GROVELAND COMMUNITY SERVICES DISTRICT

2010 URBAN WATER MANAGEMENT PLAN

December 2013

DRAFT

Groveland Community Services District

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ABBREVIATIONS

AWS	Alternative Water Supply
BMP	Best Management Practices
CDBG	Community Development Block Grant Program
CDP	Census Data Place
CDPH	California Department of Public Health
CEE	Consortium for Energy Efficiency
CII	Commercial/Industrial/Institutional
CWC	California Water Code
District	Groveland Community Services District
DMM	Demand Management Measure
DWR	California Department of Water Resources
GCSD	Groveland Community Services District
gpcd	Gallons per Capita per Day
I&I	Infiltration & Inflow
LID	Low Impact Development
MEF	Modified Energy Factor
MF	Microfiltration
MG	Million Gallons
MGD	Million Gallons Per Day
MID	Modesto Irrigation District
MLP	Mary Lavaroni Park
PG&E	Pacific Gas and Electric Company
PML	Pine Mountain Lake
PMLA	Pine Mountain Lake Association
RWQCB	Regional Water Quality Control Board
SFPUC	San Francisco Public Utilities Company
SB	Senate Bill
TID	Turlock Irrigation District
USEPA	US Environmental Protection Agency
UWMP	Urban Water Management Plan
UWMPA	Urban Water Management Plan Act
WCC	Water Conservation Committee
WF	Water Factor
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant

SECTION 1 - INTRODUCTION

The Urban Water Management Act (UWMPA) became part of the California Water Code (CWC) with the passage of Assembly Bill 797 during the 1983-1984 regular session of the California Legislature. The CWC requires every urban water supplier providing water for municipal purposes to more than 3,000 customers, either directly or indirectly, or supplying more than 3,000 acre-feet of water annually to adopt and submit an Urban Water Management Plan (UWMP) every five years to the California Department of Water Resources (DWR). The specific planning requirements are in the CWC Division 6, Part 2.6 Urban Water Management Planning.

1.1. Purpose

The purpose of the UWMP is to maintain efficient use of urban water supplies, continue to promote conservation programs and policies, ensure that sufficient water supplies are available for future beneficial use, and provide a mechanism for response during water drought conditions.

An UWMP is a planning tool that provides guidance to water management agencies and provides elected officials, managers and the public with a broad perspective on a number of water supply issues. This UWMP identifies the current and future projected demands of the Groveland Community Services District (GCSD or District) water supply system. The District has compared available water supplies with expected future water demands, has analyzed the possibility of a drought-induced water shortage, and has adopted various management procedures to be implemented during both normal and emergency conditions.

1.2. Benefits

GCSD expects the implementation of long range water planning to help anticipate overall future water demands, identify timing for expansions to treatment plants, storage facilities or transmission lines, and foresee the need to increase water supplies. Use of recycled water will help augment raw water supplies and postpone the increased water supply demand. The Water Shortage Contingency Plans will provide uniform direction for District Board and staff decisions during periods of critical year drought.

1.3. Public Participation

GCSD will encourage public participation in the development of its Urban Water Management Plan updates, which will occur every five years. In the preparation of this UWMP, GCSD sought input from Tuolumne County, the Pine Mountain Lake Association, and the communities of Big Oak Flat and Groveland. Additionally, input will be sought from the District's Water Conservation Committee (WCC), which consists of District staff, Board members, and members of the public.

A public meeting workshop was held on December16, 2013, prior to final approval of the UWMP by the GCSD Board of Directors. The meeting was noticed in the Union Democrat, the Yosemite Highway Herald, the Pine Mountain Lake Association News, and on the District's website. Copies of the report were made available for public review at the District's office, as well as on the District's website. The public hearing notice is shown in Appendix A.

1.4. Plan Adoption

This is the first UWMP prepared by GCSD. This UWMP was adopted by the GCSD Board of Directors on January 6, 2013, and was later submitted to DWR. Appendix B contains a copy of the Resolution of Plan Adoption, as adopted by the Board of Directors.

1.5. GCSD's Service Area

GCSD is a public agency chartered under of California Government Code Section 61000, *et seq*. The District provides water, wastewater, fire, parks, and community buildings. GCSD service area covers approximately 25 square miles in southern Tuolumne County.

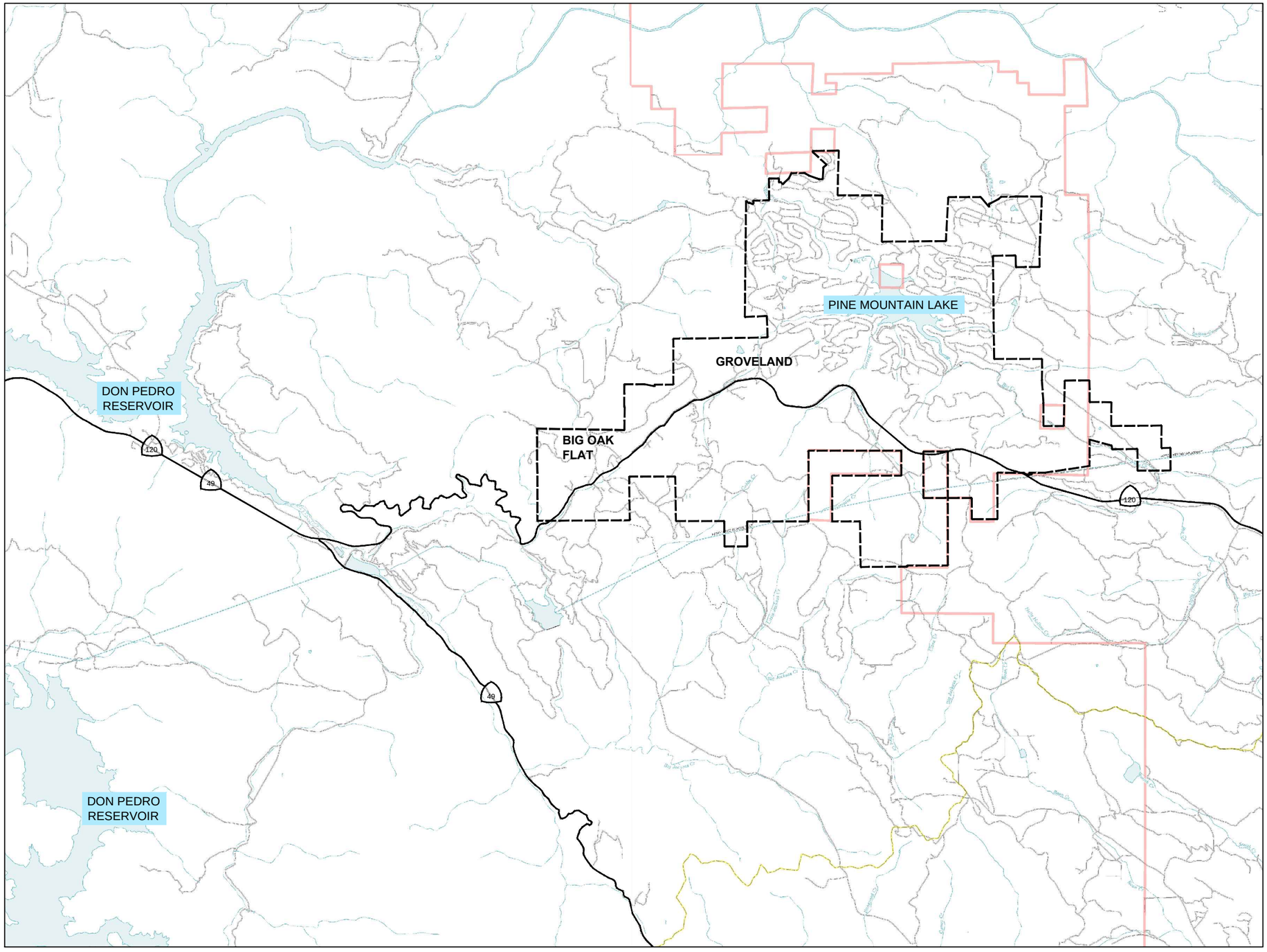
The District is bounded on the north by the Tuolumne River, on the south by Mariposa County, on the east by the Stanislaus National Forest, and on the west by Moccasin. GCSD is the owner and operator of the Groveland Water System, which receives water from the City and County of San Francisco. GCSD's Water System treats and distributes the water to the populated areas of Big Oak Flat, Groveland, and Pine Mountain Lake. Figure 1-1 shows the boundaries of the District's service area. GCSD's water supply and distribution system includes three water treatment plants, five storage reservoirs, and approximately 70 miles of distribution piping. The District provides treated water supply to approximately 3,500 customers. The District also owns and operates a regional wastewater collection, treatment, and regional recycled water system, which provides sewer service to approximately 1,500 connections within the District's service area.

1.6. Population Projections

In 1990, the combined population of Groveland, Big Oak Flat and Pine Mountain Lake (Groveland-Big Oak Flat CDP) was 2,753 full-time residents. According to the 2000 Census, the combined population of Groveland-Big Oak Flat CDP was 3,388 full-time residents. The 2010 Census separated Pine Mountain Lake, from Groveland-Big Oak Flat CDP. According to the 2010 Census, the combined population of Groveland-Big Oak Flat CDP and Pine Mountain Lake was 3,397 (601 + 2,796).

Table 1-1 shows the Groveland-Big Oak Flat CDP total population counts for years 1990, 2000, and 2010 and the observed annual growth rates between 1990 and 2000 and between 2000 and 2010.

2010 URBAN WATER MANAGEMENT PLAN



Groveland Community Services District

GCSD SERVICE AREA BOUNDARY

NORTH

0 6000' 12000'

SCALE: 1" = 6000'

FIGURE 1-1
GROVELAND CSD SERVICE AREA

Consulting Engineers

Table 1-1 US Census Population for Groveland CDP and observed Annual Growth

Year	1990	2000	2010
Groveland-Big Oak Flat CDP	2,753	3,388	3,397
Annual Growth Rate		2.1%	0.03%

Table 1-2 shows the estimated annual population in Groveland between 1990 and 2010 using the 1990, 2000 and 2010 Census values and the growth rates calculated in Table 1-1. Since GCSD's service area does not coincide with the Census boundaries, population within the GCSD service area is also included in the Table. The GCSD service area population has been calculated following *Appendix A of the Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use*. An exhibit showing GCSD's Service Area Boundary and the 2000 Census Blocks in included in Appendix C.

Table 1-2 Historical Annual Population

Year	Groveland- Big Oak Flat Population	GCSD's Service Area
1990	**2753**	**2774**
1991	2811	2832
1992	2870	2891
1993	2930	2952
1994	2991	3014
1995	3054	3077
1996	3118	3142
1997	3183	3208
1998	3250	3275
1999	3318	3344
2000	**3388**	**3414**
2001	3389	3415
2002	3390	3416
2003	3391	3417
2004	3392	3418
2005	3393	3419
2006	3394	3420
2007	3395	3421
2008	3396	3422
2009	3397	3423
2010	**3397**	**3424**

According to the Tuolumne County Economic Forecast, population in the County is expected to remain approximately unchanged for the foreseeable future. According to population projections by the California Department of Finance, population is expected to grow at an annual rate of 0.25% through year 2030. An annual growth rate of 0.25% is used in this report to project population growth within the Groveland CSD service area. Table 1-3 shows the population projections for Groveland-Big Oak Flat, CDP and GCSD's Service Area through year 2030 in five year increments.

Table 1-3 Population Projections

Year	2010	2015	2020	2025	2030
Groveland-Big Oak Flat CDP	3397	3440	3483	3527	3571
GCSD's Service Area	3424	3467	3511	3555	3600

Population estimates included in the Agreement between GCSD and the City of San Francisco (see Appendix D) of this report were developed in 1984 are not considered accurate given today's economic forecast.

1.7. Climate

Tuolumne County has a varying range of temperature and precipitation. The Sierra Nevada foothill areas experience hot, dry summers and mild winters. The higher elevations, above 5,000 feet, experience long and severe winters, accompanied by heavy snowfall. Table 1-4 shows the precipitation and temperature averages for the Groveland area.

Table 1-4 Temperature and Rainfall

	January	February	March	April	May	June
Average Rainfall inches	5.9	5.4	6.6	3.3	1.2	0.3
Average Temperature	39.4	42.5	46.7	51.4	58.2	65.3
	July	**August**	**September**	**October**	**November**	**December**
Average Rainfall inches	0.0	0.0	0.1	2.1	5.0	7.2
Average Temperature	71.1	71.8	65.2	56.4	49.4	40.5
Annual Average						
Average Rainfall	37.2	inches				
Temperatures	54.8	˚F				

1.8. Topography

The topography of Tuolumne County varies greatly, from gently rolling terrain at the lower elevations to steep hilly uplands deeply traversed by streams and tributaries that drain to the Tuolumne River. A large number of GCSD's customers reside in or near the communities of Big Oak Flat, Groveland, and Pine Mountain Lake which are at about the 2,800-foot elevation. GCSD treated water service area includes semi-rural areas up to about elevation 3,300 feet.

Two passes with paved roads cross the Sierra Nevada Mountains in Tuolumne County: Sonora Pass (9,628-feet) and Tioga Pass (9,941-feet). This high elevation to the east serves as the watershed for the GCSD water supply with significant snow pack during the winter months.

1.9. Soils and Land Use

The majority of Tuolumne County is underlain by hard, impermeable bedrock such as greenstone, schist, and granite. Some of these rocks are fractured and these fractures can yield relatively small amounts of groundwater to wells that intersect them.

The soils in the GCSD service area are derived from the underlying granodiorite and schist bedrock, which in places has weathered to decomposed granite with large, hard, residual boulders and thin soil mantle.

Large areas of Pliocene Mehrten formations overlie the granitic bedrock. The Mehrten contains mudflows, andesitic lava, tuff and gravel. In general the soil was formed in place by the weathering and decomposition of the underlying rock material.

Crop adaptability of the upland soils is largely restricted to irrigated pasture or various deciduous orchards. Both slope and soil depth directly affects the degree of suitability of lands for irrigation or development, as does public land ownership.

In 1897, the lumber industry realized the commercial value of the trees in the higher elevation. Logging subsequently has become a major industry for the County. Large segments of irrigable land within GCSD are presently forested and subject to forest and range management. This land possesses the slope and soil characteristics to sustain irrigable agriculture lands. However, due to the conditions of the climate, location and availability of water, it will in all likelihood remain under some type of forest or range management program.

Today, over half of the County remains under federal land management by the US Forest Service, the National Park Service, and the Bureau of Land Management. The Stanislaus National Forest, Emigrant Wilderness, and most of Yosemite National Park are located within Tuolumne County. For this reason, future development will be limited. In the Groveland area, tourism, and to a lesser extent, logging are the major industries. Residential development, primarily retirees and people building second homes, is slowly growing in the GCSD service area.

1.10. Background and History of GCSD's Water System

Since the early California Gold Rush days, the Groveland area was a center of gold mining activity. However, from its beginnings the area has not had sufficient water to support these activities. Over the years many have undertaken efforts to bring water to Groveland and Big Oak Flat, and have met with varying and usually limited successes. On August 19, 1953, the Groveland Communities Services District was formed to bring much needed utility services to the Groveland area and later (1964) to the Big Oak Flat area. At first, the District tried to meet its growing water needs by tapping into groundwater from flooded mine shafts and tunnels that lay beneath the town. This water was of generally poor quality, and contained an abundance of iron and manganese. In 1964 the District secured the rights to pump water from the City and County of San Francisco’s Hetch Hetchy Mountain Tunnel Aqueduct, which runs beneath the District’s service area.

Through the course of its history, the Groveland Community Services District has primarily served the residential and commercial sectors of the community.

SECTION 2 - WATER SUPPLY SOURCES

2.1. Water Supply Sources

GCSD has three primary sources of water: (1) surface water from the San Francisco Public Utility Commission's (SFPUC) Hetch Hetchy Mountain Tunnel (two locations, Second Garrote Shaft and Big Creek Shaft) (2) surface water that flows into Pine Mountain Lake (water rights owned by Turlock Irrigation District) and (3) recycled water. The surface water supply from the Hetch Hetchy Mountain Tunnel accounts for 99.7 percent of total supply. The remaining 0.3 percent comes from Pine Mountain Lake. Groundwater in Tuolumne County is severely limited due to the hard, impermeable bedrock that covers the majority of the County and due to the high naturally occurring iron content of the groundwater. Recycled water is used by the Pine Mountain Lake Association's Golf Course and by the District's spray fields.

2.2. Surface Water

Surface water is supplied to GCSD from the Hetch Hetchy Mountain Tunnel under a 1964 Agreement with the City and County of San Francisco. The Agreement was extended in 1984 and expires on March 23, 2034. Under the terms of the Agreement, GCSD is a retail customer of the City and County of San Francisco.

The supply source for Hetch Hetchy Reservoir is the Tuolumne River. The majority of this water supply originates in the upper Tuolumne River Watershed high in the Sierra Nevada Mountain Range, remote from human development and pollution. This pristine water source is protected in tunnels until it gets to GCSD. The U.S. Environmental Protection Agency (USEPA) and the California Department of Public Health (CDPH) have approved the use of this drinking water source without requiring filtration. GCSD also chlorinates, chloraminates, and treats the water with ultraviolet light disinfection. The water meets the criteria of the Long Term 2 (LT2) surface water supply regulations.

The Agreement with SFPUC allows for the District to serve up to 16,299 customers (3,651 acre feet per year) by the year 2020 and 22,072 customers (4,944 acre feet per year) by the year 2050. The projection includes a factor of 200 gallons of water per customer per day. A copy of the Agreement is provided in Appendix D. The Agreement defines a contract service area boundary of 25 square miles. The District's service area is within the contract area and has not yet reached this sphere of influence boundary. Population, however, has not increased as originally anticipated in the Agreement and is not expected to grow significantly in the near future.

A Water Exchange Agreement was entered into between the City and County of San Francisco's Public Utility Commission (SFPUC), the Modesto Irrigation District (MID) and Turlock Irrigation

District (TID) on July 23, 2007. The Agreement allows GCSD to use Pine Mountain Lake as its alternative water supply when the SFPUC shuts down the Hetch Hetchy Mountain Tunnel for durations up to 60 days per year for tunnel repair or during emergencies. The volume of water that will be allowed to be used during the shutdowns is 200 acre-feet. The Water Exchange Agreement is provided in Appendix D.

In November of 2007, the District purchased a Pall Aria Microfiltration (MF) Water Treatment System from the Pall Corporation. The Pall MF system enables the District to filter and treat water from PML and pump the water into its distribution system. PML is a separate water supply source for the District. The District received an interim permit to operate the Pall MF system from the California Department of Public Health on March 4, 2009. A full operational permit was issued in May of 2013, for a maximum flow rate of 600 gallons per minute (gpm) or (0.86 million gallons per day (MGD) with two membrane racks in service (Water Permit No. 03-11-13P-008, for System No. 5510009).

