

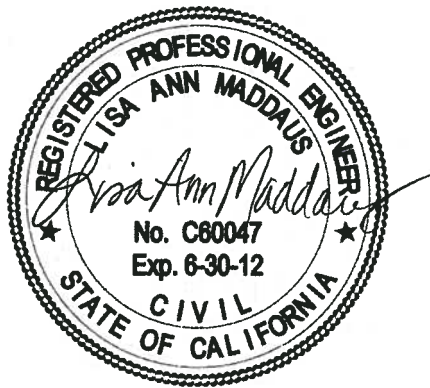
2020 COMPLIANCE PLAN

Prepared for
Rancho Murieta Community Services District
Rancho Murieta, CA
September 15, 2010

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Project Number: 138708.100



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LIST OF ACRONYMS AND ABBREVIATIONS

AF	AF
AFY	acre-feet per year
BCA	business case analysis
CII	commercial, industrial, and institutional
cf	cubic feet
cfs	cubic feet per second
DWR	California Department of Water Resources
EDU	equivalent dwelling units
ET	evapotranspiration
GPCD	gallons per capita day
gpd	gallons per day
RMCSO	Rancho Murieta Community Services District
SB7	Senate Bill X7-7
SWRCB	State Water Resources Control Board
UWMP	urban water management plan

2020 COMPLIANCE PLAN

EXECUTIVE SUMMARY

Rancho Murieta Community Services District (RMCS D) has developed this 2020 Compliance Plan to help meet new mandates for water conservation that have been incorporated into recent state legislation. The Water Conservation Act of 2009 is legislation passed as Senate Bill X7-7 (SB7). Enacted in November 2009 by California lawmakers, SB7 requires water suppliers throughout the state to decrease per capita urban potable water use by 10 percent by December 31, 2015 and by 20 percent by December 31, 2020.

Threats to Water Diversions

The Rancho Murieta community relies on water diversions from the Cosumnes River directly upstream of the California Bay-Delta estuary that is currently threatened and was the driver behind the Water Conservation Act of 2009. The District's main water right permit 16762 was issued in 1969 and amended in 1980. In 2001, the permit was renewed and extended with no new permit requirements through 2020 in consideration that the community was not at full build-out. It now appears likely that in 2020, the community will not have reached full build-out and the permit will need to be extended again. Given the statewide goal of reducing water consumption by 20% by 2020, due consideration will be given to RMCS D's compliance or lack thereof in meeting the reduction goal. If compliance is not shown, under one potential worst case scenario, the yearly diversion and storage could be cut back by 20%.

State SB7 Requirements for Water Suppliers

SB7 has two provisions related to the compliance with 2015 interim and 2020 final targets that RMCS D should be aware of that drive the need for meeting gallons per capita(persons) per day (GPCD), reduction targets sooner than later:

- “On and after July 1, 2016...an urban water supplier would not be eligible for water grants or loans administered by the state.” (Water Code §10608.56 (a))
- “Each urban retail water supplier shall meet its urban water use target by December 31, 2020.” (Water Code §10608.24 (b))
- “...an urban retail water supplier's failure to meet those targets shall not establish a violation of law for purposes of any state administrative or judicial proceedings prior to January 1, 2021.” (Water Code §10608.8 (a)(2)).

The concern with the new California Water Code Section 10608.8 (a)(2) is that water rights are based on reasonable and beneficial use and non-compliance with GPCD targets with demand in excess of a defined target could be perceived as wasteful and unreasonable and give cause to reduce a water purveyor's water right.

The California Department of Water Resources (DWR) requires that the results of the SB7 analysis be included in water agencies' respective urban water management plans (UWMPs). California urban water suppliers are required to develop UWMPs if the water supplier serves over 3,000 connections or delivers over 3,000 acre-feet per year to its customers.

RMCS D currently serves 2,604 connections including residential and commercial and parks connections. However, Sacramento County has approved development of 520 lots within RMCS D's service area, plus an additional 150 units currently being considered for approval, bringing the total lots likely to be approved in

the near future to 670 units. Considering the planned development, RMCSO will be required to develop a UWMP in compliance with all applicable sections of SB7 once more than 3,000 acre-feet per year or 3,000 connections are served. Plans are due every five years. The next plans are due in 2015 and 2020 and required to include information on SB7 compliance.

Voluntary Compliance by RMCSO Customers to Meet SB7 Requirements

SB7 requirements apply to the RMCSO that drive an overall goal for community-wide water demand reduction. The state requirements refer to the metric on a per person (capita) amount of water demand per day, which is based on total water demand in the service area divided by number of days in the year, divided by the total number of persons served, presented in terms of gallons per capita per day. The compliance with GPCD targets required by SB7 is voluntary on behalf of each individual property owner, and RMCSO will need to proceed with more aggressive voluntary conservation measures over time (leading up to tiered pricing), if monitoring of progress of the total annual water demand in the service area is indicating that targets are not forecasted to be achieved. RMCSO will be encouraging reductions in customer water demand through mainly educational efforts and conservation incentives. Over the course of the next 9 years, the RMCSO Board may also strengthen some existing policies or adopt new policies to help achieve these targets. Compliance with some of these Board policies may not be voluntary, such as requirements to avoid wasteful practices (e.g., enforcement of Board policy 87-9 related to excessive runoff from irrigation and sprinkling and associated fines for water waste violation).

Historical Baseline GPCD and Selection of Method 1 Target for 2020 Compliance

In accordance with SB7 requirements, RMCSO's historic baseline potable and non-potable water uses were analyzed in terms of GPCD from 1994 through 2009. The analysis was performed using total treated and recycled water production by year and estimated population for 1995 through 2009. The highest 10-year average potable GPCD was 298 gpcd, which was for the ten year 1999 to 2008 period.

SB7 allows for four different methods of calculating GPCD targets for reduction in potable water demand. The GPCD of 298.1 is considered the baseline water use for Method 1. Based on a 10 percent reduction for 2015 and a 20 percent reduction for 2020, the 2015 and 2020 target GPCD values are 268.3 and 238.5, respectively (Table ES-1).

Table ES-1. Historic Water Use in Terms of GPCD and SB7 Method 1 Targets

Year	Estimated Population	Total Production (AFY)	Water Use (GPCD)	10-Year Average (GPCD)	Method 1 GPCD Target for 2015 (GPCD)	Method 1 GPCD Target for 2020 (GPCD)	Percent Reduction Necessary for 2020 Compliance
1994	3,621	1,088	268.2	--	--	--	-
1995	3,780	1,111	262.4	--	--	--	--
1996	3,959	1,205	271.7	--	--	--	--
1997	4,080	1,356	296.8	--	--	--	--
1998	4,190	1,326	282.6	--	--	--	--
1999	4,571	1,545	301.8	--	--	--	--
2000	4,869	1,610	295.2	--	--	--	--
2001	4,888	1,743	318.4	--	--	--	--
2002	5,351	1,718	286.6	--	--	--	--

Table ES-1. Historic Water Use in Terms of GPCD and SB7 Method 1 Targets							
Year	Estimated Population	Total Production (AFY)	Water Use (GPCD)	10-Year Average (GPCD)	Method 1 GPCD Target for 2015 (GPCD)	Method 1 GPCD Target for 2020 (GPCD)	Percent Reduction Necessary for 2020 Compliance
2003	5,468	1,681	274.4	--	--	--	----
2004	5,513	1,862	301.5	289.1	260.2	231.3	-20%
2005	5,520	1,840	297.6	292.6	263.4	234.1	-20%
2006	5,609	1,938	308.4	296.3	266.7	237.1	-20%
2007	5,668	1,946	306.6	297.3	267.6	237.8	-20%
2008	5,748	1,873	290.8	298.1 ^a	268.3 ^a	238.5 ^a	-20%
2009	5,880	1,769	268.6	294.8	265.3	235.8	-20%

^a Selected data for baseline water use and 2015/2020 targets.

At the Board Workshop on May 5, 2010, the results were compared from analysis of Methods 1, 2 and 3 (with Method 4 still yet to be determined by California Department of Water Resources). The Board selected the Method 1 GPCD 2020 target of 238.5 GPCD. Figure ES-1 shows the historical demand and 2015 and 2020 targets as determined using Method 1.

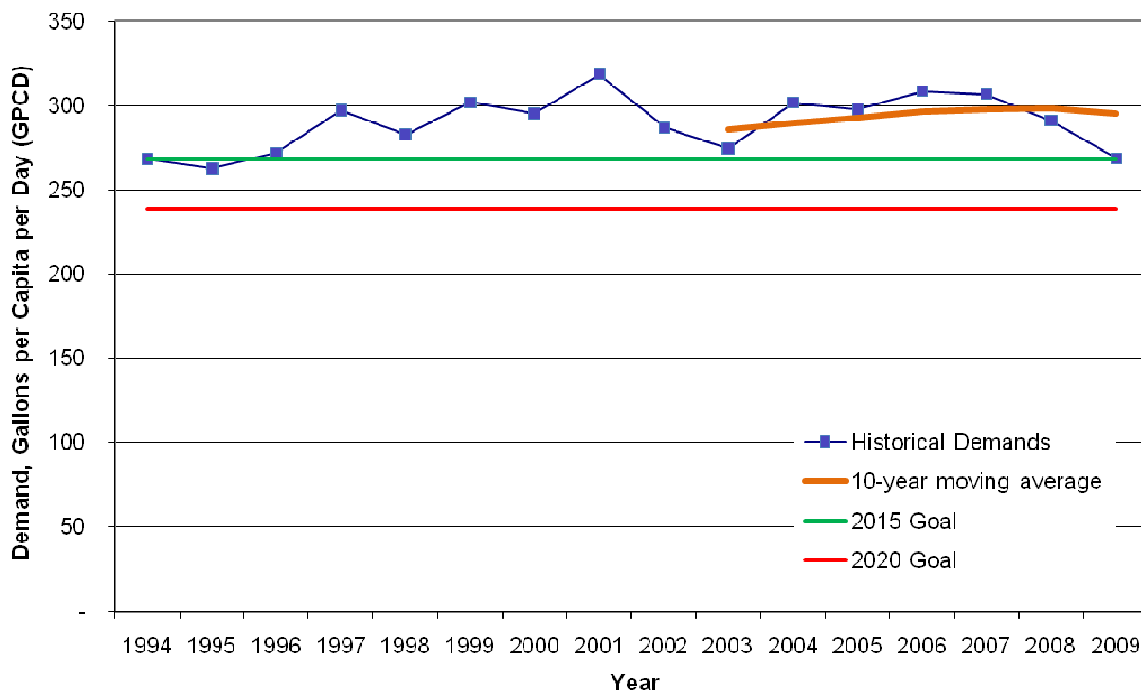


Figure ES-1. Historical GPCD Demands and SB7 Method 1 Goals

Past Conservation and Recycling Efforts

RMCS D has actively used non-potable water for meeting golf course irrigation demands since the courses were built and switched over to recycled water in 1988 with raw water augmenting supply. Over time it is the

RMCS D's intent to supply 100% of the golf course's irrigation demand with recycled water, even in drought and low water years. In addition, RMCS D is currently and has historically been engaged in promoting water conservation awareness to its customers. These efforts include articles in its Pipeline Newsletters, Website information and links, offering toilet and washer rebates, and posting Door Tags to notify excessive water wasters.

Evaluation of Conservation and Recycling Measures

At the RMCS D Board Workshop on February 19, 2010, a comprehensive list of conservation measures and recycling options were reviewed and it was decided which measures were to be included for consideration and those to be further refined with a business case analysis.

To compare the results of the analysis the demand reduction measures, the measures and associated water savings and cost estimates were packaged together into three different scenarios (Scenarios A, B, and C). Three alternatives were presented:

- Scenario A – comprehensive list of conservation measures only
- Scenario B – fewer conservation measures and recycled water for new connections
- Scenario C – fewer conservation measures and recycled water for new connections and existing parks

Each of the scenarios were designed to serve as a blueprint for RMCS D to develop a strategy for meeting 2020 GPCD targets.

Selection of Preferred Scenario A – Conservation Measures Only

At the Board's direction at the workshop on June 18, 2010, Scenario A was selected as the preferred alternative for implementation based on the conservative assumption that recycled water may not be available prior to 2020 due to the economic downturn and delays in residential development.

Scenario A includes the following demand reduction measures:

- Measures 1 through 10 – Education/Outreach
- Measure 11 – Residential Plumbing Kits
- Measure 12 – HET Rebates
- Measure 13 – High Efficiency Washers
- Measure 14 – Residential Water Surveys
- Measure 15 – Weather Controllers
- Measure 16 – Irrigation Retrofits
- Measure 17 – Landscape Retrofit Program
- Measure 19 – Large Landscape Water Budget Incentive
- Measure 20 – Large Landscape Survey
- Measure 21 – Large Landscape Irrigation Upgrades
- Measures 23-33 – Utility Operations, Rules and Regulations

A description of each measure included in Scenario A is included in Table ES-2, along with estimated water savings in terms of GPCD savings in 2015 and 2020. More detailed information on the conservation measures is presented in Section 5 and further details on water savings assumptions are provided in Appendix B and detailed 2020 Model results for Scenario A are presented in Appendix C.

Table ES-2. Scenario A – Conservation Measures Only

Measure	2015 Water Savings Estimate (GPCD) ¹	2020 Water Savings Estimate (GPCD) ¹
Measures 1 through 10 – Education/Outreach	3.0	7.5
Measure 11 – Residential Plumbing Kits	0.5	0.5
Measure 12 – HET Rebates	1.6	1.5
Measure 13 – High Efficiency Washers	0.9	2.2
Measure 14 – Residential Water Surveys	6.5	6.5
Measure 15 – Weather Controllers	7.4	12.1
Measure 16 – Irrigation Retrofits	3.1	5.2
Measure 17 – Landscape Retrofit Program (Cash-for-grass)	3.0	5.5
Measure 19 – Large Landscape Water Budget Incentive	1.5	1.2
Measure 20 – Large Landscape Survey	1.5	1.5
Measure 21 – Large Landscape Irrigation Upgrades	0.5	1.0
Measures 23-33 – Utility Operations, Rules and Regulations	7.5	14.9
Total Estimated Water Savings	36.9	59.5
Total GPCD Target Difference	29.8	59.6

¹ Note: GPCD Water Savings Estimates may be converted to average savings per household by multiplying gallons per day by 2.35 persons per household (based on 2000 Census data).

Progress Monitoring Needs for Tracking 2020 Compliance

The water demand from RMCS D customers fluctuates year to year based predominately on climate conditions and, as a result, the annual average GPCD will fluctuate. It will be important to track activities and also water demand to understand the level of progress being made in reducing overall GPCD towards meeting the selected 2020 target. RMCS D plans to use components of the 2020 Compliance Model developed (see Section 3) and the MS worksheets for each conservation measure being actively used to track estimated water savings based on the number of activities (or interventions) taken in a given year. A copy of this MS Excel based model will be included on a CD attached to the Final Plan.

Conclusions

At the direction of the RMCS D Board, the intention for the community and the RMCS D is to be proactive in meeting 2020 targets in order to ward against the worst case scenario of the water rights for the community being reduced in the future. SB7 was explicit in the opportunity for the State Water Resources Control Board (SWRCB) to begin taking administrative or legal action after January 1, 2021 against those agencies not compliant with 2020 GPCD targets. Since the RMCS D will need to appeal for an extension for its water right permit in 2020, the timing of the appeal will bring scrutiny from SWRCB on the Rancho Murieta community's perceived wise or wasteful uses of potable water based on whether or not the 2020 GPCD target was achieved.

Each year a progress update will be used to analyze the basis for meeting the 2020 GPCD target and an annual work plan and budget will be developed to stay on track or pursue additional measures and will be brought before the Board for adoption and to reconfirm the goal of meeting the SB7 mandate.

2020 COMPLIANCE PLAN

1. INTRODUCTION

Rancho Murieta Community Services District (RMCS D) has developed this 2020 Compliance Plan to help meet new mandates for water conservation that have been incorporated into recent legislation. The Water Conservation Act of 2009 is legislation passed as Senate Bill X7-7 (SB7). It was one part of the 2009 Legislative Water Package that calls for an overall statewide 20 percent reduction in urban per capita water demand by 2020.

This legislation was one of the strategic recommendations that came out of Governor Arnold Schwarzenegger's Delta Vision process that concluded at the end of 2008. The goal of the Delta Vision process was to define what was needed for the long-term, sustainable management of the Sacramento-San Joaquin Delta. The imperiled Delta provides two-thirds of Californians – an estimated 25 million people – with some of their water and is home to more than 750 plants and animals that, in some cases, are unique to the Delta. RMCS D, as an upstream diverter from one of the Bay Delta's tributary, the Cosumnes River, has a direct connection to the water quality and health of the Delta.

The 2020 Compliance Plan is a blueprint to help define both the baseline per capita water demand for RMCS D as defined in the legislation and also to identify demand reduction measures to meet future per capita demand goals called for in the legislation. The risk for not complying with these targets is that RMCS D's water diversion and storage may be reduced, as the water rights are based on beneficial and reasonable use, when water rights are renewed in 2020. Having GPCD demand higher than the 2020 target could be defined as waste and unreasonable use, which may then result in additional administrative or judicial action by the State Water Resources Control Board as authorized in SB7. Furthermore, compliance with the demand target requirements is a condition for state grant eligibility.

The following three sections describe the two key drivers for developing this 2020 Compliance Plan.

1.1 State Senate Bill 7 Regulatory Requirements

Enacted in November 2009 by California lawmakers, SB7 requires water suppliers throughout the state to decrease per capita urban water use by 10 percent by December 31, 2015 and by 20 percent by December 31, 2020. SB7 also requires that urban retail water suppliers evaluate historic water use, select a water use target methodology, and determine water use targets by July 1, 2011. A copy of the full chaptered version of SB7 is included in Appendix A.

The California Department of Water Resources (DWR) requires that the results of the SB7 analysis be included in water agencies' respective urban water management plans (UWMPs). California urban water suppliers are required to develop UWMPs if the water supplier serves over 3,000 connections or delivers over 3,000 acre-feet per year to its customers. RMCS D currently serves 2,604 connections, comprised of 2,502 residential, 97 commercial and 5 parks connections. However, Sacramento County has approved development of 520 lots within RMCS D's service area, plus an additional 150 units (100 residential and 50 commercial equivalent dwelling units) currently being considered for approval, bringing the total likely to be approved in the near future to 670 units. Considering the planned development, RMCS D will be required to develop a UWMP in compliance with all applicable sections of SB7 once more than 3,000 acre-feet per year or 3,000 connections are served.

Water suppliers must adopt one of four specific methods for complying with SB7. The four methods consist of the following:

- **Method 1** – This approach requires water suppliers to reduce urban water demands to 80 percent of the water supplier’s baseline per capita daily water use calculated as gross water use over a continuous 10-year period beginning no earlier than December 31, 2004 and ending no later than December 31, 2010. Gross water use is defined in SB7 as “the total volume of water, whether treated or untreated, entering the distribution system of an urban retail water supplier” excluding recycled water, long-term storage water, transfers to another water supplier, or water used for agriculture.
- **Method 2** – This method requires that water suppliers determine the per capita water use targets as estimated using 55 gallons per capita per day (GPCD) for indoor purposes, DWR’s Model Water Efficient Landscape Ordinance for landscape irrigation, and a 10 percent reduction of baseline commercial, industrial, and institutional water use by 2020.
- **Method 3** – This approach requires that water suppliers meet a daily per capita demand of 95 percent of the applicable state hydrologic region target, as documented in the state’s 20x2020 Water Conservation Plan.
- **Method 4** – This method is currently being developed by DWR and will be reported to the California Legislature by December 31, 2010. Among other considerations, this method will consider climatic differences and population density.

SB7 has two provisions related to the compliance with 2015 interim and 2020 final targets that RMCS D should be aware of that drive the need for meeting GPCD targets sooner than later:

- “On and after July 1, 2016...an urban water supplier would not be eligible for water grants or loans administered by the state.” (Water Code §10608.56 (a))
- “Each urban retail water supplier shall meet its urban water use target by December 31, 2020.” (Water Code §10608.24 (b))
- “...an urban retail water supplier’s failure to meet those targets shall not establish a violation of law for purposes of any state administrative or judicial proceedings prior to January 1, 2021.” (Water Code §10608.8 (a)(2))

The concern with the new California Water Code Section 10608.8 (a)(2) is that water rights are based on reasonable and beneficial use and non-compliance with GPCD targets with demand in excess of a defined target could be perceived as wasteful and unreasonable and give cause to reduce a water purveyor’s water right.

Based on inquiries on RMCS D’s behalf to DWR, there is not yet any final legal interpretation from DWR related to the compliance schedule for meeting targets for 2015 and 2020 when the number of connections and acre-feet per year do not meet the criteria of SB7. A recent draft methodology for compliance with SB7 released on June 17, 2010 recommends that a pro-rated level of compliance be adopted that sets the 2020 target at 2% savings per year starting in the year that SB7 becomes applicable. For planning purposes, RMCS D has conservatively assumed that GPCD targets may require compliance anytime between 2011 and 2020 and is thus pursuing to be in compliance with GPCD targets by 2020.

1.2 Voluntary Compliance by RMCS D Customers to Meet SB7 Requirements

SB7 requirements apply to the RMCS D that drive an overall goal for community-wide water demand reduction. The state requirements refer to the metric on a per person (capita) amount of water demand per day, which is based on total water demand in the service area divided by number of days in the year, divided

by the total number of persons served, presented in terms of gallons per capita per day. The compliance with GPCD targets required by SB7 is voluntary on behalf of each individual property owner, and RMCS D will need to proceed with more aggressive voluntary conservation measures over time (leading up to tiered pricing), if monitoring of progress of the total annual water demand in the service area is indicating that targets are not forecasted to be achieved. RMCS D will be encouraging reductions in customer water demand through mainly educational efforts and conservation incentives. Over the course of the next 9 years, the RMCS D Board may also strengthen some existing policies or adopt new policies to help achieve these targets. Compliance with some of these Board policies may not be voluntary, such as requirements to avoid wasteful practices (e.g., enforcement of Board policy 87-9 related to excessive runoff from irrigation and sprinkling and associated fines for water waste violation).

1.3 Reliability of Water Rights and Need for SB 7 Compliance

RMCS D's water supply consists of seasonal diversions and diversions under Permit 16762 from the Cosumnes River that are normally diverted to three storage reservoirs (Calero, Chesbro and Clementia). Diversions are limited as follows:

- During periods of high flow in the river and between the dates of November 1 and May 31, surface water can be diverted from Granlees Dam into RMCS D's water storage reservoirs. Diversions are limited as follows:
 - No water may be diverted when river flows are less than 70 cubic feet per second (cfs) at Michigan Bar.
 - For river flow between 70 and 175 cfs, a maximum diversion rate of 6 cfs is allowed provided this diversion does not reduce downstream flow below 70 cfs.
 - When river flows exceed 175 cfs, diversion of up to 46 cfs is allowed for direct use plus an additional 3,900 acre-ft for storage as follows:
 1. 1,250 acre-ft to Chesbro Reservoir.
 2. 2,610 acre-ft to Calero Reservoir.
 3. 850 acre-ft to Clementia Reservoir.
 4. 40 acre-ft to South Course Lake 10.
 - The combined amount of items 2, 3, and 4 above cannot exceed 2,650 acre-ft.
 - The maximum allowable diversion rate to storage is 46 cfs.
 - If at least 400 acre-ft has not been pumped by February 1st, up to 46 cfs may be diverted during February if the river flow is above 70 cfs.
 - If on March 1st at least 2,000 acre-ft has not been pumped, up to 46 cfs may be diverted during the month of March if the river flow is above 70 cfs.
 - If on April 1st at least 4,400 acre-ft has not been pumped, up to 46 cfs may be diverted for the rest of the season if the river flow is above 70 cfs.
 - The equivalent of the continuous flow allowance by direct diversion for any 7-day period may be diverted in a shorter time if there is no interference with vested rights.
 - No water shall be diverted during the allowable period except during such time as there is visible surface flow in the bed of the Cosumnes River from point of diversion to the McConnell gauging station at Highway 99.

Water right permit 16762 was issued in 1969 and amended in 1980. In 2001, the permit was renewed and extended with no new permit requirements through 2020 in consideration that the community was not at full build-out. It now appears likely that in 2020, the community will not have reached full build-out and the

permit will need to be extended again. Given the statewide goal of reducing water consumption by 20% by 2020, due consideration will be given to RMCS D's compliance or lack thereof in meeting the reduction goal. If compliance is not shown, under one potential worst case scenario, the yearly diversion and storage could be cut back by 20%.

The Cosumnes River water supply is subject to drought restrictions. In 1976 and 1977, California experienced the driest one-year drought span on record. RMCS D has developed a drought ordinance to protect the community against similar water supply shortages. Since 1989, many studies and/or exploratory measures have been executed to determine potential water supply alternatives. In addition, other studies have evaluated alternative build out projections and assessed reclaimed water disposal needs.

2020 COMPLIANCE PLAN

2. HISTORICAL DEMOGRAPHICS, LAND USE, AND WATER USE

This section provides an overview of RMCS D’s historical context in terms of demographics, land use, and water use.

2.1 Service Area

RMCS D was formed in 1982 to provide water supply collection, treatment and distribution; wastewater collection, treatment and reuse; as well as storm drainage collection, disposal and flood control services for the community of Rancho Murieta. The area served by RMCS D encompasses approximately 3,500 acres in eastern Sacramento County. A service area boundary map is presented in Figure 2-1.

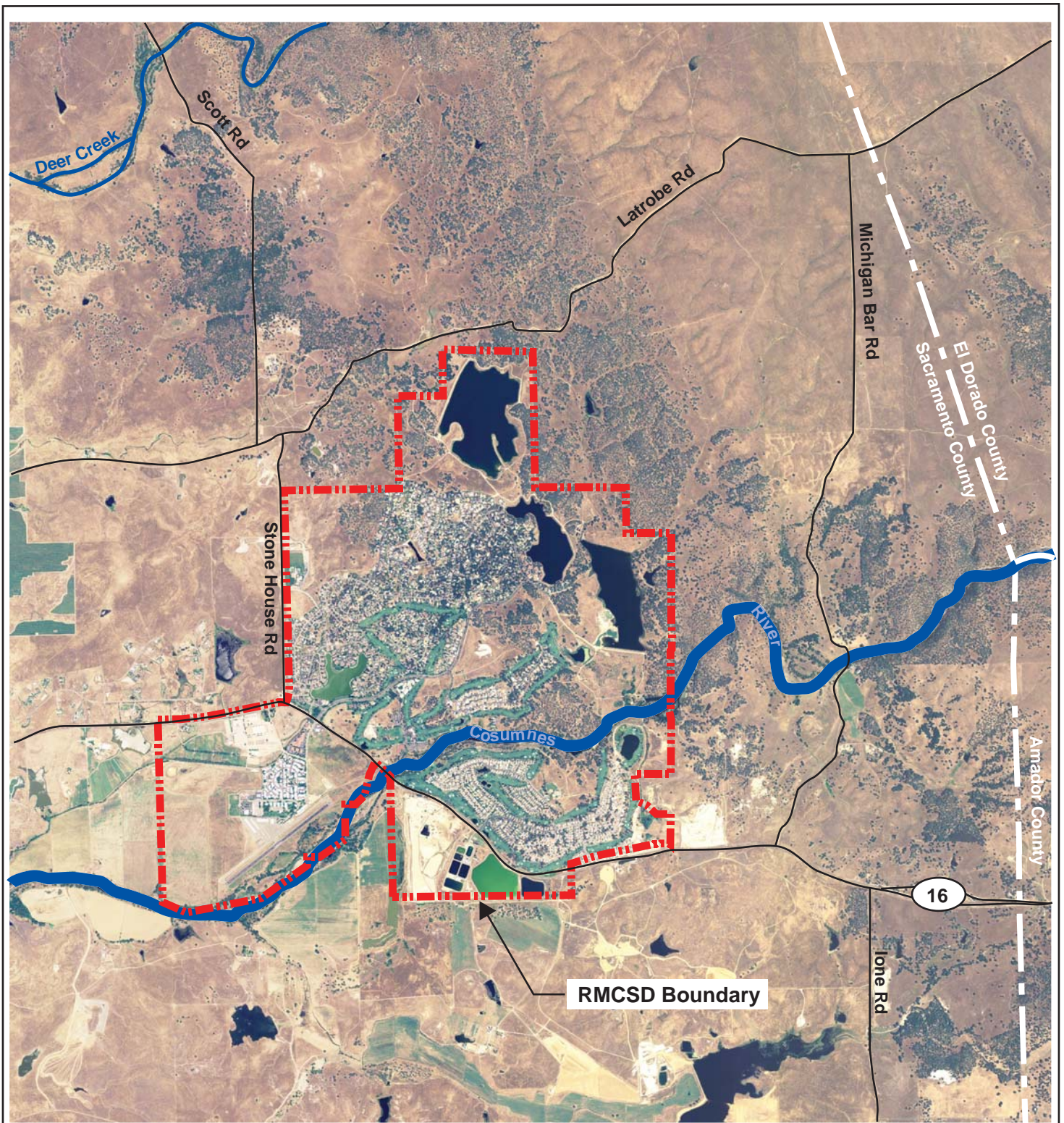
The region is similar to a Mediterranean climate, marked by precipitation typically occurring only in winter months. The average maximum and minimum monthly temperatures, mean monthly temperatures, and mean monthly precipitation are summarized in Table 2-1.

