2, or to comply with Tahoe Regional Protection Agency's revegetation requirements and/or Best Management Practices on new construction or remodels, except that the Board may permit

extended hours of irrigation of public facilities pursuant to Section 3.4.16, provided, irrigation of lawns, gardens, landscaped areas, trees, shrubs or other plants is permitted at anytime if:

1) a hand-held hose is used, or
2) a hand-held, faucet filled bucket of five (5) gallons or less is used, or
3) a drip or soaker-type irrigation system is used.

b) Water shall not be used to wash sidewalks, driveways, parking areas, tennis courts, decks, patios or other improved areas, except in conjunction with driveway repair and sealing, or to alleviate immediate fire or sanitation hazards.

c) All commercial establishments where food or beverages are provided shall serve water to their customers only when specifically requested by the customer.

3.4.5 ***Stage 3 - Severe Water Supply Shortage.*** During a Stage 3 - severe water shortage, Stages 1 and 2 restrictions shall apply, and also the following shall apply:

a) Irrigation is prohibited on weekends. The Board may permit an exemption for public facilities pursuant to Section 3.4.16.

b) The filling with water of outdoor swimming pools which are not covered during periods of non-use is prohibited.

c) The operation of any ornamental fountain or similar decorative water structure is prohibited unless a recycling system is used and a notice to the public of such recycling system is prominently displayed.

3.4.6 ***Stage 4 - Critical Water Supply Shortage.*** During Stage 4 - Critical Water supply shortage, Stages 1, 2, and 3 restrictions apply, and the Board may designate specific areas for further restrictions as follows:

a) Outdoor irrigation of all vegetation including lawns and landscaping is limited to once per week, except more frequent irrigation of public facilities may be permitted pursuant to Section 3.4.16.

b) No water shall be used for irrigating landscaping for new construction.

c) Use of water from fire hydrants shall be limited to fire fighting and/or other activities immediately necessary to maintaining the health, safety and welfare of the community, as determined by the District or other government entity with appropriate jurisdiction.

3.4.7 ***Stage 5 - Water Emergency.*** During a Stage 5 - Water shortage emergency, Stages 1, 2, 3, and 4 restrictions apply and the Board may designate specific areas for further restrictions as follows:

a) The use of water for other than domestic and commercial use is prohibited except irrigation of public facilities may be permitted pursuant to Section 3.4.16.

b) The use of water for dust or dirt control, grading and road construction purposes is prohibited.

c) The use of water for flushing of fire hydrants, except for emergency purposes, as determined by the District or other government entity with appropriate jurisdiction, is prohibited.

d) The use of water for air conditioning purposes, where an alternate source of fresh air is available, is prohibited.

ENFORCEMENT

3.4.8 ***Enforcement.*** The General Manager, and other District authorized representatives have the duty and are authorized to enforce all provisions of this Section 3.4.

3.4.9 ***First Violation.*** For a first violation within one year, the District shall issue a written warning to the Water User.

3.4.10 ***Second Violation.*** For a second violation within one year, a fine of $100 shall be added to the Water User's bill at the property where the violation occurred.

3.4.11 ***Third Violation.*** For a third violation within one year, a fine of $200 shall be added to the Water User's bill at the property where the violation occurred. In addition to the fine, the Board or the General Manager may require installation of a flow-restricting device on the Water User's service connection.

3.4.12 ***Fourth Violation.*** For a fourth and any additional violations within one year, a fine of $500 shall be added to the Water User's bill at the property where the violation occurred and the District may discontinue the Water User's water service at the property where the violation occurred in accordance with District procedures. Re-connection shall be permitted only when there is reasonable

protection against future violations such as a flow-restricting device on the customer's service connection as determined in the District's discretion.

3.4.13 ***District Enforcement Costs.*** District shall be reimbursed for its costs and expenses in enforcing the provisions of this Section 3.4, including such costs as District incurs for District staff to investigate and monitor the Water User's compliance with the terms of this Section. Charges for installation of flow-restricting devices or for discontinuing or restoring water service, as those charges are incurred by the District, shall be added to the Water User's bill at the property where the enforcement costs were incurred.

