Date Posted: 12/2/2016

NORTH MARIN WATER DISTRICT
AGENDA - REGULAR MEETING
December 6, 2016 – 7:00 p.m.
District Headquarters
999 Rush Creek Place
Novato, California

Information about and copies of supporting materials on agenda items are available for public review at 999 Rush Creek Place, Novato, at the Reception Desk, or by calling the District Secretary at (415) 897-4133. A fee may be charged for copies. District facilities and meetings comply with the Americans with Disabilities Act. If special accommodations are needed, please contact the District Secretary as soon as possible, but at least two days prior to the meeting.

Est. Time	Item	Subject
7:00 p.m.		***CALL TO ORDER***
	1.	***REORGANIZATION OF BOARD:***
		1. Election of President
		2. Election of Vice President
		3. Establishment of Meeting Times and Place
		4. Establishes the Manner of Calling Special Meetings
		5. Appointment of District Officers
		6. Confirm Board Meeting Schedule for 2017
		7. Committee Appointments
	2.	***APPROVE MINUTES FROM REGULAR MEETING***, November 15, 2016
	3.	***GENERAL MANAGER'S REPORT***
	4.	***OPEN TIME: (Please observe a three-minute time limit)***
		This section of the agenda is provided so that the public may express comments on any issues not listed on the agenda that are of interest to the public and within the jurisdiction of the North Marin Water District. When comments are made about matters not on the agenda, Board members can ask questions for clarification, respond to statements or questions from members of the public, refer a matter to staff, or direct staff to place a matter of business on a future agenda. The public may also express comments on agenda items at the time of Board consideration.
	5.	***STAFF/DIRECTORS REPORTS***
		CONSENT CALENDAR
		The General Manager has reviewed the following items. To his knowledge, there is no opposition to the action. The items can be acted on in one consolidated motion as recommended or may be removed from the Consent Calendar and separately considered at the request of any person.
	6.	***Consent – Approve***: Grazing Lease Agreements Leveroni/Grossi
	7.	***Consent – Approve:*** Final Annual Report
		INFORMATION ITEMS
	8.	First Quarter FY 16/17 – Water Quality Report
	9.	NBWRA BOD Update
	10.	NBWA Meeting – December 2, 2016
	11.	TAC Meeting - December 6, 2016

All times are approximate and for reference only.
The Board of Directors may consider an item at a different time than set forth herein.

(Continued)

Est. Time	Item	Subject
	12.	Public Review Draft: Making Water Conservation a California Way of Life
	13.	Information Regarding Appointment to Fill Prospective NMWD Board Vacancy
	14.	***MISCELLANEOUS*** Disbursements AMI Pilot Program Letter ACWA Outreach Winner Katie Young HR Management Certificate <u>News Articles</u>: Novato water meter fakes data, customers' bill spike North Marin apologizes for water bill errors Dam bypass spells victory for Russian River salmon Lazy water district employee fired
8:30 p.m.	15.	***ADJOURNMENT***

1

MEMORANDUM

To: Board of Directors December 2, 2016

From: Katie Young, District Secretary

Subj: Reorganization of Board of Directors in a Non-Election Year
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Following is an outline of procedures that may be followed at the December 6, 2016 meeting to meet the requirements of the County Water District Law and the California Election Code concerning organization of the Board of Directors after the election of Directors. Since there was no Board election this fall, reorganization is not required this year. However, the Board has traditionally (since 1971) reorganized every year.

The current President calls the meeting to order. He may conduct the nominations or he may instruct the Secretary to assume the Chair.

1. Election of President. Nominations are received for the office of President of the Board. Directors vote on nominated candidates for President.
2. Election of Vice - President. The elected President assumes the Chair and presides over the election of Vice President. Nominations are received for the office of Vice President of the Board. Directors vote on the nominated candidates for Vice President.
3. Establishment of Meeting Times and Place. By motion, the Board establishes the time and place of holding its regular meetings: first and third Tuesdays of each month at 7:00 p.m. at the District office with a meeting to be held in West Marin at a place and time to be determined.
4. Establishing the Manner of Calling Special Meetings. By motion, the Board establishes the manner of calling special meetings (under provisions of Section 54956 of the Government Code).
5. Appointment of District Officers. By motion, the Board appoints a General Manager, Chief Engineer, Secretary, and Auditor-Controller, and any other officers necessary and convenient to the District.
6. Confirm Board Meeting Schedule for 2017. By motion, the Board accepts the proposed meeting dates for the upcoming calendar year with the understanding that the calendar may be adjusted as needed.
7. Committee Appointments. Board review committee appointments recommended by the President.