Table 2-1. Climatic Summary – Davis^a and Fair Oaks^b CIMIS Stations

Month	Reference Evapotranspiration (in)		Average Monthly Temperatures (°F)				Mean Monthly Temperatures (°F)		Mean Monthly Precipitation (inches)	
	Davis	Fair Oaks	Davis		Fair Oaks		Davis	Fair Oaks	Davis	Fair Oaks
			Maximum	Minimum	Maximum	Minimum				
January	1.19	1.04	54.3	37.4	55.8	39.8	45.1	47.3	3.51	3.78
February	1.86	1.63	60.4	39.8	60.4	41.8	49.5	50.6	3.98	4.50
March	3.68	3.38	66.3	42.4	66.6	43.6	53.8	54.8	2.59	2.21
April	5.37	4.25	72.1	44.8	70.6	46.3	58.2	58.3	1.08	1.74
May	7.22	6.43	80.0	50.2	80.0	51.5	64.9	65.6	0.62	0.99
June	8.34	7.44	87.0	54.7	87.0	56.9	70.7	71.6	0.19	0.05
July	8.30	8.01	91.7	55.9	93.3	60.2	73.2	76.2	0.06	0.00
August	7.56	7.10	90.5	55.2	91.8	59.4	72.1	74.8	0.08	0.00
September	5.88	5.25	87.2	53.6	87.7	57.1	68.8	71.3	0.33	0.08
October	4.24	3.41	78.2	48.7	76.9	49.5	62.2	62.2	1.54	1.06
November	2.06	1.58	63.8	41.3	64.6	43.6	51.7	53.2	2.15	2.04
December	1.22	1.02	53.9	36.7	56.2	38.7	44.6	46.9	3.18	3.87
Annual	56.9	50.5	73.8	46.7	74.2	49.0	59.6	61.1	19.3	20.3

^a Based on data provided by the California Irrigation Management Information System (CIMIS) that were collected at Davis Station between July 1982 and August 2010

^b Based on data provided by the California Irrigation Management Information System (CIMIS) that were collected at Fair Oaks Station between April 1997 and August 2010



NORTH

0 4000

Scale in Feet

	PROJECT	138708-100	SITE	Draft 2020 Report Rancho Murieta CSD, Sacramento County, CA	Figure 2-1
	DATE	7-1-10	TITLE	Service Area Map	

2.2 Past and Current Land Use and Demographics

Land uses within RMCS D's service area show the development of approximately 2,000 acres for single-family residences, townhouses, apartments, duplexes and mobile homes. According to the County's approved Planned Unit Development Plan, the development of this area represents a potential of approximately 5,200 residential units at buildout. RMCS D currently serves a population of about 6,000 people on approximately 2,502 residential units. Table 2-2 summarizes the historic population served and number of connections (accounts) RMCS D has served from 1994 through 2009.

Table 2-2. Historic Population and Number of Accounts by Customer Category				
Year	Estimated Population ^a	Total Commercial	Total Irrigation	Total Residential
1994	3,621	40	34	1,541
1995	3,780	40	34	1,609
1996	3,959	40	34	1,685
1997	4,080	40	34	1,736
1998	4,190	40	35	1,783
1999	4,571	42	36	1,945
2000	4,869	42	36	2,072
2001	4,888	53	39	2,080
2002	5,351	55	39	2,277
2003	5,468	55	39	2,327
2004	5,513	57	41	2,346
2005	5,520	57	43	2,349
2006	5,609	57	43	2,387
2007	5,668	57	43	2,412
2008	5,748	59	43	2,446
2009	5,880	59	43	2,502

^a Historic populations were estimated using the Census 2000 average number of people per household (2.35) multiplied by the total number of residential units served by RMCS D by year.

2.3 Historical Water and Recycled Water Demand

As part of defining the baseline water demand, the total water demand by customer category was reviewed. RMCS D's historical potable water use (in units of AFY) by customer category is summarized in Table 2-3 for 1994 through 2009. Historic recycled water production, use, and system losses are summarized in Table 2-4.

Table 2-3. Historic Potable Water Use by Customer Category (AFY)

Year	Raw water accounts ^a	Total Commercial ^a	Total Irrigation ^a	Total Residential	Total Water Use
1994	NA	NA	NA	794	794
1995	NA	NA	NA	789	789
1996	NA	NA	NA	858	858
1997	NA	44	39	930	1,013
1998	NA	75	51	800	925
1999	NA	90	121	927	1,137
2000	NA	94	87	946	1,128
2001	129	140	93	1,063	1,424
2002	110	128	98	1,127	1,462
2003	105	135	93	1,114	1,447
2004	116	199	127	1,223	1,665
2005	78	164	121	1,208	1,571
2006	129	126	117	1,315	1,687
2007	106	133	134	1,522	1,895
2008	64	149	162	1,382	1,757
2009	145	140	136	1,292	1,713

^a NA = not available

Table 2-4. Historic Recycled Water Production, Use, and Losses (AFY)

Year	Recycled Water Production
1994	520
1995	562
1996	656
1997	456
1998	425
1999	697
2000	813
2001	506
2002	595
2003	194
2004	752
2005	484
2006	548
2007	586
2008	488
2009	448

2.4 Historical Water Conservation Activity in Rancho Murieta

RMCS D has actively used non-potable water for meeting golf course irrigation demands since the courses were built and switched over to recycled water in 1988 with raw water augmenting supply. Over time it is the RMCS D's intent to supply 100% of the golf course's irrigation demand with recycled water, even in drought and low water years.

In addition, RMCS D is currently and has historically been engaged in promoting water conservation awareness to its customers, including the following activities:

- Continue to designate ongoing conservation program funding in yearly budget planning
- Provide new home Welcome Packets which include copies of water conservation water code and a copy of the River Friendly Landscaping Guidelines
- Assist Rancho Murieta Association,(home owner association) with landscape plan reviews related to water wise landscaping and will work to incorporate the new Sacramento County Landscaping Ordinance requirements into future plan reviews
- Participate in the Regional Water Efficiency Program public outreach and rebate programs for high efficiency toilets and washers started in 2010
- Host web pages focused on water conservation education and awareness
- Support Garden Club efforts to promote water wise landscaping. Currently, the Garden Club is planning a water efficient landscape garden at RMCS D office with RMCS D assistance in pursuing grant funding
- Support Active water waste reporting and follow-up, staff notifications given if seen and anonymous reporting via the RMCS D web site
- Considered tiered pricing in 2009, but postponed implementation to later years to ensure compliance with 2020 mandates
- Held outreach events to promote conservation including distributing plumbing retrofit kits, including hosting drought fairs for the drought in the early 1990s
- Provided drought outreach in 2007-09 including alerts with web site notices

Lastly, this compliance report is evidence of the RMCS D Board's desire and commitment to be on the forefront in compliance with 2020 mandates and to insure the community has long term beneficial and reasonable water rights. As a result, RMCS D will be expanding their conservation program activities and budget based on the recommendations of this 2020 Compliance Plan.

2020 COMPLIANCE PLAN

3. BASELINE GALLONS PER CAPITA PER DAY (GPCD) DEMAND AND GPCD TARGETS

This chapter presents the results of evaluations of the methodologies defined in SB7 using information provided by RMCSO on the following:

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

There are four (4) methods outlined in the legislation as described in Section 1.1 above. Section 3.5 discusses the comparison of the results and presents the target defined for RMCSO. Note that DWR is working to finalize the fourth methodology and other interpretations of SB7. Some of these results are based on best available information to date and may be subject to change once DWR completes the technical methodologies or if DWR guidance or legal review changes interpretation of SB7.

3.1 Ten-Year Baseline GPCD and SB7 Method 1 Evaluation

As part of the SB7 Method 1 evaluation, RMCSO's historic water use in terms of GPCD was evaluated using total gross treated water production for each year and estimated population in each year based on 2.35 persons per household for each connection between 1995 through 2009. The highest 10-year average GPCD was 298 gpcd, which was for the 1999 to 2008 period, which corresponds to total production of 1,863 acre-ft per year based on the current estimated population of 5,880 residents.

For comparison purposes, the past 5-year average for total water treatment plant production was 1,873 acre-ft per year. Of this total, the 5-year average demand for residential customers has been 1,344 acre-ft per year (or 214 gpcd), for commercial customers was 142 acre-ft per year (or 23 gpcd), and for commercial irrigation and parks was 134 acre-ft per year (or 21 gpcd) with the balance being system losses.

This GPCD of 298.1 is considered the baseline water use for Method 1. Based on a 10 percent reduction for 2015 and a 20 percent reduction for 2020, the 2015 and 2020 target GPCD values are 268.3 and 238.5, respectively (Table 3-1).

Table 3-1. Historic Potable Water Use in Terms of GPCD and SB7 Method 1 Targets

Year	Estimated Population	Total Potable Production (AFY)	Potable Water Use (GPCD)	10-Year Average (GPCD)	Method 1 GPCD Target for 2015 (GPCD)	Method 1 GPCD Target for 2020 (GPCD)	Percent Reduction Necessary for 2020 Compliance
1994	3,621	1,088	268.2	--	--	--	-
1995	3,780	1,111	262.4	--	--	--	--
1996	3,959	1,205	271.7	--	--	--	--
1997	4,080	1,356	296.8	--	--	--	--
1998	4,190	1,326	282.6	--	--	--	--
1999	4,571	1,545	301.8	--	--	--	--
2000	4,869	1,610	295.2	--	--	--	--
2001	4,888	1,743	318.4	--	--	--	--
2002	5,351	1,718	286.6	--	--	--	--
2003	5,468	1,681	274.4	--	--	--	----
2004	5,513	1,862	301.5	289.1	260.2	231.3	-20%
2005	5,520	1,840	297.6	292.6	263.4	234.1	-20%
2006	5,609	1,938	308.4	296.3	266.7	237.1	-20%
2007	5,668	1,946	306.6	297.3	267.6	237.8	-20%
2008	5,748	1,873	290.8	298.1 ^a	268.3 ^a	238.5 ^a	-20%
2009	5,880	1,769	268.6	294.8	265.3	235.8	-20%

^a Selected data for baseline water use and 2015/2020 targets.

3.2 SB7 Method 2 Evaluation

Method 2 requires that per capita water use targets are determined using the performance standards requirements in SB7. The law states the following parameters are used: (1) 55 GPCD for indoor purposes, (2) DWR's Model Water Efficient Landscape Ordinance for landscape irrigation, and (3) a 10 percent reduction of baseline commercial, industrial, and institutional water use by 2020.

The 2020 Performance Standard GPCD Target was determined based on data provided by RMCS D in March 2010, which includes the following:

- Required 55 GPCD residential indoor standard in SB7.
- 79.2 GPCD residential outdoor demand was calculated with the Maximum Applied Water Allowance formulas within the Water Budget Calculator as provided by DWR online: <http://www.water.ca.gov/wateruseefficiency/landscapeordinance/>
 - Using the closest Fair Oaks CIMIS station evapotranspiration rate (ET) of 50.50 inches of water/yr included in water budget calculator
 - Using 7,759,000 square feet of estimated residential irrigated landscape area based on existing residential lot sizes (estimated from known developer constructed lots by type for the community by RMCS D staff
 - Population of 5,880 and 365 days per year
- 29.8 GPCD estimated potable dedicated landscape irrigation demand was also determined by using DWR's Water Budget Calculator.

- Using the closest Fair Oaks CIMIS station ET of 50.50 inches of water/yr included in water budget calculator
- Using 2,913,513 square feet of measured irrigated landscape area using dedicated meters based on existing residential lot sizes (estimated from area measurements by RMCS staff)
- Population of 5,880 and 365 days per year
- 18.7 GPCD for Commercial and Industrial Irrigation (CII) based on 10% reduction from baseline demand
- Total estimated GPCD using SB7 Method 2 performance standard criteria is 182.7 GPCD

The actual demand based on 2009 data or a longer term average was determined based on information provided by RMCS in March 2010, which includes the following:

- 76.1 GPCD for indoor demand is based on an analysis of historic residential indoor water use, using lowest monthly residential use for each year
- 120.7 GPCD for outdoor water use, which was calculated by taking the difference between total average demand in GPCD from 1994-2009 and indoor water use of average demand estimated based on the lowest month's daily demand in GPCD between 1994-2009
- 25.2 GPCD based on total annual dedicated irrigation meter demand 2009 in gallons divided by 365 days and 2009 population of 5,880 residents and the following additional data:
 - Measured irrigated landscape area on dedicated meters of 2,913,513 square feet, or 66.9 acres
 - Total 2009 water demand from associated meters is 165.8 acre-ft/yr
 - Total application rate of 2.44 ft/yr for this landscaped area or 29.33 inches/yr of applied water.
- 20.7 GPCD in 2009 water demand for commercial, industrial, and institutional (CII) not including commercial irrigation (dedicated meters) divided by 365 days and 2009 population of 5,880 residents
- Total estimated GPCD Method 2 using actual data is 242.2 GPCD.

The SB7 Method 2 evaluation results presented for comparison is shown in Table 3-2.

Table 3-2. SB7 Method 2 Actual Demand by Type of Uses Compared to 2020 Performance Standard Target

Description	Annual Average Demand (GPCD)	2020 Target (GPCD)	Percent Reduction Necessary for Compliance
Residential Indoor	76.1	55	-28%
Residential Outdoor	120.7	79.2	-34%
Dedicated Landscape Irrigation	25.2	29.8	18%
Commercial, Industrial, Institutional (CII)	20.7	18.7	-10%
Total GPCD	242.7	182.7	-25%

3.3 SB7 Method 3 Evaluation

The third method is based on the 2020 Water Conservation Plan (DWR, February 2010). The method allows the water supplier to select the hydrologic regions target as the GPCD goal. The applicable Hydrologic Region for RMCS is Region 6 – San Joaquin. The baseline GPCD is defined as 248 and 2020 target is 174 GPCD. The difference between the 248 and 174 GPCD is 74 GPCD. The actual baseline GPCD for

RMCS D is 298 and using the Region 6 2020 Target of 174 GPCD, the actual GPCD goal based on Method 3 for RMCS D is a reduction of 124 GPCD. Table 3-3 presents a summary of the Method 3 2020 target and percent reduction necessary for compliance.

Description	Annual Average Demand (GPCD)	2020 San Joaquin (Region 6) Target (GPCD)	Percent Reduction Necessary for Compliance
Total GPCD	298	174	-42%

For additional background information, please review the 2020 Water Conservation Plan: <http://www.water.ca.gov/wateruseefficiency/sb7/docs/20x2020plan.pdf>

3.4 SB7 Method 4 Evaluation

SB7 calls for a fourth alternative that is currently under development using the Urban Stakeholder Committee process. Draft methodology was released in June 2010. Due to the on-going debate related to the methodology approaches, no confirmed methodology was available to use for the evaluation during the development of this 2020 Compliance Plan.

The fourth methodology being developed with Urban Stakeholder Committee input will incorporate climate factors and population density that may indicate a water reduction target less than 20%. It may be worth revisiting the selection of GPCD targets based on an assessment of Method 4 once the methodology is finalized by DWR.

3.5 Selected 2015 and 2020 GPCD Targets

Methods 1, 2 and 3 were compared to determine which option may be preferred by RMCS D. As discussed above, the difference between 298 baseline GPCD and 238 as the 2020 GPCD target represents a reduction of 60 GPCD under Method 1, while the difference between 242 and 182 is also 60 GPCD reduction under Method 2. Method 3 was not considered further given the larger reduction difference of 124 GPCD is above the 20% targeted reduction required by SB7.

Reviewing the level of effort to meet either Method 1 approach or the Method 2 approach, it was recognized that the performance standards in Method 2 may be harder to achieve for existing residential and commercial customers. At the Board Workshop on May 5, 2010, the Method 1 GPCD target of 238.5 GPCD was selected when compared to Method 2 and Method 3 GPCD targets. Figure 3-1 shows the historical demand and 2015 and 2020 targets as determined using Method 1.

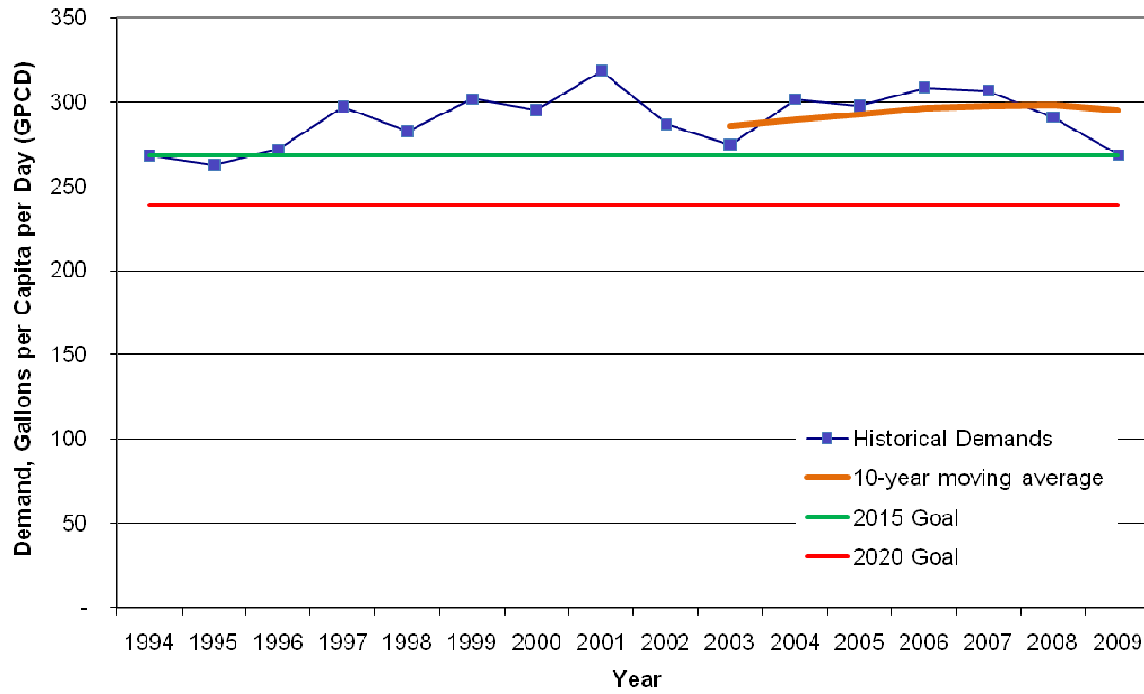


Figure 3-1. Historical GPCD Demands and SB7 Method 1 Goals

4. PROJECTED DEMOGRAPHICS, LAND USE AND WATER USE

4.1 Future Land Use and Demographics

The RMCS D currently serves 2,604 connections comprised of 2,502 residential, 97 commercial and 5 parks connections. However, Sacramento County has approved development of 520 lots within RMCS D's service area, plus an additional 150 units (100 residential and 50 commercial equivalent dwelling units) currently being considered for approval, bringing the total likely to be approved in the near future to 670 units. Table 4-1 shows the existing number of connections and EDUs and the projected number of connections and EDUs for years 2020 and 2030 (i.e., build out) for three different growth scenarios: low, medium, and high. The medium growth scenario is considered the baseline for considering future water demands. The high growth scenario is based on the Rancho Murieta Planned Unit Development Plan (Sacramento County, 1983).

Population projections vary depending on the growth scenario, as populations were projected using the 2000 Census value of 2.35 people per household multiplied by the number of residential connections. Table 4-2 shows a summary of population projections under each of the growth scenarios.

Table 4-1. Projected Number of Connections to Buildout³

Lot or User Class	EDU Conversion Factors	Existing Service Area (2009 through 2015)		Year 2020 ²						Buildout (2030) ⁴					
				Low Growth Scenario		Medium Growth Scenario ¹		High Growth Scenario		Low Growth Scenario		Medium Growth Scenario ¹		High Growth Scenario	
		Number of Units (Connections)	Number of EDUs (EDUs)	Number of Units (Connections)	Number of EDUs (EDUs)	Number of Units (Connections)	Number of EDUs (EDUs)	Number of Units (Connections)	Number of EDUs (EDUs)	Number of Units (Connections)	Number of EDUs (EDUs)	Number of Units (Connections)	Number of EDUs (EDUs)	Number of Units (Connections)	Number of EDUs (EDUs)
Residential															
Estate > 12,000 sf	1.0	729	729	970	970	1,137	1,137	1,418	1,418	1,453	1,453	1,953	1,953	2,796	2,796
Estate < 12,000 sf	0.9	555	500	734	660	734	660	734	660	1,091	982	1,091	982	1,091	982
Circle	0.7	440	368	440	308	440	308	440	308	440	308	440	308	440	308
Cottage	0.7	274	192	274	192	274	192	274	192	274	192	274	192	274	192
Halfplex	0.5	59	30	59	30	59	30	59	30	59	30	59	30	59	30
Townhouse (includes Villas lots)	0.5	256	128	284	142	284	142	284	142	340	170	340	170	340	170
Murieta Village	0.3	189	57	189	57	189	57	189	57	189	57	189	57	189	57
Subtotal		2,502	1,943	2,950	2,359	3,117	2,525	3,398	2,806	3,846	3,191	4,346	3,691	5,189	4,534
Non-Residential															
Commercial (including Commercial Irrigation)	NA ⁵	97	272	105	305	105	305	105	305	120	372	120	372	120	372
Park	NA ⁵	5	54	6	126	6	126	6	126	8	269	8	269	8	269
Miscellaneous Public Uses	NA ⁵	0	0	8	8	8	8	8	8	24	24	24	24	24	24
Subtotal		102	326	119	439	119	439	119	439	152	665	152	665	152	665
TOTAL		2,604	2,269	3,069	2,798	3,235	2,664	3,516	3,245	3,998	3,856	4,498	4,356	5,341	5,199

¹ Base scenario

² Assumes no growth from 2009 to 2015 and uniform growth between 2015 and buildout (year 2030). Uses the revised growth rates.

³ Source: Personal Communication, RMCSO, Ed Crouse, July 12, 2010.

⁴ Revised growth rates reflect recent approvals for new development.

⁵ Conversion ratio is not applicable for non-residential units given the actual demand is divided by the planning assumption of 750 gpd/EDU to determine the number of equivalent dwelling units.

Table 4-2. Projected Population under Low, Medium, and High Growth Scenarios

Year	Low Growth Scenario Population	Medium Growth Scenario Population	High Growth Scenario Population
2010	5,880	5,880	5,880
2011	5,880	5,880	5,880
2012	5,880	5,880	5,880
2013	5,880	5,880	5,880
2014	5,880	5,880	5,880
2015	5,880	5,880	5,880
2016	6,090	6,169	6,301
2017	6,301	6,457	6,722
2018	6,511	6,746	7,143
2019	6,722	7,035	7,564
2020	6,933	7,324	7,985
2021	7,143	7,613	8,405
2022	7,354	7,902	8,826
2023	7,564	8,191	9,247
2024	7,775	8,480	9,668
2025	7,985	8,769	10,089
2026	8,196	9,058	10,510
2027	8,406	9,346	10,931
2028	8,617	9,635	11,352
2029	8,828	9,924	11,773
2030	9,038	10,213	12,194

4.2 Projected Potable Water Demand

Given the population is estimated to stay constant between 2010 and 2015 due to economic conditions resulting in the community not further developing approved lots, baseline water demands would also remain relatively constant (without the water conservation activities targeting GPCD reductions by the year 2020). However, based on the projection shown on Figure 4-1, water demand would increase from 1,710 acre-ft per year based on 2010 conditions to 3,659 acre-ft per year at buildout (2030), assuming that demand reduction measures are not implemented.

The projected water demand without achieving 2020 targets is based on the estimate of 750 gpd per EDU. The projected water demand with meeting 2020 targets is based on the estimate of achieving an estimated demand of 600 gpd per EDU. The planning assumption adjustment with 2020 compliance of 600 gpd per EDU is based on 80% of the planning assumption baseline of 750 gpd per EDU for large estate lots greater than 12,000 square feet. Both the projected and actual production includes 10 percent system losses.

There are two means to forecast water demand that can be compared:

- (a) EDU demand factor based: Future total buildout EDUs is projected to be 3,691 (Table 4-1):
 - At 750 gpd/EDU = 3,659 acre-ft per year
 - At 600 gpd/EDU = 2,927 acre-ft per year
- (b) Using a GPCD basis for developing a demand projection using the future total buildout population of 10,213 residents
 - At 298 gpcd = 3,409 acre-ft per year
 - At 238 gpcd = 2,723 acre-ft per year

The District has a Board adopted planning policy using an EDU based demand forecast with the baseline demand factor of 750 gpd/EDU.

These demand forecasts are for potable supplies and are not adjusted for any decrease in potable demand due to expansion of the recycled water system. There is currently no Board adopted policy for recycled water delivery to future or existing connections. Lowering potable demands with use of non-potable supplies would assist with achieving 2020 GPCD goals as discussed in Section 5.

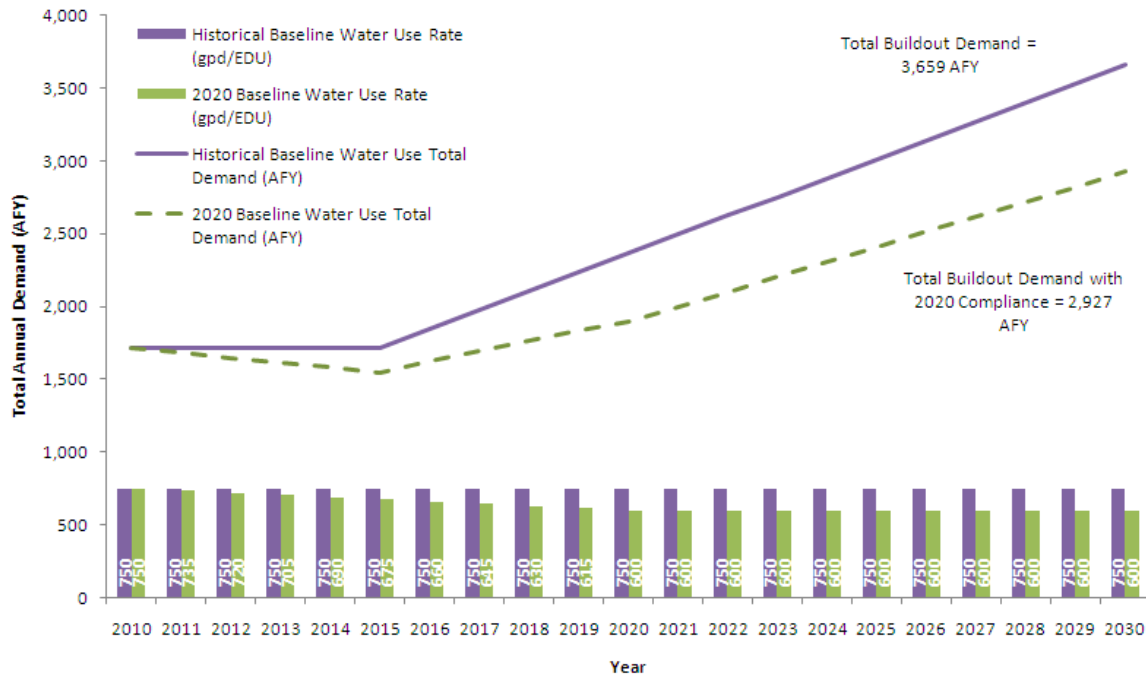


Figure 4-1. Total Buildout Water Demand Projections without and with 2020 Reduction Targets Achieved

4.3 Selected GPCD Targets

Actual GPCD in any given year varies based on a number of factors, namely the climate factor where warmer years increase GPCD and cooler years dampen GPCD. DWR is currently working on a weather normalization approach to evaluate compliance with GPCD targets. As described in Section 3.4, based on the SB7 Method 1 analysis and RMCSB Board direction, the SB7 targets for the 2015 goal is 268.3 GPCD, and the 2020 goal is 238.5 GPCD.