ADMINISTRATION

3.4.14 ***General.*** The provisions of this Section 3.4 shall be administered and enforced by the District through the General Manager, who may delegate such enforcement to one or more

Appendix D Additional Support for the Water Conservation Program

Background Information for Selected DMM's

6.1.1 DMM-A: Water Survey Programs for single-family and multi-family residential customers

The District offers single-family and multi-family residential customers water-use surveys called "Water-Wise House Calls," this program is funded by California Prop 50 supplemental grant. For 2011-2012 there will be a minimum of 200 Water-Wise House Calls given. The Water-Wise House Calls involve and indoor and outdoor water use survey. However, at the customer's request they survey can be done for either indoor or outdoor areas.

Upon Request, a Water Efficiency Specialist will visit your home, assess your water usage and give you customized water savings tips. By participating in this program you are eligible for FREE water savings devices and rebates for up to $500 per household.

A trained specialist will:

· Check meter reading and water pressure.

· Check toilets and other plumbing fixtures for leaks. Provide plumbing fixtures as needed.

· Replace toilet flapper valves if needed.

· Measure showerhead flow rates and install free low flow showerheads upon request.

· Measure faucet flow rates and provide free faucet aerators for kitchen and bathrooms .

· Evaluate the efficiency of your irrigation system and provide an appropriate irrigation schedule.

· Assess irrigation sprinkler uniformity and water runoff characteristics.

· Analyze irrigation and drainage systems and provide maintenance, repair or replacement recommendations.

· Provide water conservation program materials, rebate applications and water-wise home and landscaping tips.

By participating in a Water-Wise House Call the customer will become eligible for water saving rebates. All Rebates are available on a first-come, first-serve basis and funds are limited. Terms and Conditions apply. Rebates are subject to approval by the Water Efficiency Specialist.

High Efficiency Toilets: Receive a $100 rebate for replacing your older (pre-1992) with a new **WaterSense** labeled, 1.28 gallon per flush model. Visit www.epa.gov

Water Efficient Clothes Washers: Receive a $200 rebate for purchasing and installing high efficiency clothes washer with a water factor of 5.0 or less. Before you buy, view a list of qualifying washers at www.cee1.org or visit www.stpud.us to find out more information.

Hot Water Demand System: Receive a $100 rebate for installing an approved hot water demand system. Systems should have approved safety code approvals from organizations such as UL or UPC with a satisfactory warranty. STPUD is familiar with the Metlund D'MAND (www.gothotwater.com)and Chilipepper (www.chilipepperapp.com) systems. STPUD does not solely endorse either manufacturer or their product but both manufacturers have systems that save both water and energy.

Irrigation Efficiency Rebate: Based on the recommendations of the Water Efficiency Specialist you may be eligible to receive up to $400 for upgrading your irrigation system with new, high efficiency equipment. The program covers 100% of eligible parts and 25% of the labor to install them.

If the participant is eligible for the Turf Buy Back Program this can be incorporated with the irrigation efficiency rebate.

South Tahoe Public Utility District
Turf Buy-Back Program
Statement of Purpose

The South Tahoe Public Utility District (District) recognizes that lawn areas help to provide defensible space, play areas for children and pets, and serve an integral role in a comprehensive landscaping plan. However, lawns are also the most water intensive landscaping option a homeowner can choose. Non-functional lawns - ones that are rarely used - waste water and represent an ongoing cost in both time and resources for the home or business owner.

From an environmental standpoint, lawns tend to be over fertilized and over watered. With Tahoe's porous soils, this combination can serves to push some of the nutrients intended for the lawn past the root zones and into the watershed where they eventually make their way into Lake Tahoe. Once there, they provide nutrients for algae that have significantly affected the legendary clarity of the Lake. While lawns do serve a purpose in soil erosion control, many other combinations of trees, shrubs, and groundcovers can achieve the same soil erosion control benefits at a significantly lower water use demand.

In response to that challenge, the District applied for a grant to re-instate the program. Lawns within the service area, either water or wastewater, of STPUD may receive a rebate for removing on-site irrigated turf and replacing it with a more efficient landscape outlined by the District. By reducing the District's overall water demands, capital costs for drilling new wells and long-term operation/maintenance expenses for those wells is thereby avoided.