2.3. Recycled Water

The District owns and operates the Regional Wastewater System which collects wastewater from about half of the water customers within the principal communities and developed areas within the District, and transmits it to the Regional Wastewater Treatment Plant for treatment. The treated wastewater (recycled water) from GCSD is then delivered to the Pine Mountain Lake Association's 18-hole golf course and the District's 14 acres of spray fields. The District's recycled water supply and the use of such recycled water are more fully described in Section 8 of this Plan.

2.4. Desalination

The UWMPA requires water agencies to consider options for desalination. GCSD is located a considerable distance from the Pacific Ocean so constructing a transmission main to move either sea water or desalinated water directly to the GCSD is not feasible and is cost prohibitive.

In order to acquire additional water supplies, GCSD may enter into an agreement with SFPUC or a SWP contractor situated in close proximity to the ocean. Under such an arrangement, GCSD could use funds collected from the developer fee to contribute financially to the construction of a desalination facility, and in turn, the partnering agency would transfer a portion of their water produced by the desalination facility to GCSD.

SECTION 3 - WATER USE IN GCSD

3.1. Historical and Projected Water Use

GCSD receives surface water at three different locations: Second Garrote WTP, Big Creek WTP and the Alternative Water Supply WTP. Table 3-1 shows the historical water use from each location and the total annual water usage.

Table 3-1 Historical Water Usage (million gallons)

Year	Second Garrote	Big Creek	Alternative Water Supply	Total
1995	52.43	92.64	0.00	145.07
1996	54.46	108.52	0.00	162.98
1997	80.63	85.25	0.00	165.88
1998	45.08	107.07	0.00	152.15
1999	38.86	114.24	0.00	153.10
2000	51.17	118.78	0.00	169.95
2001	48.44	119.03	0.00	167.47
2002	46.09	122.93	0.00	169.02
2003	45.62	114.56	0.00	160.18
2004	48.75	121.52	0.00	170.27
2005	50.17	112.93	0.00	163.10
2006	49.98	113.05	0.00	163.03
2007	50.47	114.05	0.00	164.52
2008	48.84	123.59	0.00	172.43
2009	56.69	107.33	0.00	164.02
2010	49.93	99.99	7.72	157.64
2011	50.30	83.46	1.58	135.33
2012	62.84	82.94	0.00	145.78

According to Table 3-1, the average per capita consumption at GCSD is 130 gpcd from 1995 through 2012, Table 3-2 shows the projected water use in the GCDS service area from 2015 through 2030 in 5 year increments. Projected water use assumed 130 gpcd and does not take into account reductions that may be achieved through water conservation efforts.

Table 3-2 Projected Water Use (million gallons)

Year	2015	2020	2025	2030
GCSD Service Area Population	3467	3511	3555	3600
Projected Annual Water Use, MG	164.5	166.6	168.7	170.8

3.2. Baselines and Targets

The UWMPA requires that the UWMP identify the baseline water demand, urban water use target, and interim urban water use target for GCSD. The base daily per capita use is the first step in determining the GCSD's various water use targets over the 20-year planning horizon. The year 2000 per capita use sets the "baseline" on which the urban and interim water use targets are determined. These targets are necessary to judge compliance with the 2020 use reductions set forth in the Water Conservation Bill of 2009.

3.2.1. Baseline

As described in Senate Bill 7 of Special Extended Session 7 (SBX7-7), it is the intent of the California legislature to increase water use efficiency and the legislature has set a goal of a 20percent per capita reduction in urban water use statewide by 2020. SBX7-7 requires that retail water suppliers comply with its requirements.

Consistent with SBX7-7, the 2010 UWMP must provide an estimate of Base Daily Per Capita Water Use. This estimate utilizes information on population as well as base gross water use. For the purposes of this UWMP, population was estimated as described in Section 1.6.

The UWMPA allows urban water retailers to evaluate their base daily per capita water use using a 10 or 15-year period. A 15-year base period within the range January 1, 1990 to December 31, 2010 is allowed if recycled water made up 10 percent or more of the 2008 retail water delivery. If recycled water did not make up 10 percent or more of the 2008 retail water customer delivery, then a retailer must use a 10-year base period within the range January 1, 1995 to December 31, 2010. GCSD's recycled water does not offset the retail water deliveries since the Golf Course does not use GCSD potable water for irrigation. Thus, recycled water did not make up 10 percent of the GCSD's 2008 retail water delivery and for this reason Base Daily Per Capita Water Use has been based on a 10-year period. Table 3-3 shows the base period ranged used in this UWMP

The data used to calculate the 10-year baseline is included in Table 3-4. The UWMPA requires a continuous range, with the end of the range ending between December 31, 2004 and December 31, 2010, be used for baseline determination.

Table 3-3 Base Period Ranges

Base	Parameter	Value	Units
10 to 15 Year Base Period	2008 Total Water Deliveries	528.92	AFY
	2008 Total Volume of Recycled Water	0	AFY
	2008 Recycled Water as a percent of total deliveries	0	Percent
	Number of years in base period	10	Years
	Year beginning base period range	1996	
	Year ending base period Range	2005	
5 year Base Period	Number of years in base period		Years
	Year beginning base period range	2003	
	Year ending base period Range	2007	

Table 3-4 Base Daily Per Capita Water Use – 10 year Range

Base Period Year		Service Area Population	Daily System Gross Water Use (mgd)	Annual Daily Per Capita Water Use
Sequence	Calendar Year			
1	1996	3142	0.4465	142.1
2	1997	3208	0.4545	141.7
3	1998	3275	0.4168	127.3
4	1999	3344	0.4195	125.4
5	**2000**	**3414**	**0.4656**	**136.4**
6	2001	3415	0.4588	134.3
7	2002	3416	0.4631	135.6
8	2003	3417	0.4388	128.4
9	2004	3418	0.4665	136.5
10	2005	3419	0.4468	130.7
			Base Daily Per Capita Water Use	133.8

The data used to calculate the 5-year baseline is included in Table 3-5. The UWMPA requires a continuous range, with the end of the range ending between December 31, 2007 and December 31, 2010, be used for baseline determination.

Table 3-5 Base Daily Per Capita Water Use – 5 year Range

Base Period Year		Service Area Population	Daily System Gross Water Use (mgd)	Annual Daily Per Capita Water Use
Sequence	Calendar Year			
1	2003	3417	0.4388	128.4
2	2004	3418	0.4665	136.5
3	2005	3419	0.4468	130.7
4	2006	3420	0.4467	130.6
5	2007	3421	0.4507	131.8
			Base Daily Per Capita Water Use	131.6

3.2.2. Target

The UWMPA requires urban water suppliers to determine the interim and urban water use targets for 2015 and 2020, respectively. Four target methods have been developed by legislation, and identify the specific steps water suppliers shall follow to establish these targets. This UWMP uses Method 1, which requires an urban water supplier to first determine the base daily per capita use. In order to determine the target using Method 1, 80 percent of the base daily per capita use is calculated. Based on the daily per capita use of 133.8 gallons per capita per day (gpcd) determined previously (Table 3-4), the target use for Method 1 is 107.0

3.2.2.1. Minimum Water Use Reduction Requirement

The final step in determining the applicability of the water use target for GCSD is to confirm that the water use targets meet the minimum reduction requirements as defined by DWR. To confirm the target, the 5-year average baseline (131.6 gpcd) previously determined (Table 3-5) is used. In order to meet the minimum criteria, the chosen 2020 water use target must fall below 95 percent of the 5-year baseline, which for the District is 125.0 gpcd.

3.3. Summary of Baselines and Targets

Based on the water use targets calculated above, GCSD's water use target for 2020 is 107.0 gpcd. Based on the 10-year baseline of 133.8 gpcd, the 2015 interim water use target is 120.4 gpcd. According to the DWR guidelines, this target is valid since it is less than the target confirmation criteria of 125.8 gpcd. A summary of the 5- and 10-year baselines, target per capita consumptions determined based on DWR-recommended methodologies, and the final 2020 use target and interim 2015 target are summarized in Table 3-6.

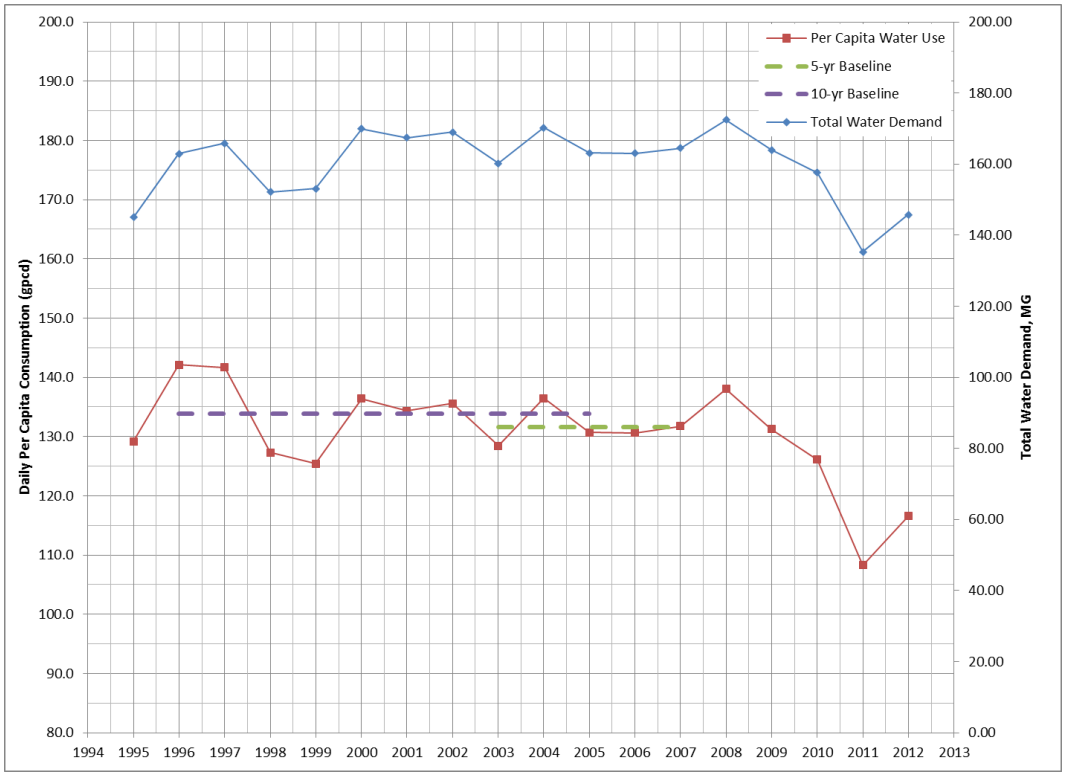
GCSD's historical water production and per capita use for the period 1995 through 2010 is shown in Figure 3-1. Figure 3-1 also depicts the selected 5-year and 10-year baseline values, as well as the GCSD's 2020 per capita water use target.

Table 3-6 Baselines and Target Summary

Baselines (gpcd)(1)		Target Confirmation (gpcd)(2)	Target (gpcd)(3)	Interim Target (gpcd)(4)
10-Year	5-Year			
133.8	131.6	125.0	107.1	120.5

(1) Refer to Tables 3-3 and 3-4 for source of data.
(2) Defined as 95 percent of the 5-year base daily per capita water use.
(3) Urban Water Use Target determined using Method 1.
(4) Interim Urban Water Use Target defined as the average of the 10-year base per capita water use and Urban Water Use Target.

Figure 3-1 Historical Per Capita Water Consumption and Production



SECTION 4 - RELIABILITY AND PLANNING

4.1. Past Drought and Water Demands

Current demand for water within GCSD is approximately 155.04 MG per year[1]. This demand is based on water pumped at the three WTPs. GCSD's water supply reliability is expressed in terms of the system's ability to deliver water during droughts. Reliability is defined by the amount and frequency of water delivery reductions required to balance customer demands with available supplies during droughts. GCSD receives water from the San Francisco Public Utilities Commission (SFPUC). The SFPUC plans its water deliveries anticipating that an unprecedented drought may occur.

The total amount of water SFPUC has available to deliver is dependent on several factors, including the amount of water that is available from natural runoff, the amount of water in storage, and the amount of water that must be released for fishery purposes.

The 1987-92 drought profoundly highlighted the shortfall between the SFPUC's supplies and demand. Based on that experience, the SFPUC assumes its "firm" capability to include that period plus an additional period of limited water availability. This "design drought" serves as the basis for planning and modeling future drought scenarios. The SFPUC design drought sequence totals an 8½-year period and is based on historical hydrology, prospective drought, and that the last 6 months of the prospective drought is the beginning of the system recovery period.

Since 1995, water demand has generally paralleled population increases. Historically, per capita water consumption has increased due to greater use of home appliances, landscaping, and other uses. However, as depicted in Figure 3-1, the economic recession, officially dated from December of 2007 through June 2009, can be seen as having a noticeably decreasing effect on water demand within the District's service area.

GCSD adopted its most recently updated Water Rules and Regulations on February 25, 2008. The Ordinance does little to address GCSD's water conservation plan other than to state that if it is determined by the District that water is being negligently or wastefully used, that the District has the right to discontinue service to that customer within 5 days of giving that customer notice. However, because of the impending drought that started in 2006, the District did send out letters to all customers letting them know how they could help the District conserve water. The District maintains these suggested conservation measures on its web site.

[1]Based on an average of the last five years (2007-2012).

4.2. Plans to Assure a Reliable Water Supply

The SFPUC plans to assure a reliable water supply during drought years and has implemented a Water System Improvement Plan to meet the demands of its customers. Since GCSD is on the upper part of Hetch Hetchy Aqueduct system, little or no improvement will be needed to supply GCSD under drought conditions. That, coupled with the fact that GCSD uses only 0.4 million gallons per day average compared to the 265 million gallons per day that the SFPUC delivers, makes it an insignificant impact to water supply.

SFPUC has established guidelines for water rationing during drought conditions. These guidelines are used as the basis by GCSD for voluntary and mandatory cut backs during drought conditions. They are listed in Section 7of this plan.

GCSD has experienced periodic short-term outages as a result of water quality events. Due to the fact that Hetch Hetchy water is not filtered, it is subject to strict water quality standards set by the Department of Public Health. Due to occasional weather events, turbidity levels of the raw water supply sometimes exceed standards. During those events, GCSD uses its 6.7 million gallons of local reservoir storage to meet the demands of the customers. That is enough local storage to meet approximately 17 days of average annual demand. The District also plans to add another 500,000-gallon storage reservoir in the Big Oak Flat area of the District.

The District plans to install an acoustical leak detection monitoring system in its distribution system to identify water losses in the distribution system. This will be done when the water meters are converted to an automated meter reading system. The acoustical monitors will be placed on every 10th meter in the system. The data will be analyzed monthly and distribution system loss will be targeted and problem areas repaired.

Because GCSD has a contract service area agreement with SFPUC until 2034 and GCSD is located on the uppermost portion of their transmission system, GCSD and SFPUC estimate that sufficient quantities of water will be available from the Hetch Hetchy system to meet projected demands over the next twenty years, assuming a projected growth rate of 1.0 percent per year.

4.3. Normal, Single Dry-Year, and Three-Year Minimum Water Supply

To provide some level of assurance that water could be delivered continuously throughout a drought (although at reduced levels), the SFPUC adopted a drought planning sequence and associated operating procedures that trigger different levels of water delivery reduction rationing relative to the volume of water actually stored in SFPUC reservoirs. Each year, during the snowmelt period, the SFPUC evaluates the amount of total water storage expected to occur throughout the RWS. If this evaluation finds the projected total water storage to be less than an identified level sufficient to provide sustained deliveries during drought, the SFPUC may impose delivery reductions or rationing.

Assuming a normal year water condition (2005), no deficiencies in water deliveries are anticipated. The SFPUC system water deliveries are approximately 265 mgd (of which GCSD's portion is 0.4 mgd), all of which can be met through existing resources.

The SFPUC plans its water deliveries anticipating that a drought worse than the 1987 through 1992 drought may occur. As a result, the SFPUC system operations are designed for providing sufficient carry-over water in SFPUC reservoirs after six years of drought. This design would enable the SFPUC to continue delivering water, although at significantly reduced levels, during and after a drought. Other than the 1976-77 drought, drought sequences in the past did not seriously affect the ability of the SFPUC to maintain full deliveries to its customers. Table 4-1 presents the base years for the development of water year data.

Table 4-1 Basis of Water Year Data

Water Year Type	Base Years
Normal Water Year	2005
Single-Dry Water Year[(1)]	1977
Multiple-Dry Water Year[(1)]	1987-1992
[(1)]From SFPUC 2010 UWMP	

The SFPUC currently operates under a plan that anticipates three stages of response to water supply shortages. These responses range from voluntary customer actions, to enforced rationing, to a third stage response strictly reserved for unprecedented drought periods. Table 4-2 shows the expected shortages during dry years from SFPUC system at current demand levels.

Table 4-2 Expected Shortages during Dry years

Normal Water Year	Single Dry Water Year	Dry Year 1	Dry Year 2	Dry Year 3
299,000 ac-ft	269,000 ac-ft	269,000 ac-ft	239,000 ac-ft	239,000 ac-ft
100%	90%	90%	80%	80%

The 1987-1992 drought period includes one-year and three-year sequences that are among the worst hydrologic periods project for the SFPUC system. If within the next year a single dry (critical) year occurs, the SFPUC system deliveries could be reduced by 10 percent as a precaution to continued drought. If within the next three years a critical three-year sequence recurred, the SFPUC system deliveries could be reduced by 10 to 20 percent.

The SFPUC is in the process of identifying 10 mgd of groundwater, recycled water, and conservation programs to reduce the need for rationing when demand levels increase in the future. That will decrease the amount of conservation required in a drought and is currently estimated to be a 10 percent reduction.

4.4. Transfer or Exchange Opportunities

A Water Exchange Agreement was entered into between the City and County of San Francisco's Public Utility Commission (SFPUC), Modesto Irrigation District (MID) and Turlock Irrigation District (TID) on July 23, 2007. The Agreement allows GCSD to use Pine Mountain Lake as their alternative water supply when the SFPUC shuts down the Hetch Hetchy Mountain Tunnel for durations up to 60 days per year for planned tunnel repair. This alternative water supply can also be used in the event of an unplanned outage of the Mountain Tunnel or during an emergency within the District water treatment system. The Water Exchange Agreement is provided in Appendix E.

4.5. Catastrophic Supply Interruption Plan

As noted in Section 2.2, the District purchased a Pall Aria Microfiltration (MF) Water Treatment System from the Pall Corporation in November of 2007. In the event of a catastrophic supply interruption the Pall system, known as the Alternative Water Supply Treatment Plant, or AWS, can be brought online within a matter of hours to produce potable water for the District's customers. The Pall Aria MF system is designed and permitted to pump water from Pine Mountain Lake, which is a separate surface water source for the District.