5. DEMAND REDUCTION MEASURE SELECTION

5.1 Compliance Measure Selection Process

A comprehensive list of demand reduction measures was discussed with the RMCS D staff at the project kick-off meeting on January 21, 2010. Measures that were deemed applicable to RMCS D's service area were then tailored further to be applicable to local customer needs and types of use. The RMCS D Board Workshop on February 19, 2010 reviewed the comprehensive list and decided on which measures were indeed to be included for consideration and those that would be further refined with a business case analysis. The list of measures selected for inclusion in the water savings analysis is presented in Table 5-1.

Presented in Table 5-1 is a ranking of basic to aggressive for each conservation measure. The compliance with GPCD targets required by SB7 is voluntary on behalf of customers, and RMCS D will need to proceed with more aggressive conservation measures over time (leading up to tiered pricing), if monitoring of progress is indicating that targets are not forecasted to be achieved.

Table 5-1. Master List of Selected Demand Management Measures

Measure No.	Measure	Customer category	Topic	Priority for Implementation	Business Case Analysis Performed
Education and Outreach Program					
1	USEPA WaterSense "Fix A Leak" Week Campaign	All	Education	Basic	No
2	Home Leak Detection and Repair (e.g., list of local contractors)	Res	Education	Basic	No
3	Promote water efficient plantings at new homes	Res	Education	Basic	No
4	Native Landscape Demonstration Garden	Inst	Education	Basic	No
5	Homeowner irrigation classes	Res	Education	Moderate	No
6	Top users education (direct mail to largest users)	All	Education	Basic	No
7	Toilet flapper program	Res	Education	Basic	No
8	Real-time metering (e.g., using totalizers)	All	General	Aggressive	No
9	Water Efficient Business or Facilities Awards Program	CI	Education	Basic	No
10	Commercial Water Survey and provide new pre-rinse spray rinse nozzles (if higher use device tested)	CI	General	Basic	No
Residential Indoor					
11	Residential Plumbing Kit Retrofits	Res	Residential	Basic	Yes
12	Residential High Efficiency Toilet (HET) Rebate	Res	Residential	Basic	Yes
13	Clothes Washer Rebates for High Efficiency Machines	All	Residential	Basic	Yes
Residential Outdoor					

Table 5-1. Master List of Selected Demand Management Measures

Measure No.	Measure	Customer category	Topic	Priority for Implementation	Business Case Analysis Performed
14	Residential Water Surveys	Res	Residential	Basic/Moderate	Yes
15	Weather-based Controller Rebates	All	Landscape	Moderate	Yes
16	Irrigation retrofit incentive program, financial incentives for irrigation upgrades (e.g., drip conversion kits)	All	Landscape	Moderate	Yes
17	Landscape Retrofit Program (Cash-for-grass)	All	Landscape	Moderate	Yes
18	Residential Rain Barrel Incentive Program	Res	Landscape	Aggressive	Yes
Large Landscapes					
19	Financial incentives for complying with water use budget	All	Landscape	Aggressive	Yes
20	Large landscape conservation surveys, water budgets	All	Landscape	Basic	Yes
21	Irrigation efficiency financial incentives for upgrades for parks and open public spaces	Irr	Landscape	Basic/Moderate	Yes
RMCS D - Utility Program					
22a	Recycled Water - New Connections	All	Landscape	Aggressive	Yes
22b	Recycled Water - New and Existing Connections	All	Landscape	Aggressive	Yes
23	Support efforts to upgrade public/community buildings retrofit	Inst	Education	Basic	No
24	Water Utility / CSD water reduction goals	Inst	General	Basic	No
25	Water loss control (Leak Detection)	Inst	General	Moderate	No
26	Tiered water rates	All	General	Aggressive	No

Table 5-1. Master List of Selected Demand Management Measures

Measure No.	Measure	Customer category	Topic	Priority for Implementation	Business Case Analysis Performed
New Codes or Regulations					
27	Watering schedule	All	Landscape	Moderate	No
28	Require 1.6 gal (or 1.28) per flush toilets to be installed at the time of sale of existing buildings (ROR)	All	General	Aggressive	No
29	New Building Indoor Water Efficiency (e.g., require WaterSense labeled homes)	All	General	Basic	No
30	New Building Landscape Water Efficiency (e.g., plan review for Sac County Landscape Ordinance)	All	General	Basic	No
31	Enforce landscape requirements for new landscaping systems (turf limitations / regulations)	All	Landscape	Basic	No
32	Water waste ordinance and follow-up	Inst	Landscape	Basic	No
33	Local codes (e.g., recycled, graywater and/or rainwater systems on new homes)	Inst	Landscape	Aggressive	No

5.2 2020 Compliance Model and Business Case Analysis Approach

Each selected quantifiable demand reduction measure that was feasible to be evaluated in terms of benefits and costs using a business case analysis (BCA) was modeled using Microsoft Excel spreadsheets, called the 2020 Compliance Model. The BCA considers benefits, including the annual and total water and wastewater savings associated with each measure intervention. The water and wastewater savings are converted into financial savings using avoided costs for treatment and distribution. Costs factored into the BCA include the budget expenditures (e.g., rebates) projected to be spent by RMCS D for each measure intervention and the program administration costs. The cost effectiveness of administering a program for each selected measure is then determined from the ratio of benefits to costs. If the benefit-to-cost ratio exceeds 1.0, the program is deemed cost effective. Detailed results of 2020 Model including the benefit cost ratios for each conservation measure is presented in Appendix C.

5.3 Quantified GPCD Savings Estimates for Demand Reduction Scenarios

Demand reduction measures were packaged together into three different scenarios (Scenarios A, B, and C). Each scenario was evaluated to determine the overall potential water savings related to implementing a specific suite of measures and to determine if 2015 and 2020 GPCD targets would likely be met under such an implementation scenario.

5.3.1 Scenario A – Conservation Measures Only

Scenario A includes the following demand reduction measures:

- Measures 1 through 10 – Education/Outreach
- Measure 11 – Residential Plumbing Kits
- Measure 12 – HET Rebates
- Measure 13 – High Efficiency Washers
- Measure 14 – Residential Water Surveys
- Measure 15 – Weather Controllers
- Measure 16 – Irrigation Retrofits
- Measure 17 – Landscape Retrofit Program
- Measure 19 – Large Landscape Water Budget Incentive
- Measure 20 – Large Landscape Survey
- Measure 21 – Large Landscape Irrigation Upgrades
- Measures 23 through 33 – Utility Operations, Rules and Regulations

A description of each measure included in Scenario A is included in Table 5-2, along with estimated water savings in terms of GPCD savings in 2015 and 2020. Detailed water savings assumptions are provided in Appendix B and detailed 2020 Model results for Scenario A are presented in Appendix C.

Table 5-2. Scenario A – Conservation Measures Only

Measure	2015 Water Savings Estimate (GPCD)	2020 Water Savings Estimate (GPCD)
Measures 1 through 10 – Education/Outreach	3.0	7.5
Measure 11 – Residential Plumbing Kits	0.5	0.5
Measure 12 – HET Rebates	1.6	1.5
Measure 13 – High Efficiency Washers	0.9	2.2
Measure 14 – Residential Water Surveys	6.5	6.5
Measure 15 – Weather Controllers	7.4	12.1
Measure 16 – Irrigation Retrofits	3.1	5.2
Measure 17 – Landscape Retrofit Program (Cash-for-grass)	3.0	5.5
Measure 19 – Large Landscape Water Budget Incentive	1.5	1.2
Measure 20 – Large Landscape Survey	1.5	1.5
Measure 21 – Large Landscape Irrigation Upgrades	0.5	1.0
Measures 23-33 – Utility Operations, Rules and Regulations	7.5	14.9
Total Estimated Water Savings	36.9	59.5
Total GPCD Target Difference	29.8	59.6

5.3.2 Scenario B Measures – Limited Conservation and Recycled Water for New Connections

Scenario B includes the following demand reduction measures:

- Measures 1 through 10 – Education/Outreach
- Measure 13 – High Efficiency Clothes Washers Incentives
- Measure 15 – Weather Controllers
- Measure 19 – Large Landscape Water Budget Incentives
- Measure 20 – Large Landscape Survey
- Measure 21 – Large Landscape Irrigation Upgrades
- Measure 22a – Recycled Water – New Connections
- Measures 23 through 33 – Utility Operations, Rules and Regulations

A description of each measure included in Scenario B is included in Table 5-3, along with estimated water savings in terms of GPCD savings in 2015 and 2020. Detailed water savings assumptions are provided in Appendix B.

A summary of the recycled water assumptions for Measure 22a are as follows:

- All new residential connections based on updated projected 615 connections between 2015 and 2020 (Phase 1) will use recycled water for irrigation demand
- No new residential connections between 2010 to 2015
- Annual average growth rate is 123 connections/yr

- Benefits are the avoided potable water delivered and recycled water disposed at \$2.35 million and \$2.75 million per Table ES-2 in Recycled Water Feasibility Study (HDR, June 2009)
- Cost per account is assumed to be \$11.5 million recycled water system capital costs divided by 3,117 residential connections estimated in 2020 (Table 4-1). Recycled water demand per residential equivalent dwelling unit is 0.31 acre-year/account (Recycled Water Feasibility Study, HDR, June 2009)

More detailed 2020 Model results for Scenario B are presented in Appendix C.

Measure	2015 Water Savings Estimate (GPCD)	2020 Water Savings Estimate (GPCD)
Measures 1 through 10 – Education/Outreach	3.0	7.5
Measure 13 – High Efficiency Washers	0.9	2.2
Measure 15 – Weather-based Controllers	7.4	12.1
Measure 19 – Large Landscape Water Budget Incentive	1.5	1.2
Measure 20 – Large Landscape Survey	1.5	1.5
Measure 21 – Large Landscape Irrigation Upgrades	0.5	1.0
Measure 22a – Recycled Water – New Connections	0.0	20.3
Measures 23-33 – Utility Operations, Rules and Regulations	7.5	14.9
Total Estimated Water Savings	22.3	60.6
Total GPCD Target Difference	29.8	59.6

5.3.3 Scenario C Measures – Limited Conservation and Recycled Water for New Connections and Existing Parks

Scenario C includes the following demand reduction measures:

- Measures 1 through 10 – Education/Outreach
- Measure 15 – Weather-based Controllers
- Measure 19 – Large Landscape Water Budget Incentive
- Measure 20 – Large Landscape Survey
- Measure 21 – Large Landscape Irrigation Upgrades
- Measure 22b – Recycled Water – New and Existing Connections
- Measures 23 through 33 – Utility Operations, Rules and Regulations

A description of each measure included in Scenario C is included in Table 5-4, along with estimated water savings in terms of GPCD savings in 2015 and 2020. Detailed water savings assumptions are provided in Appendix B.

A summary of the recycled water assumptions for Measure 22b are as follows:

- All new residential connections based on updated projected 615 connections between 2015 and 2020 (Phase 1) will use recycled water for irrigation demand
- No new residential connections between 2010 to 2015

- Annual average growth rate is 106 EDUs/yr between 2016 and 2020
- No commercial irrigation demand for recycled water was included
- Assumes only Stonehouse and Riverview Parks would be converted to recycled water for 40.6 AFY and 5.7 AFY, respectively. If conversion of additional properties is economically viable and excess recycled water is available, then additional upgrades to switch commercial irrigation accounts from potable water irrigation to recycled water may be considered in the future.
- Benefits are the avoided potable water delivered and recycled water disposed at \$2.35 million and \$2.75 million per Table ES-2 in Recycled Water Feasibility Study (HDR, June 2009)
- Cost per account is assumed to be \$11.5 million recycled water system capital costs divided by 3,117 residential connections estimated in 2020 (Table 4-1).
- \$250,000 conversion for the parks divided by 3,117 residential connections estimated in 2020 (Table 4-1).

Recycled water demand per residential equivalent dwelling unit is 0.31 acre-year/account (Recycled Water Feasibility Study, HDR, June 2009)

More detailed 2020 Model results for Scenario C are presented in Appendix C.

Table 5-4. Scenario C – Limited Conservation Measures and Recycled Water for New Connections and Existing Parks

Measure	2015 Water Savings Estimate (GPCD)	2020 Water Savings Estimate (GPCD)
Measures 1 through 10 – Education/Outreach	3.0	7.5
Measure 15 – Weather-based Controllers	7.4	12.1
Measure 19 – Large Landscape Water Budget Incentive	1.5	1.2
Measure 20 – Large Landscape Survey	1.5	1.5
Measure 21 – Large Landscape Irrigation Upgrades	0.5	1.0
Measure 22b – Recycled Water – New and Existing Connections	0.0	21.2
Measures 23-33 – Utility Operations, Rules and Regulations	7.5	14.9
Total Estimated Water Savings	21.3	59.4
Total GPCD Target Difference	29.8	59.6

5.4 Implementation Suggestions for Conservation Measures

The third RMCS D Board Workshop held on June 18, 2010 discussed the approach to implementing measures. It was decided to implement the conservation measures only (Scenario A) as outlined in Section 5.5 below as first priority, with the secondary priority of having recycled water for new connections when the development on new lots proceeds (Scenario B). Given the economic downturn and uncertainties in schedule for future connections coming online, the 2020 Compliance relies on existing residents and businesses in RMCS D's service looking to reduce their demand.

The following Table 5-5 outlines suggestions for each measure for future consideration by RMCS D when developing their annual work plan and budget for conservation measures implementation.

Table 5-5. Implementation Suggestions for Conservation Measures Only

Measure No.	Measure	Customer category	Suggestions for Implementation	Other Comments
Education and Outreach Program				
1	USEPA WaterSense "Fix A Leak" Week Campaign or other behavioral outreach campaign	All	Leverage other programs for low cost outreach materials. Options to sign up for promotion items through one or more of the following programs: US EPA WaterSense Partner Program, "Save Our Water Campaign. and/or Regional Water Efficiency Program Public Outreach Campaign (e.g., current Blue Thumb campaign)	(A) Garden Club may want to start a "Blue Thumb" Awards program for water wise landscapes. (B) Add outreach funding support to any future grant applications.
2	Home Leak Detection and Repair (e.g., list of local contractors)	Res	Work with Regional Water Authority and GreenPlumbersUSA to help maintain an up to date list of local plumbers that are educated on water efficient technologies and utility rebates	Recommend list be passed out with every water waste notice or residential home surveys for those that need repairs
3	Promote water efficient plantings at new homes	Res	Work with Home Owners Association and Developers to have signage in front of new homes demonstrating water wise landscapes. Consider requesting developers follow River Friendly Guidelines and build models and some or all of the homes to the USEPA WaterSense Home Specification that can use up to 20% less than traditional construction.	Home Specification in draft to be completed in 2011. Find more information: www.epa.gov/watersense
4	Native Landscape Demonstration Garden	Inst	Continue to support retrofit of CSD offices landscaping from turf to water wise landscaping.	Work with local Master Gardeners and Garden Club volunteers. Seek potential grant funding.
5	Homeowner irrigation classes	Res	Leverage irrigation classes sponsored by Regional Water Authority and/or City of Folsom. Seek partnership for potential classes at RMCC.	Promote Harvest Day at the Fair Oaks Horticultural Center for large event including water efficient irrigation lectures by City of Folsom.
6	Team of volunteers including targeting "top users" education program (direct mail to largest users)	All	Leverage Automated Meter Reading AMR and/or billing system data to identify largest users or users with significant spikes in demand and send letter offering assistance and flyer on RMCCSD conservation programs. Recommend quantifying water savings potential in terms of range of dollars from taking action and listing in order the actions that you suggest homeowners consider.	Send letter twice per year or more frequently. Some utilities post letters or personal contact from RMCCSD staff if no response after several mailings. Consider soliciting volunteers from the community as water conservation ambassadors like City of Sacramento's new programs to provide outreach support.

Table 5-5. Implementation Suggestions for Conservation Measures Only

Measure No.	Measure	Customer category	Suggestions for Implementation	Other Comments
7	Toilet flapper program	Res	Consider flyer about checking for toilet leaks and replacing flappers. Include education on how much silent toilet leaks have compounding water and wastewater impacts on RMCS D.	Possible give-away program, however best performing flappers will be custom to the type of individual toilet manufacturers.
8	Real-time metering (e.g., using totalizers)	All	Consider new technologies to educate customers, such as Badgers totalizers/flow monitors that relay from customer's AMR meters to a small digital display that can be in the home.	Discuss with Sacramento Suburban Water District their customer in-home metering program.
9	Water Efficient Business or Facilities Awards Program	CI	Consider leveraging an existing program like Sacramento Business Environmental Resource Center (BERC) Sacramento Sustainable Business Program Award program for water savings by businesses.	More information review BERC's web site: www.sacberc.org or discuss with the Regional Water Authority.
10	Commercial Water Survey and provide new pre-rinse spray rinse nozzles	CI	With the limited number of commercial facilities. Visit each one offering a leak survey and also seek to recommend suggested changes. If a higher use pre-rinse spray nozzle is on-site offer a replacement. Regional Water Authority has the ability to bulk purchase pre-rinse spray valves for \$30 each.	Estimated water savings can be on the order of 1 acre-ft per year. Calculator online from Food Service Technology Center can tailor information for savings estimates: http://www.fishnick.com/savewater/tools/watercalculator/
Residential Indoor				
11	Residential Plumbing Kit Retrofits	Res	Kits can be bulk purchased for a discounted rate along with other Regional Water Efficiency Program members. Recommend using seniors or interns to canvas RMCS D's service area to make personal contact with a mini-customer survey about water conservation attitudes, hand out flyers, and if needed, kits.	Consider soliciting volunteers from the community as water conservation ambassadors like City of Sacramento's new programs to provide outreach support. Train volunteers on indoor (and possibly outdoor surveys) or hire interns to support program.
12	Residential High Efficiency Toilet (HET) Rebate	Res	Cost effective due to water and wastewater savings benefits. Continue participating in Regional Water Authority's grant program for High Efficiency Toilets and self fund or seek new grant after 2012.	Promote list of best toilets from Consumer Reports (www.consumerreports.org) and also the California Urban Water Conservation Council Maximum Performance Testing lists posted on RMCS D's web site. http://www.cuwcc.org/resource-center/products/toilet-fixtures/Map-UNAR.aspx
13	Clothes Washer Rebates for High Efficiency Machines	All	Cost effective due to water and wastewater savings benefits. Continue participating in Regional Water Authority's grant program and consider partnership MOU with administrative processing support through SMUD.	Information on best High Efficiency Clothes Washers is available online through the Consortium for Energy Efficiency: http://www.cee1.org/resid/seha/rwsh/rwsh-main.php3

Table 5-5. Implementation Suggestions for Conservation Measures Only

Measure No.	Measure	Customer category	Suggestions for Implementation	Other Comments
Residential Outdoor				
14	Residential Water Surveys	Res	Surveys require a level of expertise about irrigation systems, landscape design concepts and plant types in order to capitalize on water savings potential. Consider outsourcing, training staff, interns or Master Gardeners to support this measure.	May look into Marin Municipal Water District's Bay-Friendly Garden Walk Program. Contact Dan Carney. Consider partnership with Regional Water Authority to accomplish this program. http://groups.ucanr.org/MGCSP/Community_Service_Projects/Bay_Friendly_Garden_Walk_Marin_Municipal_Water_District.htm
15	Weather-based Controller Rebates	All	Controllers are a newer technology that shows promise for significant water savings. Target larger accounts and plan program carefully. Need specialty irrigation classes and possible installation reimbursement to get initial set-up done correctly and hosting homeowner training classes. RMCS D needs an administrative policy to protect against participants in the Landscape Retrofit Program (Measure 17) also participating this program due to overlap of water savings.	Seek grant funding support. Suggest reviewing City of Folsom's program and discussing training classes partnership. Don Smith, their Water Conservation Coordinator was a former landscape contractor. Review past controller studies at the CUWCC web site: http://www.cuwcc.org/product-info/wbic-studies.aspx
16	Irrigation retrofit incentive program, financial incentives for irrigation upgrades	All	Similar to the controller program, and expanded to include conversion to low volume irrigation systems from spray.	See above. Research and provide information from manufacturers offering drip conversion kits like Rainbird. And review online information: http://www.rainbird.com/drip/literature/index.htm
17	Landscape Retrofit Program (Cash-for-grass)	All	This program will support homeowners looking to switch out high water use landscaping for water wise or native landscaping. RMCS D needs an administrative policy to protect against participants in the Weather-based Controller Program (Measure 15) also participating this program due to overlap of water savings. Most savings from weather based controllers come on high water use landscaping.	Seek grant funds as applicable. Recommend discussing City of Roseville's program with Lisa Brown. She is offering copies of program documentation to utilities for their use. Modeled after the Las Vegas Valley Water District program.
18	Residential Rain Barrel Incentive Program	Res	Not selected for implementation. Suggest only promoting workshops being done by others, Sacramento County Water Agency is planning to host workshops in 2010-11.	More information on systems available at Water Saver Home web site: www.h2ouse.org or through American Rainwater Catchment Systems Association (ARCSA) http://www.arcsa.org
Large Landscapes				
19	Financial incentives for complying with water use budget	Comm Irr	Implement at selective larger landscape sites.	Consider discussing with RWA the benefits of a regional certification or monitoring program (e.g., Metropolitan Water District of Orange County. http://www.waterprograms.com/)

Table 5-5. Implementation Suggestions for Conservation Measures Only

Measure No.	Measure	Customer category	Suggestions for Implementation	Other Comments
20	Large landscape conservation surveys, water budgets	Comm Irr	Outsource landscape surveys sooner than later. Needs to be done before Measures 19 or 21 can be implemented.	Contact RWA for list of local firms that perform landscape surveys.
21	Irrigation efficiency financial incentives for upgrades for parks and open public spaces	Irr	Discuss past program lessons learned with Regional Water Authority that was grant funded through Prop 13. Seek forms from others related to project documentation examples.	Possible grant application (perhaps combine with residential outdoor landscape measures).
RMCS D - Utility Program				
22a	Recycled Water - New Connections	New Connections	Need development to restart to begin implementation. Developer agreements would need to include recycled water funding support.	New non-residential construction over 5,000 irrigated landscaped area is required to have a dedicated irrigation meter and weather based controller. Check DWR web site for more information on Assembly Bill 1881 requirements and new County Ordinance: http://www.water.ca.gov/wateruseefficiency/landscapeordinance/
22b	Recycled Water - New and Existing Connections	New Connections and Existing Irr Accounts	Need development to restart to begin implementation and includes retrofit of Stonehouse and River View Parks. Developer agreements would need to include recycled water funding support.	Same as Measure 22a above.
23	Support efforts to upgrade public/community buildings retrofit	Inst	Look to demonstration water efficient products at public buildings.	Review CUWCC Information on Products. Waterless Urinals or High Efficiency Toilets with commercial dual flush handles may be a opportunity for retrofit. One example is the Sloan valve: http://www.sloanvalve.com/Our_Products/UPPERCUT.aspx
24	Water Utility / CSD water reduction goals	Inst	Survey CSD property for water savings opportunities.	Plant operations, indoor and outdoor demand at facilities may all have opportunities.
25	Water loss control (Leak Detection)	Inst	Consider performing a water system audit using AWWA M36 methodology and free MS Excel worksheets: www.waterwiser.org	Tackle leaks on mains and services lines, limit system flushing or implement unidirectional flushing program.
26	Tiered water rates	All	Considered in 2009. Board determined that this would be a more aggressive approach to implement if other measures are unsuccessful in reaching water conservation goals.	Continue to monitor rates at other local utilities to compare the cost of water, wastewater and recycled water pricing structures.

Table 5-5. Implementation Suggestions for Conservation Measures Only

Measure No.	Measure	Customer category	Suggestions for Implementation	Other Comments
New Codes or Regulations				
27	Watering schedule	All	Implement a weekly watering schedule that would limit the days of irrigation. Alternate between north and south of the river to balance water system demands. Actively address watering on off-days using the existing water waste ordinance and customer notification process.	Link to education programs and awareness of appropriate amount of watering on scheduled days. Look to examples like Southern Nevada Water Authority http://www.changeyourclock.com or Marin Municipal Water District's weekly watering schedule (see home page) and details on how minutes for your irrigation timer by type of landscaping: http://www.marinwater.org/
28	Require 1.28 per flush toilets to be installed at the time of sale of existing buildings (ROR)	All	Consider new requirements prior to state law taking effect in 2017. New state law passed in May 2009: Chapter 2 of Title 4 of Part 4 of Division 2 of, the California Civil Code, relating to water conservation.	Copy of the bill: http://www.leginfo.ca.gov/pub/09-10/bill/sen/sb_0401-0450/sb_407_bill_20091011_chaptered.pdf
29	New Building Indoor Water Efficiency (e.g., require WaterSense labeled homes)	All	More information on USEPA WaterSense Homes is available online: http://www.epa.gov/watersense/ Pilot study results are indicating up to 20% savings from traditional construction.	Seek other examples of ordinances from other areas of California.
30	New Building Landscape Water Efficiency (e.g., plan review for Sac County Landscape Ordinance)	All	Support and comment on the Sacramento County Landscape Ordinance being updated: http://www.msa2.saccounty.net/dwr/scwa/Pages/WaterEfficientLandscapeOrdinance.aspx	Assist with landscape reviews as needed or support outsourced to be paid from application fees.
31	Enforce landscape requirements for new landscaping systems (turf limitations / regulations)	All	Consider more restrictions in new CCRs for developments requiring more water wise landscaping than the Sacramento County Landscape Ordinance.	None.

Table 5-5. Implementation Suggestions for Conservation Measures Only

Measure No.	Measure	Customer category	Suggestions for Implementation	Other Comments
32	Water waste ordinance and follow-up	Inst	Continue to active promote customer reporting water waste. Actively notify customers of water waste..	Consider using AMR technology that shows continuous use as indicators of leaks and there indoor or outdoor water waste. Follow up with customer notifications.
33	Local codes (e.g., recycled, graywater and/or rainwater systems on new homes)	Inst	Consider graywater and rainwater systems for new homes as allowable under Sacramento County code or consider local ordinances as appropriate. New California code adopted in 2009 updates graywater standards. Review California Code Title 24, Part 5, Graywater Systems: http://www.water.ca.gov/wateruseefficiency/docs/Revised_Graywater_Standards.pdf Rainwater systems not cost effective in Central Valley climate unless a very water wise landscape is being supplemental irrigated in the Spring and Fall months.	Online resources for system designs and also studies through Water Conservation Alliance of Southern Arizona (CASA): http://www.watercasa.org/graywaterguidelines.php Review City of Tucson ordinances as examples: http://www.ci.tucson.az.us/water/ordinances.htm New technologies coming on the market to aid graywater use and rainwater catchment.

5.5 Estimated Implementation Schedule

Based on Board direction and the intention for the community and the RMCS D to be proactive in meeting 2020 targets (to ward against the worse case scenario of the water rights for the community being reduced in the future), Scenario A was selected for implementation which is defined as conservation measures only assuming that recycled water will not be available prior to 2020.

Based on Scenario A, the following Table 5-6 presents a summary of all measures and gives an estimated implementation schedule to guide RMCS D in developing an annual work plan for water conservation. This schedule was developed as part of the business case evaluations for level of activity by year. RMCS D intends to develop detailed annual work plans, and use the 2020 Model to monitor progress in attaining GPCD demand reductions, along with updates to the implementation schedule on an annual basis.

5.6 Estimated Implementation Annual Average Budget

The following Table 5-7, also based on Scenario A, presents a summary of all measures and gives an estimated implementation annual average budget to guide RMCS D in developing an annual work plan for the implementation of planned water conservation measures. This budget was developed as part of the business case evaluations for level of activity by year. The opportunities for grants or cost sharing partnership with Sacramento Municipal Utility District (SMUD) or other means for lowering the cost of a conservation measure would lower the budgetary needs for implementation. RMCS D intends to develop a detailed annual work plan, and use the 2020 Model to monitor progress on demand reductions; along with updates to the implementation cost estimates and associated budgets on an annual basis.