South Tahoe Public Utility District
Turf Buy-Back Program

I. PRE-CONVERSION ELIGIBILITY

1. Areas to be converted must lie within the service area, either water or wastewater, of South Tahoe Public Utility District.

2. Areas to be converted must be irrigated/maintained lawn, not native grasses or vegetation. A conservation specialist will visit the property to verify that the lawn is currently being watered.

3. At least 400 square feet of lawn must be converted. Smaller projects are accepted if they:
   -completely eliminate lawn on commercial, institutional, or multi-family property
   -or eliminate the front or back lawn of a single-family dwelling.

4. Properties affected by the Angora Fire that plan on re-landscaping according to the Turf Buy Back Landscape requirements are accepted for the first 800 square feet of landscape.

5. Before removing any lawn or ceasing irrigation, the application must be submitted to the District and the applicant must participate in a District pre-conversion site review. Beginning the project without District approval will make the conversion ineligible.

II. LANDSCAPING REQUIREMENTS FOR CONVERTED AREAS

1. **Efficient Irrigation:** If a watering system is used, it must be drip irrigation equipped with a filter pressure regulator and emitters. Each drip emitter must be rated at less than 20 gallons per hour (gph). If only a portion of lawn is converted, the sprinkler system must be properly modified to provide adequate coverage to the remaining lawn without spraying the converted area. Narrow lawns are difficult to efficiently irrigate and should be avoided.

2. **Surface Treatments:** The converted area must be completely covered by a layer of mulch permeable to air and water. Common mulching materials include rock, bark, and wood chips. Living groundcovers qualify as mulch provided the individual plants are installed in sufficient density to assure 100% plant cover. If a weed barrier is used beneath the mulch, it must be designed to be permeable to air and water.

3. **50% Living Plant Cover:** At completion, converted areas must contain enough plants to create at least 50 percent living plant cover when the plants are fully grown. Local

area nurseries can help you in choosing plants and groundcovers that will meet your personal aesthetic requirement as well as the District's coverage requirements.

III. TERMS OF THE REBATE

1. **District's Assurance:** This agreement expires in six calendar months. The six-month term begins the day after the District approves the agreement and ends at 5:00 p.m. on the first business day after six calendar months have elapsed. Once you notify the District of completion of your converted turf area, any delay for a final inspection by the District is not counted against the six-month term. Only one payment may be received under this agreement; future conversions require a new application.

2. **Incentive Amounts and Limits:** The incentive is $2.00 per square foot of qualifying conversion for the first 1,500 square feet. The incentive for areas in excess of 1,500 square feet will be $1.50 per square foot. Rebates will be awarded up to $5,000. If installing new landscape in the Angora Fire area, the incentive is $1.00 per square foot up to $800.00. The District may reject or limit applications based on the availability of funds. Checks are issued only to the property owner or owner's legally appointed representative (typically 30-60 days after final inspection). Funding for this project has been provided in full or in part through an agreement with the State Water Resources Control Board. The contents of this document do not necessarily reflect the views and policies of the State Water Resources Control board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

3. **Final Inspection:** After notification of the project's completion, the District will conduct an inspection to verify program compliance. If the conversion fails inspection, the applicant will be allowed 60 days or the remainder of the six-month period, whichever is greater, to comply with the program conditions.

4. **Requirement To Sustain the Conversion:** The converted area must remain in compliance with all program conditions for a period of 5 years. This requirement is voided upon transfer of ownership. You may be required to refund all or a portion of the rebate should this requirement be violated.

5. **Other Responsibilities of the Applicant**: The District enforces only the conditions of the conversion rebate agreement. The applicant is responsible for complying with all laws, policies, codes, and covenants that may apply. For information on Best Management Practices or Fire Defensible Space please contact TRCD at 530.543.1501 or your local fire department. Please consider defensible space in your conversion, as we live in a high risk fire zone. Quality and appearance of the conversion is the responsibility of the applicant. Lawn must be removed entirely, not just relocated.

6.1.5 DMM-E: Large Landscape Conservation Programs and Incentives

For District commercial customers with large irrigated areas a free irrigation audit is available as component of a CII Water- Use Survey. The Water Conservation Specialist in partnership with Tahoe Resource Conservation District will visit the site and make recommendations on adjustments for upgrades to irrigation equipment, sprinkler uniformity and plant selection.