The Pall Aria Microfiltration (MF) System is contained within a semi-trailer, allowing the treatment plant to be moved where needed. Two 21,000 gallon mobile chlorine contact tanks, a mobile chemical supply trailer, and a mobile booster pump trailer accompany the MF semi-trailer. The District has negotiated a site rental agreement with the Pine Mountain Lake Association (PMLA) so as to have a semi-permanent location for the Pall trailer and associated equipment in the PMLA maintenance yard. This precludes the necessity of decommissioning and moving the trailer and equipment back to GCSD property for storage during non-use periods, and then moving the equipment back for re-commissioning when needed.

With proper water management and conservation practices, and the use of the Pall MF system, the District was able to produce potable water from Pine Mountain Lake on three separate occasions during 2010, 2011, and 2012. Between January 4 and February 8 of 2010 the SFPUC shut down the Mountain Tunnel for evaluation and repairs. During this timeframe 7.72 million gallons (MG) of water was produced by utilizing the Pall MF system. From September 21 through October 18 of 2011 2.76 MG of water were produced with the Pall MF system while the Districts Big Creek water treatment plant's turbine pump, shaft, and bowls were removed for evaluation and repairs. Treatment operators produced approximately 3.21 MG between December 5 of 2011 through January 7 of 2012 when the SFPUC again shut down the Mountain Tunnel again for evaluation and repairs.

Possible catastrophic interruptions to the Districts water supply could occur due to flooding, major fire emergencies, regional power outages, earthquakes, and water contamination, or acts

of sabotage. The action stages to be implemented during a catastrophic water supply interruption are described below.

4.5.1. Flooding

The District's facilities and water treatment plants, located in the foothills of the Sierra Nevada Mountains, are at low risk from flooding. However, redundancy has been built into the treatment and distribution systems in the event that flooding should incapacitate any of the District's facilities. If the District's Big Creek water treatment plant was placed out of service due to flooding, production at the Second Garrote water treatment plant would be increased in order to meet demand. Conversely, water production at the Big Creek facility can be increased, should the Second Garrote treatment plant become unusable. Additionally, the District's Alternative Water Supply (AWS) microfiltration plant can be activated in a matter of hours should either or both of the permanent water treatment plants become inactive. The AWS treats water from Pine Mountain Lake, which is a separate supply source.

4.5.2. Major Fire Emergencies

The District has redundancy in multiple water storage tanks, two separate permanent water treatment plants, and its mobile Alternative Water Supply (AWS) microfiltration plant. The AWS provides an added benefit to the District because it utilizes a separate surface water supply source. Should one or the other treatment plant be incapacitated by a major fire emergency, production at other treatment facilities can be increased to compensate. Production at any of the plants can be increased in order to provide additional water for fire protection services.

The District has governing authority over the local fire department. In the event of a fire emergency, District personnel maintain contact with local firefighting agencies by telephone or by face to face contact. The District maintains five water storage tanks within its distribution system with varying tank volumes. Tank 1 has a maximum storage capacity of 500,000 gallons, Tank 2 - 750,000, Tank 3 - 750,000, Tank 4 - 500,000, and Tank 5 – 140,000 gallons. Additionally, the District maintains a 2,000,000 gallon clearwell at its Second Garrote and at its Big Creek water treatment plants. Total storage volume, including the clearwells is equal to 6,640,000 gallons. Tank levels are maintained at near capacity during the fire season. Storage tank levels and water production can be increased immediately by District water treatment personnel. Water treatment plant operators are on call twenty-four hours a day, seven days a week on a rotational basis.

4.5.3. Regional Power Outage

In the event of a regional power outage, the District is prepared to meet water demands through the use of backup generators located at both of the permanent water treatment plants, its Alternative Water Supply (AWS) microfiltration plant, storage tanks, and pump stations. Additional power redundancy has been provided for the District's radio and SCADA systems.

4.5.4. Earthquake

The District's water system infrastructure, including treatment plants, pump stations, storage tanks, and pipelines, could be damaged during a strong earthquake. The District is located in USGS Earthquake Zone 3 = 0.30g. Although the District is not located within a highly active seismic zone, some facilities could be damaged as the result of an earthquake up to a magnitude of 6.0 on the Richter scale. The District has planned for this potential by constructing redundancy into its water system. The District has two existing permanent water treatment plants, a mobile Alternative Water Supply (AWS) microfiltration plant, multiple storage tanks, looped distribution pipelines, and isolation valves, to allow potentially damaged portions of the District's system to be isolated and repaired.

4.5.5. Water Contamination or Acts of Sabotage

A catastrophic interruption in water supply could occur if the SFPUC's Hetch Hetchy Reservoir or Mountain Tunnel became contaminated (e.g., due to a chemical spill, act of sabotage, or other environmental incident) or either of the Districts permanent water treatment plants are shutdown (e.g., due to a treatment process or mechanical failure or an act of sabotage). In such a case, the District can rely on its unaffected storage capacity and the Alternative Water Supply (AWS) Microfiltration system to supply water from Pine Mountain Lake.

SECTION 5 - SUPPLY AND DEMAND COMPARISON PROVISIONS

5.1. Supply and Demand Comparison

The UWMPA requires that the UWMP demonstrate that sufficient water supplies be available to meet the next 25 years of projected water demands under different water year types in five year increments. The available supplies and water demands for GCSD's service area are analyzed in this Section to assess the ability to satisfy demands during three scenarios: a normal water year, single-dry year, and multiple-dry years. The tables in this section present the supplies and demands for the various drought scenarios during the projected planning period of 2010-2035.

5.1.1. Normal Water Year

Table 5-1 summarizes GCSD's water supplies available to meet demands over the 20-year planning period during an average/normal year.

Table 5-1 Supply and Demand Comparison – Normal Year

	2015	2020	2025	2030
Supply Totals	3,217	3,651	3,867	4,082
Demand Totals	505	511	517	524
Difference	2,713	3,140	3,349	3,558
Difference as a % of Supply	84%	86%	87%	87%
Difference as a % of Demand	538%	614%	647%	679%

5.1.2. Single Dry Year

The water supplies and demands for GCSD's service area over the 20-year planning period in the event that a single-dry year occurs assume a drought similar to the one that occurred in California in 1977. Table 5-2 summarizes the existing and planned supplies available to meet demands during a single-dry year. Demand during dry years was assumed to increase by 10 percent based on the average year projections.

Table 5-2 Supply and Demand Comparison – Single Dry Year

	2015	2020	2025	2030
Supply Totals	3,217	3,651	3,867	4,082
Demand Totals	505	511	517	524
Difference	2,713	3,140	3,349	3,558
Difference as a % of Supply	84%	86%	87%	87%
Difference as a % of Demand	538%	614%	647%	679%

5.1.3. Multiple Dry Year

The water supplies and demands for GCSD's service area over the 20-year planning period in the event that a multiple-dry year event occurs (similar to the drought that occurred during the years 1987 to 1992) are summarized in Table 5-3 demand during dry years was assumed to increase by 10 percent based on the single dry year projections.

Table 5-3 Supply and Demand Comparison – Multiple Dry Year

		2015	2020	2025	2030
Multiple Dry Year – First Year Supply	Supply Totals	3,217	3,651	3,867	4,082
	Demand Totals	505	511	517	524
	Difference	2,713	3,140	3,349	3,558
	Difference as a % of Supply	84%	86%	87%	87%
	Difference as a % of Demand	538%	614%	647%	679%
Multiple Dry Year – Second Year Supply	Supply Totals	3,217	3,651	3,867	4,082
	Demand Totals	505	511	517	524
	Difference	2,713	3,140	3,349	3,558
	Difference as a % of Supply	84%	86%	87%	87%
	Difference as a % of Demand	538%	614%	647%	679%
Multiple Dry Year – Third Year Supply	Supply Totals	3,217	3,651	3,867	4,082
	Demand Totals	505	511	517	524
	Difference	2,713	3,140	3,349	3,558
	Difference as a % of Supply	84%	86%	87%	87%
	Difference as a % of Demand	538%	614%	647%	679%

SECTION 6 - WATER DEMAND MANAGEMENT MEASURES

This section describes all water conservation measures being implemented or under development by GCSD. The District is committed to achieving the 20% reduction in per capita water use by year 2020 per State mandated SBX7-7. Strategies include adopting the Best Management Practices (BMP's) – those proven water conserving benchmarks that we can implement and even improve. Emphasis is on approaches that emphasize Low Impact Development (LID) in the broader definition – measures that either enhance or do not significantly diminish environmental quality.

Water conservation policies at GCSD are developed by the Water Conservation Committee (WCC), consisting of public experts, GCSD employees, and GCSD board members. Policies recommended by the WCC are subject to the approval of the GCSD Board of Directors.

GCSD shall pro-actively educate and engage our customers on the myriad of opportunities for water conservation. GCSD will identify and promote water conservation opportunities as described in this section. Monetary incentives will be offered to customers that reduce water use by their own efforts. The water conservation program is being structured to benefit customers and the GCSD with quantifiable results. Careful consideration of Return on Investment (ROI) will steer GCSD and customers to take on the most economically productive actions. Customers who do not participate in water conservation will end up paying substantially higher fees and rates. Both customers that conserve and our pristine environment will benefit.

6.1. DMM 1 - Water Survey Programs

GCSD is planning to engage the Master Gardener program, which provides free residential water use surveys to customers upon request. The Master Gardeners can also provide landscape surveys, including sprinkler system efficiency, distribution uniformity, seasonal scheduling and repairs or improvements. GCSD will track the number of surveys performed annually beginning in 2014.

The GCSD's annual customer survey will include inquiries regarding customer water conservation efforts.

6.2. DMM 2 - Residential Plumbing Retrofit

GCSD plans to offer water-saving kits free upon customer request. The water-saving kits include free showerhead replacements and a device for reducing toilet flush water for regular toilets. GCSD will track the number of kits requested annually. In addition to the water-saving kits, GCSD will be offering a rebate program for ultra-low-flush toilet replacement in 2014 (see DMM 14).

GCSD will develop policies that mandate water conserving plumbing for new homes and developments in accordance with proven LID techniques, including mechanical water re-use such as the recycling of heat pump and/or air conditioner condensations.

For existing homes, retrofit information is contained in section 6.6 (High efficiency washing machine rebates), and section 6.16 (Graywater support).

6.3. DMM 3 - System Water Audits, Leak Detection and Repair

GCSD intends to install an acoustical water leak detection system and repair program in the near future. Records will be kept annually on water production versus consumption to track unaccounted water in the system. GCSD will budget each year to repair distribution system pipelines.

In addition, a new automated meter reading system is being implemented. The new AMR system will allow the District to identify when a customer's meter has not stopped for 1 hour in 7 days. This will allow GCSD to audit the meters and proactively identify and stop customer leaks. GCSD will also evaluate customer records and conduct water audits prioritized by high consumption to initiate action to reduce water usage by these customers.

6.4. DMM 4 - Metering with Commodity Rates

GCSD's water systems are fully metered and GCSD's rates and charges include increasing commodity rates as usage increases. The tiered rate structure is provided in Appendix F. The first tier is the lifeline tier and includes a volume per month rate of 0-4000 gallons for residential customers. Rates double for tier 2, which is effective for the interval 4001 to 7000 gallons. By tier 4, rates are 4x the lifeline tier for every gallon over 12,000 gallons used in a month. Sewer rates are constant (do not change with water use) Table 6-1, below, illustrates how the rates apply not only to water use, but also to those customers also provided sewer service.

Table 6-1 GCSD Water and Sewer Rates, Tiered System ($ per 1,000 gal)

Tiered Rate System		Residential Charges			Commercial Charges
Tier	Volume Used	Water Only	Sewer Rate	Total	Water and Sewer
1	0 to 4,000 gallons	$1.90**	$6.98	$8.88**	$13.11**
2	4,000 to 7000 gallons	$3.79	$6.98	$10.77	$15.00
3	7,000 to 12,000 gallons	$5.69	$6.98	$12.67	$16.90
4	> 12,000 gallons	$7.57**	$6.98	$14.55**	$18.78**

* Per GCSD Rate Sheet 6 01 2010 (2).doc dated 8/6/2013 (see Appendix F).

** Customer Cost per Gallon: Water Only: Tier 1 ~ 1/5 Cent ..... at Tier 4 ~ 8/10 Cent
Water & Sewer: Tier 1 ~ 9/10 Cent.... at Tier 4 ~ 1.5 Cent
Commercial W&S: Tier 1 ~ 1.3 Cent..... at Tier 4 ~ 1.9 Cent

Note: GCSD buys untreated Hetch Hetchy (SFPUC) water for 1/10 cent per gallon ($0.00104). In 2011, GCSD purchased ~133,000,000 gallons (408 acre feet) for $138,000. This represents a cost of $338 per acre foot.

In FY 2014/2015, GCSD shall conduct a rate study that will likely apply higher fees than presently in place for rate tiers 2, 3, and 4. Higher fees yet may be implemented under drought conditions. The rate study may reduce the volume of water applicable to baseline rate tier 1. The study may also justify applying a variable rate (tiered system) to the sewer rate. This ordinance revision shall be implemented under the constraints of the proposition 218 process. The intention is to amend the Water Ordinance applying a more conservative baseline water volume for the lifeline rate (Tier 1) while applying higher rates to Tiers 2, 3 and 4 to more dramatically incentivize conservation.

In Section 7, the Water Shortage Contingency Plan describes the actions to be taken by GCSD under the conditions of stage 1, 2, and 3 droughts. The revised water ordinance will define the increased rates applied to the tiers under water shortage conditions.

6.5. DMM 5 – Large Landscape Conservation Programs

The District is located in a forested region comprised of mixed conifers and deciduous trees in the western Sierra Nevada foothills where the elevation spans from 2500 to 3300 feet. Landscaping in the District at most residences is minimal in comparison with a typical suburban area, although there are some avid gardeners. Commercial and Industrial users have relatively minimal potable water use on exterior landscaping. However, institutions, such as schools, use large volumes of potable water to irrigate sports playing field lawns.

GCSD reviews all landscape plans proposed for new developments in coordination with the County Planning and Building Department. Drought tolerant native plants are recommended. Irrigated lawns are discouraged. GCSD's Website shall, by 2015, offer a headline tab for Water Conservation including checklist recommendations applicable to our environment as well as links to general resources for Best Management Practices for Low Impact Development with respect to landscaping. These recommendations are applicable to existing landscape infrastructure as well as new developments.

LID applicable measures include EPA recommendations for "green infrastructure" such as the re-use of site generated storm runoff by means of contoured slopes and catchment basins beneficial to native flora, percolation, and evapotranspiration. Landscaping with drought tolerant native plants not requiring potable water irrigation is strongly encouraged. For gardens, rainwater catchment (from roofs) will be promoted by means of a developing program for water storage for the dual purpose of irrigation and fire protection. Graywater re-used from interior building sources is applicable to some landscaping scenarios, such as for irrigating native trees, bushes, and smaller plants, as well as fruiting vines and trees. Where potable water is used for landscaping, GCSD will make every effort to educate customers to implement the most efficient methods.

Besides the prominent Water Conservation section on the GCSD website, the District will identify large water volume users, and then assist them in exploring and putting into practice

the best ways to reduce water use. The tiered rate schedule for volume use of water will be a strong incentive for most customers to minimize the use of potable water on exterior landscaping.

6.5.1. Pine Mountain Lake Golf Course

Pine Mountain Lake Golf Course maintenance personnel typically irrigate the golf course by pumping surface water from Pine Mountain Lake. No potable water produced at the District's water treatment plants is utilized for irrigation of the golf course. However, the District does dispose of a large portion of its treated wastewater by pumping it to the Pine Mountain Lake Maintenance Yard irrigation holding pond. This treated wastewater is blended with water from Pine Mountain Lake and is then used to irrigate the golf course. Additionally, the District disposes of treated wastewater through the irrigation of approximately 14 acres of spray fields located on District property. Volumes of treated wastewater sent to the PML golf course and the District's irrigation fields are presented in Section 8.2.

6.5.2. Pine Mountain Lake Country Club

The Pine Mountain Lake Country Club consists of a restaurant, bar, and pro shop. The PML country Club used approximately one million gallons of water throughout 2012. The District's Water Conservation Committee will be reaching out to Commercial/Industrial/Institutional (CII) customers such as the PML Country Club in 2014 to address conservation issues. Typical water conservation measures, such as the installation of low flush toilets, and low flow shower heads will be emphasized. The Committee will also encourage and possibly incentivize the use of graywater and/or rain water harvesting, and drought tolerant landscaping as additional water conservation/re-use alternatives.

The Pine Mountain Lake Country Club does not use potable water for landscaping. Landscaping water is sourced from Pine Mountain Lake.

6.5.3. Mary Lavaroni Park

The District is responsible for the maintenance of Mary Lavaroni Park (MLP), located in downtown Groveland adjacent to HW 120. The park is used extensively by residents and tourists for special events, concerts, picnicking, recreation, and leisure. During 2012 MLP used 1.61 million gallons of potable water. Most of the water irrigates the extensive lawns. GCSD's Water Conservation Committee is studying various means of conserving water at MLP, including a modern irrigation system for the lawn, reducing the lawn square footage to only those areas beneficial to patron use, drought tolerant grass species, as well as LID measures specific to storm runoff, such as bio-retention and permeable pavements (when replaced in the future). The District is attempting to obtain Community Development Block Grant (CDBG) money for the replacement of the park's irrigation system and refurbishing the park's restroom and concession facilities. Water efficient sinks and toilets have already been installed in the park's restrooms.

The District is in the process of identifying additional funding for water conservation measures in MLP and will begin instituting these measures in 2014.

6.5.4. Yosemite Pines RV Park and Campgrounds

Yosemite Pines RV Park and Campgrounds is located within District boundaries and offers year round cabin rentals, tent camping sites, and RV sites. During 2012 Yosemite Pines used 2.65 million gallons of water, the majority of which was used during the months of May through September, typical high water use months as tourists, campers, and recreationalists visit the area.

The District has not yet established mandated water conservation measures with Yosemite Pines, but does use financial incentives to encourage water conservation through its tiered rate water billing system. In 2014, the District's Water Conservation Committee will be consulting with and recommending specific water conservation actions applicable to Commercial/Industrial/Institutional customers, such as Yosemite Pines. Typical water conservation measures, such as the installation of low flush toilets, low flow shower heads and drip irrigation systems will be emphasized. The Committee will also encourage the use of gray water and/or rain water harvesting, the use of drought tolerant landscaping, and water efficient laundry facilities, as additional water conservation/re-use alternatives.

6.5.5. Local Schools

The Tenaya Elementary School and the Tioga High School are both located within District boundaries. Tenaya Elementary School used over 1.6 million gallons of water during 2012, while Tioga High School used over 2.2 million gallons. The District's Water Conservation Committee is establishing a water conservation education program for the Tenaya Elementary School and the Tioga High School. The program will be comprehensively designed and will aid educators in teaching students the importance of water as a valuable natural resource and to promote water conservation and stewardship of our watershed. The will emphasize typical water conservation techniques such as low flush toilets, low flow shower heads and coercive methods to enforce shorter shower times, drip irrigation systems, planting of drought tolerant plants, and will also introduce graywater usage and rain water harvesting. Athletic field lawns at these facilities use large volumes of potable water. The District will assist the schools in implementing a water efficient irrigation plan. The educational programs will include classroom instructional presentations, and offer field trips to the District's water and wastewater treatment facilities. Included in field trips will be handouts, stickers, coloring books and work books for students. This program will be implemented in 2014.