Table 5-6. Estimated Implementation Schedule for Scenario A Measures Only*

Parameter	Conservation Measure	Plumbing Code Retrofits (Natural Replacement without RMCS D action)	Measures 1-10	Measure 11	Measure 12	Measure 13	Measure 14	Measure 15	Measure 16	Measure 17	Measure 19	Measure 20	Measure 21	Measures 23-33
	Customer Category	All Customers	Education and Outreach Program	Residential Plumbing Kit Retrofits	Residential High Efficiency Toilet (HET) Rebate	Clothes Washer Rebates for High Efficiency Machines	Residential Water Surveys	Weather-based Controller Rebates	Irrigation retrofit incentive program, financial incentives for irrigation upgrades (e.g., drip conversion kits)	Turf Retrofit/Cash-for grass	Financial incentives for complying with water use budget	Large landscape conservation surveys, water budgets	Irrigation efficiency financial incentives for upgrades for parks and open public spaces	Utility Measures, New Codes or Regulations
	End Use	Toilets, Showerheads, Faucets	All	Showers	Toilets	Clothes Washers	Irrigation	Irrigation	Irrigation	Irrigation	Irrigation	Irrigation	Irrigation	All
Interventions by Year	2010	500	TBD in Annual Work Plan	0	60	0	0	0	0	0	0	0	0	TBD in Annual Work Plan
	2011	500	TBD in Annual Work Plan	100	60	75	150	60	60	0	0	0	0	TBD in Annual Work Plan
	2012	500	TBD in Annual Work Plan	100	80	75	150	60	60	35	0	14	0	TBD in Annual Work Plan
	2013	500	TBD in Annual Work Plan	100	80	75	150	60	60	35	0	0	0	TBD in Annual Work Plan
	2014	500	TBD in Annual Work Plan	100	80	75	150	60	60	35	0	0	0	TBD in Annual Work Plan
	2015	500	TBD in Annual Work Plan	100	0	100	150	125	125	35	0	0	5	TBD in Annual Work Plan
	2016	500	TBD in Annual Work Plan	0	0	100	150	125	125	35	0	0	6	TBD in Annual Work Plan
	2017	500	TBD in Annual Work Plan	0	0	100	200	125	125	35	0	0	0	TBD in Annual Work Plan
	2018	500	TBD in Annual Work Plan	0	0	100	200	125	125	35	6	0	0	TBD in Annual Work Plan
	2019	500	TBD in Annual Work Plan	0	0	100	200	125	125	35	8	0	0	TBD in Annual Work Plan
2020	500	TBD in Annual Work Plan	0	0	100	200	125	125	35	0	0	0	TBD in Annual Work Plan	

* Measure 18 for Rain Barrel Incentives, Measures 22a or 22b for Recycled Water were not selected for implementation and are not shown.

Table 5-7. Estimated Annual Average Implementation Budget for Scenario A Measures Only

Measure No.	Measure	Priority for Implementation	Program Estimated 2020 Water Savings (gpcd)	Average Estimated Annual Cost* (2011-2020)
Education and Outreach Program				
1	USEPA WaterSense "Fix A Leak" Week Campaign	Basic	7.5	\$ 200.00
2	Home Leak Detection and Repair (e.g., list of local contractors)	Basic		\$ 100.00
3	Promote water efficient plantings at new homes	Basic		\$ 200.00
4	Native Landscape Demonstration Garden	Basic		\$ 1,000.00
5	Homeowner irrigation classes	Moderate		\$ 500.00
6	Top users education (direct mail to largest users)	Basic		\$ 200.00
7	Toilet flapper program	Basic		\$ 500.00
8	Real-time metering (e.g., using totalizers)	Aggressive		\$ -
9	Sacramento Business Environmental Resource Center (BERC) Award program for water savings by businesses	Basic		\$ 100.00
10	Commercial Water Survey and provide new pre-rinse spray rinse nozzles (if higher use device tested)	Basic		\$ 1,000.00
Subtotal				\$ 3,800.00
Residential Indoor				
11	Residential Plumbing Kit Retrofits	Basic	0.5	\$ 2,800.00
12	Residential High Efficiency Toilet (HET) Rebate	Basic	1.5	\$ 4,900.00
13	Clothes Washer Rebates for High Efficiency Machines	Basic	2.2	\$ 3,600.00
Subtotal				\$ 16,200.00

Table 5-7. Estimated Annual Average implementation Budget for Scenario A Measures Only

Residential Outdoor				
14	Residential Water Surveys	Basic/Moderate	6.5	\$ 13,500.00
15	Weather-based Controller Rebates	Moderate	12.6	\$ 13,900.00
16	Irrigation retrofit incentive program, financial incentives for irrigation upgrades (e.g., drip conversion kits)	Moderate	5.2	\$ 3,900.00
17	Turf Retrofit/Cash-for grass	Moderate	5.5	\$ 39,100.00
18	Residential Rain Barrel Incentive Program	Aggressive	Not Selected	\$ -
Large Landscapes				
19	Financial incentives for complying with water use budget	Aggressive	1.2	\$ 2,600.00
20	Large landscape conservation surveys, water budgets	Basic	1.5	\$ 9,100.00
21	Irrigation efficiency financial incentives for upgrades for parks and open public spaces	Basic/Moderate	0.9	\$ 12,400.00
Subtotal				\$ 67,100.00
RMCS D - Utility Program				
22a	Recycled Water - New Connections	Aggressive	Not Selected	\$ -
22b	Recycled Water - New and Existing Connections	Aggressive	Not Selected	\$ -
23	Support efforts to upgrade public/community buildings retrofit	Basic	7.5	\$ 200.00
24	Water Utility / CSD water reduction goals	Basic		\$ 250.00
25	Water loss control (Leak Detection)	Moderate		\$ 2,000.00
26	Tiered water rates	Aggressive		\$ -
Subtotal				\$ 2,450.00

Table 5-7. Estimated Annual Average implementation Budget for Scenario A Measures Only

New Codes or Regulations

27	Watering schedule	Moderate	7.5	\$ 1,900.00
28	Require 1.6 gal (or 1.28) per flush toilets to be installed at the time of sale of existing buildings (ROR)	Aggressive		\$ -
29	New Building Indoor Water Efficiency (e.g., require WaterSense labeled homes)	Basic		\$ 100.00
30	New Building Landscape Water Efficiency (e.g., plan review for Sac County Landscape Ordinance)	Basic		\$ 100.00
31	Enforce landscape requirements for new landscaping systems (turf limitations / regulations)	Basic		\$ 100.00
32	Water waste ordinance and follow-up	Basic		\$ 100.00
33	Local codes (e.g., recycled, graywater and/or rainwater systems on new homes)	Aggressive		\$ 100.00
Subtotal				\$ 2,400.00
Total Average Annual Cost (2011-2020)¹				\$ 92,000.00
Total Average Annual Program Cost (2011-2020) Per Residential Unit (Connection)²				\$40/yr

¹Estimate based on average annual costs over the life of the measure implementation schedule planned. Individual measures may not have a budget in a specific year depending on how the measure implementation was designed.

² Estimated average annual cost per residential unit is based on the total annual average budget of \$92,000 divided by existing number of 2,502 residential connections. As additional connections are added to the system, the average cost would decrease on a per residential connection basis. In addition, non-residential rate revenue will also support conservation program budget. Each year's conservation program budget will vary based on specific measures planned as determined in the RMCSD annual budgeting process. If GPCD targets are not being achieved, then over time as more aggressive conservation measures are needed, program costs may increase.

2020 COMPLIANCE PLAN

6. CONCLUSIONS

At the direction of the RMCS D Board, the intention for the community and the RMCS D is to be proactive in meeting 2020 targets in order to ward against the worst case scenario of the water rights for the community being reduced in the future. SB7 was explicit in the opportunity for the State Water Resources Control Board (SWRCB) to begin taking administrative or legal action after January 1, 2021 against those agencies not compliant with 2020 GPCD targets. Since the RMCS D will need to appeal for an extension for its water right permit in 2020, the timing of the appeal will bring scrutiny from SWRCB on the Rancho Murieta community's perceived wise or wasteful uses of potable water based on whether or not the 2020 GPCD target selected was achieved.

This 2020 Compliance Plan has been designed to serve as a blueprint for RMCS D to develop a strategy for meeting 2020 GPCD targets. Three alternatives were presented:

- Scenario A – comprehensive list of conservation measures only
- Scenario B – fewer conservation measures and recycled water for new connections
- Scenario C – fewer conservation measures and recycled water for new connections and existing parks

At the Board's direction, Scenario A was selected for implementation based on the conservative assumption that recycled water may not be available prior to 2020 due to the economic downturn and delays in residential development.

6.1 Future Updates

This Plan was developed using the best available information. The California DWR is currently finalizing the GPCD methodologies for calculating (a) a weather normalized baseline GPCD; and (2) the fourth method based on additional factors affecting water demand that may be viable for setting targets for RMCS D. It is not perceived that these refinements in methodology will have an impact on the findings from this plan. However, it may be prudent to check these methods once formally published as final by DWR in 2011.

Each year a progress update will be used to analyze the basis for meeting these 2020 GPCD target and an annual work plan and budget will be brought before the Board for adoption and to reconfirm the goal of meeting this SB7 mandate.

6.2 Recommendations for Monitoring Progress

The water demand from RMCS D customers fluctuates year to year based predominately on climate conditions and, as a result, the annual average GPCD will fluctuate. It will be important to track activities and also water demand to understand the level of progress being made in reducing overall GPCD. The following section describes the strategy for monitoring progress.

RMCS D plans to use components of the 2020 Compliance Model used in the GPCD methods evaluation (see Section 3) and the MS worksheets for each conservation measure being actively used to track estimated water savings based on the number of activities (or interventions) taken in a given year. A copy of this MS Excel based model is included on a CD attached to the Final Plan.

2020 COMPLIANCE PLAN

7. LIMITATIONS

Report Limitations

This document was prepared solely for Rancho Murieta Community Services District (RMCS D) in accordance with professional standards at the time the services were performed and in accordance with the contract between RMCS D and Brown and Caldwell dated January 21, 2010. This document is governed by the specific scope of work authorized by RMCS D; it is not intended to be relied upon by any other party except for regulatory authorities contemplated by the scope of work. We have relied on information or instructions provided by RMCS D and other parties and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information.

This document sets forth the results of certain services performed by Brown and Caldwell with respect to the property or facilities described therein (the Property). RMCS D recognizes and acknowledges that these services were designed and performed within various limitations, including budget and time constraints. These services were not designed or intended to determine the existence and nature of all possible environmental risks (which term shall include the presence or suspected or potential presence of any hazardous waste or hazardous substance, as defined under any applicable law or regulation, or any other actual or potential environmental problems or liabilities) affecting the Property. The nature of environmental risks is such that no amount of additional inspection and testing could determine as a matter of certainty that all environmental risks affecting the Property had been identified. Accordingly, **THIS DOCUMENT DOES NOT PURPORT TO DESCRIBE ALL ENVIRONMENTAL RISKS AFFECTING THE PROPERTY, NOR WILL ANY ADDITIONAL TESTING OR INSPECTION RECOMMENDED OR OTHERWISE REFERRED TO IN THIS DOCUMENT NECESSARILY IDENTIFY ALL ENVIRONMENTAL RISKS AFFECTING THE PROPERTY.**

Further, Brown and Caldwell makes no warranties, express or implied, with respect to this document, except for those, if any, contained in the agreement pursuant to which the document was prepared. All data, drawings, documents, or information contained in this report have been prepared exclusively for the person or entity to whom it was addressed and may not be relied upon by any other person or entity without the prior written consent of Brown and Caldwell unless otherwise provided by the Agreement pursuant to which these services were provided

APPENDIX A: SENATE BILL X7-7

BILL NUMBER: SBX7 7 CHAPTERED
BILL TEXT

CHAPTER 4

FILED WITH SECRETARY OF STATE NOVEMBER 10, 2009
APPROVED BY GOVERNOR NOVEMBER 10, 2009
PASSED THE SENATE NOVEMBER 4, 2009
PASSED THE ASSEMBLY NOVEMBER 3, 2009
AMENDED IN ASSEMBLY NOVEMBER 3, 2009
AMENDED IN SENATE NOVEMBER 2, 2009
AMENDED IN SENATE NOVEMBER 2, 2009
AMENDED IN SENATE OCTOBER 29, 2009

INTRODUCED BY Senator Steinberg
(Principal coauthors: Assembly Members Feuer and Huffman)

OCTOBER 28, 2009

An act to amend and repeal Section 10631.5 of, to add Part 2.55 (commencing with Section 10608) to Division 6 of, and to repeal and add Part 2.8 (commencing with Section 10800) of Division 6 of, the Water Code, relating to water.

LEGISLATIVE COUNSEL'S DIGEST

SB 7, Steinberg. Water conservation.

(1) Existing law requires the Department of Water Resources to convene an independent technical panel to provide information to the department and the Legislature on new demand management measures, technologies, and approaches. "Demand management measures" means those water conservation measures, programs, and incentives that prevent the waste of water and promote the reasonable and efficient use and reuse of available supplies.

This bill would require the state to achieve a 20% reduction in urban per capita water use in California by December 31, 2020. The state would be required to make incremental progress towards this goal by reducing per capita water use by at least 10% on or before December 31, 2015. The bill would require each urban retail water supplier to develop urban water use targets and an interim urban water use target, in accordance with specified requirements. The bill would require agricultural water suppliers to implement efficient water management practices. The bill would require the department, in consultation with other state agencies, to develop a single standardized water use reporting form. The bill, with certain exceptions, would provide that urban retail water suppliers, on and after July 1, 2016, and agricultural water suppliers, on and after July 1, 2013, are not eligible for state water grants or loans unless they comply with the water conservation requirements established by the bill. The bill would repeal, on July 1, 2016, an existing requirement that conditions eligibility for certain water management grants or loans to an urban water supplier on the implementation of certain water demand management measures.

(2) Existing law, until January 1, 1993, and thereafter only as specified, requires certain agricultural water suppliers to prepare

and adopt water management plans.

This bill would revise existing law relating to agricultural water management planning to require agricultural water suppliers to prepare and adopt agricultural water management plans with specified components on or before December 31, 2012, and update those plans on or before December 31, 2015, and on or before December 31 every 5 years thereafter. An agricultural water supplier that becomes an agricultural water supplier after December 31, 2012, would be required to prepare and adopt an agricultural water management plan within one year after becoming an agricultural water supplier. The agricultural water supplier would be required to notify each city or county within which the supplier provides water supplies with regard to the preparation or review of the plan. The bill would require the agricultural water supplier to submit copies of the plan to the department and other specified entities. The bill would provide that an agricultural water supplier is not eligible for state water grants or loans unless the supplier complies with the water management planning requirements established by the bill.

(3) The bill would take effect only if SB 1 and SB 6 of the 2009-10 7th Extraordinary Session of the Legislature are enacted and become effective.

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1. Part 2.55 (commencing with Section 10608) is added to Division 6 of the Water Code, to read:

PART 2.55. SUSTAINABLE WATER USE AND DEMAND REDUCTION

CHAPTER 1. GENERAL DECLARATIONS AND POLICY

10608. The Legislature finds and declares all of the following:

- (a) Water is a public resource that the California Constitution protects against waste and unreasonable use.
- (b) Growing population, climate change, and the need to protect and grow California's economy while protecting and restoring our fish and wildlife habitats make it essential that the state manage its water resources as efficiently as possible.
- (c) Diverse regional water supply portfolios will increase water supply reliability and reduce dependence on the Delta.
- (d) Reduced water use through conservation provides significant energy and environmental benefits, and can help protect water quality, improve streamflows, and reduce greenhouse gas emissions.
- (e) The success of state and local water conservation programs to increase efficiency of water use is best determined on the basis of measurable outcomes related to water use or efficiency.
- (f) Improvements in technology and management practices offer the potential for increasing water efficiency in California over time, providing an essential water management tool to meet the need for water for urban, agricultural, and environmental uses.
- (g) The Governor has called for a 20 percent per capita reduction in urban water use statewide by 2020.
- (h) The factors used to formulate water use efficiency targets can vary significantly from location to location based on factors

including weather, patterns of urban and suburban development, and past efforts to enhance water use efficiency.

(i) Per capita water use is a valid measure of a water provider's efforts to reduce urban water use within its service area. However, per capita water use is less useful for measuring relative water use efficiency between different water providers. Differences in weather, historical patterns of urban and suburban development, and density of housing in a particular location need to be considered when assessing per capita water use as a measure of efficiency.

10608.4. It is the intent of the Legislature, by the enactment of this part, to do all of the following:

(a) Require all water suppliers to increase the efficiency of use of this essential resource.

(b) Establish a framework to meet the state targets for urban water conservation identified in this part and called for by the Governor.

(c) Measure increased efficiency of urban water use on a per capita basis.

(d) Establish a method or methods for urban retail water suppliers to determine targets for achieving increased water use efficiency by the year 2020, in accordance with the Governor's goal of a 20-percent reduction.

(e) Establish consistent water use efficiency planning and implementation standards for urban water suppliers and agricultural water suppliers.

(f) Promote urban water conservation standards that are consistent with the California Urban Water Conservation Council's adopted best management practices and the requirements for demand management in Section 10631.

(g) Establish standards that recognize and provide credit to water suppliers that made substantial capital investments in urban water conservation since the drought of the early 1990s.

(h) Recognize and account for the investment of urban retail water suppliers in providing recycled water for beneficial uses.

(i) Require implementation of specified efficient water management practices for agricultural water suppliers.

(j) Support the economic productivity of California's agricultural, commercial, and industrial sectors.

(k) Advance regional water resources management.

10608.8. (a) (1) Water use efficiency measures adopted and implemented pursuant to this part or Part 2.8 (commencing with Section 10800) are water conservation measures subject to the protections provided under Section 1011.

(2) Because an urban agency is not required to meet its urban water use target until 2020 pursuant to subdivision (b) of Section 10608.24, an urban retail water supplier's failure to meet those targets shall not establish a violation of law for purposes of any state administrative or judicial proceeding prior to January 1, 2021. Nothing in this paragraph limits the use of data reported to the department or the board in litigation or an administrative proceeding. This paragraph shall become inoperative on January 1, 2021.

(3) To the extent feasible, the department and the board shall provide for the use of water conservation reports required under this part to meet the requirements of Section 1011 for water conservation reporting.

(b) This part does not limit or otherwise affect the application

of Chapter 3.5 (commencing with Section 11340), Chapter 4 (commencing with Section 11370), Chapter 4.5 (commencing with Section 11400), and Chapter 5 (commencing with Section 11500) of Part 1 of Division 3 of Title 2 of the Government Code.

(c) This part does not require a reduction in the total water used in the agricultural or urban sectors, because other factors, including, but not limited to, changes in agricultural economics or population growth may have greater effects on water use. This part does not limit the economic productivity of California's agricultural, commercial, or industrial sectors.

(d) The requirements of this part do not apply to an agricultural water supplier that is a party to the Quantification Settlement Agreement, as defined in subdivision (a) of Section 1 of Chapter 617 of the Statutes of 2002, during the period within which the Quantification Settlement Agreement remains in effect. After the expiration of the Quantification Settlement Agreement, to the extent conservation water projects implemented as part of the Quantification Settlement Agreement remain in effect, the conserved water created as part of those projects shall be credited against the obligations of the agricultural water supplier pursuant to this part.

CHAPTER 2. DEFINITIONS

10608.12. Unless the context otherwise requires, the following definitions govern the construction of this part:

(a) "Agricultural water supplier" means a water supplier, either publicly or privately owned, providing water to 10,000 or more irrigated acres, excluding recycled water. "Agricultural water supplier" includes a supplier or contractor for water, regardless of the basis of right, that distributes or sells water for ultimate resale to customers. "Agricultural water supplier" does not include the department.

(b) "Base daily per capita water use" means any of the following:

(1) The urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous 10-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.

(2) For an urban retail water supplier that meets at least 10 percent of its 2008 measured retail water demand through recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier, the urban retail water supplier may extend the calculation described in paragraph (1) up to an additional five years to a maximum of a continuous 15-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.

(3) For the purposes of Section 10608.22, the urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous five-year period ending no earlier than December 31, 2007, and no later than December 31, 2010.

(c) "Baseline commercial, industrial, and institutional water use" means an urban retail water supplier's base daily per capita water use for commercial, industrial, and institutional users.

(d) "Commercial water user" means a water user that provides or distributes a product or service.

(e) "Compliance daily per capita water use" means the gross water use during the final year of the reporting period, reported in

gallons per capita per day.

(f) "Disadvantaged community" means a community with an annual median household income that is less than 80 percent of the statewide annual median household income.

(g) "Gross water use" means the total volume of water, whether treated or untreated, entering the distribution system of an urban retail water supplier, excluding all of the following:

(1) Recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier.

(2) The net volume of water that the urban retail water supplier places into long-term storage.

(3) The volume of water the urban retail water supplier conveys for use by another urban water supplier.

(4) The volume of water delivered for agricultural use, except as otherwise provided in subdivision (f) of Section 10608.24.

(h) "Industrial water user" means a water user that is primarily a manufacturer or processor of materials as defined by the North American Industry Classification System code sectors 31 to 33, inclusive, or an entity that is a water user primarily engaged in research and development.

(i) "Institutional water user" means a water user dedicated to public service. This type of user includes, among other users, higher education institutions, schools, courts, churches, hospitals, government facilities, and nonprofit research institutions.

(j) "Interim urban water use target" means the midpoint between the urban retail water supplier's base daily per capita water use and the urban retail water supplier's urban water use target for 2020.

(k) "Locally cost effective" means that the present value of the local benefits of implementing an agricultural efficiency water management practice is greater than or equal to the present value of the local cost of implementing that measure.

(l) "Process water" means water used for producing a product or product content or water used for research and development, including, but not limited to, continuous manufacturing processes, water used for testing and maintaining equipment used in producing a product or product content, and water used in combined heat and power facilities used in producing a product or product content. Process water does not mean incidental water uses not related to the production of a product or product content, including, but not limited to, water used for restrooms, landscaping, air conditioning, heating, kitchens, and laundry.

(m) "Recycled water" means recycled water, as defined in subdivision (n) of Section 13050, that is used to offset potable demand, including recycled water supplied for direct use and indirect potable reuse, that meets the following requirements, where applicable:

(1) For groundwater recharge, including recharge through spreading basins, water supplies that are all of the following:

(A) Metered.

(B) Developed through planned investment by the urban water supplier or a wastewater treatment agency.

(C) Treated to a minimum tertiary level.

(D) Delivered within the service area of an urban retail water supplier or its urban wholesale water supplier that helps an urban retail water supplier meet its urban water use target.

(2) For reservoir augmentation, water supplies that meet the criteria of paragraph (1) and are conveyed through a distribution

system constructed specifically for recycled water.

(n) "Regional water resources management" means sources of supply resulting from watershed-based planning for sustainable local water reliability or any of the following alternative sources of water:

(1) The capture and reuse of stormwater or rainwater.

(2) The use of recycled water.

(3) The desalination of brackish groundwater.

(4) The conjunctive use of surface water and groundwater in a manner that is consistent with the safe yield of the groundwater basin.

(o) "Reporting period" means the years for which an urban retail water supplier reports compliance with the urban water use targets.

(p) "Urban retail water supplier" means a water supplier, either publicly or privately owned, that directly provides potable municipal water to more than 3,000 end users or that supplies more than 3,000 acre-feet of potable water annually at retail for municipal purposes.

(q) "Urban water use target" means the urban retail water supplier's targeted future daily per capita water use.

(r) "Urban wholesale water supplier," means a water supplier, either publicly or privately owned, that provides more than 3,000 acre-feet of water annually at wholesale for potable municipal purposes.

CHAPTER 3. URBAN RETAIL WATER SUPPLIERS

10608.16. (a) The state shall achieve a 20-percent reduction in urban per capita water use in California on or before December 31, 2020.

(b) The state shall make incremental progress towards the state target specified in subdivision (a) by reducing urban per capita water use by at least 10 percent on or before December 31, 2015.

10608.20. (a) (1) Each urban retail water supplier shall develop urban water use targets and an interim urban water use target by July 1, 2011. Urban retail water suppliers may elect to determine and report progress toward achieving these targets on an individual or regional basis, as provided in subdivision (a) of Section 10608.28, and may determine the targets on a fiscal year or calendar year basis.

(2) It is the intent of the Legislature that the urban water use targets described in subdivision (a) cumulatively result in a 20-percent reduction from the baseline daily per capita water use by December 31, 2020.

(b) An urban retail water supplier shall adopt one of the following methods for determining its urban water use target pursuant to subdivision (a):

(1) Eighty percent of the urban retail water supplier's baseline per capita daily water use.

(2) The per capita daily water use that is estimated using the sum of the following performance standards:

(A) For indoor residential water use, 55 gallons per capita daily water use as a provisional standard. Upon completion of the department's 2016 report to the Legislature pursuant to Section 10608.42, this standard may be adjusted by the Legislature by statute.

(B) For landscape irrigated through dedicated or residential meters or connections, water efficiency equivalent to the standards

of the Model Water Efficient Landscape Ordinance set forth in Chapter 2.7 (commencing with Section 490) of Division 2 of Title 23 of the California Code of Regulations, as in effect the later of the year of the landscape's installation or 1992. An urban retail water supplier using the approach specified in this subparagraph shall use satellite imagery, site visits, or other best available technology to develop an accurate estimate of landscaped areas.

(C) For commercial, industrial, and institutional uses, a 10-percent reduction in water use from the baseline commercial, industrial, and institutional water use by 2020.

(3) Ninety-five percent of the applicable state hydrologic region target, as set forth in the state's draft 20x2020 Water Conservation Plan (dated April 30, 2009). If the service area of an urban water supplier includes more than one hydrologic region, the supplier shall apportion its service area to each region based on population or area.

(4) A method that shall be identified and developed by the department, through a public process, and reported to the Legislature no later than December 31, 2010. The method developed by the department shall identify per capita targets that cumulatively result in a statewide 20-percent reduction in urban daily per capita water use by December 31, 2020. In developing urban daily per capita water use targets, the department shall do all of the following:

(A) Consider climatic differences within the state.

(B) Consider population density differences within the state.

(C) Provide flexibility to communities and regions in meeting the targets.

(D) Consider different levels of per capita water use according to plant water needs in different regions.

(E) Consider different levels of commercial, industrial, and institutional water use in different regions of the state.

(F) Avoid placing an undue hardship on communities that have implemented conservation measures or taken actions to keep per capita water use low.

(c) If the department adopts a regulation pursuant to paragraph (4) of subdivision (b) that results in a requirement that an urban retail water supplier achieve a reduction in daily per capita water use that is greater than 20 percent by December 31, 2020, an urban retail water supplier that adopted the method described in paragraph (4) of subdivision (b) may limit its urban water use target to a reduction of not more than 20 percent by December 31, 2020, by adopting the method described in paragraph (1) of subdivision (b).

(d) The department shall update the method described in paragraph (4) of subdivision (b) and report to the Legislature by December 31, 2014. An urban retail water supplier that adopted the method described in paragraph (4) of subdivision (b) may adopt a new urban daily per capita water use target pursuant to this updated method.

(e) An urban retail water supplier shall include in its urban water management plan required pursuant to Part 2.6 (commencing with Section 10610) due in 2010 the baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.

(f) When calculating per capita values for the purposes of this chapter, an urban retail water supplier shall determine population using federal, state, and local population reports and projections.

(g) An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan required pursuant to Part 2.6 (commencing with Section 10610).

(h) (1) The department, through a public process and in consultation with the California Urban Water Conservation Council, shall develop technical methodologies and criteria for the consistent implementation of this part, including, but not limited to, both of the following:

(A) Methodologies for calculating base daily per capita water use, baseline commercial, industrial, and institutional water use, compliance daily per capita water use, gross water use, service area population, indoor residential water use, and landscaped area water use.

(B) Criteria for adjustments pursuant to subdivisions (d) and (e) of Section 10608.24.

(2) The department shall post the methodologies and criteria developed pursuant to this subdivision on its Internet Web site, and make written copies available, by October 1, 2010. An urban retail water supplier shall use the methods developed by the department in compliance with this part.

(i) (1) The department shall adopt regulations for implementation of the provisions relating to process water in accordance with subdivision (1) of Section 10608.12, subdivision (e) of Section 10608.24, and subdivision (d) of Section 10608.26.

(2) The initial adoption of a regulation authorized by this subdivision is deemed to address an emergency, for purposes of Sections 11346.1 and 11349.6 of the Government Code, and the department is hereby exempted for that purpose from the requirements of subdivision (b) of Section 11346.1 of the Government Code. After the initial adoption of an emergency regulation pursuant to this subdivision, the department shall not request approval from the Office of Administrative Law to readopt the regulation as an emergency regulation pursuant to Section 11346.1 of the Government Code.

(j) An urban retail water supplier shall be granted an extension to July 1, 2011, for adoption of an urban water management plan pursuant to Part 2.6 (commencing with Section 10610) due in 2010 to allow use of technical methodologies developed by the department pursuant to paragraph (4) of subdivision (b) and subdivision (h). An urban retail water supplier that adopts an urban water management plan due in 2010 that does not use the methodologies developed by the department pursuant to subdivision (h) shall amend the plan by July 1, 2011, to comply with this part.

10608.22. Notwithstanding the method adopted by an urban retail water supplier pursuant to Section 10608.20, an urban retail water supplier's per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use as defined in paragraph (3) of subdivision (b) of Section 10608.12. This section does not apply to an urban retail water supplier with a base daily per capita water use at or below 100 gallons per capita per day.