The irrigation audit consists of:

1. Site inspection/ System tune-up
2. System test- distribution uniformity

3. Calculate a base watering schedule:
    a. The inches of water the plant needs
    b. The minutes of run time
    c. The frequency of application that matches the soil's characteristics

Benefits of an irrigation audit:

1. Reduced water use and lower water bills
2. Improved landscape appearance
3. Reduction of runoff
4. Reduction of water lost below the root zone
5. Reduced fertilizer and chemical requirements

Based on the findings from the irrigation audit an irrigation schedule is developed and provided to the customer. The customer is eligible to receive an irrigation efficiency rebate for 50% up to $500 of the cost for irrigation equipment and installation.

6.1.6 DMM-F: High Efficiency Washing Machine Rebate Programs

The District offers a $200 rebate for purchase of a water efficient clothes washer. To date a total 311 rebates have been issued with funds provided by Prop 40 and Prop 50. In the past the clothes washer eligibility required a water factor of 8.5 or less. The water factor is based on the number of gallons of water used per cycle/ per cubic feet of laundry, the lower the water factor, the more efficient the washer is. For the current program starting January 15th, 2010 the eligibility requirement for clothes washers was reduced to water factor of 5.0 or less. The average water factor for all 311 clothes washers purchased with the rebate is 4.11.

Example of the clothes washer rebate program press release:

South Tahoe
Public Utility District

Contact Information:

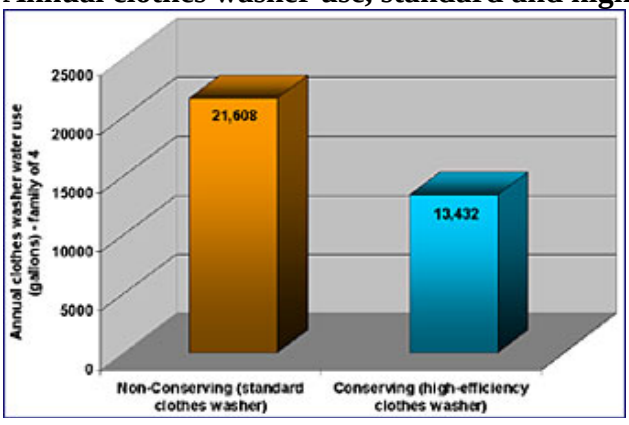
Sarah Jones
530.543.6268
530.541.4326 fax

Water Conservation Specialist
1275 Meadow Crest Drive
South Lake Tahoe, CA 96150

Water Efficient Clothes Washer Rebate Program

Did you know you can save over 30 gallons of water every time you wash your clothes by purchasing a water efficient clothes washing machine? South Tahoe Public Utility District is offering a rebate on water efficient clothes washers. To be eligible, clothes washers must have a water factor of 5.0 or less (which can be found on the Consortium for Energy Efficiency clothes washer product list), be purchased after January 15, 2010 and be installed in South Tahoe Public Utility District's service area. Applications will be accepted on a first come, first served basis while funds last. To apply, submit an application form, a W-9 form, and a copy of your purchase receipt. For more information or to download an application, go to www.stpud.us and click on the Water Conservation link or call 530-543-6268.

Annual clothes washer use, standard and high-efficiency machines



Source: California Urban Water Conservation Council

6.1.8- School Education

The following information provides details on the School education program.
Estimates of # of students reached during WOW week-
Wonders of Water Week
October 12- October, 28th, 2010

Participating Schools
Bijou Elementary
Tahoe Valley
Sierra House Elementary
Meyers Magnet School
South Tahoe Middle School

Total Classes
Bijou – 23
Tahoe Valley – 17
Sierra House – 18
Magnet School – 16
South Tahoe Middle School – 10
TOTAL - 84

Total Students
~1,680 (averaging 20/class)

Total Volunteers
22

WOW Presentation: 2010 Evaluation

Thank you for helping us to educate your students on the importance of water. This program was made possible by the generous help of South Tahoe Environmental Education Coalition volunteers, South Tahoe Public Utility District, Tahoe Resource Conservation District, the Forest Service, and Lahontan.

On a scale of 1 to 5, with 5 being the top score, please answer the following questions.