6.5.6. District Property

It is estimated that the District uses approximately 300,000 gallons of water per year for lawn and landscape maintenance around its administration buildings. The District's Water

Conservation Committee has discontinued the irrigation of the administration buildings lawn and landscaping and is studying methods for the use of gray water and/or rain water harvesting for landscaping purposes. The Water Conservation Committee is comprised of District employees, GCSD Board members, and members of the public including experts in the landscape/water conservation/water re-use industries, i.e. Regina Hirsch with the Sierra Watershed Collaborative, and Sarah Sutton, author of "The New American Front Yard". The Water Conservation Committee is also researching the possibility of irrigating facility landscaping with treated wastewater. Where applicable, such as for the dry season sustenance of established Sequoia trees peripheral to the main office, storm water LID techniques, such as bio-retention and rain gardens shall replace the irrigated lawn.

6.5.7. New Developments

A key imperative for water conservation is that new developments shall, from the start, implement established best management practices (BMP) for new infrastructure and surround those improvements with Low Impact Development (LID) strategies. A comprehensive list of the applicable BMP's is stated in section 6.7, Public Information Programs, however, some specific approaches bear mentioning here. All water conservation by means of water efficient appliances, indoor non-potable water plumbing, graywater and mechanical water re-use, are applicable to structures. For stormwater LID measures, emphasis shall be on permeable surfaces (including roadways, paths, etc.), bioretention, rain gardens, and drought tolerant landscaping (sans potable water irrigation). As well, where applicable, rainwater harvesting will be encouraged. New CII will not be approved without compliance with all economically reasonable actions with respect to water conservation and LID.

6.6. DMM 6 - High-Efficiency Washing Machine Rebate Programs

Due to financial constraints GCSD does not presently offer a rebate on high-efficiency washing machine replacement. Pacific Gas and Electric (PG& E) does however offer a $50.00 rebate for homeowners who upgrade to high efficiency residential clothes washers. Rebates apply for washing machines that meet the Consortium for Energy Efficiency (CEE) Tier 3 requirements. Tier 3 rated clothes washer models achieve a Modified Energy Factor (MEF) of 2.4 or greater, and a Water Factor (WF) of 4.0 or less. The water factor pertains to the number of gallons of water needed for each cubic foot of laundry washed. A lower WF number indicates lower consumption and more efficient use of water. District customers who upgrade to a high efficiency model can save money on their energy and water bills. Information and a rebate application for high-efficiency washing machines can be found on PG&E's web site at www.pge.com/moneybacksolutions.com. The District may offer an additional rebate, in cooperation with PG & E, for washing machine conversions for sewer connected customers.

6.7. DMM 7 - Public Information Programs

GCSD promotes public awareness of water conservation through its Website (www.GCSD.org), brochures, bill inserts, letters, newspaper articles, and information booths at local events. GCSD will be conducting water conservation workshops and audits to inspire and coax customers to take action. GCSD's Website shall, by 2015, offer a headline tab for Water Conservation including checklist recommendations as well as links to specific resources for Best Management Practices for Low Impact Development on all aspects of water conservation. Public awareness is essential for GCSD to meet its water conservation goals since getting our customers to take action is the fundamental principle of our water conservation policy.

6.7.1. Key Strategies for water conservation

A. **Water Conservation** - Efficient Toilets & Clothes Washers, Low Flow Shower Heads, etc.

B. **Water Re-use** – Interior sourced Graywater re-used for outdoor landscaping

C. **Rain Water Storage** – water security, fire protection, water gardens/landscaping

D. **Indoor Non-Potable Water Plumbing** – captured rainwater for non-potable interior uses

E. **Mechanical Water** – heat pump / air conditioner condensate

F. **Stormwater Mitigation** (**LID**) – stormwater harvesting on site per EPA recommendations

G. **Drought Tolerant Landscaping –** Replace Lawns, Non-Natives with Drought Adaptive Natives

H. **Engineered Septic** – promote guidance where applicable

6.7.2. Major Policies for water conservation

A. **Educate / Promote** – Website, Pamphlets, Articles, Info Booths, Contests, and Workshops

B. **Choices & Incentives** – offer myriad of conservation Choices with ROI based Incentives

C. **Water Audits** – prioritize high use customers for audits to jump-start conservation

D. **Consultation & Cooperation** – person to person customer contact to motivate conservation

E. **Best Management Practices** (**BMP**) – follow industry established benchmark practices

F. **Low Impact Development** (**LID**) – enhancing or not significantly diminishing the environment

G. **Tiered Water Rate Schedule** – significantly higher rates beyond the lifeline allotment

H. **Development Policies** – BMP and LID builds conservation into new developments

I. **Drought Contingencies** – Policies promoting further conservation (incentives & mandates)

6.8. DMM 8 - School Education Programs

Both Tenaya Elementary School and Tioga High School are located within the District's boundaries. In the past, the District has provided some school education programs and plans to continue these programs in the future. The District's Water Conservation Committee is establishing a water conservation education program for the Tenaya Elementary School and the Tioga High School which will promote awareness and early adoption of water conservation. This program will be implemented in 2014.

6.9. DMM 9 - Conservation Programs for Commercial, Industrial and Institutional

GCSD reviews plans for new commercial, industrial, and institutional customers. In addition, GCSD will administer water audits to any requesting commercial, industrial, or institutional customer, and as well, will proactively audit current high volume users. Key strategies available to and policies governing CII's are described in Section 6.7.

These tiered rates provide a financial incentive for CII's to conserve water. The District will include in the 2014/15 Budget funds for a rate study. The rate study will include alternatives for further promoting water conservation, such as by means of a more aggressive tiered water use/rate schedule.

Policies under development per section 6.7 will further advance water conservation. The District's Water Conservation Committee is committed to getting CII customers to take action on water conservation in 2014. Water conservation measures, such as the installation of low flush toilets, low flow shower heads, landscaping with drought tolerant plants, and drip irrigation systems will be emphasized. The Committee will also incentivize water re-use (graywater and/or rain water harvesting) as additional water conservation alternatives.

6.10. DMM 10 - Wholesale Agency Programs

GCSD does not currently receive support for the DMMs from any wholesale agency.

6.11. DMM 11 - Conservation Pricing

For ordinary circumstances with the intention of further water conservation in order to meet the SBX7-7 California State mandates for 20% water conservation by year end, 2020, GCSD will, in 2015, be conducting a rate study to, in part, adjust upward the existing tiered rate schedule for water volume use. The objective is to further incentivize water conservation for customers

not yet conserving appropriately. There is more information about this subject in Section 6.4. Where a water shortage contingency occurs, such as a drought, Section 7.4, Table 7-1 applies (as well as the notes below this table). Current water and sewer rates based on usage are shown in Appendix F.

6.12. DMM 12 - Water Conservation Coordinator

GCSD currently does not have a Water Conservation Coordinator. The District may appoint an existing employee to manage the responsibilities of a Water Conservation Coordinator. However, in 2012 the District's Board of Directors established a permanent Water Conservation Committee, which is comprised of Board members, District employees, and members of the public including experts in the fields of water conservation and low water use landscaping (see section 6.5.6). The Water Conservation Committee will be responsible for evaluating water conservation techniques and measures, and for developing policies and recommendations that advance the cause of water conservation to the District's Board of Directors. The Board of Directors will ultimately make decisions on which conservation measures shall be implemented by the District.

The District is committed to achieving the 20% reduction in water use by the year 2020 per State mandated SBX7-7. To accomplish this challenging goal, the District is developing and implementing policies for water conservation that emphasize incentives that are mutually beneficial to our customers that conserve as well as to the District and the environment we inhabit.

6.13. DMM 13 – Water Waste Prohibition

GCSD enforces the "no waste" section of its Water Ordinance. The regulation restricts certain uses of water during dry and critical drought years per Section 7.

6.14. DMM 14 – Residential Ultra-Low-Flush Toilet Replacement Programs

A residential plumbing retrofit is being planned for 2014. GCSD will be offering a program that provides for the payment of $50 for each standard toilet that is replaced with an ultra-low-flush toilet (1.6 gallons per flush or less). In addition to the rebate program, new construction requires the installation of ultra-low-flush toilets.

6.15. DMM 15 – Drought Tolerant Plant Programs

A drought tolerant plant program will be started in 2014. The drought tolerant plant program will be used to educate customers on how to landscape with drought tolerant plants and will also be used to encourage customers to convert lawns to drought tolerant landscaping. GCSD will do this in coordination with the Master Gardener, as referred to in Section 6.1. GCSD is

currently converting its administrative office lawn to drought tolerant landscaping requiring no potable water irrigation. This is a savings of over 300,000 gallons per year.

6.16. DMM 16 – Graywater Support

GCSD strongly supports graywater use by all customers where applicable. Currently, California Code of Regulations, Title 24, Part 5, Chapter 16A, Part 1, defines the "Graywater Standards." It is now legal in California for homeowners to irrigate landscaping with "Laundry to Landscape" water per the requirements of the Code, above, and without having to get a permit from the County office of Environmental Health. Currently, for a homeowner or business to divert to landscaping other sources of graywater from inside homes, which include bathtubs, showers, and lavatory sinks (but not kitchen sinks or toilets), Tuolumne County requires a permit fee of $461. GCSD shall work with other proponents of graywater to try to persuade the County to reduce this fee, as it makes the Return on Investment (ROI) economically unviable.

In a preliminary study by the GCSD Board of Directors, summarized in Table 6.2, the ROI for a "landscape to laundry" graywater system is reasonable (less than 10 years) for a typical customer only if he does all the work himself at a cost of about $150 for materials. Note also that the customer also has to have a beneficial re-use for the graywater, such as landscaping, that would otherwise use potable water, and furthermore, that the customer must already be using so much water that his rate is the highest tier #4. Since all other sources of graywater amount to about the water output of a home's washing machine, the current $461 fee for a graywater permit from the County makes grey water re-use, other than "laundry to landscape," not economically viable. Hence GCSD will advocate for removal of this fee and the permitting requirement - as allowed by California State Code, and as done in Arizona.

Table 6-2 Residential Customer ROI: Low-Flow Toilet vs Washing Machine Graywater

Type of System	System Cost	Water Rate	Annual Savings*		Return on Investment	
			Water**	W & S**	Water**	W & S**
Ultra Low Flush Toilet *Do-it-yourself*	$150	Tier 1 Tier 4	$4.75 $18.92	$22.20 $36.38	32 years 8 years	7 years 4 years
Ultra Low Flush Toilet *Plumber paid*	$300	Tier 1 Tier 4	$4.75 $18.92	$22.20 $36.38	64 years 16 years	14 years 8 years
Washing Machine Graywater *Do-it-yourself*	$150	Tier 1 Tier 4	$4.75 $18.92	$22.20 $36.38	32 years 8 years	7 years 4 years
Washing Machine Graywater *Plumber paid*	$700	Tier 1 Tier 4	$4.75 $18.92	$22.20 $36.38	147 years 37 years	31 years 19 years

* Annual Savings based on 2500 gallons per year saved for each of two water conservation measures: 1) Ultra Low Flow Toilet at 1.6 gallons per flush saves 1.5 gallons per flush assuming 5 flushes per day and; 2) a Laundry to Landscape Graywater system that re-uses for landscape irrigation at 50 gallons per load times 50 loads (2 per week) during the 6 month dry season that would otherwise use metered tap water.
** "Water" means a residential customer with water service only. "W & S" means a residential customer receiving both water and sewer service.

In particular, GCSD may provide incentives for sewer customers to convert to graywater. The cash incentive will be established based on a fraction (say half) of the savings the District will realize over a 10 year period for the estimated reduction in graywater dumped into the blackwater sewage system for treatment at the centralized Waste Water Treatment Plant. This is an example of a ROI justified incentive beneficial to both the customer and GCSD.

It is also noteworthy that if enough sewer customers convert to graywater re-use, the sewer plant, now near capacity, will be able to add new customers without a costly expansion upgrade. This situation may contribute to more affordable sewer rates in the future – an economic side benefit of water conservation.

For new customers and developments that will be connected to the sewer system, GCSD may establish policies/ordinances that offer lower connection fees for those who install year-around graywater systems. This incentive will be based on the water treatment savings over say 10 years plus a fraction of the connection fee since each water conserving customer is only using a fraction of the system compared to the same type of customer not conserving accordingly. Again, a win-win scenario can be established here, where both the customer and GCSD benefit.

SECTION 7 - WATER SHORTAGE CONTINGENCY PLAN

7.1. Water Shortage Contingency Plan

The California Water Code requires that GCSD develop mandatory provisions and a draft water shortage contingency resolution as part of the UWMP to reduce water use, including prohibitions against specific wasteful practices, as described here-in. GCSD's Water Shortage Contingency Plan Resolution containing water restrictions and enforcement measures during a water shortage is included in Appendix H. GCSD's Board of Directors would need to act on this resolution when a water shortage emergency is declared.

Existing ordinances and policy permit the District to allocate the delivery of available water supplies among its water users. The annual allocation of water during a drought critical year is based on projections of residential, municipal, commercial, industrial, and institutional use. This includes priority for maintaining fire protection. Lower priorities include the delivery of water for landscaping, gardens, and agriculture.

7.2. Water Shortage Conservation Plan

GCSD has developed a three-stage conservation plan. Each stage includes specific water conservation actions and use restrictions designed to reduce water use. Implementation of the stages is cumulative; meaning that implementation of a higher stage shall also include implementation of all previous stages. Shortage conditions for each stage are based on a percent reduction of water supply.

During natural disasters or if the health and safety of persons within GCSD's service area is jeopardized, GCSD may need to skip stages to address the emergency water shortage. The water shortage plan and resolution are designed to be flexible so that GCSD can respond to the specific situation occurring at a particular time.

7.3. Stages of Action

Table 7-1 summarizes GCSD's three-stages of water conservation. The Stages are described as follows:

- Stage 1 goal 10% reduction.
- Stage 2 goal 20% reduction.
- Stage 3 goal 50% reduction.

7.4. Water Shortage Stages and Triggering Mechanisms

The UWMP requires that agencies manage water supplies to minimize the social and economic impact of water shortages. The UWMP must be designed to provide a minimum 50 percent of

normal supply during a severe or extended water shortage. As the water purveyor, GCSD must provide the minimum health and safety water needs of the community at all times. Table 7-1 shows the water conservation stages triggering levels.

Table 7-1 Water Conservation Stages Triggering Levels

Stage	Water Deficiency Triggering Level	Restrictions	Tier 2, 3 and 4 Rate Increase	Projected Water Use Reduction
1	5-10 percent	Voluntary	50 percent	10 percent
2	11-20 percent	Mandatory	100 percent	20 percent
3	>20 percent	Mandatory	200 percent	Up to 50 percent

The following is a description of the water conservation efforts at each stage:

- Stage 1 of the three-phase rationing plan consists of voluntary water management practices. This phase encourages waste reduction in everyday use, common sense water use, and public education and awareness activities. The projected reduction in water usage of Stage 1 is 10 percent.
- Stage 2 is a mandatory stage and includes water conservation practices such as double rates for consumption in excess of 4,000 gallons per month (above Tier 1), as well as prohibitions on some of common water uses (see Table 7-2). The projected reduction in water usage of Stage 2 is 20 percent.
- Stage 3 is a mandatory stage and includes water conservation practices such as triple rates for consumption in excess of 4,000 gallons per month (above Tier 1), as well as prohibitions on many of common water uses (see Table 7-2). The projected reduction in water usage of Stage 3 is 50 percent.

7.5. Water Allotment Methods

GCSD will implement an emergency water rate schedule applies progressively to all stages per Table 7.1. The emergency rate schedule will apply to residential and CII water consumption beyond a baseline volume of 4000 gallons (beyond Tier 1).

7.6. Mandatory Prohibitions on Water Wasting

Table 7-2 lists the mandatory prohibitions against specific water activities during times of water shortages, especially during droughts. The prohibitions include specific changes in water use and educational components. The levels are additive and the higher levels of drought response are inclusive of the lower levels requirements.

Table 7-2 Mandatory Prohibitions for Water Conservation

Prohibition	Stage when Prohibition becomes Mandatory		
	1	2	3
No washing of sidewalks, walkways, etc.	X	X	X
Adjust sprinklers and irrigation systems to avoid overspray, runoff, and waste.	X	X	X
Irrigate residential and commercial landscape before dawn	X	X	X
Use water efficient landscaping	X	X	X
Recycled water or non-potable for construction		X	X
Washing of cars, boats, trailers, etc. (except at commercial car washes)		X	X
Prohibit potable water irrigation of lawns/landscapes		X	X
Decorative fountains, pools, recreational ponds		X	X
Filling of new or existing swimming pools and hot tubs			X
No Landscape Watering			X
No new Connections			X

7.7. Excessive Use Penalties

Excessive use penalties are implemented per 7-1 with reference to appendix F (the Tiered Rate Schedule).

7.8. Revenue and Expenditure Impacts

The UWMP is required to include a water shortage contingency analysis that addresses the financial impacts from reduced water sales. GCSD meters all accounts and charges based on actual water usage. It is anticipated that the increased water rates in Tiers 2, 3, and 4 will make up for a reduction of water volume sales.

GCSD will use all surplus revenues collected during the various stages of the water conservation plan to fund a Reserve Fund. The Reserve Fund will be available to manage budget shortfalls, if any, during periods of water shortage or disaster. Based on the reliability analysis presented in Section 4, GCSD does not anticipate a water supply shortage that would impact District revenues and expenditures significantly.

SECTION 8 - INFORMATION ON RECYCLED WATER AND ITS POTENTIAL FOR USE AS A WATER SOURCE IN GCSD'S SERVICE AREA

A large portion of the wastewater in Big Oak Flat, Groveland, and Pine Mountain Lake is collected, treated and used for irrigation of the Pine Mountain Lake Golf Course. A smaller portion of recycled water is used on the District's spray fields.

8.1. Wastewater System Background

In 1972, the State Water Quality Control Board (RWQCB) adopted the Clean Water Act. The Act required the communities of Big Oak Flat, Groveland, and Pine Mountain Lake to collect raw sewage and provide a treatment process that would provide secondary treatment.

The District decided to provide one regional facility for treatment. The recycled water facility was constructed in three principal stages. The first stage of construction was finished in 1976, and the second and third stages were completed in 1982 and 1986.

The 1976 original treatment process design included headworks comminutors, a grit chamber, an activated sludge contact stabilization process, chlorine disinfection, aerobic sludge digestion and drying beds. The original plant was permitted for an average flow of 150,000 gallons per day and a peak wet weather flow of 220,000 gallons per day.

In the 1980's the plant was expanded in two stages. The permit included an average daily dry weather flow of 400,000 gallons per day and a peak wet weather flow of 500,000 gallons per day. The improvements included rotary screens, an equalization basin, extension of the chlorine contact chamber, and four new biosolids drying beds.