10608.24. (a) Each urban retail water supplier shall meet its interim urban water use target by December 31, 2015.

(b) Each urban retail water supplier shall meet its urban water use target by December 31, 2020.

(c) An urban retail water supplier's compliance daily per capita water use shall be the measure of progress toward achievement of its urban water use target.

(d) (1) When determining compliance daily per capita water use, an urban retail water supplier may consider the following factors:

(A) Differences in evapotranspiration and rainfall in the baseline period compared to the compliance reporting period.

(B) Substantial changes to commercial or industrial water use resulting from increased business output and economic development that have occurred during the reporting period.

(C) Substantial changes to institutional water use resulting from fire suppression services or other extraordinary events, or from new or expanded operations, that have occurred during the reporting period.

(2) If the urban retail water supplier elects to adjust its estimate of compliance daily per capita water use due to one or more of the factors described in paragraph (1), it shall provide the basis for, and data supporting, the adjustment in the report required by Section 10608.40.

(e) When developing the urban water use target pursuant to Section 10608.20, an urban retail water supplier that has a substantial percentage of industrial water use in its service area, may exclude process water from the calculation of gross water use to avoid a disproportionate burden on another customer sector.

(f) (1) An urban retail water supplier that includes agricultural water use in an urban water management plan pursuant to Part 2.6 (commencing with Section 10610) may include the agricultural water use in determining gross water use. An urban retail water supplier that includes agricultural water use in determining gross water use and develops its urban water use target pursuant to paragraph (2) of subdivision (b) of Section 10608.20 shall use a water efficient standard for agricultural irrigation of 100 percent of reference evapotranspiration multiplied by the crop coefficient for irrigated acres.

(2) An urban retail water supplier, that is also an agricultural water supplier, is not subject to the requirements of Chapter 4 (commencing with Section 10608.48), if the agricultural water use is incorporated into its urban water use target pursuant to paragraph (1).

10608.26. (a) In complying with this part, an urban retail water supplier shall conduct at least one public hearing to accomplish all of the following:

(1) Allow community input regarding the urban retail water supplier's implementation plan for complying with this part.

(2) Consider the economic impacts of the urban retail water supplier's implementation plan for complying with this part.

(3) Adopt a method, pursuant to subdivision (b) of Section 10608.20, for determining its urban water use target.

(b) In complying with this part, an urban retail water supplier may meet its urban water use target through efficiency improvements in any combination among its customer sectors. An urban retail water supplier shall avoid placing a disproportionate burden on any customer sector.

(c) For an urban retail water supplier that supplies water to a United States Department of Defense military installation, the urban retail water supplier's implementation plan for complying with this part shall consider the United States Department of Defense military installation's requirements under federal Executive Order 13423.

(d) (1) Any ordinance or resolution adopted by an urban retail water supplier after the effective date of this section shall not

require existing customers as of the effective date of this section, to undertake changes in product formulation, operations, or equipment that would reduce process water use, but may provide technical assistance and financial incentives to those customers to implement efficiency measures for process water. This section shall not limit an ordinance or resolution adopted pursuant to a declaration of drought emergency by an urban retail water supplier.

(2) This part shall not be construed or enforced so as to interfere with the requirements of Chapter 4 (commencing with Section 113980) to Chapter 13 (commencing with Section 114380), inclusive, of Part 7 of Division 104 of the Health and Safety Code, or any requirement or standard for the protection of public health, public safety, or worker safety established by federal, state, or local government or recommended by recognized standard setting organizations or trade associations.

10608.28. (a) An urban retail water supplier may meet its urban water use target within its retail service area, or through mutual agreement, by any of the following:

(1) Through an urban wholesale water supplier.

(2) Through a regional agency authorized to plan and implement water conservation, including, but not limited to, an agency established under the Bay Area Water Supply and Conservation Agency Act (Division 31 (commencing with Section 81300)).

(3) Through a regional water management group as defined in Section 10537.

(4) By an integrated regional water management funding area.

(5) By hydrologic region.

(6) Through other appropriate geographic scales for which computation methods have been developed by the department.

(b) A regional water management group, with the written consent of its member agencies, may undertake any or all planning, reporting, and implementation functions under this chapter for the member agencies that consent to those activities. Any data or reports shall provide information both for the regional water management group and separately for each consenting urban retail water supplier and urban wholesale water supplier.

10608.32. All costs incurred pursuant to this part by a water utility regulated by the Public Utilities Commission may be recoverable in rates subject to review and approval by the Public Utilities Commission, and may be recorded in a memorandum account and reviewed for reasonableness by the Public Utilities Commission.

10608.36. Urban wholesale water suppliers shall include in the urban water management plans required pursuant to Part 2.6 (commencing with Section 10610) an assessment of their present and proposed future measures, programs, and policies to help achieve the water use reductions required by this part.

10608.40. Urban water retail suppliers shall report to the department on their progress in meeting their urban water use targets as part of their urban water management plans submitted pursuant to Section 10631. The data shall be reported using a standardized form developed pursuant to Section 10608.52.

10608.42. The department shall review the 2015 urban water management plans and report to the Legislature by December 31, 2016, on progress towards achieving a 20-percent reduction in urban water use by December 31, 2020. The report shall include recommendations on changes to water efficiency standards or urban water use targets in

order to achieve the 20-percent reduction and to reflect updated efficiency information and technology changes.

10608.43. The department, in conjunction with the California Urban Water Conservation Council, by April 1, 2010, shall convene a representative task force consisting of academic experts, urban retail water suppliers, environmental organizations, commercial water users, industrial water users, and institutional water users to develop alternative best management practices for commercial, industrial, and institutional users and an assessment of the potential statewide water use efficiency improvement in the commercial, industrial, and institutional sectors that would result from implementation of these best management practices. The taskforce, in conjunction with the department, shall submit a report to the Legislature by April 1, 2012, that shall include a review of multiple sectors within commercial, industrial, and institutional users and that shall recommend water use efficiency standards for commercial, industrial, and institutional users among various sectors of water use. The report shall include, but not be limited to, the following:

(a) Appropriate metrics for evaluating commercial, industrial, and institutional water use.

(b) Evaluation of water demands for manufacturing processes, goods, and cooling.

(c) Evaluation of public infrastructure necessary for delivery of recycled water to the commercial, industrial, and institutional sectors.

(d) Evaluation of institutional and economic barriers to increased recycled water use within the commercial, industrial, and institutional sectors.

(e) Identification of technical feasibility and cost of the best management practices to achieve more efficient water use statewide in the commercial, industrial, and institutional sectors that is consistent with the public interest and reflects past investments in water use efficiency.

10608.44. Each state agency shall reduce water use on facilities it operates to support urban retail water suppliers in meeting the target identified in Section 10608.16.

CHAPTER 4. AGRICULTURAL WATER SUPPLIERS

10608.48. (a) On or before July 31, 2012, an agricultural water supplier shall implement efficient water management practices pursuant to subdivisions (b) and (c).

(b) Agricultural water suppliers shall implement all of the following critical efficient management practices:

(1) Measure the volume of water delivered to customers with sufficient accuracy to comply with subdivision (a) of Section 531.10 and to implement paragraph (2).

(2) Adopt a pricing structure for water customers based at least in part on quantity delivered.

(c) Agricultural water suppliers shall implement additional efficient management practices, including, but not limited to, practices to accomplish all of the following, if the measures are locally cost effective and technically feasible:

(1) Facilitate alternative land use for lands with exceptionally high water duties or whose irrigation contributes to significant problems, including drainage.

(2) Facilitate use of available recycled water that otherwise would not be used beneficially, meets all health and safety criteria, and does not harm crops or soils.

(3) Facilitate the financing of capital improvements for on-farm irrigation systems.

(4) Implement an incentive pricing structure that promotes one or more of the following goals:

(A) More efficient water use at the farm level.

(B) Conjunctive use of groundwater.

(C) Appropriate increase of groundwater recharge.

(D) Reduction in problem drainage.

(E) Improved management of environmental resources.

(F) Effective management of all water sources throughout the year by adjusting seasonal pricing structures based on current conditions.

(5) Expand line or pipe distribution systems, and construct regulatory reservoirs to increase distribution system flexibility and capacity, decrease maintenance, and reduce seepage.

(6) Increase flexibility in water ordering by, and delivery to, water customers within operational limits.

(7) Construct and operate supplier spill and tailwater recovery systems.

(8) Increase planned conjunctive use of surface water and groundwater within the supplier service area.

(9) Automate canal control structures.

(10) Facilitate or promote customer pump testing and evaluation.

(11) Designate a water conservation coordinator who will develop and implement the water management plan and prepare progress reports.

(12) Provide for the availability of water management services to water users. These services may include, but are not limited to, all of the following:

(A) On-farm irrigation and drainage system evaluations.

(B) Normal year and real-time irrigation scheduling and crop evapotranspiration information.

(C) Surface water, groundwater, and drainage water quantity and quality data.

(D) Agricultural water management educational programs and materials for farmers, staff, and the public.

(13) Evaluate the policies of agencies that provide the supplier with water to identify the potential for institutional changes to allow more flexible water deliveries and storage.

(14) Evaluate and improve the efficiencies of the supplier's pumps.

(d) Agricultural water suppliers shall include in the agricultural water management plans required pursuant to Part 2.8 (commencing with Section 10800) a report on which efficient water management practices have been implemented and are planned to be implemented, an estimate of the water use efficiency improvements that have occurred since the last report, and an estimate of the water use efficiency improvements estimated to occur five and 10 years in the future. If an agricultural water supplier determines that an efficient water management practice is not locally cost effective or technically feasible, the supplier shall submit information documenting that determination.

(e) The data shall be reported using a standardized form developed pursuant to Section 10608.52.

(f) An agricultural water supplier may meet the requirements of subdivisions (d) and (e) by submitting to the department a water conservation plan submitted to the United States Bureau of Reclamation that meets the requirements described in Section 10828.

(g) On or before December 31, 2013, December 31, 2016, and December 31, 2021, the department, in consultation with the board, shall submit to the Legislature a report on the agricultural efficient water management practices that have been implemented and are planned to be implemented and an assessment of the manner in which the implementation of those efficient water management practices has affected and will affect agricultural operations, including estimated water use efficiency improvements, if any.

(h) The department may update the efficient water management practices required pursuant to subdivision (c), in consultation with the Agricultural Water Management Council, the United States Bureau of Reclamation, and the board. All efficient water management practices for agricultural water use pursuant to this chapter shall be adopted or revised by the department only after the department conducts public hearings to allow participation of the diverse geographical areas and interests of the state.

(i) (1) The department shall adopt regulations that provide for a range of options that agricultural water suppliers may use or implement to comply with the measurement requirement in paragraph (1) of subdivision (b).

(2) The initial adoption of a regulation authorized by this subdivision is deemed to address an emergency, for purposes of Sections 11346.1 and 11349.6 of the Government Code, and the department is hereby exempted for that purpose from the requirements of subdivision (b) of Section 11346.1 of the Government Code. After the initial adoption of an emergency regulation pursuant to this subdivision, the department shall not request approval from the Office of Administrative Law to readopt the regulation as an emergency regulation pursuant to Section 11346.1 of the Government Code.

CHAPTER 5. SUSTAINABLE WATER MANAGEMENT

10608.50. (a) The department, in consultation with the board, shall promote implementation of regional water resources management practices through increased incentives and removal of barriers consistent with state and federal law. Potential changes may include, but are not limited to, all of the following:

(1) Revisions to the requirements for urban and agricultural water management plans.

(2) Revisions to the requirements for integrated regional water management plans.

(3) Revisions to the eligibility for state water management grants and loans.

(4) Revisions to state or local permitting requirements that increase water supply opportunities, but do not weaken water quality protection under state and federal law.

(5) Increased funding for research, feasibility studies, and project construction.

(6) Expanding technical and educational support for local land use and water management agencies.

(b) No later than January 1, 2011, and updated as part of the California Water Plan, the department, in consultation with the

board, and with public input, shall propose new statewide targets, or review and update existing statewide targets, for regional water resources management practices, including, but not limited to, recycled water, brackish groundwater desalination, and infiltration and direct use of urban stormwater runoff.

CHAPTER 6. STANDARDIZED DATA COLLECTION

10608.52. (a) The department, in consultation with the board, the California Bay-Delta Authority or its successor agency, the State Department of Public Health, and the Public Utilities Commission, shall develop a single standardized water use reporting form to meet the water use information needs of each agency, including the needs of urban water suppliers that elect to determine and report progress toward achieving targets on a regional basis as provided in subdivision (a) of Section 10608.28.

(b) At a minimum, the form shall be developed to accommodate information sufficient to assess an urban water supplier's compliance with conservation targets pursuant to Section 10608.24 and an agricultural water supplier's compliance with implementation of efficient water management practices pursuant to subdivision (a) of Section 10608.48. The form shall accommodate reporting by urban water suppliers on an individual or regional basis as provided in subdivision (a) of Section 10608.28.

CHAPTER 7. FUNDING PROVISIONS

10608.56. (a) On and after July 1, 2016, an urban retail water supplier is not eligible for a water grant or loan awarded or administered by the state unless the supplier complies with this part.

(b) On and after July 1, 2013, an agricultural water supplier is not eligible for a water grant or loan awarded or administered by the state unless the supplier complies with this part.

(c) Notwithstanding subdivision (a), the department shall determine that an urban retail water supplier is eligible for a water grant or loan even though the supplier has not met the per capita reductions required pursuant to Section 10608.24, if the urban retail water supplier has submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for achieving the per capita reductions. The supplier may request grant or loan funds to achieve the per capita reductions to the extent the request is consistent with the eligibility requirements applicable to the water funds.

(d) Notwithstanding subdivision (b), the department shall determine that an agricultural water supplier is eligible for a water grant or loan even though the supplier is not implementing all of the efficient water management practices described in Section 10608.48, if the agricultural water supplier has submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for implementation of the efficient water management practices. The supplier may request grant or loan funds to implement the efficient water management practices to the extent the request is consistent with the eligibility requirements applicable to the water funds.

(e) Notwithstanding subdivision (a), the department shall determine that an urban retail water supplier is eligible for a water

grant or loan even though the supplier has not met the per capita reductions required pursuant to Section 10608.24, if the urban retail water supplier has submitted to the department for approval documentation demonstrating that its entire service area qualifies as a disadvantaged community.

(f) The department shall not deny eligibility to an urban retail water supplier or agricultural water supplier in compliance with the requirements of this part and Part 2.8 (commencing with Section 10800), that is participating in a multiagency water project, or an integrated regional water management plan, developed pursuant to Section 75026 of the Public Resources Code, solely on the basis that one or more of the agencies participating in the project or plan is not implementing all of the requirements of this part or Part 2.8 (commencing with Section 10800).

10608.60. (a) It is the intent of the Legislature that funds made available by Section 75026 of the Public Resources Code should be expended, consistent with Division 43 (commencing with Section 75001) of the Public Resources Code and upon appropriation by the Legislature, for grants to implement this part. In the allocation of funding, it is the intent of the Legislature that the department give consideration to disadvantaged communities to assist in implementing the requirements of this part.

(b) It is the intent of the Legislature that funds made available by Section 75041 of the Public Resources Code, should be expended, consistent with Division 43 (commencing with Section 75001) of the Public Resources Code and upon appropriation by the Legislature, for direct expenditures to implement this part.

CHAPTER 8. QUANTIFYING AGRICULTURAL WATER USE EFFICIENCY

10608.64. The department, in consultation with the Agricultural Water Management Council, academic experts, and other stakeholders, shall develop a methodology for quantifying the efficiency of agricultural water use. Alternatives to be assessed shall include, but not be limited to, determination of efficiency levels based on crop type or irrigation system distribution uniformity. On or before December 31, 2011, the department shall report to the Legislature on a proposed methodology and a plan for implementation. The plan shall include the estimated implementation costs and the types of data needed to support the methodology. Nothing in this section authorizes the department to implement a methodology established pursuant to this section.

SEC. 2. Section 10631.5 of the Water Code is amended to read:

10631.5. (a) (1) Beginning January 1, 2009, the terms of, and eligibility for, a water management grant or loan made to an urban water supplier and awarded or administered by the department, state board, or California Bay-Delta Authority or its successor agency shall be conditioned on the implementation of the water demand management measures described in Section 10631, as determined by the department pursuant to subdivision (b).

(2) For the purposes of this section, water management grants and loans include funding for programs and projects for surface water or groundwater storage, recycling, desalination, water conservation, water supply reliability, and water supply augmentation. This section does not apply to water management projects funded by the federal American Recovery and Reinvestment Act of 2009 (Public Law 111-5).

(3) Notwithstanding paragraph (1), the department shall determine

that an urban water supplier is eligible for a water management grant or loan even though the supplier is not implementing all of the water demand management measures described in Section 10631, if the urban water supplier has submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for implementation of the water demand management measures. The supplier may request grant or loan funds to implement the water demand management measures to the extent the request is consistent with the eligibility requirements applicable to the water management funds.

(4) (A) Notwithstanding paragraph (1), the department shall determine that an urban water supplier is eligible for a water management grant or loan even though the supplier is not implementing all of the water demand management measures described in Section 10631, if an urban water supplier submits to the department for approval documentation demonstrating that a water demand management measure is not locally cost effective. If the department determines that the documentation submitted by the urban water supplier fails to demonstrate that a water demand management measure is not locally cost effective, the department shall notify the urban water supplier and the agency administering the grant or loan program within 120 days that the documentation does not satisfy the requirements for an exemption, and include in that notification a detailed statement to support the determination.

(B) For purposes of this paragraph, "not locally cost effective" means that the present value of the local benefits of implementing a water demand management measure is less than the present value of the local costs of implementing that measure.

(b) (1) The department, in consultation with the state board and the California Bay-Delta Authority or its successor agency, and after soliciting public comment regarding eligibility requirements, shall develop eligibility requirements to implement the requirement of paragraph (1) of subdivision (a). In establishing these eligibility requirements, the department shall do both of the following:

(A) Consider the conservation measures described in the Memorandum of Understanding Regarding Urban Water Conservation in California, and alternative conservation approaches that provide equal or greater water savings.

(B) Recognize the different legal, technical, fiscal, and practical roles and responsibilities of wholesale water suppliers and retail water suppliers.

(2) (A) For the purposes of this section, the department shall determine whether an urban water supplier is implementing all of the water demand management measures described in Section 10631 based on either, or a combination, of the following:

(i) Compliance on an individual basis.

(ii) Compliance on a regional basis. Regional compliance shall require participation in a regional conservation program consisting of two or more urban water suppliers that achieves the level of conservation or water efficiency savings equivalent to the amount of conservation or savings achieved if each of the participating urban water suppliers implemented the water demand management measures. The urban water supplier administering the regional program shall provide participating urban water suppliers and the department with data to demonstrate that the regional program is consistent with this clause. The department shall review the data to determine whether the urban water suppliers in the regional program are meeting the

eligibility requirements.

(B) The department may require additional information for any determination pursuant to this section.

(3) The department shall not deny eligibility to an urban water supplier in compliance with the requirements of this section that is participating in a multiagency water project, or an integrated regional water management plan, developed pursuant to Section 75026 of the Public Resources Code, solely on the basis that one or more of the agencies participating in the project or plan is not implementing all of the water demand management measures described in Section 10631.

(c) In establishing guidelines pursuant to the specific funding authorization for any water management grant or loan program subject to this section, the agency administering the grant or loan program shall include in the guidelines the eligibility requirements developed by the department pursuant to subdivision (b).

(d) Upon receipt of a water management grant or loan application by an agency administering a grant and loan program subject to this section, the agency shall request an eligibility determination from the department with respect to the requirements of this section. The department shall respond to the request within 60 days of the request.

(e) The urban water supplier may submit to the department copies of its annual reports and other relevant documents to assist the department in determining whether the urban water supplier is implementing or scheduling the implementation of water demand management activities. In addition, for urban water suppliers that are signatories to the Memorandum of Understanding Regarding Urban Water Conservation in California and submit biennial reports to the California Urban Water Conservation Council in accordance with the memorandum, the department may use these reports to assist in tracking the implementation of water demand management measures.

(f) This section shall remain in effect only until July 1, 2016, and as of that date is repealed, unless a later enacted statute, that is enacted before July 1, 2016, deletes or extends that date.

SEC. 3. Part 2.8 (commencing with Section 10800) of Division 6 of the Water Code is repealed.

SEC. 4. Part 2.8 (commencing with Section 10800) is added to Division 6 of the Water Code, to read:

PART 2.8. AGRICULTURAL WATER MANAGEMENT PLANNING

CHAPTER 1. GENERAL DECLARATIONS AND POLICY

10800. This part shall be known and may be cited as the Agricultural Water Management Planning Act.

10801. The Legislature finds and declares all of the following:

(a) The waters of the state are a limited and renewable resource.

(b) The California Constitution requires that water in the state be used in a reasonable and beneficial manner.

(c) Urban water districts are required to adopt water management plans.

(d) The conservation of agricultural water supplies is of great statewide concern.

(e) There is a great amount of reuse of delivered water, both

inside and outside the water service areas.

(f) Significant noncrop beneficial uses are associated with agricultural water use, including streamflows and wildlife habitat.

(g) Significant opportunities exist in some areas, through improved irrigation water management, to conserve water or to reduce the quantity of highly saline or toxic drainage water.

(h) Changes in water management practices should be carefully planned and implemented to minimize adverse effects on other beneficial uses currently being served.

(i) Agricultural water suppliers that receive water from the federal Central Valley Project are required by federal law to prepare and implement water conservation plans.

(j) Agricultural water users applying for a permit to appropriate water from the board are required to prepare and implement water conservation plans.

10802. The Legislature finds and declares that all of the following are the policies of the state:

(a) The conservation of water shall be pursued actively to protect both the people of the state and the state's water resources.

(b) The conservation of agricultural water supplies shall be an important criterion in public decisions with regard to water.

(c) Agricultural water suppliers shall be required to prepare water management plans to achieve conservation of water.

CHAPTER 2. DEFINITIONS

10810. Unless the context otherwise requires, the definitions set forth in this chapter govern the construction of this part.

10811. "Agricultural water management plan" or "plan" means an agricultural water management plan prepared pursuant to this part.

10812. "Agricultural water supplier" has the same meaning as defined in Section 10608.12.

10813. "Customer" means a purchaser of water from a water supplier who uses water for agricultural purposes.

10814. "Person" means any individual, firm, association, organization, partnership, business, trust, corporation, company, public agency, or any agency of that entity.

10815. "Public agency" means any city, county, city and county, special district, or other public entity.

10816. "Urban water supplier" has the same meaning as set forth in Section 10617.

10817. "Water conservation" means the efficient management of water resources for beneficial uses, preventing waste, or accomplishing additional benefits with the same amount of water.

CHAPTER 3. AGRICULTURAL WATER MANAGEMENT PLANS

Article 1. General Provisions

10820. (a) An agricultural water supplier shall prepare and adopt an agricultural water management plan in the manner set forth in this chapter on or before December 31, 2012, and shall update that plan on December 31, 2015, and on or before December 31 every five years thereafter.

(b) Every supplier that becomes an agricultural water supplier after December 31, 2012, shall prepare and adopt an agricultural water management plan within one year after the date it has become an agricultural water supplier.

(c) A water supplier that indirectly provides water to customers for agricultural purposes shall not prepare a plan pursuant to this part without the consent of each agricultural water supplier that directly provides that water to its customers.

10821. (a) An agricultural water supplier required to prepare a plan pursuant to this part shall notify each city or county within which the supplier provides water supplies that the agricultural water supplier will be preparing the plan or reviewing the plan and considering amendments or changes to the plan. The agricultural water supplier may consult with, and obtain comments from, each city or county that receives notice pursuant to this subdivision.

(b) The amendments to, or changes in, the plan shall be adopted and submitted in the manner set forth in Article 3 (commencing with Section 10840).

Article 2. Contents of Plans

10825. (a) It is the intent of the Legislature in enacting this part to allow levels of water management planning commensurate with the numbers of customers served and the volume of water supplied.

(b) This part does not require the implementation of water conservation programs or practices that are not locally cost effective.

10826. An agricultural water management plan shall be adopted in accordance with this chapter. The plan shall do all of the following:

(a) Describe the agricultural water supplier and the service area, including all of the following:

- (1) Size of the service area.
- (2) Location of the service area and its water management facilities.
- (3) Terrain and soils.
- (4) Climate.
- (5) Operating rules and regulations.
- (6) Water delivery measurements or calculations.
- (7) Water rate schedules and billing.
- (8) Water shortage allocation policies.

(b) Describe the quantity and quality of water resources of the agricultural water supplier, including all of the following:

- (1) Surface water supply.
- (2) Groundwater supply.
- (3) Other water supplies.
- (4) Source water quality monitoring practices.
- (5) Water uses within the agricultural water supplier's service area, including all of the following:
 - (A) Agricultural.
 - (B) Environmental.
 - (C) Recreational.
 - (D) Municipal and industrial.
 - (E) Groundwater recharge.
 - (F) Transfers and exchanges.
 - (G) Other water uses.

- (6) Drainage from the water supplier's service area.
- (7) Water accounting, including all of the following:
 - (A) Quantifying the water supplier's water supplies.
 - (B) Tabulating water uses.
 - (C) Overall water budget.
 - (8) Water supply reliability.
- (c) Include an analysis, based on available information, of the effect of climate change on future water supplies.
- (d) Describe previous water management activities.
- (e) Include in the plan the water use efficiency information required pursuant to Section 10608.48.

10827. Agricultural water suppliers that are members of the Agricultural Water Management Council, and that submit water management plans to that council in accordance with the "Memorandum of Understanding Regarding Efficient Water Management Practices By Agricultural Water Suppliers In California," dated January 1, 1999, may submit the water management plans identifying water demand management measures currently being implemented, or scheduled for implementation, to satisfy the requirements of Section 10826.

10828. (a) Agricultural water suppliers that are required to submit water conservation plans to the United States Bureau of Reclamation pursuant to either the Central Valley Project Improvement Act (Public Law 102-575) or the Reclamation Reform Act of 1982, or both, may submit those water conservation plans to satisfy the requirements of Section 10826, if both of the following apply:

(1) The agricultural water supplier has adopted and submitted the water conservation plan to the United States Bureau of Reclamation within the previous four years.

(2) The United States Bureau of Reclamation has accepted the water conservation plan as adequate.

(b) This part does not require agricultural water suppliers that are required to submit water conservation plans to the United States Bureau of Reclamation pursuant to either the Central Valley Project Improvement Act (Public Law 102-575) or the Reclamation Reform Act of 1982, or both, to prepare and adopt water conservation plans according to a schedule that is different from that required by the United States Bureau of Reclamation.

10829. An agricultural water supplier may satisfy the requirements of this part by adopting an urban water management plan pursuant to Part 2.6 (commencing with Section 10610) or by participation in areawide, regional, watershed, or basinwide water management planning if those plans meet or exceed the requirements of this part.

Article 3. Adoption and Implementation of Plans

10840. Every agricultural water supplier shall prepare its plan pursuant to Article 2 (commencing with Section 10825).

10841. Prior to adopting a plan, the agricultural water supplier shall make the proposed plan available for public inspection, and shall hold a public hearing on the plan. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned agricultural water supplier pursuant to Section 6066 of the Government Code. A privately owned agricultural water supplier shall provide an equivalent notice within its service area and shall provide a reasonably equivalent

opportunity that would otherwise be afforded through a public hearing process for interested parties to provide input on the plan. After the hearing, the plan shall be adopted as prepared or as modified during or after the hearing.

10842. An agricultural water supplier shall implement the plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan, as determined by the governing body of the agricultural water supplier.

10843. (a) An agricultural water supplier shall submit to the entities identified in subdivision (b) a copy of its plan no later than 30 days after the adoption of the plan. Copies of amendments or changes to the plans shall be submitted to the entities identified in subdivision (b) within 30 days after the adoption of the amendments or changes.

(b) An agricultural water supplier shall submit a copy of its plan and amendments or changes to the plan to each of the following entities:

(1) The department.

(2) Any city, county, or city and county within which the agricultural water supplier provides water supplies.

(3) Any groundwater management entity within which jurisdiction the agricultural water supplier extracts or provides water supplies.

(4) Any urban water supplier within which jurisdiction the agricultural water supplier provides water supplies.

(5) Any city or county library within which jurisdiction the agricultural water supplier provides water supplies.

(6) The California State Library.

(7) Any local agency formation commission serving a county within which the agricultural water supplier provides water supplies.

10844. (a) Not later than 30 days after the date of adopting its plan, the agricultural water supplier shall make the plan available for public review on the agricultural water supplier's Internet Web site.