NMWD BOARD OF DIRECTORS
OFFICER ROTATION

Year	President	Vice President
2017	Steve Petterle	Rick Fraites
2018	Rick Fraites	Jack Baker
2019	Jack Baker	John Schoonover
2019	John Schoonover	TBD
2020	TBD	Steve Petterle

TBD = To Be Determined

2017 SCHEDULE

NORTH MARIN WATER DISTRICT

BOARD OF DIRECTORS MEETINGS

MONTH	DATE	TIME
January	3 17	7:00 p.m. 7:00 p.m.
February	7 21	7:00 p.m. 7:00 p.m.
March	7 21	7:00 p.m. 7:00 p.m.
April	4 18	7:00 p.m. 7:00 p.m.
May	2 16	7:00 p.m. 7:00 p.m.
June	6 20 27 (Point Reyes)	7:00 p.m. 7:00 p.m. 7:00 p.m.
July	18	7:00 p.m.
August	1 15	7:00 p.m. 7:00 p.m.
September	5 19	7:00 p.m. 7:00 p.m.
October	3 17	7:00 p.m. 7:00 p.m.
November	7 21	7:00 p.m. 7:00 p.m.
December	5 19	7:00 p.m. 7:00 p.m.

All Board meetings are typically held the first and third Tuesday of the month at the District's headquarters, 999 Rush Creek Place, Novato, except one meeting to be scheduled in West Marin (and any others on an 'as-needed' basis).

If you would like information regarding agenda items, please contact District Secretary Katie Young at (415) 761-8921.

DRAFT

NORTH MARIN WATER DISTRICT

BOARD OF DIRECTORS

COMMITTEES/ASSOCIATION ASSIGNMENTS

2017

Committee	NMWD Representative(s)/Alternate
North Bay Watershed Association 1 meeting per month – Friday 9:30 a.m. – 11:30 a.m. Petaluma / Novato	**Jack Baker**/Rick Fraites
Public Policy Facilitating Committee (Russian River Biological Assessment/Opinion) 1 meeting per quarter – Friday 9:00 a.m. – Noon Santa Rosa/Ukiah	**Steve Petterle**/TBD
Water Advisory Committee 1 meeting per quarter – Monday 9:00 a.m. – Noon Santa Rosa	**Rick Fraites**/Jack Baker
Novato Watershed Program Policy Advisory Committee To be determined	**Jack Baker/Rick Fraites**
North Bay Water Reuse Authority 1 meeting per quarter – Monday 9:30 a.m. Novato Sanitary District January 23, 2017 March 27, 2017 May 22, 2017 July 24, 2017 August 28, 2017 October 23, 2017 December 18, 2017	**John Schoonover**/Jack Baker
Recycled Water Subcommittee As needed	**John Schoonover/Jack Baker**

2

DRAFT
NORTH MARIN WATER DISTRICT
MINUTES OF REGULAR MEETING
OF THE BOARD OF DIRECTORS
November 15, 2016

CALL TO ORDER

Vice-President Petterle called the regular meeting of the Board of Directors of North Marin Water District to order at 6:00 p.m. at the District headquarters and the agenda was accepted as presented. Present were Directors Jack Baker, Rick Fraites, Stephen Petterle, and Dennis Rodoni. Also present were General Manager Chris DeGabriele, Acting District Secretary Eileen Mulliner, Auditor-Controller David Bentley and Chief Engineer Drew McIntyre. President John Schoonover and District Secretary Katie Young were absent.

Skip Schwartz, Jim O'Hara and Pam Osborn from West Marin Senior Services, Rocky Vogler, Novato resident, Mike Joly, District employees Robert Clark (Operations/Maintenance Superintendent) and Tony Arendell (Construction/Maintenance Superintendent) were in the audience.