Today, the treatment process includes primary treatment by screening, equalization for diurnal flow regulation, secondary treatment by the activated sludge contact stabilization process, clarification and chlorine disinfection of the effluent. The recycled water is then pumped to two reservoirs for storage until the water is sent to either the Pine Mountain Lake Association's golf course or to the District's spray fields. Sludge solids from the secondary process are stabilized by aerobic digestion and then dried on covered sand beds.

8.2. Description of Existing System for Reuse of Recycled Water

The existing Regional Recycled Water System, owned by GCSD, consists of 35 miles of wastewater collection gravity pipelines ranging in size from 6 to 12-inches. The District has 7 miles of pressure pipelines that range in diameter from 4 to 12 inches. GCSD has two recycled water reservoirs. Reservoir 1 has a volume of 14 acre-feet and Reservoir 2 has 170 acre-feet.

The recycled water pump station has a 75-horsepower pump. The 6-inch diameter recycled water pressure pipeline to the golf course is 4,200 feet long. Once the water gets to the golf course, the recycled water enters a 3-million-gallon open reservoir operated by the Pine Mountain Lake Association. The Pine Mountain Lake Association then pumps the recycled water to the irrigation system serving the 110-acre golf course.

During the winter months the recycled water is stored in Reservoir 2 and, if necessary, Reservoir No. 1. The golf course and the spray field irrigation demands account for 100% of the recycled water used. When recycled water volume is depleted in the late summer months, typically September or October, then the golf course uses Pine Mountain Lake raw water as their irrigation source.

The District treats its wastewater to secondary standards and is permitted to pump treated wastewater to the Pine Mountain Lake Association's maintenance yard pond, where it is blended with raw water from Pine Mountain Lake. This blended water is then used to irrigate the Pine Mountain Lake Golf Course. Additionally, the District is permitted to dispose of treated effluent on 14 acres of irrigation fields located on District property. Table 8-1 shows influent flows and where the District disposes of its effluent.

Table 8-1 Wastewater Influent and Recycled Water Flows

Year	Wastewater Influent (MG)	Treated Effluent to PML (MG)	Treated Effluent to Spray Fields (MG)	Percent to PML	Percent to Spray Fields
2005	60.8	26.4	39.2	43.4	64.4
2010	59.0	28.5	16.9	48.0	28.6
2015 estimate	61.0	30.0	25.0	49.0	41.0

Discrepancies in percentages are due to the unusually heavy rains during 2004-2005 and 2010-2011 rainy seasons. The District received 55.96 inches of rain during the 2004-2005 rainy season and accumulated 43.53 inches of rain during the 2010-2011 rainy season. The area has a 122 year average of 32.74 inches of rain. During the 2004-2005 and 2010-2011 seasons, ground saturation caused substantial infiltration and inflow (I & I) into the District's wastewater treatment plant and runoff into treated water storage Reservoir #2.

The District is exploring the possibility of increasing its capacity to store treated wastewater by increasing the size of its storage reservoir, and is also studying other means for disposal of its treated wastewater. Two additional disposal options under consideration are; 1) increasing the number of spray field acres on District property, and 2) the installation of a pump and pipeline to a nearby cattle ranch for irrigation of pasture land. Alternatively, successful water conservation may adequately reduce wastewater inflows.

8.3. Recycled Water Currently Being Used

Essentially, all 167 acre-feet of the recycled water produced by the District every year is utilized. Some of the recycled water does evaporate in the open storage reservoirs. As mentioned previously, the Pine Mountain Lake Golf Course consumes most of the recycled water (135 acre-feet), with the second largest consumer being the District's spray fields (15 acre-feet). The Golf Course total water use for an average year is approximately 400 acre-feet. An analysis done in the agreement between PMLA and GCSD states that PMLA golf course could use up to 200 acre-feet of recycled water per year. In addition, a recycled water connection has been installed at the District for GCSD tanker trucks to fill up for dust control and construction uses on the District's property. In 2008, a connection was also put in so that Cal-Fire could use recycled water for firefighting purposes.

Meetings between GCSD personnel and the Pine Mountain Lake Association are held periodically to determine any recycled water delivery constraints or scheduling problems. Based on effluent quantities in storage at a given time, the Pine Mountain Lake Association is notified of any concerns or unusual problems that could affect their operations. The Association is also provided with information relating to public health concerns and reuse restrictions.

All recycled water use is metered. Flow rates and totals for each meter are recorded. Isolation valves are used to direct where the water will be delivered.

8.4. Other Potential Recycled Water Uses

Other potential uses of recycled water include:

1. Graywater on private properties
2. Wetlands on GCSD property
3. Expanded spray fields on GCSD property

The District Board of Directors has directed staff to review the potential for future use of recycled water for other purposes.

SECTION 9 - PROVIDING WATER TO PROPOSED DEVELOPMENTS

9.1. Low Income Preferences

Pursuant to Government Code Section 65589.7, it is the District's policy to grant a priority to those developments seeking water or sewer service which include housing units affordable to lower income households. To further this policy, GCSD adopts the following procedures.

9.2. Procedure to Implement Preference Policy

GCSD will not deny or condition the approval of an application for services to, or reduce the amount of service for, a proposed development that includes housing units affordable to lower income households unless GCSD makes a specific written finding that the denial, condition, or reduction is necessary due to the existence of one or more of the following:

1. GCSD does not have "sufficient water supply" as defined in paragraph (2) of subdivision (a) of Section 66473.7, or is operating under a water shortage emergency as defined in Section 350 of the Water Code, or does not have sufficient water treatment or distribution capacity to serve the needs of the proposed development, as demonstrated by a written engineering analysis and report.
2. GCSD is subject to a compliance order issued by the State Department of Public Health that prohibits new water connections.
3. If the proposed development seeks sewer service, and if GCSD does not have sufficient collection treatment or reclamation capacity, as demonstrated by a written engineering analysis and report on the condition of the collection treatment, or reclamation works, to serve the needs of the proposed development.
4. If the proposed development seeks sewer service, and if GCSD is under an order issued by the Regional Water Quality Control Board that prohibits new sewer connections.
5. If the applicant fails to agree to reasonable terms and conditions relating to providing service generally applicable to development projects seeking service from GCSD, including but not limited to the requirements of local, state, or federal laws, and regulations or payment of a fee or charge.

For the purposes of this Section, the following definitions apply:

1. "Proposed developments that include housing units affordable to lower income households" means that dwelling units will be sold or rented to lower income households, as defined in Section 50079.5 of the Health and Safety Code, at an affordable housing cost, as defined in Section 50052.5 of the Health and Safety Code, or an affordable rent, as defined in Section 50053 of the Health and Safety Code.
2. "Water or sewer services" means supplying service through a pipe or other constructed conveyance for a residential purpose, and does not include the sale of water for human consumption by a water supply to another water supplier for resale.

> As used in this section, "water service" provided by a public agency applies only to water supplied from public water systems subjected to Chapter 4 (commencing with Section 116275) of Part 12 of Division 104 of the Health and Safety Code.

All proposed development projects including housing units affordable to lower income households, to which none of the above exceptions apply, will be required to submit a cover sheet outlining both the number and percentage basis number of housing units affordable to lower income households included in the proposal.

SECTION 10 - SUMMARY

10.1. Summary

The District is committed to achieving the 20% reduction in per capita water use by year 2020 per State mandate~~d~~ SBX7-7. Emphasis is on mutual benefit to customers that conserve and to the environment we inhabit. The core philosophy is one of customer engagement in the effort. GCSD will identify and promote water conservation options. Monetary incentives will be offered to customers that conserve water on their own. The water conservation program will be structured to benefit customers and the GCSD. GCSD investments on water conservation efforts will consider timelines and Returns on the Investments made. Customers who do not reduce water use will end up paying substantially higher fees and rates.

10.2. UWMP Recommended Strategies

Key strategies are summarized below.

A. Water Conservation through the use of Water Efficient Toilets, Clothes Washers, Low Flow Shower Heads, etc.

B. Water Re-use initiatives through the use of Gray water for outdoor landscaping (residential developments), and disinfected tertiary recycled water for non-potable uses (commercial development)

C. Passive stormwater harvesting to mitigate runoff through Low Impact Development (LID) best management practices (BMP)

D. Drought Tolerant Landscaping (Replace Lawns, Non-Natives with Native / Drought Adaptive

E. Tiered Water Rate Schedule (Water wasters pay much higher rates)

F. Development Policies (Mandate water conserving plumbing for new homes and developments) in accordance with proven LID techniques

G. Consultation and Cooperation with Commercial, Industrial, and Institutional (CII) customers

H. Following industry practices from leading water conserving Municipal Water Suppliers

I. Mechanical water re-use such as recycle heat pump/air conditioner condensation

J. Active rain water harvesting best management practices for community water security, fire protection, gardens and landscaping, indoor non-potable plumbing, and additional re-use

K. Promote guidance for engineered septic systems where applicable

L. Conduct water audits prioritized by high consumption customers

APPENDIX A

PUBLIC HEARING NOTICE

APPENDIX B

RESOLUTION OF UWMP ADOPTION

APPENDIX C

GCSD SERVICE AREA POPULATION ESTIMATE

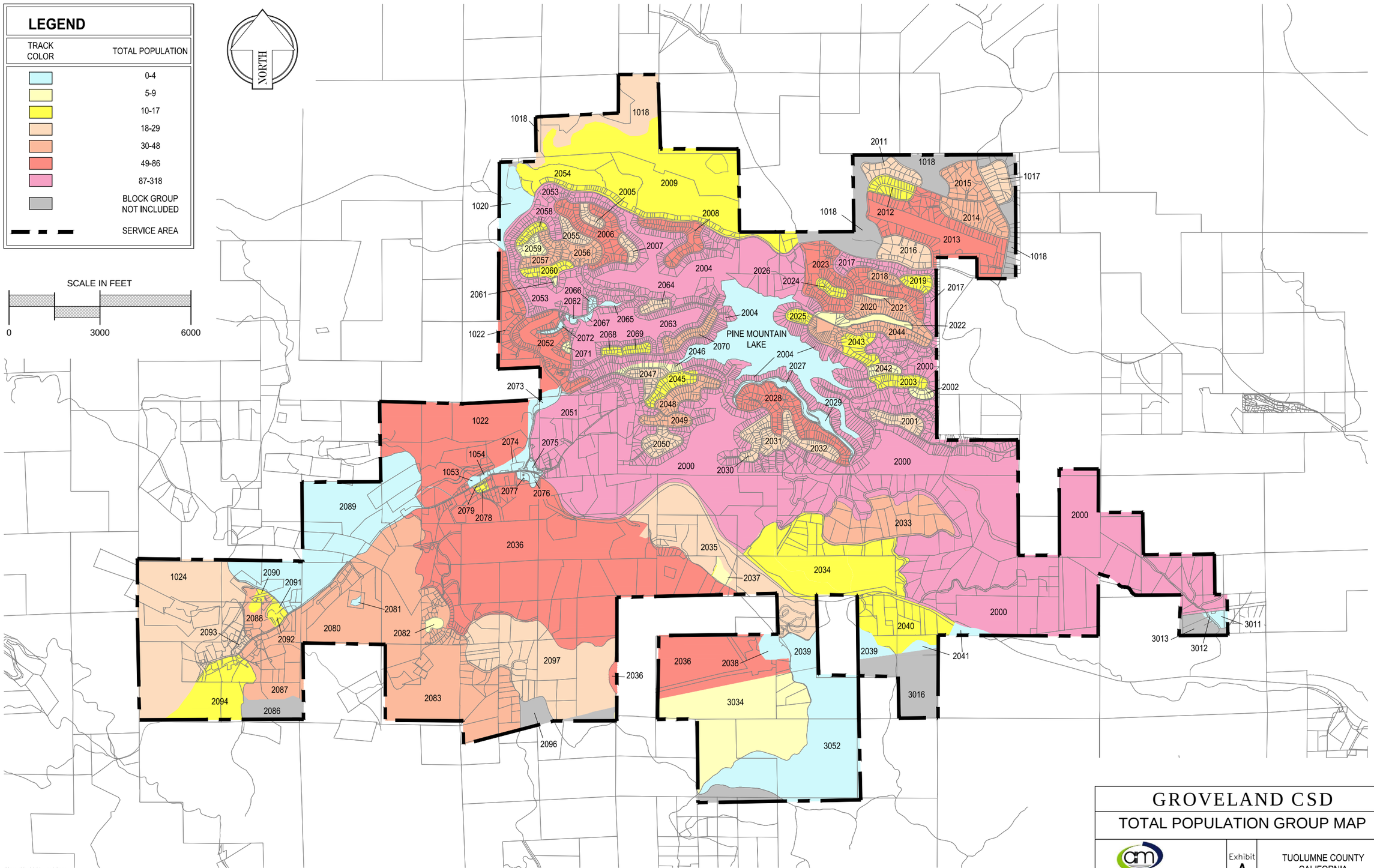
GROVELAND COMMUNITY SERVICES DISTRICT
YEAR 2000 SERVICE AREA POPULATION ESTIMATE

Block	Population
1017	28
1018	63
1020	3
1022	85
1024	96
1053	0
1054	1
2000	568
2001	28
2002	15
2003	15
2004	317
2005	21
2006	48
2007	14
2008	45
2009	47
2011	27
2012	18
2013	57
2014	53
2015	17
2016	28
2017	116
2018	29
2019	18
2020	49
2021	0
2022	7
2023	67
2024	14
2025	17
2026	17
2027	16
2028	51
2029	8
2030	24
2031	18
2032	20
2033	23
2034	29
2035	12
2036	115
2037	0
2038	3

Block	Population
2039	0
2040	12
2041	0
2042	14
2043	21
2044	50
2045	8
2046	11
2047	5
2048	31
2049	30
2050	26
2051	91
2052	51
2053	96
2054	9
2055	24
2056	40
2057	29
2058	22
2059	21
2060	15
2061	0
2062	4
2063	113
2064	18
2065	0
2066	0
2067	0
2068	12
2069	28
2070	31
2071	0
2072	18
2073	0
2074	0
2075	0
2076	7
2077	2
2078	9
2079	0
2080	71
2081	0
2082	7
2083	46

Block	Population
2087	40
2088	47
2089	10
2090	25
2091	0
2092	2
2093	15
2094	22
2097	25
3011	9
3012	0
3034	0
3052	0
Total	**3414**

Source: 2000 US Census



Nov 19, 2013 - 5:04pm
V:\misc_clients\210\14\CAD\PLANSET\Exhibit A block maps.dwg

GROVELAND CSD

TOTAL POPULATION GROUP MAP

Consulting Engineers

Exhibit A

TUOLUMNE COUNTY
CALIFORNIA

APPENDIX D

AGREEMENT WITH SFPUC

CONTRACT BETWEEN

GROVELAND COMMUNITY SERVICES DISTRICT

AND

CITY AND COUNTY OF SAN FRANCISCO

FOR WATER SERVICE

THIS CONTRACT, entered into as of this first day of January 1984, by and between the GROVELAND COMMUNITY SERVICES DISTRICT (District) and the CITY AND COUNTY OF SAN FRANCISCO, a municipal corporation (City), acting through its PUBLIC UTILITIES COMMISSION.

RECITALS:

1. Under an existing contract dated March 23, 1965 (1965 contract), City agreed to furnish water to the District at the Second Garrotte Shaft of City's Hetch Hetchy Aqueduct in Tuolumne County, California, for a term of 51 years, with a termination date of March 23, 2016.

2. Under Amendment No. 1 to the 1965 Contract, dated January 9, 1968, the term of the 1965 Contract was extended to 55 years, with a termination date of March 23, 2020.

3. Under Amendment No. 2 to the 1965 Contract, dated May 18, 1971, City agreed to furnish water to the District at a second point of delivery at the Big Creek Shaft of City's Hetch Hetchy Aqueduct in Tuolumne County, California. Granting of access to rights of way owned by City needed by the District for installing, constructing, operating and maintaining additional facilities of District's water supply system was provided. A surcharge of ten percent applied to all bills for water service was established for the purpose of compensating City on loss of power revenues as a result of furnishing water service to the District.

4. Since the 1965 Contract, the District has expanded the boundary of its water supply service area in order to meet the water needs of a growing population in the Groveland area of Tuolumne County, California.

5. District has requested City's review of the reasonableness of the existing rates for water service as well as the surcharge for loss of power.

6. Both City and District desire to continue the arrangement whereby City provides the necessary water supply that the District requires to meet the demands of its service area.

7. Because of the changes in District's system, together with those in City's system since the 1965 Contract, City and District recognize that certain terms and conditions of the 1965 Contract, as amended, need to be reviewed, adjusted and revised.

NOW, THEREFORE, it is mutually agreed that the 1965 Contract, as amended, shall be modified in its entirety as follows:

1. LOCATION AND DESCRIPTION OF SERVICE CONNECTION

Sale and delivery of water to the District by City will be made at the Second Garrotte Shaft and the Big Creek Shaft of City's Hetch Hetchy Aqueduct in Tuolumne County, California, at the locations shown on Exhibit A, attached herewith and made a part hereof.

2. SCOPE OF CONTRACT

Subject to the terms and conditions hereinafter set forth, City shall sell and deliver to the District and the District shall purchase and receive from City all water service, supplemental to sources and supplies owned or controlled by the District, in sufficient quantity to supply the total water needs of the service area shown on Exhibit A.

3. TERM OF CONTRACT

3.1 Except as provided by Paragraphs 3.2 and 3.3 herein, this contract shall continue in effect until midnight, March 23, 2034.

3.2 This contract may be terminated by the District upon written notice to City 30 days in advance of such termination.

3.3 Upon termination as provided by Paragraph 3.1 herein, this contract may be extended by mutual consent of the parties, subject to any modifications thereof which may be determined at said time. If no such extension takes place or in the absence of any new contract, the District shall be guaranteed thereafter only that quantity of water which it received during Calendar Year 2020, as limited by the safe capacity of the Hetch Hetchy Aqueduct to furnish water to the District, and at the then effective rates and charges together with any increases as is set forth in Paragraph 11 herein. Prior to or upon termination of this contract, the parties shall, in good faith, promptly negotiate an extension of this contract or a new contract.

4. SERVICE SPECIFICATIONS

4.1 Water to be furnished by City under this contract shall be delivered to the District at the available pressure carried in the Hetch Hetchy Aqueduct at the Second Garrotte Shaft and the Big Creek Shaft. It is understood that said pressure is subject to variations associated with the operation of City's aqueduct and that City shall not be responsible for any effect of such variations on the water service to the District.

4.2 The District shall assume all responsibility for adequate treatment of the water purchased hereunder to render it potable and safe for domestic use and shall indemnify and hold the City harmless against any and all liabilities resulting from the quality of water furnished.

5. CONDITIONS OF SALE

The District agrees not to sell any water purchased from City to any private party for resale by such private party to others. The District further agrees not to sell, without prior written approval of City, any water from any source whatsoever to any private party for resale by substituting therefor water purchased from City. The District agrees that no water furnished by City to the District shall be delivered by the District outside the boundary of the District's service area. The District further agrees not to deliver any water outside the boundary of the District's service area by substituting therefor water purchased from City, unless written consent for such delivery is entered into by the District and City.