(b) An agricultural water supplier that does not have an Internet Web site shall submit to the department, not later than 30 days after the date of adopting its plan, a copy of the adopted plan in an electronic format. The department shall make the plan available for public review on the department's Internet Web site.

10845. (a) The department shall prepare and submit to the Legislature, on or before December 31, 2013, and thereafter in the years ending in six and years ending in one, a report summarizing the status of the plans adopted pursuant to this part.

(b) The report prepared by the department shall identify the outstanding elements of any plan adopted pursuant to this part. The report shall include an evaluation of the effectiveness of this part in promoting efficient agricultural water management practices and recommendations relating to proposed changes to this part, as appropriate.

(c) The department shall provide a copy of the report to each agricultural water supplier that has submitted its plan to the department. The department shall also prepare reports and provide data for any legislative hearing designed to consider the effectiveness of plans submitted pursuant to this part.

(d) This section does not authorize the department, in preparing the report, to approve, disapprove, or critique individual plans submitted pursuant to this part.

CHAPTER 4. MISCELLANEOUS PROVISIONS

10850. (a) Any action or proceeding to attack, review, set aside, void, or annul the acts or decisions of an agricultural water supplier on the grounds of noncompliance with this part shall be commenced as follows:

(1) An action or proceeding alleging failure to adopt a plan shall be commenced within 18 months after that adoption is required by this part.

(2) Any action or proceeding alleging that a plan, or action taken pursuant to the plan, does not comply with this part shall be commenced within 120 days after submitting the plan or amendments to the plan to entities in accordance with Section 10844 or the taking of that action.

(b) In an action or proceeding to attack, review, set aside, void, or annul a plan, or an action taken pursuant to the plan by an agricultural water supplier, on the grounds of noncompliance with this part, the inquiry shall extend only to whether there was a prejudicial abuse of discretion. Abuse of discretion is established if the agricultural water supplier has not proceeded in a manner required by law, or if the action by the agricultural water supplier is not supported by substantial evidence.

10851. The California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) does not apply to the preparation and adoption of plans pursuant to this part. This part does not exempt projects for implementation of the plan or for expanded or additional water supplies from the California Environmental Quality Act.

10852. An agricultural water supplier is not eligible for a water grant or loan awarded or administered by the state unless the supplier complies with this part.

10853. No agricultural water supplier that provides water to less than 25,000 irrigated acres, excluding recycled water, shall be required to implement the requirements of this part or Part 2.55 (commencing with Section 10608) unless sufficient funding has specifically been provided to that water supplier for these purposes.

SEC. 5. This act shall take effect only if Senate Bill 1 and Senate Bill 6 of the 2009-10 Seventh Extraordinary Session of the Legislature are enacted and become effective.

APPENDIX B: MEASURE WATER SAVINGS ASSUMPTIONS

Measure Water Savings Assumptions

Measure 11 – Residential Plumbing Kits

- Showerheads estimated savings = 2.4 gpcd from residential demands
 - 21% savings on showerheads, based on the difference between the current CA plumbing code (at 2.2 gpm) and best available technology (at 1.8 gpm)
 - According to “Handbook of Water Use and Conservation” (Vickers), non-conserving showers use 11.6 gpcd
 - $11.6 \text{ gpcd} \times 0.21 = 2.4 \text{ gpcd savings}$
- Annual water savings per kit (per account) = $2.4 \text{ gpcd} \times 2.35 \text{ people per household (pph)} \times 365 \text{ days/year} = 2,060 \text{ gallons per year (gpy) (per account)}$
- Conservative approach does not include other fixtures commonly included in residential plumbing kits (i.e., faucet aerators, hose spray nozzles, toilet flappers)
 - Niagara Water EcoKit Useful life: 7 years

Measure 12 – HET Rebates

- HET estimated savings = 2.1 gpcd from residential demands
 - Ultra low flow toilets (ULFTs) use 1.6 gallons per flush (gpf)
 - Usage is estimated at 5.1 flushes per person per day (from AWWARF Residential End Uses of Water Study, 1999)
 - $1.6 \text{ gpf} \times 5.1 \text{ flushes/person/day} = 8.2 \text{ gpcd for ULFTs}$
 - HETs use 1.28 gpf, ultra low flow toilets use approximately 1.6 gpf, resulting in a savings of 25%
 - $8.2 \text{ gpcd} \times 0.25 = 2.1 \text{ gpcd savings}$
- Annual water savings per rebate = $2.1 \text{ gpcd} \times 2.35 \text{ people per household (pph)} \times 365 \text{ days/year} = 1,800 \text{ gpy (per rebate)}$
- Useful life: 20 years

Measure 13 – HEW Rebates

- Tier 3 HEW estimated savings = 7.6 gpcd savings from residential demands
 - Based on www.cee1.org ENERGY STAR clothes washer savings calculator, Tier 3 clothes washers save 6,542 gal/year/unit = 18.0 gpd/unit
 - According to the 2000 Census, an average of 2.35 people per household (http://factfinder.census.gov/servlet/SAFFacts?_event=Search&geo_id=&_geoContext=&_street=&_county=rancho+murieta&_cityTown=rancho+murieta&_state=04000US06&_zip=&_lang=en&_sse=on&pctxt=fph&pgsl=010&show_2003_tab=&redirect=Y)
 - From DOE Federal Test Procedure 10 CFR 430, Appendix J1, usage is 392 loads per year (or 7.5 loads per week)
 - $18.0 \text{ gpd saving} / 2.35 \text{ ppl per account} = 7.6 \text{ gpcd savings}$

- Useful life: 15 years

Measure 14 – Residential Water Surveys

- Total estimated savings = 21.6 gpcd savings from residential demands
- Annual water savings per survey (per account) = 21.6 gpcd x 2.35 people per household (pph) x 365 days/year = 18,530 gpy (per account)
- Estimated indoor savings = 5.2 gpcd savings from residential demands
 - 5% internal savings, from CUWCC Best Management Practices (BMP) Cost and Savings Study (2004)
 - According to RMCS D’s 1994-2009 water use data, indoor use is 38.7% of total residential use
 - The 10-year average actual water use is 268 gpcd.
 - $268 \text{ gpcd} \times 0.387 \text{ (percent indoor water use)} \times 0.05 \text{ (percent savings)} = 5.2 \text{ gpcd indoor savings}$
- Estimated outdoor savings = 16.4 gpcd savings from residential demands
 - 10% leaks and exterior savings, from CUWCC Best Management Practices (BMP) Cost and Savings Study (2004)
 - According to RMCS D’s 1994-2009 water use data, outdoor use is 61.3% of total residential use
 - The 10-year average actual water use is 268 gpcd.
 - $268 \text{ gpcd} \times 0.613 \text{ (percent outdoor water use)} \times 0.10 \text{ (percent savings)} = 16.4 \text{ gpcd outdoor savings}$
- Useful life: 5 years

Measure 15 – Residential Weather Controllers

- Estimated outdoor savings = 39.4 gpcd savings from residential demands
 - 24% irrigation savings, from CUWCC Potential BMP Annual Report – Year 1 (August 2004)
 - According to RMCS D’s 1994-2009 water use data, outdoor use is 61.3% of total residential use
 - The 10-year average actual water use is 268 gpcd.
 - $268 \text{ gpcd} \times 0.613 \text{ (percent outdoor water use)} \times 0.24 \text{ (percent savings)} = 39.4 \text{ gpcd outdoor savings}$
- Annual water savings per rebate = 39.4 gpcd x 2.35 people per household (pph) x 365 days/year = 33,800 gpy (per rebate)
- Useful life: 15 years

Measure 16 – Residential Irrigation Retrofits

- Estimated outdoor savings = 16.4 gpcd savings from residential demands
 - 10% irrigation savings, from CUWCC Best Management Practices (BMP) Cost and Savings Study (2004) for promoting water efficient plantings at new homes
 - According to RMCS D’s 1994-2009 water use data, outdoor use is 61.3% of total residential use
 - The 10-year average actual water use is 268 gpcd.
 - $268 \text{ gpcd} \times 0.613 \text{ (percent outdoor water use)} \times 0.10 \text{ (percent savings)} = 16.4 \text{ gpcd outdoor savings}$

- Annual water savings per rebate = $16.4 \text{ gpcd} \times 2.35 \text{ people per household (pph)} \times 365 \text{ days/year} = 14,070 \text{ gpy (per rebate)}$
- Useful life: 10 years

Measure 17 – Residential Turf Retrofits

- Estimated outdoor savings = 54.2 gpcd savings from residential demands
 - Savings of 30 gal/ft²/year originally estimated by the City of Roseville for their “Cash for Grass” pilot program (Note: City of Roseville’s pilot program findings show savings on the order of 60 gal/ft²/year)
 - Estimated residential irrigated area is 7,759,000 ft²
 - Assume that 50% of residential irrigated area is turf (i.e., 3,879,500 ft² of turf)
 - Average turf per account is 3,879,500 ft² of turf/2,502 residential accounts (in 2009) = 1,550 ft² of turf per residential account
 - According to the 2000 Census, an average of 2.35 people per household (http://factfinder.census.gov/servlet/SAFFacts?_event=Search&geo_id=&_geoContext=&_street=&_county=rancho+murieta&_cityTown=rancho+murieta&_state=04000US06&_zip=&_lang=en&_sse=on&pctxt=fph&pgsl=010&show_2003_tab=&redirect=Y)
 - $(30 \text{ gal/ft}^2/\text{year} \times 1,550 \text{ ft}^2 \text{ of turf per residential account}) / (2.35 \text{ people per household} \times 365 \text{ days/year}) = 54.2 \text{ gpcd savings}$
- Annual water savings per rebate = $30 \text{ gal/ft}^2/\text{year} \times 1,550 \text{ ft}^2 = 46,490 \text{ gpy (per rebate)}$
- Useful life: 10 years

Measure 18 – Residential Rain Barrels

- Average rainfall for Rancho Murieta = 24.61 inches per year
- Average annual ET_o for Fair Oaks CIMIS Station 131 = 57.06 inches per year
- Water savings per 55-gallons rain barrel:
 - 55 gallons = 7.35 cubic feet
 - Assume: 1000 square feet of roof area
 - Inches of rain required to fill barrel:
 - $0.00735 \text{ feet of rain} = 0.0882 \text{ inches of rain event needed to fill barrel}$
- Rain caught (gallons) = inches of rain (inches) x 0.6* X building footprint (square feet)
 - 0.6 is the amount in gallons per square foot that will be caught
- Estimated number of storm events with more than 0.08 inches to fill barrels = 14
 - Estimated volume collected per 55-gallon barrel = $14 \times 55 \text{ gal} = 770 \text{ gal}$
- Assumed number of overflows (more than two days >0.08 inches rain) = 11
 - $11 \times 55 \text{ gal} = 605 \text{ gal}$
- Estimated max volume = $770 \text{ gal} + 605 \text{ gal} = 1,375 \text{ gal}$

- Total number of customers participating = 100
 - Volume collected = $100 \times 770 \text{ gal} = 77,000 \text{ gal}$
- Number of households with one barrel = 100
 - Volume collected = $100 \times 770 \text{ gal} = 77,000 \text{ gal}$
- Number of households with two barrels = 50
 - Volume collected = $100 \times 1,375 \text{ gal} = 68,750 \text{ gal}$
- Total volume saved = $77,000 \text{ gal} + 68,750 \text{ gal} = 145,750$
- Total gallons on average saved per household annually = $145,750 \text{ gal} / 100 \text{ customer accounts} = 1,460 \text{ gal/customer account}$ (assumes customer would eventually get more than one rain barrel)
- Useful life: 10 years

Measure 19 – Non-Residential Landscape Water Budget Incentives

- Estimated outdoor savings = 3.4 gpcd savings from commercial, city, parks, golf courses demands
 - Estimated dedicated irrigation area is 2,913, 513 ft²
 - Water demand for dedicated irrigation area is 165.8 acre-feet/year (or 148,016 gal/day)
 - 2009 population for RMCS D is estimated at 6,535
 - Resulting water demand for dedicated irrigation area is $148,016 \text{ gal/day} / 6,535 \text{ people} = 22.6 \text{ gpcd}$
 - 15% irrigation savings, from CUWCC Best Management Practices (BMP) Cost and Savings Study (2004)
 - $22.6 \text{ gpcd} \times 0.15 \text{ (percent savings)} = 3.4 \text{ gpcd outdoor savings}$
- Annual water savings per water budget = $[148,016 \text{ gal/day (water demand for dedicated irrigation area)} \times 0.15 \text{ (water savings)} \times 365 \text{ days/year}] / 44\text{-}6 \text{ (number of accounts with water budget)} = 213,240 \text{ gpy/water budget}$
- Useful life: 10 years

Measure 20 – Non-Residential Large Landscape Surveys

- Estimated outdoor savings = 3.4 gpcd savings from commercial, city, parks, golf courses demands
 - Estimated dedicated irrigation area is 2,913, 513 ft²
 - Water demand for dedicated irrigation area is 165.8 acre-feet/year (or 148,016 gal/day)
 - 2009 population for RMCS D is estimated at 6,535
 - Resulting water demand for dedicated irrigation area is $148,016 \text{ gal/day} / 6,535 \text{ people} = 22.6 \text{ gpcd}$
 - 15% irrigation savings, from CUWCC Best Management Practices (BMP) Cost and Savings Study (2004)
 - $22.6 \text{ gpcd} \times 0.15 \text{ (percent savings)} = 3.4 \text{ gpcd outdoor savings}$
- Annual water savings per water budget = $[148,016 \text{ gal/day (water demand for dedicated irrigation area)} \times 0.15 \text{ (water savings)} \times 365 \text{ days/year}] / 44\text{-}6 \text{ (number of accounts with survey)} = 213,240 \text{ gpy/survey}$

- Useful life: 5 years

Large Landscape Sites Data for 2008				
Description of Large Landscape Sites	Irrigated Area (sf)	Annual cost	Annual Usage (cf)	Planned for Large Landscape Survey
Murieta Village	316,536	\$10,902	1,018,900	Yes
Airport Irrigation	12,780	\$1,987	185,700	Yes
Villas	137,404	\$6,213	580,700	Yes
RMA Fountains	68,307	\$2,758	257,800	Yes
Murieta Plaza	91,431	\$2,847	266,100	Yes
Stonehouse Park	433,244	\$16,775	1,567,800	Yes
Equine Complex	1,382,929	\$16,104	1,505,000	Yes
RMCC	25,024	\$5,126	479,100	Yes
Riverview Park	84132	\$2,543	237,700	Yes
Summary				
Total Annual Cost (\$)			\$45,937	
Total Water Demand (cubic feet per year)			4,293,300	
Total Water Demand (gallon per day)			87,983	
Estimated Average Savings per Account (gpd)			880	
Estimated Average Savings per person (gpcd)			0.12	

Measure 21 – Non-Residential Irrigation Upgrades

- Includes weather-based controllers, conversion to drip irrigation, or conversion to lower water use plants for larger properties
- Estimated outdoor savings = 5.4 gpcd savings from residential demands
 - Estimated dedicated irrigation area is 2,913, 513 ft²
 - Water demand for dedicated irrigation area is 165.8 acre-feet/year (or 148,016 gal/day)
 - 2009 population for RMCS D is estimated at 6,535
 - Resulting water demand for dedicated irrigation area is 148,016 gal/day / 6,535 people = 22.6 gpcd
 - 24% irrigation savings, from CUWCC Potential BMP Annual Report – Year 1 (August 2004) (Note: This is a conservative assumption that only includes weather-based controllers)
 - 22.6 gpcd x 0.24 (percent savings) = 5.4 gpcd outdoor savings
- Annual water savings per water budget = [148,016 gal/day (water demand for dedicated irrigation area) x 0.24 (water savings) x 365 days/year] / 38 (number of accounts) = 341,180 gpy/account
- Useful life: 10 years

APPENDIX C: 2020 MODEL RESULTS

Figure C-1. 2020 Compliance Plan Model – Scenario A
Water Conservation Measures Only without Recycled Water

Figure C-2. 2020 Compliance Plan Model – Scenario B
Limited Conservation Measures and Recycled Water for New Connections Only

Figure C-3. 2020 Compliance Plan Model – Scenario C
Limited Conservation Measures and Recycled Water for New Connections and
Existing Parks Only

Figure C-4. Measure 11 - Residential Plumbing Retrofit Kits

Figure C-5. Measure 12 - High Efficiency Toilet Rebates

Figure C-6. Measure 13 - High Efficiency Clothes Washer Rebates

Figure C-7. Measure 14 - Residential Water Surveys

Figure C-8. Measure 15 - Weather Based Irrigation Controllers

Figure C-9. Measure 16 - Irrigation Retrofits

Figure C-10. Measure 17 - Landscape Retrofits

Figure C-11. Measure 18 - Rain Barrels (Not Selected for Implementation)

Figure C-12. Measure 19 - Water Budget Incentives

Figure C-13. Measure 20 - Large Landscape Surveys

Figure C-14. Measure 21 - Non-Residential Irrigation Upgrades

Figure C-15. Measure 22a - Recycled Water - New Connections Only
(Not Selected for Implementation)

Figure C-16. Measure 22b - Recycled Water - New Connections and Existing Account
Conversions (Not Selected for Implementation)

FIGURE C-1. 2020 Compliance Plan Model - Scenario A - Water Conservation Measures Only Without Recycled Water

July 1, 2010

Measure	Include?	2015 Estimated Savings (gpcd)	Method 1 2015 Goal (gpcd)	2020 Estimated Savings (gpcd)	Method 1 2020 Goal (gpcd)	5-yr Cumulative 2015 Budget (2010 \$)	10-yr Cumulative 2020 Budget (2010 \$)	2015 Contributions	2020 Contributions	Benefit-Cost Ratio
Measures 1 through 10 - Education/Outreach	Yes	3.0	29.8	7.5	59.6	3,800.0	3,800.0	3.0	7.5	--
Measure 11 - Residential Plumbing Kits	Yes	0.5	29.8	0.5	59.6	\$13,901	\$13,902	0.5	0.5	0.7
Measure 12 - HET Rebates	Yes	1.6	29.8	1.5	59.6	\$34,062	\$34,100	1.6	1.5	1.4
Measure 13 - High Efficiency Washers	Yes	0.9	29.8	2.2	59.6	\$18,403	\$35,754	0.9	2.2	2.3
Measure 14 - Residential Water Surveys	Yes	6.5	29.8	6.5	59.6	\$69,504	\$134,883	6.5	6.5	0.4
Measure 15 - Weather-based Controllers	Yes	7.4	29.8	12.1	59.6	\$60,263	\$138,990	7.4	12.1	0.8
Measure 16 - Irrigation Retrofits	Yes	3.1	29.8	5.2	59.6	\$16,572	\$38,233	3.1	5.2	1.0
Measure 17 - Landscape Retrofit	Yes	3.0	29.8	5.5	59.6	\$40,931	\$30,586	3.0	5.5	0.1
Measure 18 - Rain Barrels	No	0.1	29.8	0.2	59.6	\$16,058	\$37,305	#N/A	#N/A	0.0
Measure 19 - Large Landscape Water Budget Incentive	Yes	1.5	29.8	1.2	59.6	\$0	\$5,100	1.5	1.2	1.4
Measure 20 - Large Landscape Survey	Yes	1.5	29.8	1.5	59.6	\$9,096	\$9,096	1.5	1.5	1.1
Measure 21 - Large Landscape Irrigation Upgrades	Yes	0.5	29.8	1.0	59.6	\$11,583	\$24,695	0.5	1.0	0.3
Measure 22a - Recycled Water - New Connections*	No	0.0	29.8	20.3	59.6	\$0	\$0	#N/A	#N/A	0.0
Measure 22b - Recycled Water - New and Existing Connections*	No	0.0	29.8	21.2	59.6	\$0	\$0	#N/A	#N/A	0.2
Measures 23-33 - Utility Operations, Rules and Regulations	Yes	7.5	29.8	14.9	59.6	\$4,850	\$4,850	7.5	14.9	--
Totals		36.9	29.8	59.5	59.6	\$ 282,965	\$ 473,989	36.9	59.5	--

*Programming has been used to avoid double-counting. If conflicting measures are also included, then this measure denoted with an asterick will be automatically excluded from the plan.

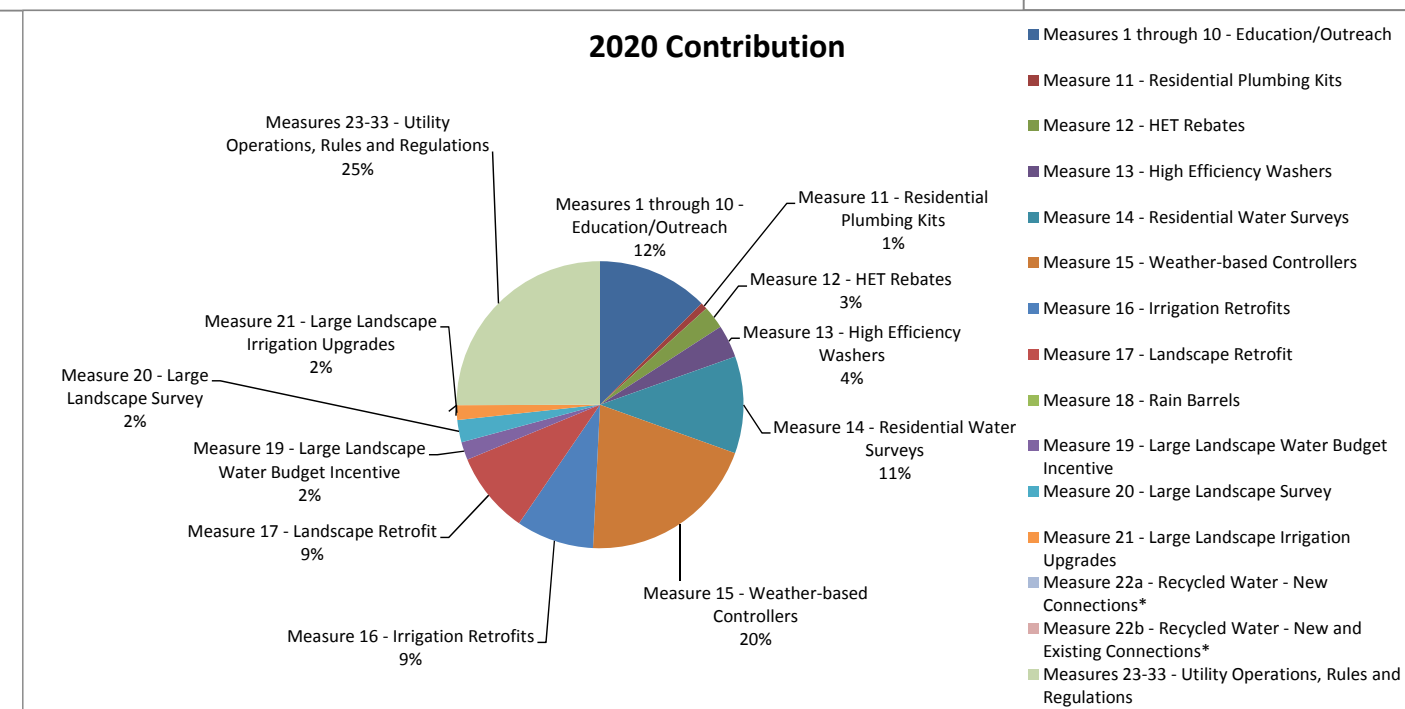
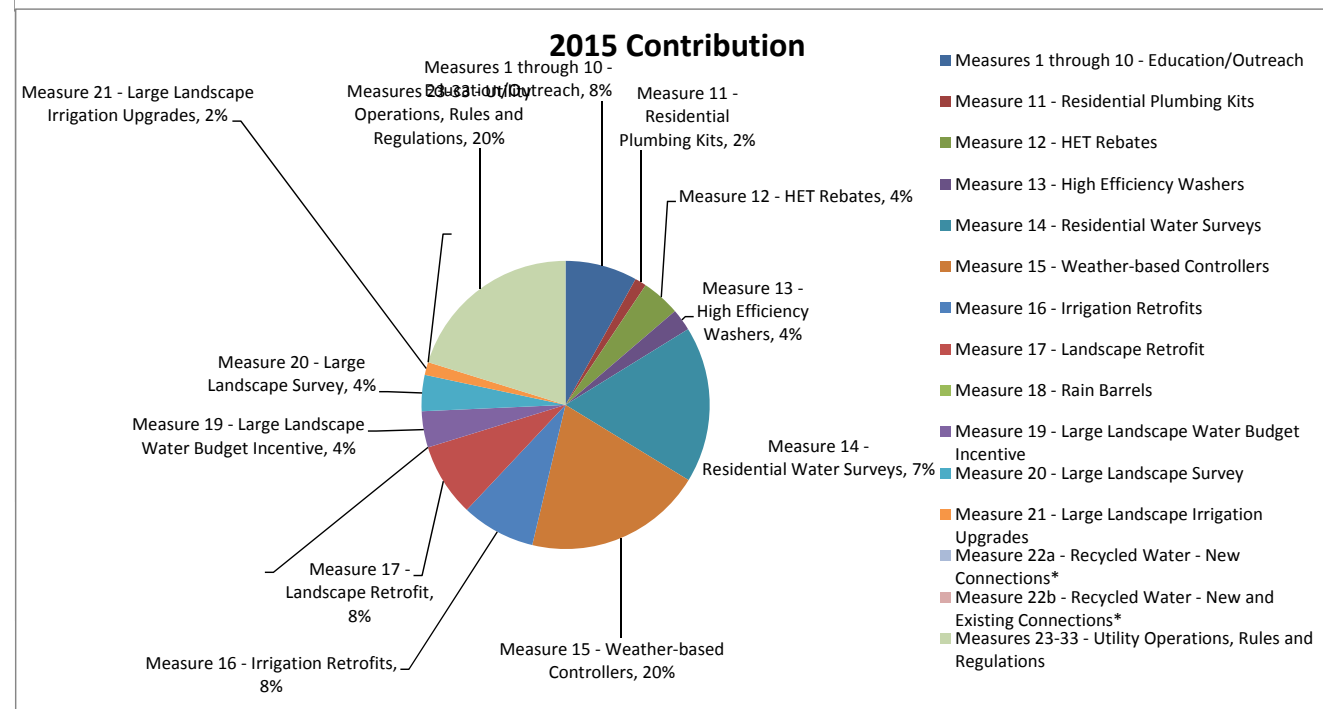
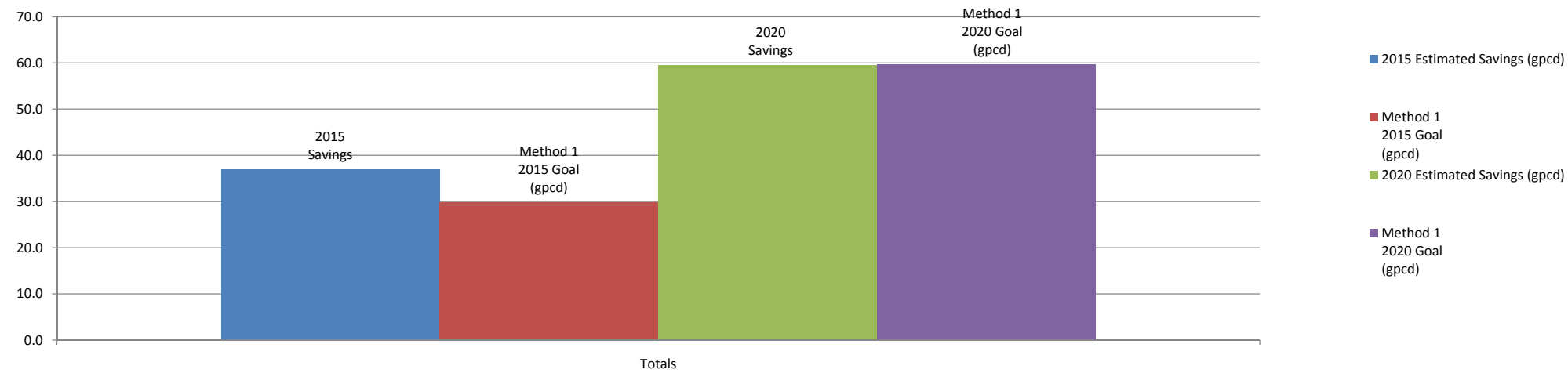


FIGURE C-2. 2020 Compliance Plan Model - Scenario B - Limited Conservation Measures and Recycled Water for New Connections Only

July 1, 2010

Measure	Include?	2015 Estimated Savings (gpcd)	Method 1 2015 Goal (gpcd)	2020 Estimated Savings (gpcd)	Method 1 2020 Goal (gpcd)	5-yr Cumulative 2015 Budget (2010 \$)	10-yr Cumulative 2020 Budget (2010 \$)	2015 Contributions	2020 Contributions	Benefit-Cost Ratio
Measures 1 through 10 - Education/Outreach	Yes	3.0	29.8	7.5	59.6	3,800.0	3,800.0	3.0	7.5	--
Measure 11 - Residential Plumbing Kits	No	0.5	29.8	0.5	59.6	\$13,901	\$13,902	#N/A	#N/A	0.7
Measure 12 - HET Rebates	No	1.6	29.8	1.5	59.6	\$34,062	\$34,100	#N/A	#N/A	1.4
Measure 13 - High Efficiency Washers	Yes	0.9	29.8	2.2	59.6	\$18,403	\$35,754	0.9	2.2	2.3
Measure 14 - Residential Water Surveys	No	6.5	29.8	6.5	59.6	\$69,504	\$134,883	#N/A	#N/A	0.4
Measure 15 - Weather-based Controllers	Yes	7.4	29.8	12.1	59.6	\$60,263	\$138,990	7.4	12.1	0.8
Measure 16 - Irrigation Retrofits	No	3.1	29.8	5.2	59.6	\$16,572	\$38,233	#N/A	#N/A	1.0
Measure 17 - Landscape Retrofit	No	3.0	29.8	5.5	59.6	\$40,931	\$30,586	#N/A	#N/A	0.1
Measure 18 - Rain Barrels	No	0.1	29.8	0.2	59.6	\$16,058	\$37,305	#N/A	#N/A	0.0
Measure 19 - Large Landscape Water Budget Incentive	Yes	1.5	29.8	1.2	59.6	\$0	\$5,100	1.5	1.2	1.4
Measure 20 - Large Landscape Survey	Yes	1.5	29.8	1.5	59.6	\$9,096	\$9,096	1.5	1.5	1.1
Measure 21 - Large Landscape Irrigation Upgrades	Yes	0.5	29.8	1.0	59.6	\$11,583	\$24,695	0.5	1.0	0.3
Measure 22a - Recycled Water - New Connections*	Yes	0.0	29.8	20.3	59.6	\$0	\$1,505,876	0.0	20.3	0.0
Measure 22b - Recycled Water - New and Existing Connections*	No	0.0	29.8	0.0	59.6	\$0	\$0	#N/A	#N/A	0.2
Measures 23-33 - Utility Operations, Rules and Regulations	Yes	7.5	29.8	14.9	59.6	\$4,850	\$4,850	7.5	14.9	--
Totals		22.3	29.8	60.6	59.6	\$ 107,994	\$ 1,728,160	22.3	60.6	--

*Programming has been used to avoid double-counting. If conflicting measures are also included, then this measure denoted with an asterick will be automatically excluded from the plan.