1. What grade do you teach?	K	1	2	3	4	5
2. Did the classroom presentation meet CA State Standards?		1	2	3	4	5
3. Were the activities grade level appropriate?		1	2	3	4	5
4. Were the students engaged and learning?		1	2	3	4	5
5. Overall Impression		1	2	3	4	5

Comments and/or Suggestions:

6.1.9 DMM I: Commercial, Industrial, Institutional (CII) Conservation Programs

The District will provide, upon request a free water use survey, called a "Commercial Water-Use Review." This program will launch in May of 2011 and is funded by the Prop 50 supplemental grant. The Water Conservation Specialist will visit the facility and provide Facility Review Report with customized water savings recommendations. Rebates are available for a wide range of commercial applications.

Available Rebates:

-High Efficiency Toilet: Receive a $150 rebate for replacing your older (pre-1992) with a new 1.28 gallon per flush, WaterSense labeled model. A product search is available at www.epa.gov/watersense/product_search.html.

-High Efficiency Clothes Washer: Receive a 50% rebate up to $400 for purchasing and installing a CEE Tier– 3 commercial clothes washer. Visit http://www.cee1.org/com/cwsh/cwshspec.pdf to view a list of qualifying washers.

-Water Broom: Receive a 50% rebate up to $250 for installing an approved water broom. To qualify the water broom must use less than or equal to 0.10 gallons per minute. Call for details.

-Ice Making Machine: Receive a 50% rebate up to $200 for purchasing a CEE Tier-3 Ice making machine, Visit http://www.cee1.org/com/com-kit/com-kit-equip.php3 for a list of qualified machines.

-Car Wash Recycling System: Receive a 50% rebate up to $1000 for an approved car wash recycling system. Call for details.
Ozone Laundry System: Receive a 50% rebate up to $400 per unit for an approved system. Call for details.

-Cooling Tower Rebate: Receive a 50% rebate up to $500 per unit for an approved conductivity meter. Call for details.

-Irrigation Efficiency Rebate: Based on the recommendations of the Water Efficiency Specialist you may be eligible to receive up to $500 for upgrading your irrigation system with new, high efficiency equipment. The rebate covers 100% of eligible parts and 25% of the labor to install them.

6.2.13 DMM-M: Water Waste Prohibition

Historically, 2 temporary seasonal employees have been hired under the supervision of the Water Conservation Specialist to enforce our water waste ordinance. In 2010, 361 water conservation violations were issued. The District has used the water educators for approximately 7 years.

South Tahoe Public Utility District
Water Educator Job Requirements

Requirements:
Valid Drivers License

Average Day:
Drive throughout the District's Water Service monitoring landscape water use, educating the public, and writing citations.

Times to be patrolled:
4am-10pm, on varying days, times, and neighborhoods

Writing Citations:
-If between the hours of 8-5, knock on door to see if anyone is home. If you have the opportunity to interact with the resident, offer a free water conservation kit or free wildflower seeds.
-If before 8am, after 5pm, or if the resident is not home, bring written citation back to office to be mailed.
-DO NOT PUT ANYTHING IN MAILBOX. It is a federal offense to put anything in a mailbox.
-Private Property. For your own safety, do not walk on the property, unless approaching the door between the hours of 8am-5pm.
-A spreadsheet detailing violations will be printed out every other day for Water Educator's reference.

Sending Out Notices:
-Make sure the citation is directed at our WATER customer
-Input citation date, mail date, address, and type of citation into excel spreadsheet.
-Staple a copy of the citation and the citation letter together and file.
-Send violator the copy of the citation, a letter describing the citation, and either a printout regarding the ordinance or a blue water conservation pamphlet.
-2nd, 3rd, and 4th citations: Mail as certified mail (forms to fill out in Customer Service) and staple the receipt to our copy of the letter. Make an additional copy of the letter to give to Sandy Gray to bill the customer's account.

Complaints:
-Neighbor complaints will be kept on a spreadsheet updated every week. Focus on the area for 2 weeks and then return to business as usual.
-Complaints, questions, excuses, or rebuking of violations will be kept on file on the Water Conservation Spreadsheet.