CHIEF ENGINEER CANDIDATE INTERVIEW

The Board held an interview with a Chief Engineer candidate. Upon conclusion of the interview with Chief Engineer candidate Rocky Vogler, the Board deliberated and developed a consensus that he was well rounded, a good candidate and that his residency should not be cause for rejection.

Mr. McIntyre and Rocky Vogler left the meeting.

MINUTES

On motion of Director Baker, seconded by Director Fraites the Board approved the minutes from the previous meeting as amended by the following vote:

AYES: Director Baker, Fraites, and Rodoni

NOES: None

ABSTAIN: Director Petterle

ABSENT: Director Schoonover

GENERAL MANAGER'S REPORT

USDA Funding for Oceana Marin Improvements

Mr. DeGabriele stated that Mr. McIntyre has inquired of USDA Rural Development office in Santa Rosa whether any funding may be available for the Oceana Marin improvements. He stated

that USDA has asked that a Security Inspection be done since the District received USDA funding in the past. Robert Clark and he will meet with USDA next Tuesday and tour the West Marin system and see what may come of that potential funding avenue.

ACWA Conference

Mr. DeGabriele stated that he, Mr. McIntyre and Mr. Bentley will all be attending the ACWA conference the last week of November. He stated that the three of them will be out of town on Wednesday (11/30) and Thursday (12/1) at which time Katie Young, the remaining District Officer, will be acting General Manager.

Director Fraites inquired about Marin Local Coastal Program and the expansion or changes as well as what agricultural products can be grown in West Marin. Mr. DeGabriele stated that ranchers need water to grow and that there are no specific groundwater basins in the Districts West Marin service area. He stated that there is some ability to provide irrigation water if needed and the District has been provided raw water from 1993-2003 to Giacomini Ranch for their pasture irrigation and the District did acquired a portion of that water right.

OPEN TIME

Acting President Petterle asked if anyone in the audience wished to bring up an item not on the agenda and there was no response.

STAFF / DIRECTORS' REPORTS

Acting President Petterle asked if staff or Directors wished to bring up an item not on the agenda and there was no response.

MONTHLY PROGRESS REPORT

Mr. DeGabriele provided the Board with the Monthly Progress Report for October. He stated that water production in both Novato and in West Marin is up from one year ago but down considerably compared to 2013. He stated that Stafford Treatment Plant continues on a good production schedule and Recycled Water Production is down in October, likely due to rainfall but the annual total to-date is good. Mr. DeGabriele advised the Board that storage at Stafford Lake is at 37% of capacity, Lake Mendocino is at 89% of the target storage curve, (just under 50,000 acre feet) and Lake Sonoma, at 210,000 acre feet, is 86% full. He noted that through October, the District has received a little over 4" of rainfall. Mr. DeGabriele stated that in review of the Complaints and Service Orders, it was noted that high bill complaints are up significantly over a year ago.

Mr. Bentley reviewed the Monthly Report of Investments indicating the District holds $13.5M in reserves earning a rate of return at 0.78%.

CONSENT CALENDAR

On the motion of Director Fraites, seconded by Director Rodoni the Board approved the following items on the consent calendar by the following vote:

AYES: Director Baker, Fraites, Petterle, and Rodoni

NOES: None

ABSENT: Director Schoonover

SPOT ADJUSTMENT – BUILDING & GROUNDS MAINTENANCE TECHNICIAN I

The Board authorized a spot adjustment for the Buildings and Grounds Maintenance Technician to bring that position salary equivalent to the Field Service Representative position at the District.

OUT-OF-COUNTRY TRAVEL FOR DANISH WATER TECHNOLOGY ALLIANCE FACT FINDING TRIP – ROBERT CLARK

The Board approved Out-of-Country travel for Robert Clark to attend the Danish Water Technology Alliance Fact Finding Trip in December. The Danish Water Technology Alliance representatives have visited North Marin Water District to learn about our facilities and have invited staff from the District and other California locations to participate in a four-day excursion to Denmark to learn about their water, wastewater and energy neutral operations.