6. DISTRICT'S FACILITIES

6.1 The District, at its expense, will furnish, construct, operate and maintain all supply lines, pumps and other facilities it may require (hereinafter collectively referred to as "facilities") to transmit and distribute all water received by it at the place or places of delivery. All such facilities shall be and remain the sole property of the District.

6.2 Prior to the construction or installation of any structure or facility by the District, or any of its agents, on any property, right-of-way or easement of which title or rights are vested in the City or in or adjacent to the tunnel or shaft of the Hetch Hetchy Aqueduct, detail plans and specifications of such structures and facilities and the proposed construction procedures and safety precautions to be followed shall be submitted to the City for written approval. No construction of such structures or facilities shall commence prior to the receipt of such approval.

7. USE OF CITY'S PREMISES

As a part of this contract and for the purpose of access to install, construct, operate, repair and maintain necessary supply lines, pumps and other facilities of District's water system required to be located on City's premises,

permission is hereby granted to the District, free of any rental or similar charges, to occupy and utilize property or premises of City as shown on Exhibits "B" and "B-1", attached hereto and made a part hereof. This permit is granted subject to the following conditions:

(a) Permission for said occupancy and use shall continue until the termination of this contract and for a reasonable time thereafter, sufficient to allow for the removal by the District of its facilities. Upon completion of removal by the District of its facilities, said permit expires. No interest in real property is created in the District by virtue of this contract, but only permission to use said property as an incident to performance of this contract is conferred.

(b) No structures of any kind, except those expressly permitted, shall be erected or placed thereon.

(c) The District shall, at all times, keep City's property in good and sightly condition, so far as it may be affected by District's operations hereunder.

(d) All work performed by the District under this permit shall be strictly in conformance with the safety orders of the California State Division of Industrial Safety and other pertinent Federal and State regulations.

(e) A minimum of maintenance work is performed on City's private access roads to Second Garrotte Shaft and Big Creek Shaft. Any additional maintenance or construction work on said roads which may be required for use by the District for District's access and

operation under the contract shall be performed by the District at its expense and subject to the approval of City.

(f) Authorized representatives of the District, its contractors and subcontractors will be allowed access to District's facilities at suitable times to perform the obligations of the District with respect to such facilities.

(g) The District shall, on receipt of notice so to do and within such reasonable time limit as may be fixed by said notice, alter or remove, at the expense of the District, any property or structure covered by this permit, to such extent as may be necessary to avoid or eliminate interference with any pipe, pipe lines, power lines or other structures now constructed or hereafter to be constructed by City, or with any operation of City, or with any use by City of the land affected hereby.

8. CONTINUITY OF SERVICE AND CONSUMPTION

8.1 City shall use all reasonable diligence in providing a constant and uninterrupted supply of water. The City, however, shall not be liable to the District hereunder, nor shall the District be liable to City hereunder, by reason of failure of City to deliver or the District to receive water as the result of fire, strike, riot, explosion, flood, earthquake, accident, breakdown, temporary interruptions due to normal operations, acts of God or the public enemy, or other acts beyond the control of the party affected. It is the intention of each party to relieve the other of the obligation to supply water or to receive and pay for water when, as a result of any of the above-mentioned causes, either party may be unable to deliver or use, in whole or in part, the water herein contracted to be delivered and received. This provision shall not be construed to relieve the District of liability for payment of water delivered at the meter but not beneficially used.

8.2 City shall have the right, at any and all times, to shut off the water from its aqueduct for the purpose of making inspections, repairs, extensions, alterations and for any other purpose necessary or desirable for the proper operation and maintenance of the aqueduct. Insofar as possible, reasonable notice shall be given by City to the District of any such scheduled or emergency shutdowns.

8.3 It is understood that it will be the responsibility of the District to safeguard its water supply by providing adequate storage facilities or an alternate source of supply.

8.4 The water use projections made by the District for the term of this contract are shown on Exhibit C, attached hereto and made a part hereof. Insofar as possible, reasonable notice shall be given by the District to City if the rate and quantity of water to be purchased deviates significantly from said estimates.

9. MEASUREMENT OF WATER

9.1 The water supplied hereunder shall be measured by suitable metering equipment to be furnished, installed, maintained and calibrated by City at its expense. All such equipment shall be and remain the property of City. When more than a single meter is installed in a battery, the readings thereof shall be billed conjunctively. A standby emergency meter shall be installed for emergency demand or for bypass maintenance operation. No service charge shall be made for standby - emergency meter.

9.2 City shall read all meters at its expense and, as far as possible, shall read all meters at periodic intervals of approximately thirty (30) days.

9.3 In the event any meter fails to register or registers incorrectly, a daily average will be obtained from the reading of such meter taken for the previous period when the meter was shown to be operating correctly, or from the reading of a new substitute meter known to be correct, or from other information which shall

render a fair daily average. The daily average thus obtained shall be used as a basis of payment for the period that such meter was out of order, the length of such period to be determined by agreement between the parties. When it becomes known to City that a meter fails to register, or registers incorrectly, City shall thereupon take the necessary corrective action.

10. METER TEST

10.1 At the written request of the District, City shall test, in the presence of District representatives, any or all meters installed by City. The cost, if any, of such tests shall be borne by the District if the percentage of error is found to be not more than two (2) percent slow or fast. No meter shall be placed in service or allowed to remain in service which has an error in registration in excess of two (2) percent slow or fast.

10.2 If upon test, any meter shall be found to register in excess of two (2) percent slow or fast, corrections shall be made accordingly in the amount charged for water passing through such meter, but no such correction shall extend beyond twelve (12) months previous to the day on which such inaccuracy is discovered by said test.

11. RATES AND CHARGES

11.1 The charges to be paid by District to City for providing the water service hereunder shall be:

(a)	Service Charge:	$75.00 per service location
(b)	Charge for Water Delivered:	7.12 cents per hundred cubic feet
(c)	Surcharge for Power Loss:	9.81 cents per hundred cubic feet

11.2 If City should fail to provide a constant and uninterrupted supply of water at a point of delivery for a continuous period of more than forty-eight (48)

hours during any monthly period hereunder, the service charge specified in Paragraph 11.1(a) shall be prorated for such monthly period on the basis of an average monthly period of thirty (30) days.

11.3 No reduction in charge specified in Paragraph 11.1(b) will be made by City because of the cost to District of raising water from City's aqueduct tunnel. The District will be held responsible for payment for all water passing through City's meters, whether the water has been beneficially used by the District or lost through leakage in its supply lines or fixtures.

11.4 The surcharge specified in Paragraph 11.1(c) is for the purpose of compensating City for reduction in electric generation at its Moccasin Powerhouse due to the reduced amount of water available for this purpose as a result of furnishing water service to the District hereunder.

11.5 Pursuant to the methodology as shown on Exhibit D, attached hereto and made a part hereof, the service charge and the charge for water delivered as provided in Paragraphs 11.1(a) and 11.1(b) shall be adjusted every four (4) years effective July 1, 1987 and every four (4) years thereafter for the term of this contract. For the purpose of this provision, the rates and charges as specified in Paragraphs 11.1(a) and 11.1(b) shall be deemed to be effective for the year beginning July 1, 1983.

11.6 Pursuant to the methodology as shown on Exhibit E, attached hereto and made a part hereof, the surcharge for power loss as provided in Paragraph 11.1(c) shall be adjusted every four (4) years effective July 1, 1987 and every four (4) years thereafter for the term of this contract. For the purpose of this provision, the surcharge as specified in Paragraph 11.1(c) shall be deemed to be effective for the year beginning July 1, 1983.

12. PAYMENTS

Payments for the service furnished hereunder shall be made monthly upon submission of invoices rendered by City to the District. Such invoices shall contain statements of the meter readings at the beginning and end of the monthly period and monthly consumption.

13. NOTICE OF NONRESPONSIBILITY

Except in instances of emergency requiring immediate work, the District agrees that it will notify City at least ten days before starting any construction work, repairs or alterations on any property, right-of-way or easement of which title or rights are vested in the City, in order that City may post appropriate notices of nonresponsibility. The District shall, at all times, permit such notices to remain posted for the time required by law.

14. LIABILITY

14.1 The District shall indemnify and hold harmless the City and all officers, servants, agents and employees of City from any loss or liability to third persons arising from any property damage, personal injury or death due directly or indirectly to the operations of the District or uses of City's property by the District or its agents under this contract.

14.2 The District shall be held liable for any and all damages to water meters and other property of City which may be willfully caused by or result from carelessness or negligence on the part of the District or its agents or employees.

15. THIRD PARTY INTERESTS AND ASSIGNMENTS

15.1 This contract is not for the benefit of any person, corporation or entity other than the parties hereto. No person, corporation or entity other than the parties hereto shall have any rights or interest in or under this contract, except as expressly provided herein.

15.2 Neither this contract, nor any interest herein, nor any claim arising hereunder shall be transferred or assigned by the District to any party or parties without the prior written consent of City.

IN WITNESS WHEREOF, the parties hereto have executed this contract as of the day and year first above written.

THE CITY AND COUNTY OF SAN FRANCISCO
By Its Public Utilities Commission

By _____
Rudolf Nothenberg
General Manager of Public Utilities

ATTEST:

Authorized by Public Utilities Commission
City and County of San Francisco

Resolution No. 84-0186

Adopted: April 24, 1984

_____
Romaine A. Boldridge
Secretary

Approved as to form:
George Agnost
City Attorney

By _____
M. M. Dow
Utilities General Counsel

GROVELAND COMMUNITY SERVICES DISTRICT

By _____
B. C. Beaudreau
General Manager

Authorized by Resolution No. 4-84
of the Board of Directors

Adopted: May 8, 1984

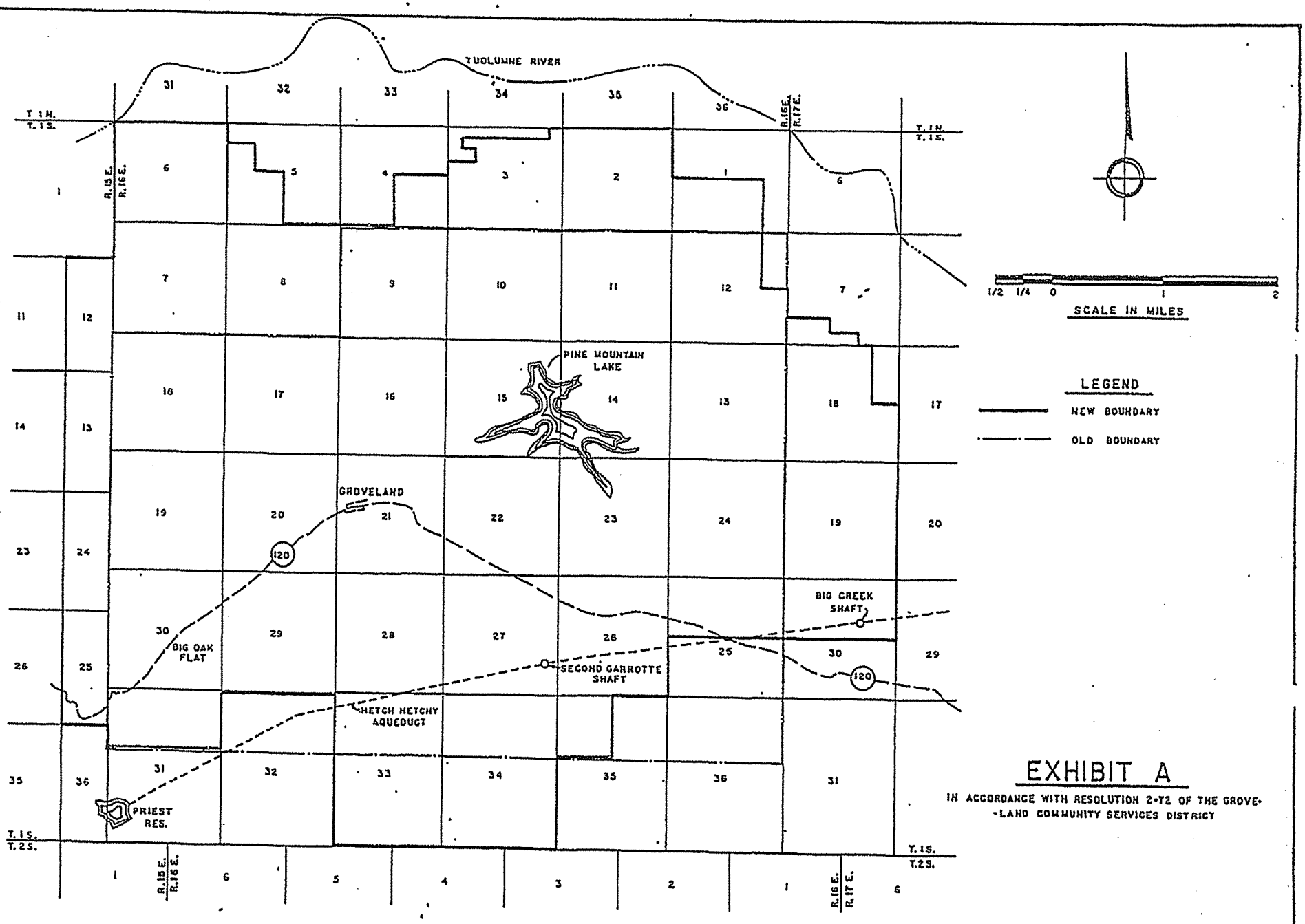


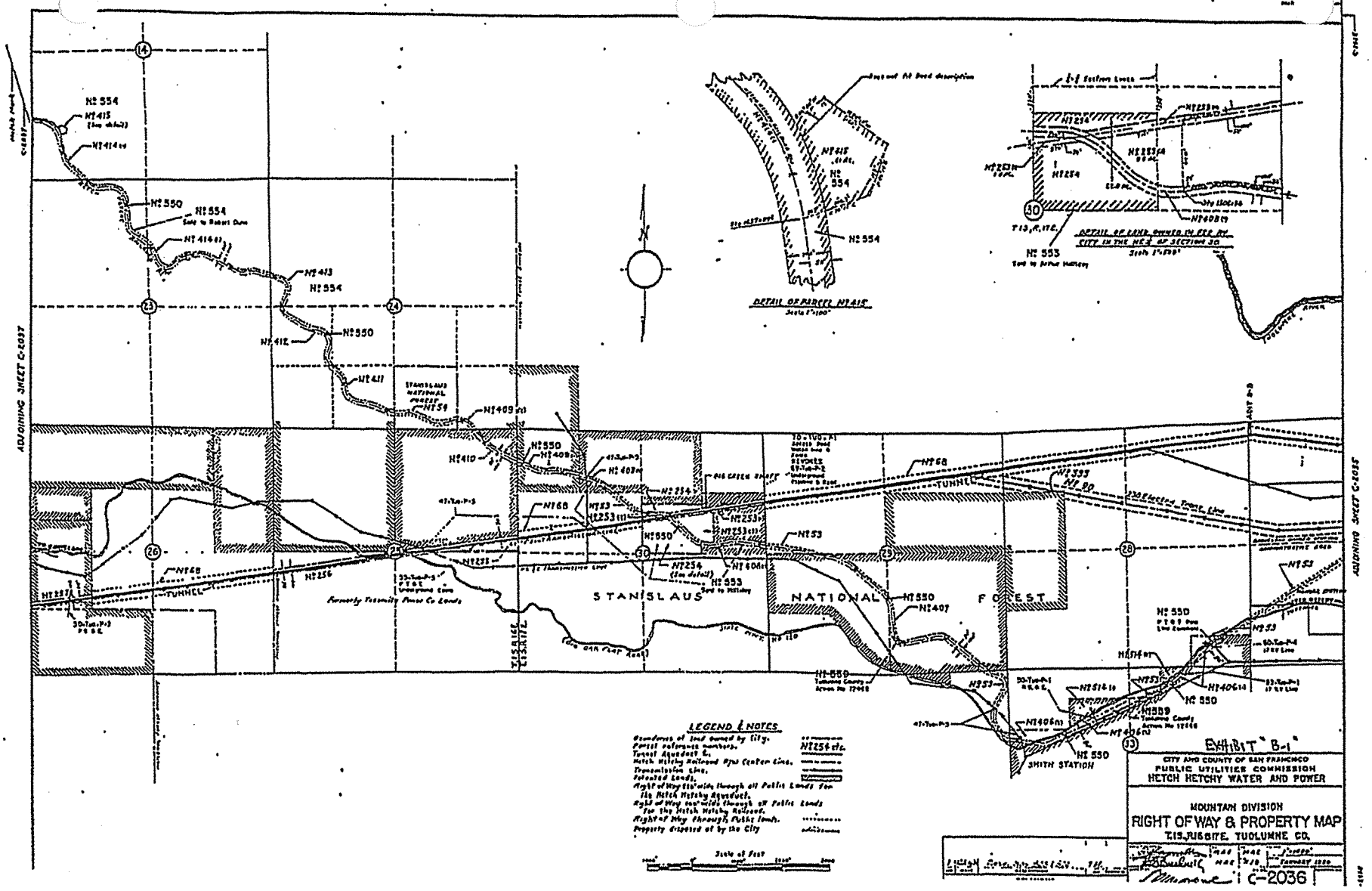
EXHIBIT A

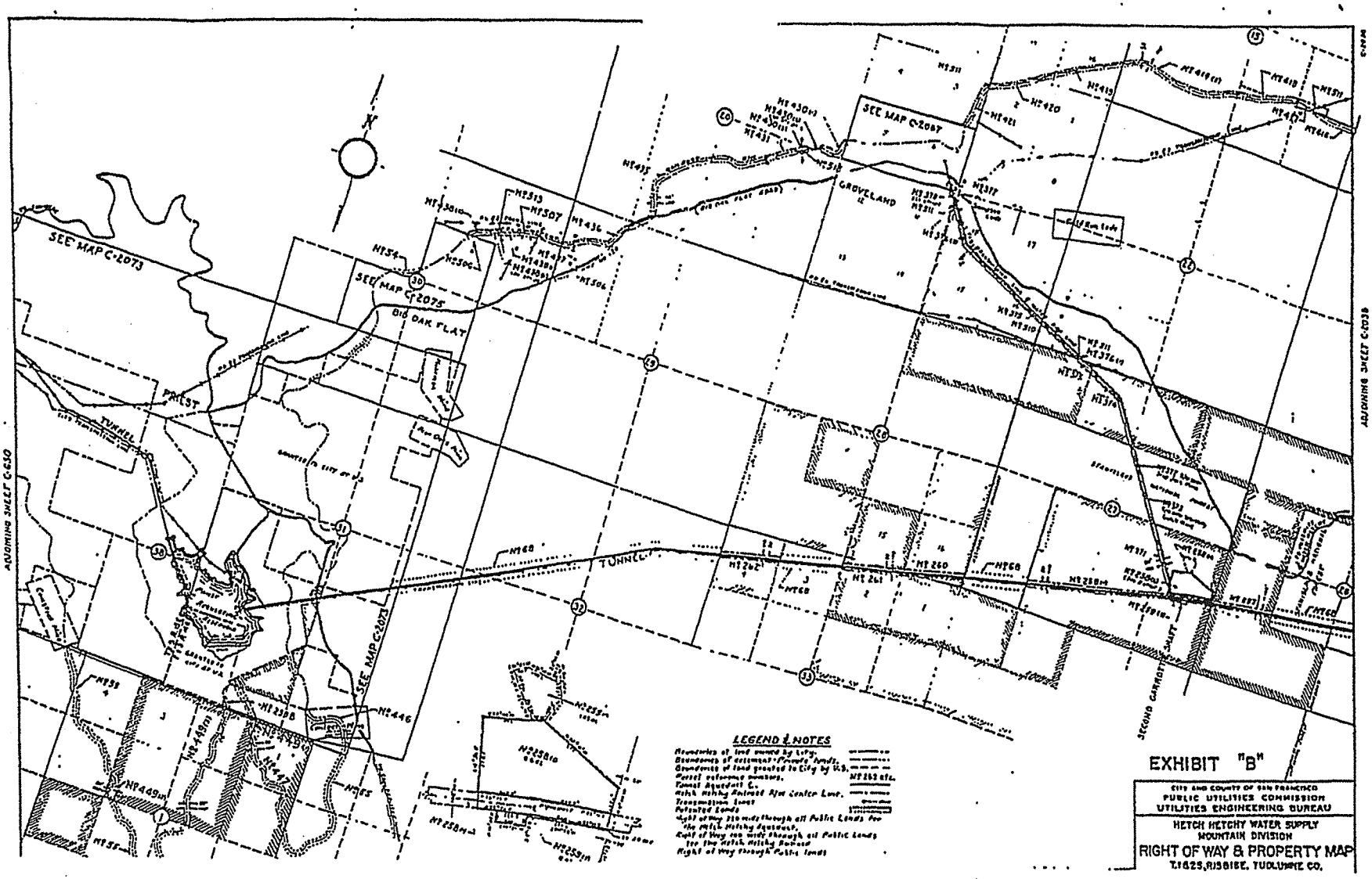
IN ACCORDANCE WITH RESOLUTION 2-72 OF THE GROVE-LAND COMMUNITY SERVICES DISTRICT

OSBORNE ENGINEERING ASSOCIATES
SONORA CALIF.