SOUTH TAHOE
PUBLIC UTILITY DISTRICT
530.543.6268

NOTICE OF WATER CONSERVATION VIOLATION

DATE: _____/_____/_____ **DAY OF WEEK:** M T W R F S Su **TIME:** _____**am/pm**

TYPE OF VIOLATION:

_____ **"Day of Week" violation** **Note: Day begins at 12:00:01 of day in question**

_____ **Use of hose to clean or clear debris from impervious surface**

_____ **Over-watering**

_____ **Broken sprinkler or other obvious water leak**

_____ **Sprinklers watering impervious surface**

_____ **Watering native vegetation**

_____ **Other**

ADDRESS OF VIOLATION_____

DESCRIPTION OF VIOLATION_____

APN #_____

_____ **First Violation** - **EDUCATIONAL VISIT ONLY – NO FINE**

_____ **Second Violation** - **(1st violation date: ____/____/____)**
($100 fine-residential; $500-commercial)

_____ **Third Violation** - **(2nd violation date: ____/____/____)**
($250 fine-residential; $750-commercial)

_____ **Fourth Violation** - **(3rd violation date: ____/____/____)**
($500 fine-residential; $1,000-commercial)

PLEASE read the accompanying information. It contains valuable information all District customers should know about the Water Conservation Program. If you have any questions, please feel free to call 530.543.6268.

WATER EDUCATOR SIGNATURE: _____**DATE:**____/____/_____

Distribution: White – Customer; Yellow – Property File

6.1.14 DMM-N: Residential ULFT Replacement Program

Currently the District offers a $100 rebate for replacing an older pre-1992 model toilet with a High Efficiency toilet (1.28 gallons per flush).

High Efficiency Toilet Rebate Eligibility

1. High Efficiency Toilets are rated at 1.28 gallons per flush. Replacing an Ultra-Low Flow toilet with a High Efficiency Toilet does **NOT** qualify for a rebate. To be eligible you must be replacing a toilet that uses more than 2 gallons per flush.
2. High Efficiency toilet must be purchased after 1/1/2011.
3. The High Efficiency Toilet must be installed within the service area by a customer of South Tahoe Public Utility District.
4. Rebate: $100.00 per High Efficiency Toilet. (Rebate not to exceed 100% of the cost of the toilet)

Appendix E DWR Checklist

Table I-2 Urban Water Management Plan checklist, organized by subject

No.	UWMP requirement [a]	Calif. Water Code reference	Additional clarification	UWMP location
PLAN PREPARATION				
4	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	10620(d)(2)		Section 1.2
6	Notify, at least 60 days prior to the public hearing on the plan required by Section 10642, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. Any city or county receiving the notice may be consulted and provide comments.	10621(b)		Section 1.2.2 Table 1.2
7	Provide supporting documentation that the UWMP or any amendments to, or changes in, have been adopted as described in Section 10640 et seq.	10621(c)		Section 1.3.1 Appendix B
54	Provide supporting documentation that the urban water management plan has been or will be provided to any city or county within which it provides water, no later than 60 days after the submission of this urban water management plan.	10635(b)		Section 1.3.1
55	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	10642		Section 1.2
56	Provide supporting documentation that the urban water supplier made the plan available for public inspection and held a public hearing about the plan. For public agencies, the hearing notice is to be provided pursuant to Section 6066 of the Government Code. The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water. Privately-owned water suppliers shall provide an equivalent notice within its service area.	10642		Section 1.2.2
57	Provide supporting documentation that the plan has been adopted as prepared or modified.	10642		Section 1.3.1 Appendix B
58	Provide supporting documentation as to how the water supplier plans to implement its plan.	10643		Section 1.3.2 Table 1.3