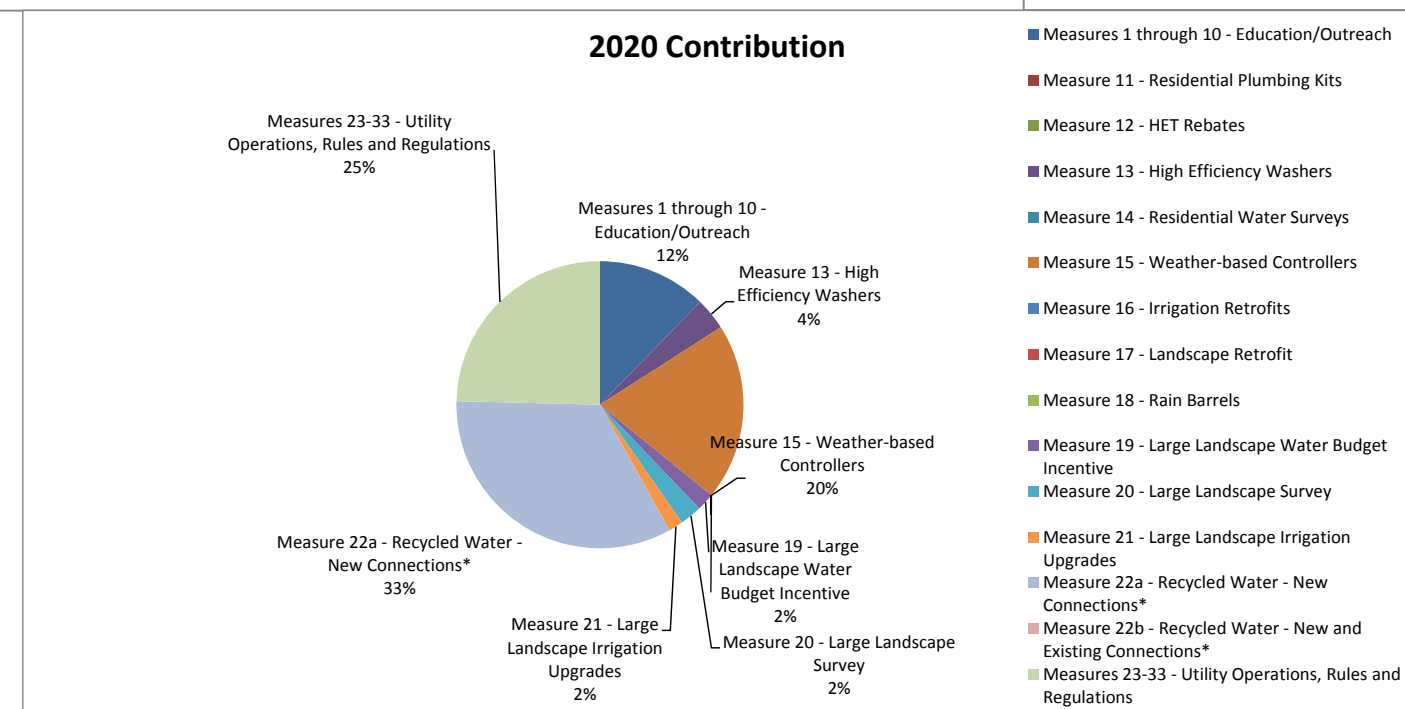
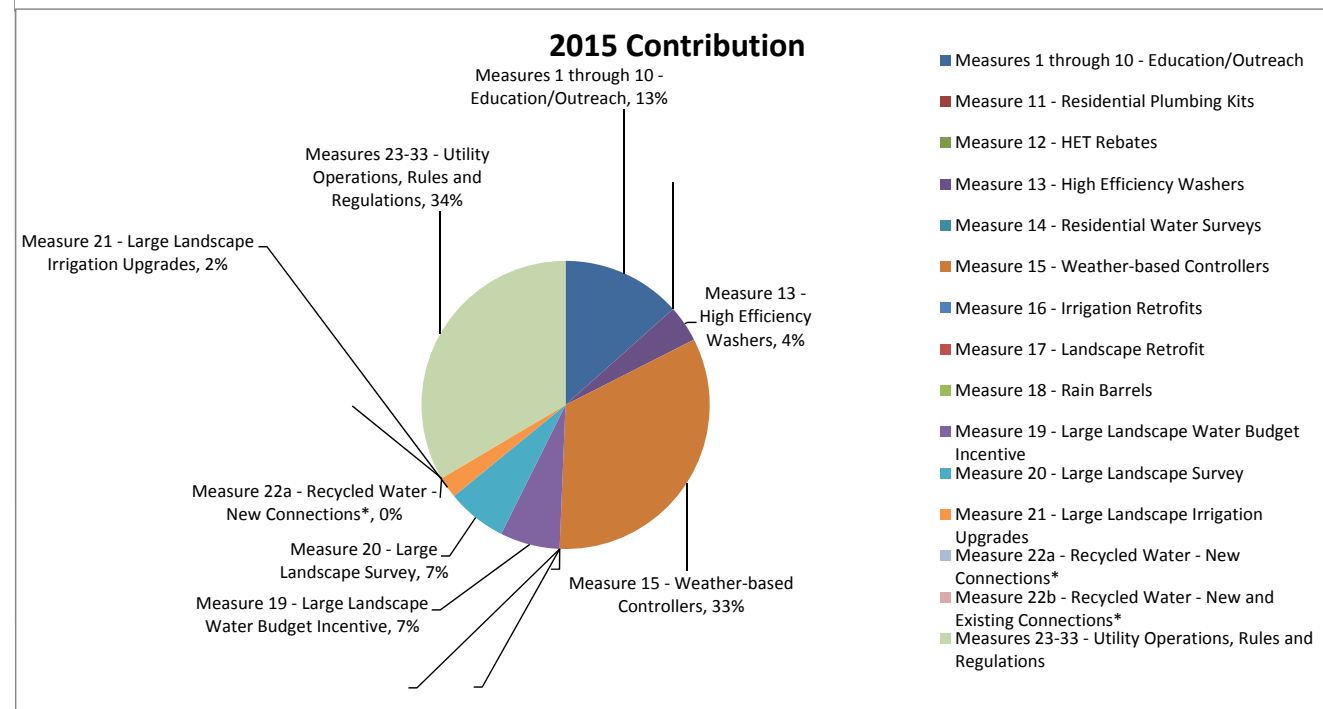
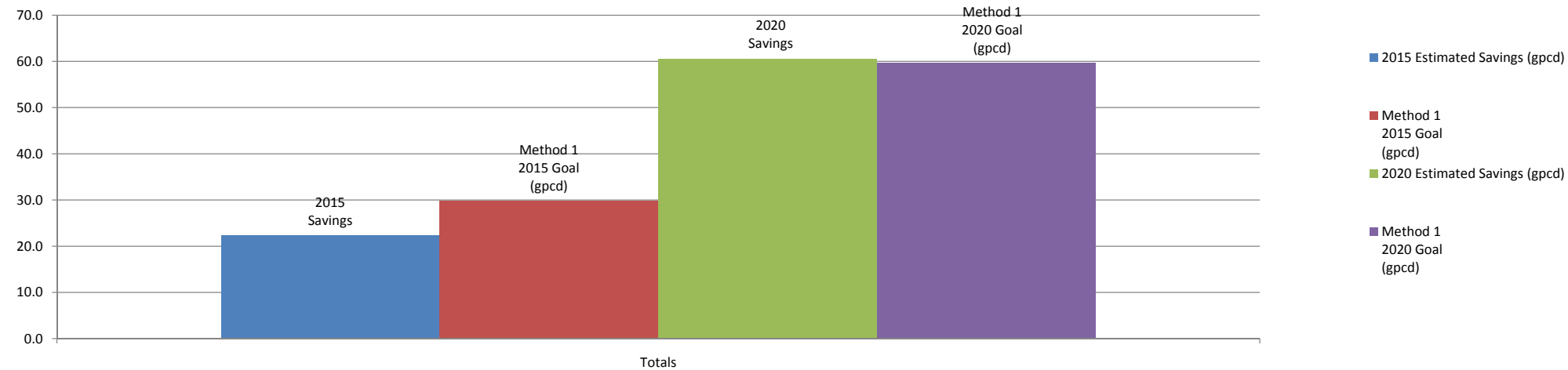


FIGURE C-3. 2020 Compliance Plan Model - Scenario C - Limited Conservation Measures and Recycled Water for New Connections and Existing Parks Only

July 1, 2010

Measure	Include?	2015 Estimated Savings (gpcd)	Method 1 2015 Goal (gpcd)	2020 Estimated Savings (gpcd)	Method 1 2020 Goal (gpcd)	5-yr Cumulative 2015 Budget (2010 \$)	10-yr Cumulative 2020 Budget (2010 \$)	2015 Contributions	2020 Contributions	Benefit-Cost Ratio
Measures 1 through 10 - Education/Outreach	Yes	3.0	29.8	7.5	59.6	3,800.0	3,800.0	3.0	7.5	--
Measure 11 - Residential Plumbing Kits	No	0.5	29.8	0.5	59.6	\$13,901	\$13,902	#N/A	#N/A	0.7
Measure 12 - HET Rebates	No	1.6	29.8	1.5	59.6	\$34,062	\$34,100	#N/A	#N/A	1.4
Measure 13 - High Efficiency Washers	No	0.9	29.8	2.2	59.6	\$18,403	\$35,754	#N/A	#N/A	2.3
Measure 14 - Residential Water Surveys	No	6.5	29.8	6.5	59.6	\$69,504	\$134,883	#N/A	#N/A	0.4
Measure 15 - Weather-based Controllers	Yes	7.4	29.8	12.1	59.6	\$60,263	\$138,990	7.4	12.1	0.8
Measure 16 - Irrigation Retrofits	No	3.1	29.8	5.2	59.6	\$16,572	\$38,233	#N/A	#N/A	1.0
Measure 17 - Landscape Retrofit	No	3.0	29.8	5.5	59.6	\$40,931	\$30,586	#N/A	#N/A	0.1
Measure 18 - Rain Barrels	No	0.1	29.8	0.2	59.6	\$16,058	\$37,305	#N/A	#N/A	0.0
Measure 19 - Large Landscape Water Budget Incentive	Yes	1.5	29.8	1.2	59.6	\$0	\$5,100	1.5	1.2	1.4
Measure 20 - Large Landscape Survey	Yes	1.5	29.8	1.5	59.6	\$9,096	\$9,096	1.5	1.5	1.1
Measure 21 - Large Landscape Irrigation Upgrades	Yes	0.5	29.8	1.0	59.6	\$11,583	\$24,695	0.5	1.0	0.3
Measure 22a - Recycled Water - New Connections*	No	0.0	29.8	0.0	59.6	\$0	\$0	#N/A	#N/A	0.0
Measure 22b - Recycled Water - New and Existing Connections*	Yes	0.0	29.8	21.2	59.6	\$0	\$1,536,929	0.0	21.2	0.2
Measures 23-33 - Utility Operations, Rules and Regulations	Yes	7.5	29.8	14.9	59.6	\$4,850	\$4,850	7.5	14.9	--
Totals		21.3	29.8	59.4	59.6	\$ 89,591	\$ 1,723,460	21.3	59.4	--

*Programming has been used to avoid double-counting. If conflicting measures are also included, then this measure denoted with an asterick will be automatically excluded from the plan.

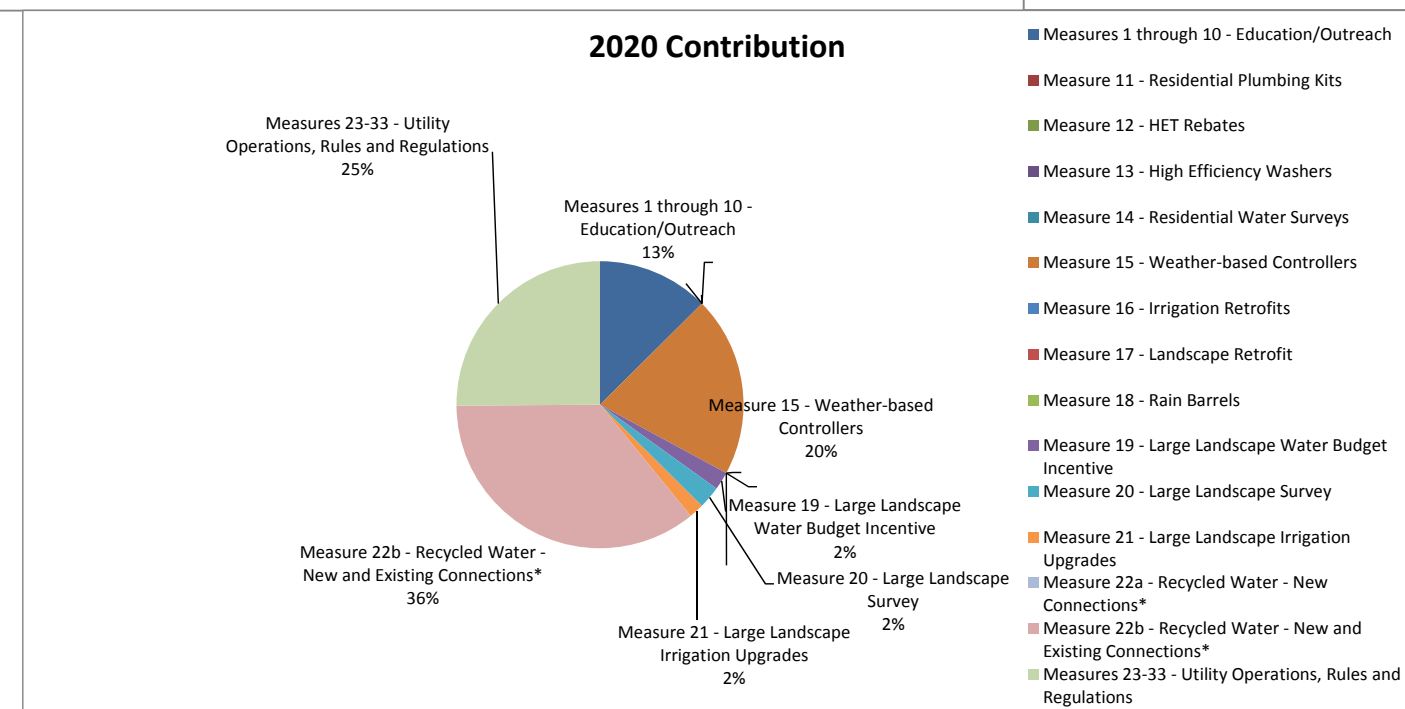
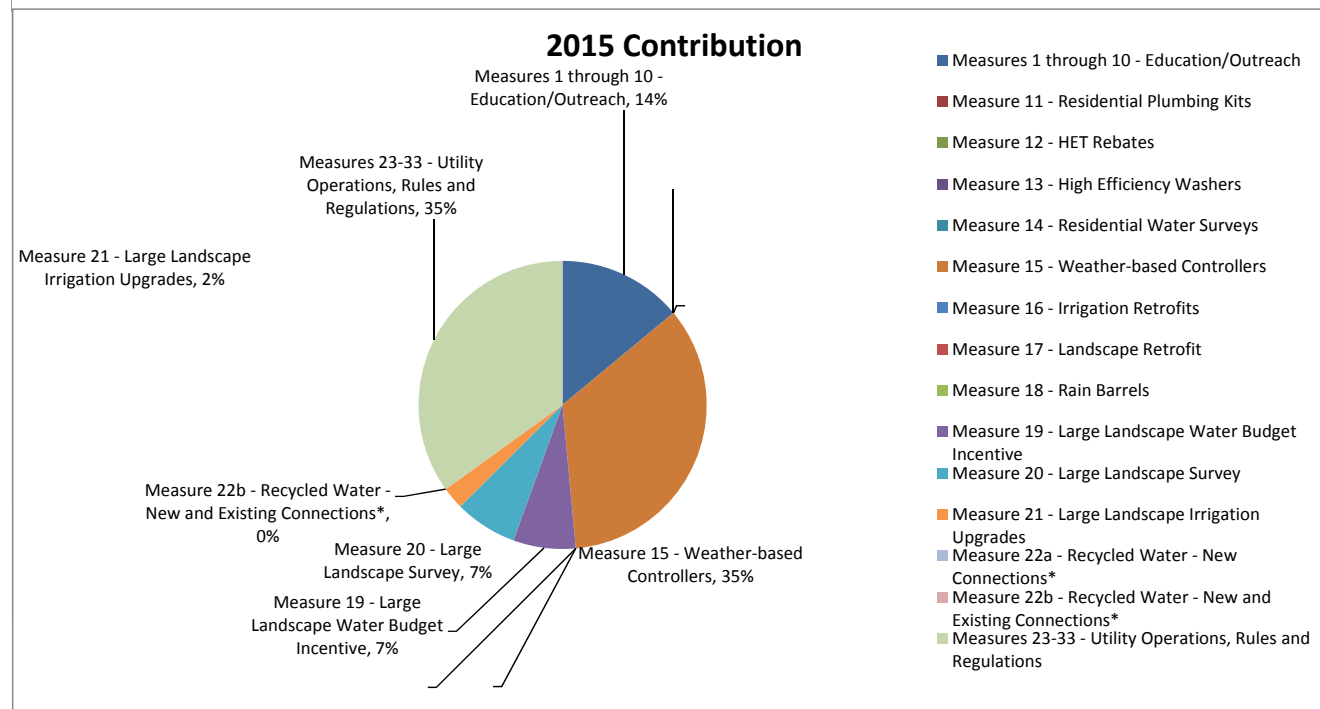


FIGURE C-4
Measure 11 - Residential Plumbing Retrofit Kits
2020 Compliance Model

Measure 11 - Residential Plumbing Kit Retrofits

Fiscal Year	Calendar Year	Number of Units Accepting Kits	Annual Water Savings (gpy)	Annual WW Savings (gpy)	Projected Population	Total Water Savings (gpcd)	Benefits (\$)			Costs (\$)	NPV
							Avoided Water Costs (\$)	Avoided WW Costs (\$)	Total Discounted Benefits (\$)	Total Discounted Costs (\$)	Net Present Value (\$)
2010-2011	2010	0	-	-	5,880	-	0	0	0	0	0
2011-2012	2011	100	206,000	206,000	5,880	0.1	99	283	360	3,113	-2,754
2012-2013	2012	100	412,000	412,000	5,880	0.2	197	565	679	2,937	-2,258
2013-2014	2013	100	618,000	618,000	5,880	0.3	296	848	960	2,771	-1,811
2014-2015	2014	100	824,000	824,000	5,880	0.4	394	1,130	1,208	2,614	-1,406
2015-2016	2015	100	1,030,000	1,030,000	5,880	0.5	493	1,413	1,424	2,466	-1,042
2016-2017	2016	0	1,030,000	1,030,000	6,169	0.5	493	1,413	1,344	0	1,344
2017-2018	2017	0	1,030,000	1,030,000	6,457	0.4	493	1,413	1,268	0	1,268
2018-2019	2018	0	824,000	824,000	6,746	0.3	394	1,130	957	0	957
2019-2020	2019	0	618,000	618,000	7,035	0.2	296	848	677	0	677
2020-2021	2020	0	412,000	412,000	7,324	0.2	197	565	426	0	426
2021-2022	2021		206,000	206,000	7,613	0.1	99	283	201	1	200
2022-2023	2022				7,902	-	-	-	-	1	-1
2023-2024	2023										
Totals:		500	7,210,000	7,210,000		0.5	3,452	9,891	9,502	13,902	-4,400

Benefit cost ratio: **0.7**

0.001

FIGURE C-5
Measure 12 - High Efficiency Toilet Rebates
2020 Compliance Model

Measure 12 - Residential High Efficiency Toilet (HET) Rebate

Fiscal Year	Calendar Year	Number of Units Accepting Rebates	Incremental Water Savings (gpy)	Annual Water Savings (gpy)	Incremental WW Savings (gpy)	Annual WW Savings (gpy)	Projected Population	Total Water Savings (gpcd)	Benefits (\$)			Costs (\$)	NPV
									Avoided Water Costs (\$)	Avoided WW Costs (\$)	Total Discounted Benefits (\$)	Total Discounted Costs (\$)	Net Present Value (\$)
2010-2011	2010	60	571,200	571,200	571,200	571,200	5,880	0.3	273	784	1,057	6,420	-5,363
2011-2012	2011	60	571,200	1,142,400	571,200	1,142,400	5,880	0.5	547	1,567	1,994	6,057	-4,062
2012-2013	2012	80	761,600	1,904,000	761,600	1,904,000	5,880	0.9	912	2,612	3,136	7,618	-4,483
2013-2014	2013	80	761,600	2,665,600	761,600	2,665,600	5,880	1.2	1,276	3,657	4,142	7,187	-3,045
2014-2015	2014	80	761,600	3,427,200	761,600	3,427,200	5,880	1.6	1,641	4,701	5,024	6,780	-1,757
2015-2016	2015	-	-	3,427,200	-	3,427,200	5,880	1.6	1,641	4,701	4,739	0	4,739
2016-2017	2016	-	-	3,427,200	-	3,427,200	6,169	1.5	1,641	4,701	4,471	0	4,471
2017-2018	2017	-	-	3,427,200	-	3,427,200	6,457	1.5	1,641	4,701	4,218	0	4,218
2018-2019	2018	-	-	3,427,200	-	3,427,200	6,746	1.4	1,641	4,701	3,979	0	3,979
2019-2020	2019	-	-	3,427,200	-	3,427,200	7,035	1.3	1,641	4,701	3,754	0	3,754
2020-2021	2020	-	-	3,427,200	-	3,427,200	7,324	1.3	1,641	4,701	3,541	0	3,541
2021-2022	2021	-	-	3,427,200	-	3,427,200	7,613	1.2	1,641	-	864	1	864
2022-2023	2022	-	-	3,427,200	-	3,427,200	7,902	1.2	1,641	-	815	1	814
2023-2024	2023	-	-	3,427,200	-	3,427,200	8,191	1.1	1,641	-	769	1	768
2024-2025	2024	-	-	3,427,200	-	3,427,200	8,480	1.1	1,641	-	726	2	724
2025-2026	2025	-	-	3,427,200	-	3,427,200	8,769	1.1	1,641	-	685	2	683
2026-2027	2026	-	-	3,427,200	-	3,427,200	9,058	1.0	1,641	-	646	2	644
2027-2028	2027	-	-	3,427,200	-	3,427,200	9,346	1.0	1,641	-	609	3	607
2028-2029	2028	-	-	3,427,200	-	3,427,200	9,635	1.0	1,641	-	575	3	572
2029-2030	2029	-	-	3,427,200	-	3,427,200	9,924	0.9	1,641	-	542	3	539
2030-2031	2030	-	-	2,856,000	-	2,856,000	10,213	0.8	1,367	-	426	3	423
2031-2032	2031	-	-	2,284,800	-	2,284,800	-	-	1,094	-	322	3	319
2032-2033	2032	-	-	1,523,200	-	1,523,200	-	-	729	-	202	3	199
2033-2034	2033	-	-	761,600	-	761,600	-	-	365	-	95	3	92
2034-2035	2034	-	-	-	-	-	-	-	-	-	0	3	-3
2035-2036	2035	-	-	-	-	-	-	-	-	-	0	3	-3
Totals:		360						1.5	32,815	41,529	47,333	34,100	13,233

Notes:
 RMCS D is funding \$5,000 for 2010 to participating in Regional Toilet Replacement Program
 Program is partially grant funded and administered by the Regional Water Authority.
 Water savings assume only 3.5 gallon per flush toilets are eligible to be replaced with 1.28 gpf HETs.
 State law changes in 2014 to only allow HETs for sale in California.
 State law changes in 2017 to require Retrofit upon Resale (ROR) to HETs.
 Assumes approximately 3 toilets per household replaced or 20 accounts/year participating while grant funded.