GROVELAND COMMUNITY SERVICES DISTRICT

PROPOSED S. F. CONTRACT BOUNDARY


ADJOINING SHEET C-2035
STANISLAUS NATIONAL FOREST
TUNNEL
SMITH STATION
DETAIL OF PARCEL No 415
DETAIL OF LAND OWNED IN FEE BY CITY IN THE NE¼ OF SECTION 30
LEGEND & NOTES
Boundaries of land owned by City.
Parcel reference numbers.
Tunnel Aqueduct &.
Hetch Hetchy Railroad Rgt Center Line.
Transmission Line.
Patented Lands.
Right of Way 50' wide through all Public Lands for the Hetch Hetchy Aqueduct.
Right of Way 100' wide through all Public Lands for the Hetch Hetchy Railroad.
Right of Way through Public Lands.
Property disposed of by the City
Scale of Feet
EXHIBIT "B-1"
CITY AND COUNTY OF SAN FRANCISCO
PUBLIC UTILITIES COMMISSION
HETCH HETCHY WATER AND POWER
MOUNTAIN DIVISION
RIGHT OF WAY & PROPERTY MAP
T.1S.,R.16E.,M.D.B.&M. TUOLUMNE CO.
C-2036


SEE MAP C-2073
SEE MAP C-2075
SEE MAP C-2087
SEE MAP C-2073
BIG OAK FLAT
GROVELAND
TUNNEL
TUNNEL
SECOND CARGOTT SHAFT
ADJOINING SHEET C-650
ADJOINING SHEET C-2038
LEGEND & NOTES
EXHIBIT "B"
CITY AND COUNTY OF SAN FRANCISCO
PUBLIC UTILITIES COMMISSION
UTILITIES ENGINEERING BUREAU
HETCH HETCHY WATER SUPPLY
MOUNTAIN DIVISION
RIGHT OF WAY & PROPERTY MAP
T.1S.2S, R.15&16E. TUOLUMNE CO.

GROVELAND COMMUNITY SERVICES DISTRICT
POPULATION & WATER USE PROJECTIONS

Year	(1) County Population	(2) Groveland Permanent	(3) Groveland Seasonal	(4) 25% of Season	(5) Total Consumers	(6) MGD	(7) AF/Year
1980	33,921	1498	1600	400	1,898	.192	215
1990	49,700	3700	3700	925	4,695	.925	700
2000	60,000	6900	6624	1656	8,556	1.711	1,916
2020	89,200	13305	11974	2994	16,299	3.260	3,651
2050	120,200	18375	15158	3790	22,072	4.414	4,944
2070	135,500	21600	17280	4320	25,920	5.184	5,806

Notes

(1) Based on 1980 Census and 1980 County General Plan Projections (utilized Board of Finance estimates)

(2) Based on 1980 Census and 1980 County General Plan Study of growth areas.

(3) Estimates prepared for study of seasonal home construction and 1980 Census reports.

(4) Estimated water use based on related Environmental Impact Reports for proposed projects.

(5) Total of Columns (2) and (4).

(6) Based on 200 gallons per capita.

(7) Conversion of Column (6) to Acre-feet per year.

Prepared by County Admistrative Office

DOMINIC SALLUCE, Sr. Management Analyst

Approved by Groveland Community Services District

BAYARD C. BEAUDREAU, General Manager

Exhibit C

Exhibit D

The service charge and the charge for water delivered shall be adjusted by application of an index determined on the basis of the annual changes in Hetch Hetchy's operating and maintenance costs. Such adjustment shall be implemented beginning July 1, 1987 and every four years thereafter for the term of the contract. The index shall be derived as follows:

Index = A/B

Where A = Estimated Hetch Hetchy operating and maintenance costs for the year in question

B = Estimated Hetch Hetchy operating and maintenance costs for the base year - FY 1983-84

The estimated values of A and B shall be determined by the application of the linear least-squares regression analysis upon actual data of record for five previous years. The index thus derived is then applied to the Service Charge and the Charge for Water Delivered as indicated in Paragraphs 11.1(a) and 11.1(b).

For example, the index to be applied effective July 1, 1987 is determined as follows (see attached data sheets 840330TLC-1 and -2):

A = 11,329.68 B = 9,118.60

Index = A/B = 11,329.68/9,118.60 = 1.24

Therefore Service Charge = $75.00 x 1.24 = $93.00

Charge for Water Delivered = 7.12¢/ccf x 1.24 = 8.83¢/ccf

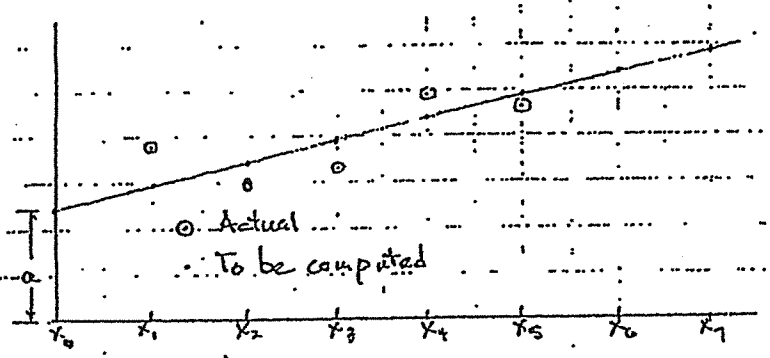
VEB-8 10M 6-60
CITY AND COUNTY OF
SAN FRANCISCO
UTILITIES ENGINEERING BUREAU

DATA SHEET

FILE 840330 TLC-1

SUBJECT Linear Least-Squares Regression Analysis - Estimating Y_7 for Year X_7 Based on Actual Values of Y for Five Prior Years of Record, Y_1 thru Y_5

BY TLC CHECKED BY _____ DATE 10/17 1983 SHEET ___ OF ___



$$b = \frac{\sum x_i y_i - 3\sum y_i}{10}$$

$$a = \frac{\sum y_i}{5} - 3b$$

$$y_7 = a + 7b$$

①	②	③	④	⑤	⑥	
Fiscal Year	x_i	Total Operating Expense (000)	Total Maintenance Expense (000)	y_i ③+④	$x_i y_i$ ②×⑤	
1978	1			5,636	5,636	*
1979	2			6,045	12,090	*
1980	3			5,425	16,275	*
1981	4			6,887	27,548	*
1982	5			8,492	42,460	*
Σ	15			32,485	104,009	
				Ⓐ	Ⓑ	

* Subject to Verification

$$b = \frac{\sum x_i y_i - 3\sum y_i}{10} = \frac{Ⓑ - 3Ⓐ}{10} = (104{,}009) - 3(32{,}485) = 655.40 \quad Ⓒ$$

$$\bar{y} = \frac{\sum y_i}{5} = \frac{Ⓐ}{5} = \frac{(32{,}485)}{5} = 6{,}497.00 \quad Ⓓ$$

$$\bar{x} = \frac{\sum x_i}{5} = \frac{15}{5} = 3$$

$$a = \bar{y} - b\bar{x} = Ⓓ - 3Ⓒ = (6{,}497.00) - 3(655.40) = 4{,}530.80 \quad Ⓔ$$

∴ For year $x_i = x_7$, $y_7 = Ⓔ + 7Ⓒ = (4{,}530.80) + 7(655.40) = 9{,}118.60$ Ⓕ

For year $x_i = x_7$, Index referred to x_i = base

is $\frac{y_7}{y_{base}} = \frac{Ⓕ_7}{Ⓕ_{base}} = \frac{(\quad)}{(9{,}118.60)} = ____$

Notes: 1. Source of actual data for Cols. 3 and 4 = Hetch Hetchy's annual income statements for fiscal years ending June 30.

2. All computations to be computed to 2 places after the decimal.

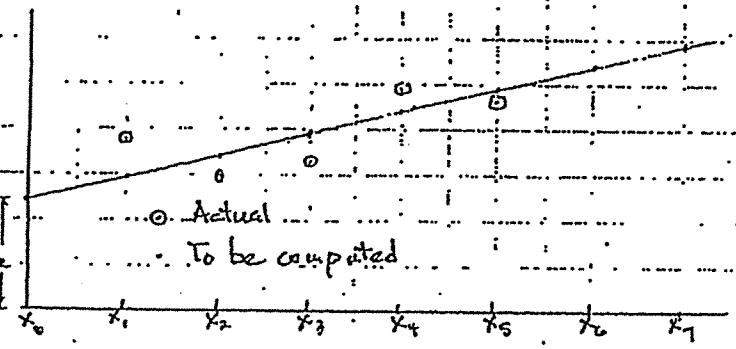
VEB-8 10M 6-60
CITY AND COUNTY OF
SAN FRANCISCO
UTILITIES ENGINEERING BUREAU

DATA SHEET

FILE 840330 TLC-2

SUBJECT Linear Least-Squares Regression Analysis - Estimating Y_7 for Year X_7 Based on Actual Values of Y for Five Prior Years of Record, Y_1 thru Y_5

BY TLC CHECKED BY _____ DATE 10/17 1983 SHEET ___ OF



$$b = \frac{\sum x_i y_i - 3\sum y_i}{10}$$

$$a = \frac{\sum y_i}{5} - 3b$$

$$y_7 = a + 7b$$

①	②	③	④	⑤	⑥	
Fiscal Year	x_i	Total Operating Expense (000)	Total Maintenance Expense (000)	y_i ③+④	$x_i y_i$ ②×⑤	
1982	1			8,492.00	8,492.00	
1983	2			8,463.20	16,926.40	Assumed
1984	3			9,118.60	27,355.80	"
1985	4			9,774.00	39,096.00	"
1986	5			10,429.40	52,147.00	"
Σ	15			46,277.20	144,017.20	
				Ⓐ	Ⓑ	

$$b = \frac{\sum x_i y_i - 3\sum y_i}{10} = \frac{Ⓑ - 3Ⓐ}{10} = (144{,}017.20) - 3(46{,}277.20) = 518.56 \quad Ⓒ$$

$$\bar{y} = \frac{\sum y_i}{5} = \frac{Ⓐ}{5} = \frac{(46{,}277.20)}{5} = 9{,}255.44 \quad Ⓓ$$

$$\bar{x} = \frac{\sum x_i}{5} = \frac{15}{5} = 3$$

$$a = \bar{y} - b\bar{x} = Ⓓ - 3Ⓒ = (9{,}255.44) - 3(518.56) = 7{,}699.76 \quad Ⓔ$$

∴ For year $x_i = x_7$, $y_7 = Ⓔ + 7Ⓒ = (7{,}699.76) + 7(518.56) = 11{,}329.68$ Ⓕ

For year $x_i = x_7$, Index referred to x_i = base

is $$\frac{y_7}{y_{base}} = \frac{Ⓕ_7}{Ⓕ_{base}} = \frac{(11{,}329.68)}{(9{,}118.60)} = 1.24$$

Notes: 1. Source of actual data for Cols. 3 and 4 = Hetch Hetchy's annual income statements for fiscal years ending June 30.

2. All computations to be computed to 2 places after the decimal.

Exhibit E

Surcharge for Power Loss shall be adjusted by application of an index determined on the basis of the annual changes in PGandE's system average costs as submitted to the Securities and Exchange Commission in Report Form 10-K. Such adjustment shall be implemented beginning July 1, 1987 and every four years thereafter for the term of the contract.

The index shall be derived as follows:

Index = A/B

Where A = Estimated PGandE system average costs for the year in question

B = Estimated PGandE system average costs for the base year - 1983

The estimated values of A and B shall be determined by the application of the linear least-squares regression analysis upon actual data of record for five previous years. The index thus derived is then applied to the Surcharge for Power Loss as indicated in Paragraph 11.1(c).

For example, the index to be applied effective July 1, 1987 is determined as follows (see attached data sheets 830818TLC-1 and -2):

A = 104.44 B = 73.58

Index = A/B = 104.44/73.58 = 1.42

Therefore Surcharge = 9.81¢/ccf x 1.42 = 13.93¢/ccf

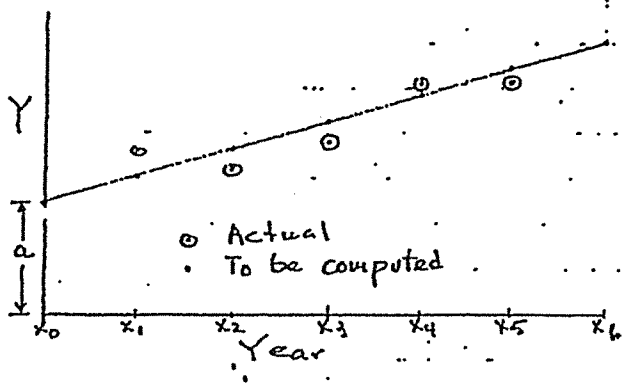
VEB-8 10M 6-60
CITY AND COUNTY OF
SAN FRANCISCO
UTILITIES ENGINEERING BUREAU

DATA SHEET

FILE 830818TLC-1

SUBJECT Linear Least-squares Regression Analysis - Estimating Y_6 for Year X_6 Based on Actual Values of Y for Preceding Five Years

BY TLC CHECKED BY _____ DATE 8/18 1983 SHEET 3 OF _____



$$b = \frac{\sum x_i y_i - 3\sum y_i}{10}$$

$$a = \frac{\sum y_i}{5} - 3b$$

$$y_6 = a + 6b$$

(1)	(2)	(3)	(4)	(5)	(6)
Year	x_i	Total operating Revenue ($ 000)	Total Energy Sales - (GWh)	y_i (3)÷(4)	$x_i y_i$ (2)×(5)
1978	1	2,096,933	56,136	37.35	37.35
1979	2	2,463,845	59,728	41.25	82.50
1980	3	2,927,841	58,292	50.23	150.69
1981	4	3,905,813	61,669	63.34	253.36
1982	5	3,848,602	60,446	63.67	318.35
Σ	15			255.84	842.25
				(A)	(B)

$$b = \frac{\sum x_i y_i - 3\sum y_i}{10} = \frac{(B) - 3(A)}{10} = \frac{(842.25) - 3(255.84)}{10} = \underline{7.47} \quad (C)$$

$$\bar{y} = \frac{\sum y_i}{5} = \frac{(A)}{5} = \frac{(255.84)}{5} = \underline{51.17} \quad (D)$$

$$\bar{x} = \frac{\sum x_i}{5} = \frac{15}{5} = 3$$

$$a = \bar{y} - b\bar{x} = (D) - 3(C) = (51.17) - 3(7.47) = \underline{28.76} \quad (E)$$

∴ For Year $X_6 = 6$, $y_6 = (E) + 6(C) = (28.76) + 6(7.47) = \underline{73.58}$ (F)

For Year $X_6 = 6$, Index referred to Year X_i = base =

$$\frac{y_6}{y_{i=base}} = \frac{(F)_6}{(F)_{i=base}} = \frac{(\quad)}{(73.58)} = \underline{\quad} \Leftarrow 1982$$

Notes: 1. Source of actual data for Cols. 3 and 4 - P.G.&E's annual report SEC Form 10-K to the Securities & Exchange Commission

2. 1985 Index shall be used for determining rates effective July 1, 1985, etc.