No.	UWMP requirement [a]	Calif. Water Code reference	Additional clarification	UWMP location
59	Provide supporting documentation that, in addition to submittal to DWR, the urban water supplier has submitted this UWMP to the California State Library and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. This also includes amendments or changes.	10644(a)		Section 1.3.1
60	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the urban water supplier has or will make the plan available for public review during normal business hours	10645		Section 1.3.1
SYSTEM DESCRIPTION				
8	Describe the water supplier service area.	10631(a)		Section 2.1
9	Describe the climate and other demographic factors of the service area of the supplier	10631(a)		Section 2.1.1 Section 2.3
10	Indicate the current population of the service area	10631(a)	Provide the most recent population data possible. Use the method described in "Baseline Daily Per Capita Water Use." See Section M.	Section 2.2
11	Provide population projections for 2015, 2020, 2025, and 2030, based on data from State, regional, or local service area population projections.	10631(a)	2035 and 2040 can also be provided to support consistency with Water Supply Assessments and Written Verification of Water Supply documents.	Section 2.2.2 Table 2.2
12	Describe other demographic factors affecting the supplier's water management planning.	10631(a)		Section 2.3
SYSTEM DEMANDS				
1	Provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	10608.20(e)		Section 3.1
2	*Wholesalers:* Include an assessment of present and proposed future measures, programs, and policies to help achieve the water use reductions. *Retailers:* Conduct at least one public hearing that includes general discussion of the urban retail water supplier's implementation plan for complying with the Water Conservation Bill of 2009.	10608.36 10608.26(a)	Retailers and wholesalers have slightly different requirements	Section 1.2.2

No.	UWMP requirement [a]	Calif. Water Code reference	Additional clarification	UWMP location
3	Report progress in meeting urban water use targets using the standardized form.	10608.40		Section 6 The District has recently become a signatory to the CUWCC MOU and will report using CUWCC forms beginning in 2011
25	Quantify past, current, and projected water use, identifying the uses among water use sectors, for the following: (A) single-family residential, (B) multifamily, (C) commercial, (D) industrial, (E) institutional and governmental, (F) landscape, (G) sales to other agencies, (H) saline water intrusion barriers, groundwater recharge, conjunctive use, and (I) agriculture.	10631(e)(1)	Consider 'past' to be 2005, present to be 2010, and projected to be 2015, 2020, 2025, and 2030. Provide numbers for each category for each of these years.	Section 3.2
33	Provide documentation that either the retail agency provided the wholesale agency with water use projections for at least 20 years, if the UWMP agency is a retail agency, OR, if a wholesale agency, it provided its urban retail customers with future planned and existing water source available to it from the wholesale agency during the required water-year types	10631(k)	Average year, single dry year, multiple dry years for 2015, 2020, 2025, and 2030.	Section 3.3
34	Include projected water use for single-family and multifamily residential housing needed for lower income households, as identified in the housing element of any city, county, or city and county in the service area of the supplier.	10631.1(a)		Section 3.2 Table 3.10
SYSTEM SUPPLIES				
13	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, and 2030.	10631(b)	The 'existing' water sources should be for the same year as the "current population" in line 10. 2035 and 2040 can also be provided.	Section 4.1

No.	UWMP requirement [a]	Calif. Water Code reference	Additional clarification	UWMP location
14	Indicate whether groundwater is an existing or planned source of water available to the supplier. If yes, then complete 15 through 21 of the UWMP Checklist. If no, then indicate “not applicable” in lines 15 through 21 under the UWMP location column.	10631(b)	Source classifications are: surface water, groundwater, recycled water, storm water, desalinated sea water, desalinated brackish groundwater, and other.	Section 4.3
15	Indicate whether a groundwater management plan been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	10631(b)(1)		Section 4.3.2
16	Describe the groundwater basin.	10631(b)(2)		Section 4.3.3
17	Indicate whether the groundwater basin is adjudicated? Include a copy of the court order or decree.	10631(b)(2)		Section 4.3.3.3
18	Describe the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. If the basin is not adjudicated, indicate “not applicable” in the UWMP location column.	10631(b)(2)		Section 4.3.4
19	For groundwater basins that are not adjudicated, provide information as to whether DWR has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition. If the basin is adjudicated, indicate “not applicable” in the UWMP location column.	10631(b)(2)		Not Applicable
20	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	10631(b)(3)		Section 4.3.4
21	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	10631(b)(4)	Provide projections for 2015, 2020, 2025, and 2030.	Section 4.3.5
24	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	10631(d)		Section 4.4
30	Include a detailed description of all water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years, excluding demand management programs addressed in (f)(1). Include specific projects, describe water supply impacts, and provide a timeline for each project.	10631(h)		Section 4.7