Benefit cost ratio: 1.4

FIGURE C-6
 Measure 13 - High Efficiency Clothes Washer Rebates
 2020 Compliance Model

Measure 13 - Clothes Washer Rebates for High Efficiency Machines											Benefits (\$)		Costs (\$)		Net Present Value (\$)
Fiscal Year	Calendar Year	Number of Units Accepting Rebates	Incremental Water Savings (gpy)	Annual Water Savings (gpy)	Incremental Wastewater Savings (gpy)	Annual Wastewater Savings (gpy)	SMUD Customers Hot Water Savings (gpy)	Annual Pumping Electrical ^a Savings (MWh/yr)	Projected Population	Total Water Savings (gpcd)	Total Discounted (2010) Benefits (\$)	Total Discounted (2010) Costs (\$)			
2010-2011	2010		-	-	-	-	-	0.0	5,880	-	0	0	0		
2011-2012	2011	75	490,500	490,500	490,500	490,500	490,500	1.4	5,880	0.2	856	3,892	-3,035		
2012-2013	2012	75	490,500	981,000	490,500	981,000	490,500	2.8	5,880	0.5	1,616	3,671	-2,056		
2013-2014	2013	75	490,500	1,471,500	490,500	1,471,500	490,500	4.2	5,880	0.7	2,286	3,463	-1,177		
2014-2015	2014	75	490,500	1,962,000	490,500	1,962,000	490,500	5.6	5,880	0.9	2,876	3,267	-391		
2015-2016	2015	100	654,000	2,616,000	654,000	2,616,000	654,000	7.5	5,880	1.2	3,617	4,110	-492		
2016-2017	2016	100	654,000	3,270,000	654,000	3,270,000	654,000	9.4	6,169	1.5	4,266	3,877	389		
2017-2018	2017	100	654,000	3,924,000	654,000	3,924,000	654,000	11.2	6,457	1.7	4,829	3,658	1,172		
2018-2019	2018	100	654,000	4,578,000	654,000	4,578,000	654,000	13.1	6,746	1.9	5,315	3,451	1,865		
2019-2020	2019	100	654,000	5,232,000	654,000	5,232,000	654,000	15.0	7,035	2.0	5,731	3,255	2,475		
2020-2021	2020	100	654,000	5,886,000	654,000	5,886,000	654,000	16.8	7,324	2.2	6,082	3,071	3,011		
2021-2022	2021			5,886,000	-	5,886,000	654,000	16.8	7,613	2.1	5,738	1	5,737		
2022-2023	2022			5,886,000	-	5,886,000	654,000	16.8	7,902	2.0	5,413	1	5,412		
2023-2024	2023			5,886,000	-	5,886,000	654,000	16.8	8,191	2.0	5,107	1	5,105		
2024-2025	2024			5,886,000	-	5,886,000	654,000	16.8	8,480	1.9	4,818	2	4,816		
2025-2026	2025			5,886,000	-	5,886,000	654,000	16.8	8,769	1.8	4,545	2	4,543		
2026-2027	2026			5,395,500	-	5,395,500	654,000	15.4	9,058	1.6	3,930	2	3,928		
2027-2028	2027			4,905,000	-	4,905,000	654,000	14.0	9,346	1.4	3,371	3	3,368		
2028-2029	2028			4,414,500	-	4,414,500	654,000	12.6	9,635	1.3	2,862	3	2,859		
2029-2030	2029			3,924,000	-	3,924,000	654,000	11.2	9,924	1.1	2,400	3	2,397		
2030-2031	2030			3,270,000	-	3,270,000	654,000	9.4	10,213	0.9	1,887	3	1,884		
2031-2032	2031			2,616,000	-	2,616,000	654,000	7.5	-	-	1,424	3	1,421		
2032-2033	2032			1,962,000	-	1,962,000	654,000	5.6	-	-	1,008	3	1,004		
2033-2034	2033			1,308,000	-	1,308,000	654,000	3.7	-	-	634	3	630		
2034-2035	2034			654,000	-	654,000	654,000	1.9	-	-	299	3	295		
2035-2036	2035			-	-	-	-	0.0	-	-	0	3	-3		
Totals:		900						253		2.2	80,910	35,754	45,156		

(Water and WW only)
 Benefit cost ratio:

2.3

FIGURE C-7
Measure 14 - Residential Water Surveys
2020 Compliance Model

Measure 14 - Residential Water Surveys

Fiscal Year	Calendar Year	Number of Units Accepting Surveys	Incremental Water Savings (gpy)	Annual Water Savings (gpy)	Projected Population	Total Water Savings (gpcd)	Benefits (\$)		Costs (\$)	
							Total Discounted Benefits (\$)	Total Discounted Costs (\$)	Net Present Value (\$)	
2010-2011	2010		-	-	5,880	-	0	0	0	
2011-2012	2011	150	2,779,500	2,779,500	5,880	1.3	1,255	15,566	-14,311	
2012-2013	2012	150	2,779,500	5,559,000	5,880	2.6	2,369	14,685	-12,316	
2013-2014	2013	150	2,779,500	8,338,500	5,880	3.9	3,352	13,854	-10,502	
2014-2015	2014	150	2,779,500	11,118,000	5,880	5.2	4,216	13,070	-8,853	
2015-2016	2015	150	2,779,500	13,897,500	5,880	6.5	4,972	12,330	-7,358	
2016-2017	2016	150	2,779,500	13,897,500	6,169	6.2	4,690	11,632	-6,941	
2017-2018	2017	200	3,706,000	14,824,000	6,457	6.3	4,720	14,631	-9,911	
2018-2019	2018	200	3,706,000	15,750,500	6,746	6.4	4,731	13,803	-9,072	
2019-2020	2019	200	3,706,000	16,677,000	7,035	6.5	4,726	13,022	-8,296	
2020-2021	2020	200	3,706,000	17,603,500	7,324	6.6	4,706	12,285	-7,579	
2021-2022	2021			14,824,000	7,613	5.3	3,739	1	3,738	
2022-2023	2022			11,118,000	7,902	3.9	2,645	1	2,644	
2034-2024	2023			7,412,000	8,191	2.5	1,664	1	1,662	
2024-2025	2024			3,706,000	8,480	1.2	785	2	783	
2025-2026	2025			-	8,769	-	0	2	-2	
Totals:		1,700				6.5	48,569	134,883	-86,315	

Note:

Water savings assume 5% indoors and 10% outdoor savings.
Savings from identifying leaks, plant change recommendations and other benefits.
Assumes minor adjustments to the irrigation schedule.
Assumes no overlapping water savings with Measure 15 and 16 incentives.
RMCS D plans to outsource the surveys.
Surveys can serve as inspections for the incentive measures 15, 16, 17 or 18.

Benefit cost ratio: **0.4**

FIGURE C-8
Measure 15 - Weather Based Irrigation Controllers
2020 Compliance Model

Measure 15 - Weather-based Controller Rebates

Fiscal Year	Calendar Year	Number of Units Accepting Rebates	Annual Water Savings (gpy)	Projected Population	Total Water Savings (gpcd)	Benefits (\$)		Costs (\$)	
						Total Discounted Benefits (\$)	Total Discounted Costs (\$)	Net Present Value (\$)	
2010-2011	2010		-	5,880	-	0	0	0	
2011-2012	2011	60	2,028,000	5,880	0.9	916	11,321	-10,405	
2012-2013	2012	60	4,056,000	5,880	1.9	1,728	10,680	-8,952	
2013-2014	2013	60	6,084,000	5,880	2.8	2,446	10,075	-7,630	
2014-2015	2014	60	8,112,000	5,880	3.8	3,076	9,505	-6,429	
2015-2016	2015	125	12,337,000	5,880	5.8	4,414	18,681	-14,268	
2016-2017	2016	125	16,562,000	6,169	7.4	5,590	17,624	-12,034	
2017-2018	2017	125	20,787,000	6,457	8.8	6,618	16,626	-10,008	
2018-2019	2018	125	25,012,000	6,746	10.2	7,513	15,685	-8,172	
2019-2020	2019	125	29,237,000	7,035	11.4	8,285	14,797	-6,513	
2020-2021	2020	125	33,462,000	7,324	12.6	8,945	13,960	-5,014	
2021-2022	2021		33,462,000	7,613	12.1	8,439	1	8,439	
2022-2023	2022		33,462,000	7,902	11.6	7,961	1	7,960	
2023-2024	2023		33,462,000	8,191	11.2	7,511	1	7,509	
2024-2025	2024		33,462,000	8,480	10.8	7,086	2	7,084	
2025-2026	2025		33,462,000	8,769	10.5	6,685	2	6,682	
2026-2027	2026		31,434,000	9,058	9.5	5,924	2	5,922	
2027-2028	2027		29,406,000	9,346	8.6	5,228	3	5,225	
2028-2029	2028		27,378,000	9,635	7.8	4,592	3	4,589	
2029-2030	2029		25,350,000	9,924	7.0	4,011	3	4,008	
2030-2031	2030		21,125,000	10,213	5.7	3,153	3	3,150	
2031-2032	2031		16,900,000			2,380	3	2,377	
2032-2033	2032		12,675,000			1,684	3	1,681	
2033-2034	2033		8,450,000			1,059	3	1,056	
2034-2035	2034		4,225,000			500	3	496	
Totals:		990			12.6	115,743	138,990	-23,247	

Notes: Measure 15 savings overlap with Measure 17 turf retrofits and Measure 18 rain barrels.
 RMCS D will enforce a policy that customers participating in Measure 15/16 will not receive incentives for Measures 17 and 18.
 Assumes one workshop per year on the installation and support for converting to these controllers.

Benefit cost ratio: **0.8**

FIGURE C-9
Measure 16 - Irrigation Retrofits
2020 Compliance Model

Measure 16 - Irrigation Retrofit Incentive Program, Financial Incentives for Irrigation Upgrades (e.g., drip conversion kits)

Fiscal Year	Calendar Year	Number of Units Accepting Rebates	Incremental Water Savings (gpy)	Annual Water Savings (gpy)	Projected Population	Water Savings (gpcd)	Benefits (\$)		Costs (\$)	Net Present Value (\$)
							Avoided Water Costs (\$)	Total Discounted Benefits (\$)	Total Discounted Costs (\$)	
2010-2011	2010		-	-	5,880	-	0	0	0	0
2011-2012	2011	60	844,200	844,200	5,880	0.4	404	381	3,113	-2,732
2012-2013	2012	60	844,200	1,688,400	5,880	0.8	808	719	2,937	-2,218
2013-2014	2013	60	844,200	2,532,600	5,880	1.2	1,212	1,018	2,771	-1,753
2014-2015	2014	60	844,200	3,376,800	5,880	1.6	1,617	1,281	2,614	-1,333
2015-2016	2015	125	1,758,750	5,135,550	5,880	2.4	2,459	1,837	5,137	-3,300
2016-2017	2016	125	1,758,750	6,894,300	6,169	3.1	3,301	2,327	4,847	-2,520
2017-2018	2017	125	1,758,750	8,653,050	6,457	3.7	4,143	2,755	4,572	-1,817
2018-2019	2018	125	1,758,750	10,411,800	6,746	4.2	4,985	3,127	4,313	-1,186
2019-2020	2019	125	1,758,750	12,170,550	7,035	4.7	5,827	3,449	4,069	-621
2020-2021	2020	125	1,758,750	13,929,300	7,324	5.2	6,669	3,724	3,839	-115
2021-2022	2021			13,085,100	7,613	4.7	6,264	3,300	1	3,300
2022-2023	2022			12,240,900	7,902	4.2	5,860	2,912	1	2,911
2023-2024	2023			11,396,700	8,191	3.8	5,456	2,558	1	2,557
2024-2025	2024			10,552,500	8,480	3.4	5,052	2,234	2	2,233
2025-2026	2025			8,793,750	8,769	2.7	4,210	1,757	2	1,755
2026-2027	2026			7,035,000	9,058	2.1	3,368	1,326	2	1,323
2027-2028	2027			5,276,250	9,346	1.5	2,526	938	3	935
2028-2029	2028			3,517,500	9,635	1.0	1,684	590	3	587
2029-2030	2029			1,758,750	9,924	0.5	842	278	3	275
2030-2031	2030			-	10,213	-	-	0	3	-3
Totals:		990				5.2	66,686	36,512	38,233	-1,721

Note:

Measure 15 savings overlap with Measure 17 turf retrofits and Measure 18 rain barrels.
 RMCS D will enforce a policy that customers participating in Measure 15/16 will not receive incentives for Measures 17 and 18.
 Assumes one workshop per year on the installation and support for converting to these kits from spray irrigation.
 Workshop will be combined with controller workshop.

Benefit cost ratio: **1.0**

FIGURE C-10
Measure 17 - Landscape Retrofits
2020 Compliance Model

Measure 17 - Turf Retrofit/Cash-for-Grass

Fiscal Year	Calendar Year	Number of Units Accepting Rebates	Incremental Water Savings (gpy)	Annual Water Savings (gpy)	Projected Population	Total Water Savings (gpcd)	Benefits (\$)		Costs (\$)		Net Present Value (\$)
							Avoided Water Costs (\$)	Total Discounted Benefits (\$)	Total Discounted Costs (\$)		
:010-2011	2010		-	-	5,880	-	-	0	0	0	0
:011-2012	2011		-	-	5,880	-	-	0	0	0	0
:012-2013	2012	35	1,627,500	1,627,500	5,880	0.8	779	693	48,750	-48,056	
:013-2014	2013	35	1,627,500	3,255,000	5,880	1.5	1,558	1,308	45,990	-44,682	
:014-2015	2014	35	1,627,500	4,882,500	5,880	2.3	2,337	1,852	43,387	-41,535	
:015-2016	2015	35	1,627,500	6,510,000	5,880	3.0	3,117	2,329	40,931	-38,602	
:016-2017	2016	35	1,627,500	8,137,500	6,169	3.6	3,896	2,746	38,614	-35,868	
:017-2018	2017	35	1,627,500	9,765,000	6,457	4.1	4,675	3,109	36,429	-33,319	
:018-2019	2018	35	1,627,500	11,392,500	6,746	4.6	5,454	3,422	34,367	-30,945	
:019-2020	2019	35	1,627,500	13,020,000	7,035	5.1	6,233	3,689	32,421	-28,732	
:020-2021	2020	35	1,627,500	14,647,500	7,324	5.5	7,012	3,916	30,586	-26,670	
:021-2022	2021			14,647,500	7,613	5.3	7,012	3,694	0	3,694	
:022-2023	2022			13,020,000	7,902	4.5	6,233	3,098	0	3,098	
:023-2024	2023			11,392,500	8,191	3.8	5,454	2,557	0	2,557	
:024-2025	2024			9,765,000	8,480	3.2	4,675	2,068	0	2,068	
:025-2026	2025			8,137,500	8,769	2.5	3,896	1,626	0	1,626	
:026-2027	2026			6,510,000	9,058	2.0	3,117	1,227	0	1,227	
:027-2028	2027			4,882,500	9,346	1.4	2,337	868	0	868	
:028-2029	2028			3,255,000	9,635	0.9	1,558	546	0	546	
:029-2030	2029			1,627,500	9,924	0.4	779	258	0	258	
Totals:		315				5.5	70,124	39,006	351,474	-312,469	

Note: 250 Accounts is about 10% of overall accounts would have estimated average of 1,550 square feet would be paid of turf retrofitted. Assumes \$1 per square foot of rebate
 Measure 17 savings overlap with Measure 15 weather based controllers and Measure 16 irrigation retrofits.
 RMCSD will enforce a policy that customers participating in Measure 15/16 will not receive incentives for Measures 17 and 18.
 Water savings are estimated at 30 gallons per square foot of lawn.
 City of Roseville pilot project is finding on the order of 60 gallons per square foot savings.

Benefit cost ratio: 0.1

FIGURE C-11
 Measure 18 - Rain Barrels
 2020 Compliance Model
 (NOT SELECTED FOR IMPLEMENTATION)

Measure 18 - Residential Rain Barrel Incentive Program

Fiscal Year	Calendar Year	Number of Accounts Accepting Rebates	Incremental Water Savings (gpy)	Annual Water Savings (gpy)	Projected Population	Total Water Savings (gpcd)	Benefits (\$)		Costs (\$)		Net Present Value (\$)
							Avoided Water Costs (\$)	Total Discounted Benefits (\$)	Total Discounted Costs (\$)		
2010-2011	2010		-	-	5,880	-	-	0	0	0	0
2011-2012	2011		-	-	5,880	-	-	0	0	0	0
2012-2013	2012		-	-	5,880	-	-	0	0	0	0
2013-2014	2013	50	73,000	73,000	5,880	0.034	35	29	5,667	-5,638	
2014-2015	2014	50	73,000	146,000	5,880	0.068	70	55	5,347	-5,291	
2015-2016	2015	50	73,000	219,000	5,880	0.102	105	78	5,044	-4,966	
2016-2017	2016	50	73,000	292,000	6,169	0.130	140	99	4,758	-4,660	
2017-2018	2017	50	73,000	365,000	6,457	0.155	175	116	4,489	-4,373	
2018-2019	2018	50	73,000	438,000	6,746	0.178	210	132	4,235	-4,103	
2019-2020	2019	50	73,000	511,000	7,035	0.199	245	145	3,995	-3,851	
2020-2021	2020	50	73,000	584,000	7,324	0.218	280	156	3,769	-3,613	
2021-2022	2021			584,000	7,613	0.210	280	147	0	147	
2022-2023	2022			584,000	7,902	0.202	280	139	0	139	
2023-2024	2023			511,000	8,191	0.171	245	115	0	115	
2024-2025	2024			438,000	8,480	0.142	210	93	0	93	
2025-2026	2025			365,000	8,769	0.114	175	73	0	73	
2026-2027	2026			292,000	9,058	0.088	140	55	0	55	
2027-2028	2027			219,000	9,346	0.064	105	39	0	39	
2028-2029	2028			146,000	9,635	0.042	70	24	0	24	
2029-2030	2029			73,000	9,924	0.020	35	12	0	12	
							-	0	0	0	0
Totals:		400				0.2	2,796	1,507	37,305	-35,798	

Note:

400 Accounts is about 15% of overall accounts would have estimated average of 11 effective rain events (see separate spreadsheet).
 Assumes 50% of the participating accounts would have a second 55-gallon rain barrel system.
 Assumes \$100 incentive towards installation of a rain barrel system (one or two barrels). Admin cost includes one annual workshop.
 Measure 18 savings overlap with Measure 15 weather based controllers and Measure 16 irrigation retrofits.
 RMCS D will enforce a policy that customers participating in Measure 15/16 will not receive incentives for Measures 17 and 18.

Benefit cost ratio: **0.04**

FIGURE C-12
Measure 19 - Water Budget Incentives
2020 Compliance Model

Measure 19 - Financial Incentives for Complying with Water Use Budget

Fiscal Year	Calendar Year	Number of Units Accepting Rebates	Incremental Water Savings (gpd)	Annual Water Savings (gpd)	Projected Population	Total Water Savings (gpcd)	Benefits (\$)		Costs (\$)		Net Present Value (\$)
							Avoided Water Costs (\$)	Total Discounted Benefits (\$)	Total Discounted Costs (\$)		
2010-2011	2010	0	-	-	5,880	-	-	0	0	0	0
2011-2012	2011	0	-	-	5,880	-	-	0	0	0	0
2012-2013	2012	0	-	-	5,880	-	-	0	0	0	0
2013-2014	2013	0	-	-	5,880	-	-	0	0	0	0
2014-2015	2014	0	-	-	5,880	-	-	0	0	0	0
2015-2016	2015	0	-	-	5,880	-	-	0	0	0	0
2016-2017	2016	0	-	-	6,169	-	-	0	0	0	0
2017-2018	2017	0	-	-	6,457	-	-	0	0	0	0
2018-2019	2018	6	1,376,309	1,376,309	6,746	0.56	659	413	2,259	-1,845	-1,845
2019-2020	2019	8	1,835,079	3,211,388	7,035	1.25	1,537	910	2,841	-1,931	-1,931
2020-2021	2020	0	-	3,211,388	7,324	1.20	1,537	858	0	858	858
2021-2022	2021			3,211,388	7,613	1.16	1,537	810	0	810	810
2022-2023	2022			3,211,388	7,902	1.11	1,537	764	0	764	764
2023-2024	2023			3,211,388	8,191	1.07	1,537	721	0	721	721
2024-2025	2024			3,211,388	8,480	1.04	1,537	680	0	680	680
2025-2026	2025			3,211,388	8,769	1.00	1,537	642	0	642	642
2026-2027	2026			3,211,388	9,058	0.97	1,537	605	0	605	605
2027-2028	2027			3,211,388	9,346	0.94	1,537	571	0	571	571
2028-2029	2028			1,835,079	9,635	0.52	879	308	0	308	308
2029-2030	2029				9,924	-	-	0	0	0	0
	2030										
Totals:		14	3,211,388			1.2	15,374	7,282	5,100	2,182	2,182

Notes:

RMCS D plans to outsource these surveys.
 Reports with budgets will be given to each customer.
 Bill messaging or other reporting could provide feedback on meeting budgets.
 Assumes only largest accounts would participate.
 For potable irrigation only accounts.
 Does include Stonehouse or Riverview Parks eventhough potential recycled water irrigation sites (Measure 22a and 22b not selected for implementation)
 Assumes only 10% savings per year per average annual account usage for all participating accounts.
 Conservative savings assumed to avoid double counting of water savings.

Benefit cost ratio: 1.4

FIGURE C-13
Measure 20 - Large Landscape Surveys
2020 Compliance Model

Measure 20 - Large Landscape Conservation Surveys, Water Budgets

Fiscal Year	Calendar Year	Number of Units Accepting Rebates	Incremental Water Savings (gpy)	Annual Water Savings (gpy)	Projected Population	Total Water Savings (gpcd)	Benefits (\$)			Costs (\$)	
							Avoided Water Costs (\$)	Total Undiscounted Benefits (\$)	Total Discounted Benefits (\$)	Total Discounted Costs (\$)	Net Present Value (\$)
2010-2011	2010		-	-	5,880	-	-	0	0	0	0
2011-2012	2011		-	-	5,880	-	-	0	0	0	0
2012-2013	2012	14	3,211,320	3,211,320	5,880	1.50	1,537	1,537	1,368	9,096	-7,727
2013-2014	2013		-	3,211,320	5,880	1.50	1,537	1,537	1,291	0	1,291
2014-2015	2014		-	3,211,320	5,880	1.50	1,537	1,537	1,218	0	1,218
2015-2016	2015		-	3,211,320	5,880	1.50	1,537	1,537	1,149	0	1,149
2016-2017	2016		-	3,211,320	6,169	1.43	1,537	1,537	1,084	0	1,084
2017-2018	2017		-	3,211,320	6,457	1.36	1,537	1,537	1,022	0	1,022
2018-2019	2018		-	3,211,320	6,746	1.30	1,537	1,537	965	0	965
2019-2020	2019		-	3,211,320	7,035	1.25	1,537	1,537	910	0	910
2020-2021	2020		-	3,211,320	7,324	1.20	1,537	1,537	858	0	858
Totals:		14				1.5	13,837	13,837	9,865	9,096	769

Notes:

- RMCS D plans to outsource these surveys.
- Reports with budgets will be given to each customer.
- Bill messaging or other reporting could provide feedback on meeting budgets.
- Assumes only largest accounts would participate.
- For potable irrigation only accounts.
- Does include Stonehouse or Riverview Parks eventhough potential recycled water irrigation sites (Measure 22a and 22b not selected for implementation)
- Assumes only 10% savings per year per average annual account usage for all participating accounts.
- Conservative savings assumed to avoid double counting of water savings.

Benefit cost ratio: 1.1

FIGURE C-14
 Measure 21 - Non-Residential Irrigation Upgrades
 2020 Compliance Model

Measure 21 - Irrigation Efficiency Financial Incentives for Upgrades for Parks and Open Public Spaces

Fiscal Year	Calendar Year	Number of Units Accepting Rebates	Incremental Water Savings (gpy)	Annual Water Savings (gpy)	Projected Population	Total Water Savings (gpcd)	Benefits (\$)		Costs (\$)		Net Present Value (\$)
							Avoided Water Costs (\$)	Total Discounted Benefits (\$)	Total Discounted Costs (\$)		
2010-2011	2010		-	0.00	5,880	-	-	0	0	0	0
2011-2012	2011		-	0.00	5,880	-	-	0	0	0	0
2012-2013	2012		-	0.00	5,880	-	-	0	0	0	0
2013-2014	2013		-	0.00	5,880	-	-	0	0	0	0
2014-2015	2014		-	0.00	5,880	-	-	0	0	0	0
2015-2016	2015	5	1,146,900	1,146,900	5,880	0.5	549	410	11,583		-11,172
2016-2017	2016	6	1,376,280	2,523,180	6,169	1.1	1,208	852	13,112		-12,261
2017-2018	2017		-	2,523,180	6,457	1.1	1,208	803	0		803
2018-2019	2018		-	2,523,180	6,746	1.0	1,208	758	0		758
2019-2020	2019		-	2,523,180	7,035	1.0	1,208	715	0		715
2020-2021	2020		-	2,523,180	7,324	0.9	1,208	675	0		675
2021-2022	2021			2,523,180	7,613	0.9	1,208	636	0		636
2022-2023	2022			2,523,180	7,902	0.9	1,208	600	0		600
2034-2024	2023			2,523,180	8,191	0.8	1,208	566	0		566
2024-2025	2024			2,523,180	8,480	0.8	1,208	534	0		534
2025-2026	2025			1,376,280	8,769	0.4	659	275	0		275
2026-2027	2026			-							
Totals:		11	2,523,180			0.9	12,080	6,825	24,695		-17,870

Benefit cost ratio: **0.3**

Notes:

RMCS D hopes to seek grant funds for this incentive.

Assumes only largest accounts would participate.

For potable irrigation only accounts.

Does include Stonehouse or Riverview Parks

eventhough potential recycled water irrigation sites (Measure 22a and 22b not selected for implementation)

Assumes only 10% savings per year per average annual account usage for all participating accounts.

Conservative savings assumed to avoid double counting of water savings.

FIGURE C-15
 Measure 22a - Recycled Water - New Connections Only
 2020 Compliance Model
 (NOT SELECTED FOR IMPLEMENTATION)

Measure 22a - Recycled Water (New Connections)

Fiscal Year	Number of EDUs Using Recycled Water	Annual Water Savings (gpy)	Projected Population	Total Water Savings (gpcd)	Benefits (\$)			Costs (\$)		Net Present Value (\$)
					Avoided Water Costs (\$)	Beneficially Used Recycled Water (\$)	Total Discounted Benefits (\$)	Total Discounted Costs (\$)		
2010-2011			6,535	-	-	-	0	0	0	
2011-2012			6,535	-	-	-	0	0	0	
2012-2013			6,535	-	-	-	0	0	0	
2013-2014			6,535	-	-	-	0	0	0	
2014-2015			6,535	-	-	-	0	0	0	
2015-2016			6,535	-	-	-	0	0	0	
2016-2017	123	12,424,699	6,872	5.0	5,948	20,329	22,718	337,289	-314,571	
2017-2018	123	24,849,397	7,226	9.4	11,897	40,658	42,864	318,197	-275,333	
2018-2019	123	37,274,096	7,599	13.4	17,845	60,987	60,656	300,186	-239,529	
2019-2020	123	49,698,795	7,991	17.0	23,793	81,317	76,297	283,194	-206,897	
2020-2021	123	62,123,493	8,403	20.3	29,741	101,646	89,973	267,164	-177,191	
	615			20.3	89,224	304,937	292,509	1,506,029	-1,213,520	

Assumptions: All new residential connections based on updated projected 615 connections between 2015 and 2020 (Phase 1) will use recycled water for irrigation demand.
 No new residential connections between 2010 to 2015. Annual average growth rate is 123 connections/yr.
 No commercial irrigation demand for recycled water was included.
 Benefits are the avoided potable water delivered and recycled water disposed at \$2.35 million and \$2.75 million per Table ES-2 in Recycled Water Feasibility Study.
 Cost per account is assumed to be \$11.5 million recycled water system capital costs divided by 3,117 residential connections in 2020.
 Recycled water demand per residential equivalent dwelling unit is 0.31 acre-year/account (Recycled Water Feasibility Study, HDR, June 2009)

Benefit cost ratio: **0.2**

FIGURE C-16
 Measure 22b - Recycled Water - New Connections and Existing Account Conversions
 2020 Compliance Model
 (NOT SELECTED FOR IMPLEMENTATION)

Measure 22b - Recycled Water (New and Existing Connections)

Fiscal Year	Number of EDUs Using Recycled Water	Conversion of		Annual Water Savings (gpy)	Projected Population	Total Water Savings (gpcd)	Benefits (\$)		Costs (\$)		Net Present Value (\$)
		Existing Other Potential Areas (gpy)	Incremental Water Savings (gpy)				Avoided Water Costs (\$)	Total Discounted Benefits (\$)	Total Discounted Costs (\$)		
2010-2011					6,535	-	-	0	0	0	0
2011-2012					6,535	-	-	0	0	0	0
2012-2013					6,535	-	-	0	0	0	0
2013-2014					6,535	-	-	0	0	0	0
2014-2015					6,535	-	-	0	0	0	0
2015-2016					6,535	-	-	0	0	0	0
2016-2017	123	3,017,380	15,442,079	18,459,459	6,872	7.4	30,206	42,589	344,209	-301,620	
2017-2018	123		12,424,699	27,866,778	7,226	10.6	45,600	60,653	324,725	-264,072	
2018-2019	123		12,424,699	40,291,476	7,599	14.5	65,932	82,732	306,345	-223,612	
2019-2020	123		12,424,699	52,716,175	7,991	18.1	86,263	102,118	289,004	-186,887	
2020-2021	123		12,424,699	65,140,873	8,403	21.2	106,594	119,043	272,646	-153,602	
	615	3,017,380	65,140,873			21.2	334,595	407,135	1,536,929	-1,129,794	

Assumptions: All new residential connections based on updated projected 615 connections between 2015 and 2020 (Phase 1) will use recycled water for irrigation demand.

Benefit cost ratio: 0.3

No new residential connections between 2010 to 2015. Annual average growth rate is 106 EDUs/yr.

No commercial irrigation demand for recycled water was included.

Assumes only Stonehouse and Riverview Parks would be converted to recycled water for 40.6 AF/yr and 5.7 AF/yr, respectively.

Benefits are the avc per Table ES-2 in Recycled Water Feasibility

Cost per account is assumed to be \$11.5 million recycled water system capital costs and

\$250,000 conversion for the parks divided by 3,117 residential connections in 2020.

Source: Recycled water demand per residential equivalent dwelling unit is 0.31 acre-year/account (Recycled Water Feasibility Study, HDR, June 2009)

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- Vickers, Amy. Water Use and Conservation Handbook, 2001.