3. All calculations to be computed to 2 places after the decimal

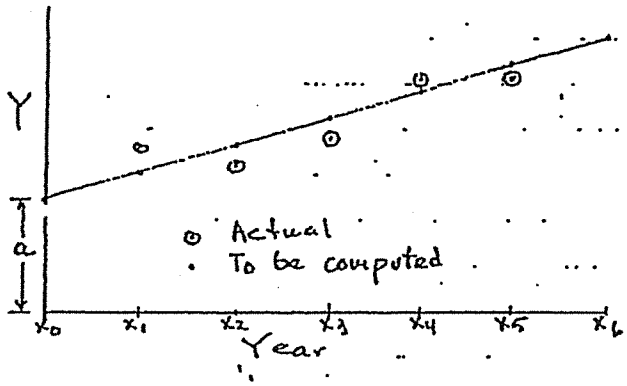
-VEB-8 10M 6-60
CITY AND COUNTY OF
SAN FRANCISCO
UTILITIES ENGINEERING BUREAU

DATA SHEET

FILE 830818TLC-2

SUBJECT Linear Least-squares Regression Analysis - Estimating Y_6 for Year X_6 Based on Actual Values of Y for Preceding Five Years

BY TLC CHECKED BY DATE 8/18 1983 SHEET 3 OF



$$b = \frac{\sum x_i y_i - 3\sum y_i}{10}$$

$$a = \frac{\sum y_i}{5} - 3b$$

$$y_6 = a + 6b$$

(1)	(2)	(3)	(4)	(5)	(6)	
Year	x_i	Total Operating Revenue ($ 000)	Total Energy Sales - (GWh)	y_i (3)÷(4)	$x_i y_i$ (2)×(5)	
1982	1	3,848,602	60,446	63.67	63.67	
1983	2			73.58	147.16	Assumed
1984	3			81.05	243.15	"
1985	4			88.52	354.08	"
1986	5			95.99	479.95	"
$\sum$	15			402.81	1288.01	
				(A)	(B)	

$$b = \frac{\sum x_i y_i - 3\sum y_i}{10} = \frac{(B) - 3(A)}{10} = \frac{(1288.01) - 3(402.81)}{10} = 7.96 \quad (C)$$

$$\bar{y} = \frac{\sum y_i}{5} = \frac{(A)}{5} = \frac{(402.81)}{5} = 80.56 \quad (D)$$

$$\bar{x} = \frac{\sum x_i}{5} = \frac{15}{5} = 3$$

$$a = \bar{y} - b\bar{x} = (D) - 3(C) = (80.56) - 3(7.96) = 56.68 \quad (E)$$

∴ For Year $X_6 = 6$, $y_6 = (E) + 6(C) = (56.68) + 6(7.96) = 104.44$ (F)

For Year $X_6 = 6$, Index referred to Year X_i = base =

$$\frac{y_6}{y_{i=base}} = \frac{(F)_6}{(F)_{i=base}} = \frac{(104.44)}{(73.58)} = 1.42$$

Notes: 1. Source of actual data for Cols. 3 and 4 - P.G.&E's annual report SEC Form 10-K to the Securities & Exchange Commission

2. 1985 Index shall be used for determining rates effective July 1, 1985, etc.

3. All calculations to be computed to 2 places after the decimal

RESOLUTION NO. 4-84

A RESOLUTION OF THE GROVELAND COMMUNITY SERVICES DISTRICT APPROVING A MODIFIED CONTRACT FOR WATER SERVICE BETWEEN GROVELAND COMMUNITY SERVICES DISTRICT AND THE CITY AND COUNTY OF SAN FRANCISCO.

WHEREAS, the City and County of San Francisco has prepared a contract to modify in its entirety the 1965 Contract For Water Service, as Amended, between City and District; and

WHEREAS, elements of the modified contract for water service include an extension of the term from year 2020 to year 2034, the enlargement of the boundaries of the service area and a reduction in the rates charged for raw water pumped by District from the Hetch Hetchy Aqueduct; and

WHEREAS, it is in the best interest of the District to enter into the modified contract, effective January 1, 1984, as adopted by the Public Utilities Commission of the City and County of San Francisco on April 24, 1984;

NOW, THEREFORE BE IT RESOLVED BY the Board of Directors of the Groveland Community Services District that said Contract be and it hereby is approved and Bayard C. Beaudreau, General Manager of said District, is authorized and directed to execute said Contract on the part of the Groveland Community Services District.

PASSED AND ADOPTED at a regular meeting of said District on May 8, 1984 by the following vote:

AYES:	Directors	Ducharme, Macy, Fenton, McDowell & President Osborne
NOES:	Directors	None
ABSENT:	Directors	None
ABSTAINING:	Directors	None

Fred H. Osborne, President

ATTEST:

Sue A. Gianelli, Secretary

PUBLIC UTILITIES COMMISSION
CITY AND COUNTY OF SAN FRANCISCO

RESOLUTION No. 84-0186

WHEREAS, The City and County of San Francisco (City) and the Groveland Community Services District (District) entered into an agreement for water service on March 23, 1965, amended by Amendment No. 1 on January 9, 1968 and Amendment No. 2 on May 18, 1971; and

WHEREAS, The water needs of the District are growing and the District desires a firm supply to meet its future water needs; and

WHEREAS, The District desires and the City consents to extend the term of the current contract to March 23, 2034; and

WHEREAS, City and District recognize that the rates and charges for furnishing such water service be made on a fair and equitable basis; now, therefore, be it

RESOLVED, That this Commission does hereby approve the terms and conditions of the agreement, dated January 1, 1984, between the City and District and authorizes the General Manager of Public Utilities to execute same on behalf of this Commission.

I hereby certify that the foregoing resolution was adopted by the Public Utilities Commission

at its meeting of _____

Rosaire A. Bolduc
Secretary, Public Utilities Commission

APPENDIX E

WATER EXCHANGE AGREEMENT BETWEEN SFPUC AND TID

Modesto Irrigation District
The Power to Grow

WATER & POWER
Serving Central California since 1887

July 23, 2007

Michael P. Carlin
Assistant General Manager – Water Enterprise
San Francisco Public Utilities Commission
1155 Market Street, Fourth Floor
San Francisco, California 94103

Dear Michael:

It is our understanding that under the SFPUC's Hetch Hetchy Long-Term Maintenance Program, the Mountain Tunnel will periodically be taken out of service over the next ten years. Each outage is not expected to last for more than 60 days at a time and will be confined to the winter months when demand on your system is at its lowest point.

We also understand that the planned outages will have an adverse affect upon Groveland Community Services District, which obtains a supplemental drinking water supply from the SFPUC. In essence, whenever the Mountain Tunnel is down, GCSD will be without its supplemental drinking water supply. To address this predicament, GCSD proposes during these periods to use water in Pine Mountain Lake that would normally flow by water right of the Districts to the Don Pedro Reservoir. SFPUC proposes to assist GCSD by allowing adjustments to its Don Pedro water bank account to cover any shortfall in the amount of water that would otherwise flow from Pine Mountain Lake to Don Pedro Reservoir.

The Districts recognize the need for maintenance of the Hetch Hetchy system and the inconvenience that it will cause to GCSD. We also recognize that the amount of water involved is expected to be less than 200 acre-feet per outage. Consequently, based upon the preceding facts, we wish to cooperate to the extent that we can, by assisting the SFPUC and GCSD during the period when the Mountain Tunnel will be out of service. The Districts would agree to the use of water from Pine Mountain Lake by GCSD under the following conditions:

1. The GCSD shall obtain all necessary permits required for the use of the water.
2. That there shall be no adverse impacts to the Districts' water rights and that the Districts be kept whole at all times.
3. Water used by GCSD during maintenance outages shall be metered at the diversion point and that a similar amount be deducted from the Don Pedro water bank.
4. Meter readings shall be forwarded to the Districts by the 10th day of the month following any month in which water is diverted.

5. The agreement allowing GCSD to use water in Pine Mountain Lake and the corresponding adjustment to the Don Pedro water bank shall expire on March 1, 2017.
6. Authorization is for the purpose of this unique circumstance and shall not establish or set a precedent for future requests. Further, the Districts acknowledge that nothing herein is intended to establish a precedent or course of conduct between the Parties as to their respective Tuolumne River water rights or agreements, including Don Pedro water bank accounting.

If these conditions are satisfactory to you, please indicate your concurrence by signing and dating where indicated and return a copy to each of us.

Sincerely,

Walter P. Ward
Assistant General Manager
Water Operations
Modesto Irrigation District
P.O. Box 4060
Modesto, California 95352

Robert M. Nees
Assistant General Manager
Water Resources & Regulatory Affairs
Turlock Irrigation District
P.O. Box 949
Turlock, California 95380

I hereby agree to the terms and conditions expressed above.

30 July 07

Michael P. Carlin, Assistant General Manager – Water Enterprise Date

APPENDIX F

GCSD TIERED RATES

Groveland Community Services District

Summary of Water and Sewer Rates

Water

Monthly Fixed Rate Service Charges

Meter Size	Monthly Fixed Rate Charge
5/8" X 3/4"	$30.06
3/4" X 3/4"	$30.06
1"	$48.10
1 1/2"	$78.16
2"	$105.21
3"	$165.33
4"	$234.47

Usage (Variable) Rate

Gallons Used per Month	Usage Charge per gallon
0 to 4,000	$0.00190
4,001 to 7,000	$0.00379
7,001 to 12,000	$0.00569
>12,001	$0.00757

Sewer

Monthly Fixed Rate Service Charge and Monthly Usage (Variable) Charge

Service Description	Fixed & Usage Charges	
	Residential	Commercial
Monthly Minimum Charge	53.10	53.10
Monthly Volume Usage Charge	.00698 per gallon of metered water	.01121 per gallon of metered water

Users who use water for significant landscape irrigation may apply to establish a flat sewer usage charge which shall be based on the average amount of water used during January, February and March or **3,100** gallons, whichever is greater.

Bonds/Debt Charges

Charge	Water*	Sewer	Water and Sewer Service
Monthly Fixed Rate/Minimum Charge	$30.06	$53.10	$83.16
1996-98 Capital Facilities Bond	$9.83		$9.83
2007 Water Debt Service	$10.75		$10.75
2007 Wastewater Debt Service		$25.75**	25.75
Total Fixed Monthly Rate	**$50.64**	**$78.85**	**$129.49**

*Based on ½" meter size
**Not applicable to Groveland/Big Oak Flat accounts not tributary to Lift Station 7

APPENDIX G

SAMPLE PUBLIC INFORMATION PIECE

Groveland Community Services District

G.C.S.D. Services - 209 / 962-7161
Fax - 209 / 962-4943
Fire Department - 209 / 962-7891
www.gcsd.org

water • fire protection • parks • wastewater collection& treatment

18966 Ferretti Road P.O. Box 350 Groveland, CA 95321-0350

Please Help Us Save Water

The latest rainfall and snowpack measurements, taken on April 1, 2007, tell a dry story. We have experienced the 4th driest rainy season on record, and our Sierra snowpack is at about 46% of normal for this time of year.

We are asking everyone to use less water this spring and summer to help conserve this precious resource - you can save 10% or more by following these 10 water-saving tips! If we can voluntarily lower our water usage by 10%, we may avoid mandatory water rationing later this year.

WATER CONSERVATION TIPS

1. Turn off the faucet when you are brushing your teeth or doing the dishes.
2. Take shorter showers. Each minute you cut saves 2.5 gallons.
3. Use a broom to clean sidewalks, driveways and pavement instead of using a hose.
4. Water only what your plants need: Water your lawn once a week and only at night.
5. This spring: plant drought tolerant plants.
6. Operate your clothes and dishwashers with full loads only, even if the machine has an adjustable load setting.
7. Stop leaks. To check for leaks turn off all water taps inside and outside your home. If the meter dial is moving, you may have a leak.
8. Install faucet aerators in your kitchen and bathroom.
9. Replace your old toilet, the largest water user inside your home.
10. Replace your clothes washer, the second largest water user in your home.

Thank You!

interruption, shortage, pressure increase or loss, insufficiency of supply, or for any loss or damage occasioned thereby, if caused by accident, act of God, fire, strikes, riots, war, or any other cause not within its control.

ARTICLE III - GENERAL USE REGULATIONS

Section 3.01 Supply to Separate Structures

Each house, structure, dwelling unit, or dwelling unit within a community housing project, for which application for water service is hereafter made, shall have a separate service connection, including a separate meter. However, upon written application, the Board may waive this requirement as it applies to individual dwelling units within a community housing project if special or unusual circumstances exist that, at the discretion of the Board, warrant such a waiver.

Section 3.02 Water Waste

No customer shall knowingly permit leaks or waste of water. Where water is wastefully or negligently used on a customer's premises, the District may discontinue the service if such conditions are not corrected within five (5) days after giving the customer written notice.

Section 3.03 Responsibility for Equipment on Customer Premises

All facilities installed by the District on private property for the purpose of rendering water service shall remain the property of the District and may be maintained, repaired, or replaced by the District without consent or interference of the owner or occupant of the property. The property owner shall use reasonable care in the protection of the facilities. No payment shall be made for placing or maintaining said facilities on private property. No persons shall place or permit the placement of any object in a manner that will interfere with the free access to a meter box or will interfere with the reading of a meter.

Section 3.04 Changes in Customer's Equipment

Customers making any material changes in the size, character, or extent of the equipment or operations utilizing water service, or whose change in operations results in a large increase in the use of water, shall immediately give the District written notice of the nature of the change and, if necessary, amend their application to provide for installation of a larger meter.

Section 3.05 Damage to Water System Facilities

The customer shall be liable for any damage to the District-owned customer water service facilities when such damage is from causes originating on the premises by an act of the customer, including but not limited to the breaking or destruction of locks by the customer or others on or near a meter, and any damage to a meter that may result from hot water or steam from a boiler or heater on the customer's premises. The District shall be reimbursed by the customer for any such damage promptly on presentation of a bill.

Section 3.06 Ground Wire Attachments

All persons are forbidden to attach any ground wire or wires to any plumbing which is or may be connected to a service connection or main belonging to the District unless such private plumbing is adequately connected to an effective driven ground installation on the premises. The District will hold the customer liable for any damage to its property occasioned by such ground wire attachments.

Section 3.07 Cross Connections and Backflow Protection

The customers shall comply with State and Federal laws governing the separation of dual water systems or installations of backflow protective devices to protect the public water supply from the danger of cross-connections. Detailed rules and regulations for backflow prevention have been mandated by the State and adopted in District Ordinance 4-96 and as amended.

APPENDIX H

DRAFT WATER SHORTAGE CONTINGENCY PLAN RESOLUTION

RESOLUTION NO:_____

Adopted by the Board of Directors
of the
Groveland Community Services District

IMPLEMENTING STAGE *[1][2][3]* OF THE GROVELAND COMMUNITY SERVICES DISTRICT WATER SHORTAGE CONTINGENCY PLAN

BACKGROUND

A. The Groveland Community Services District has two water supply sources: (1) the Hetch-Hetchy and (2) Pine Mountain Lake. Under a normal water supply year, GCSD's water supplies are adequate to meet customer's water demands. However, because of *[on-going drought conditions statewide][the required shutdown of GCDD's Water Treatment Plant due to _____][or describe other event]*, the Board of Directors of GCSD has determined that it is necessary to enact water conservation measures and water use restrictions, in addition to those already included in the City Code (Chapter 13.04 Water Service System, Article XI Water Conservation), as authorized under City Code section use within the City's water service area, in order to reduce water

B. On December 16, 2013, GCSD's Board of Directors adopted the 2010 Urban Water Management Plan that contains a Water Shortage Contingency Plan (WSCP). The WSCP includes three water conservation stages for a reduction in water use of up to 50 percent.

Water Conservation Stage	Water Use Reduction Goal
1	10% to 20%
2	20% to 30%
3	40% to 50%

Each water conservation stage includes specific water conservation measures and water use restrictions designed to conserve water. Implementation of the water conservation stages shall be cumulative; meaning that implementation of a higher stage shall also include implementation of all lower stages. For example, if Stage 2 is to be implemented, all of the provisions in Stage 1 shall also be implemented.

BASED ON THE FACTS SET FORTH IN THE BACKGROUND, THE BOARD OF DIRECTORS OF GCSD RESOLVES AS FOLLOWS:

Section 1. That the foregoing recitals are true and correct.

Section 2. That, based on the *[Coordinate with paragraph A above]*, the Board of Directors of GCSD hereby declares that a water shortage emergency condition prevails and that water use should be reduced by up to *[10, 20, 30, 40, 50]* percent.

Section 3. That required water use reduction described in Section 2 necessitates implementation of Stage *[1, 2, 3, 4]* of the GCSD's Water Shortage Contingency Plan. The water conservation measures and water use restrictions for Stage *[1, 2, 3, 4]* are described below. Implementation of Stage *[1, 2, 3, 4]* shall be cumulative and shall also include implementation of the provisions of the Stages *[1, 2, 3]*.

Stage 1 - includes the following water conservation measures and water use restrictions:

1. The District Manager shall initiate a public information campaign to inform the GCSD's water customers of the need for water conservation and the provisions enacted by this Resolution.

2. The District Manager shall request customers to voluntarily reduce their water use by 10 to 20 percent. Such request shall include information on practical ways for customers to reduce their water use.

3. The District Manager shall increase GCSD's water waste patrols to enforce the provisions of this Resolution.

4. The District Manager shall reduce irrigation of parks and cemeteries to the following days and hours: *[describe reduced watering schedule]*

5. Shut-off valves shall be required on all hoses used for irrigation purposes, car washing or other water uses.

Stage 2 - includes the following water conservation measures and water use restrictions:

1. All of the provisions of Stage 1 shall be implemented as stated above, unless otherwise modified by these Stage 2 provisions.

2. The District Manager shall intensify the public information campaign to inform GCSD's water customers of the need for water conservation and the provisions enacted by this Resolution.

3. GCSD shall further increase its water waste patrols to enforce the provisions of this Resolution.

4. Outdoor irrigation shall be limited to two days per week. Locations bearing a street address ending in an odd number shall be permitted to irrigate only on Tuesday and Saturday. Locations bearing a street address ending in an even number shall be permitted to irrigate only on Wednesday or Sunday. There shall be no water irrigation on Mondays, Thursdays, or Fridays.

5. Landscape irrigation shall be prohibited between the hours of *[insert hours--*

6. The District Manager shall further reduce irrigation of parks and cemeteries to the following days and hours: *[describe reduced watering schedule]*

7. Car washing shall be restricted to commercial car washes.

8. All public water uses not required for health and safety shall be prohibited.

9. Main flushing shall be allowed only for emergency purposes.

Stage 3 - includes the following water conservation measures and water use restrictions:

1. All of the provisions of Stages 1 and 2 shall be implemented as stated above, unless otherwise modified by these Stage 3 provisions.

2. The District Manager shall continue the public information campaign to inform GCSD's water customers of the need for water conservation and the provisions enacted by this Resolution.

3. The District Manager shall intensify GCSD's leak detection program.

4. Outdoor irrigation shall be limited to one day per week using manual application only. Use of automatic sprinkler systems shall be prohibited. Locations bearing a street address ending in an odd number shall be permitted to irrigate only on Saturday. Locations bearing a street address ending in an even number shall be permitted to irrigate only on Sunday. There shall be no water irrigation on Mondays, Tuesdays, Wednesdays, Thursdays, or Fridays.

5. Landscape irrigation shall be prohibited between the hours of *[insert hours--*

6. The District Manager shall further reduce irrigation of parks and cemeteries to the following days and hours: *[describe reduced watering schedule]*

Section 4. That the District Manager is hereby authorized and empowered to delegate his or her authority hereunder to such assistants, deputies, officers, employees, or agents of GCSD as he or she shall designate, and to establish such rules, regulations, and procedures, and to prepare or furnish such forms, as he or she deems necessary or appropriate to carry out the provisions of this Resolution.

Section 5. That in the event any person shall violate any of the provisions of this Resolution, the violations and penalties set forth here in shall apply:

Violation	Penalty
1st	*[Select Penalty amount]*
2nd	*[Select Penalty amount]*
3rd	*[Select Penalty amount]*

Section 6. That this Resolution shall be effective upon its adoption, and shall remain effective until the conditions described in Section 2 are resolved, in which case this Resolution shall be rescinded, or until conditions described in Section 2 worsen, thus requiring additional action by the Board of Directors, in which case a subsequent Resolution will be considered for adoption.

GCSD Board President