No.	UWMP requirement [a]	Calif. Water Code reference	Additional clarification	UWMP location
31	Describe desalinated water project opportunities for long-term supply, including, but not limited to, ocean water, brackish water, and groundwater.	10631(i)		Section 4.5
44	Provide information on recycled water and its potential for use as a water source in the service area of the urban water supplier. Coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	10633		Section 4.6
45	Describe the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	10633(a)		Section 4.6.1
46	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	10633(b)		Section 4.6.1 Table 4.7
47	Describe the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.	10633(c)		Section 4.6.2
48	Describe and quantify the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.	10633(d)		Section 4.6.3 Table 4.9
49	The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	10633(e)		Section 4.6.3 Table 4.10
50	Describe the actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.	10633(f)		Section 4.6.3 Table 4.11
51	Provide a plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.	10633(g)		Section 4.6 and Table 4.11. The Basin Plan for the Lake Tahoe region prohibits the use of recycled water.
WATER SHORTAGE RELIABILITY AND WATER SHORTAGE CONTINGENCY PLANNING [b]				

No.	UWMP requirement [a]	Calif. Water Code reference	Additional clarification	UWMP location
5	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	10620(f)		Section 5 The District does not import water
22	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage and provide data for (A) an average water year, (B) a single dry water year, and (C) multiple dry water years.	10631(c)(1)		Section 5.2
23	For any water source that may not be available at a consistent level of use - given specific legal, environmental, water quality, or climatic factors - describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.	10631(c)(2)		Section 5.1
35	Provide an urban water shortage contingency analysis that specifies stages of action, including up to a 50-percent water supply reduction, and an outline of specific water supply conditions at each stage	10632(a)		Section 5.4.1
36	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.	10632(b)		Section 5.4.2
37	Identify actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.	10632(c)		Section 5.4.3 Table 5.10
38	Identify additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.	10632(d)		Section 5.4.4 Table 5.9
39	Specify consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.	10632(e)		Section 5.4 Table 5.9
40	Indicated penalties or charges for excessive use, where applicable.	10632(f)		Section 5.4.4 Table 5.11

No.	UWMP requirement [a]	Calif. Water Code reference	Additional clarification	UWMP location
41	Provide an analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.	10632(g)		Section 5.4.5 Table 5.12
42	Provide a draft water shortage contingency resolution or ordinance.	10632(h)		Section 5.4.6
43	Indicate a mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.	10632(i)		Section 5.4.7
52	Provide information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments, and the manner in which water quality affects water management strategies and supply reliability	10634	For years 2010, 2015, 2020, 2025, and 2030	Section 5.2.3
53	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. Base the assessment on the information compiled under Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.	10635(a)		Section 5.2
DEMAND MANAGEMENT MEASURES				
26	Describe how each water demand management measures is being implemented or scheduled for implementation. Use the list provided.	10631(f)(1)	Discuss each DMM, even if it is not currently or planned for implementation. Provide any appropriate schedules.	Section 6.2
27	Describe the methods the supplier uses to evaluate the effectiveness of DMMs implemented or described in the UWMP.	10631(f)(3)		Section 6.2
28	Provide an estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the ability to further reduce demand.	10631(f)(4)		Section 6.3
29	Evaluate each water demand management measure that is not currently being implemented or scheduled for implementation. The evaluation should include economic and non-economic factors, cost-benefit analysis, available funding, and the water suppliers' legal authority to implement the work.	10631(g)	See 10631(g) for additional wording.	Section 6.3

No.	UWMP requirement [a]	Calif. Water Code reference	Additional clarification	UWMP location
32	Include the annual reports submitted to meet the Section 6.2 requirements, if a member of the CUWCC and signer of the December 10, 2008 MOU.	10631(j)	Signers of the MOU that submit the annual reports are deemed compliant with Items 28 and 29.	Section 6 The District has recently become a signatory to the CUWCC MOU and will report using CUWCC forms beginning in 2011

a The UWMP Requirement descriptions are general summaries of what is provided in the legislation. Urban water suppliers should review the exact legislative wording prior to submitting its UWMP.

b The Subject classification is provided for clarification only. It is aligned with the organization presented in Part I of this guidebook. A water supplier is free to address the UWMP Requirement anywhere with its UWMP, but is urged to provide clarification to DWR to facilitate review.

WINZLER & KELLY

MADDAUS WATER MANAGEMENT