ACTION CALENDAR

WAIVE TIER CHARGES

Mr. Bentley advised the Board of staff's concern for months regarding the discrepancy of consumption of water and water sales. He stated that staff has received many high bill complaints and has discovered that a Field Service Representative (Meter Reader) was estimating reads. Mr. Bentley showed the Board a meter reading device and the correct way to read a meeting. He explained the customer impact that occurred noting that those who got a low bill in August then received a subsequent "catch-up" high bill in October and it can push some customers into the higher tier rate. He is requesting that the Board authorize staff to waive tier charges for all customer bills rendered through January 5, 2017 in response to the incident where bills had been estimated earlier in the year. Mr. Bentley advised that the likely financial loss to the District due to the incident is about $50K and that remuneration is unlikely because the former employee has no assets. He noted that staff is fielding about 100 calls per week from customers and the incident appears to have occurred throughout the Novato and West Marin systems.

There was a lot of conversation about the circumstances how this all came about and the Board was informed that the General Manager is submitting a 'Letter to the Editor' to the Marin Independent Journal, Novato Advance and Point Reyes Light explaining the circumstances, apologizing and advising what is being done in response. It was advised that the letter will also be posted on the District website.

On motion of Director Rodoni, seconded by Director Baker, the Board approved waiving the tier charges for all customer bills rendered through January 5, 2017 by the following vote:

AYES: Director Baker, Fraites, Petterle, and Rodoni

NOES: None

ABSENT: Director Schoonover

REQUEST FOR ADDITIONAL BILL ADJUSTMENT – WEST MARIN SENIOR SERVICES

Mr. Bentley stated that GM/CEO Skip Schwartz of the West Marin Senior Services was in the audience requesting a bill adjustment for the remaining amount owed by West Marin Senior Services at their Stockstill House for an unexplained huge increase in amount of metered water use occurring the past two billing periods. He stated that the total charge for the two billing periods is over $4,000. Mr. Bentley noted that Stockstill House in Point Reyes Station bills are typically $250 for those two month periods. He advised the Board that staff is recommending option 2 to reduce the balance due to $810, rendering a charge based on the cost of water produced, resulting in an additional credit of $299.

GM/CEO Skip Schwartz, Jim O'Hara and Pam Osborn from West Marin Senior Services attended the meeting and addressed the Board and provided an overview of the facility. He noted that he was appreciative of the bill adjustments provided to date pursuant to District policy and was baffled as to how much water had been used when they had no leaks. He requested that the Board forgive the outstanding amount.

Director Rodoni agreed that since it is not known where the water went, that the site was accessible by ringing a door bell, yet the Meter Reader who responded was the same person that had estimated bills and now no longer worked for the District he favored Option 1, reducing remaining balance to $0.

Director Fraites agreed.

Director Baker stated that it was unfair to other customers to pick up the cost of water that went through the meter.

On motion of Director Rodoni, seconded by Director Fraites, the Board approved Reduced the $1,109 balance due to $0, allowing the two $125 payments to clear the account in full, granting an additional $1,109 credit by the following vote:

AYES: Director Fraites, Petterle, and Rodoni

NOES: Director Baker

ABSENT: Director Schoonover

NOLL & TAM CONSULTANT SERVICES AGREEMENT FOR HEADQUARTERS UPGRADE ARCHITECTURAL CONCEPT PLAN

Mr. DeGabriele advised the Board that Noll & Tam Consultant was the firm recommended for the District Headquarters Upgrade Architectural Concept Plan. He stated that the Consulting Services Agreement with Noll & Tam Architects is to conduct space planning and concept proposal developing a master plan for the upgrade. He stated that work will begin in early December and is scheduled to complete by mid-April with a presentation of a draft master plan to the Board. Cost of the work is up to $98,980.

On motion of Director Fraites, seconded by Director Baker, the Board Board authorize the General Manager to enter into a Consulting Services Agreement with Noll & Tam Architects to conduct the space planning and concept proposal (Master Plan) for the District Headquarters Upgrade by the following vote:

AYES: Director Baker, Fraites, Petterle, and Rodoni

NOES: None

ABSENT: Director Schoonover

INFORMATION ITEMS

OPERATIONS/MAINTENANCE – FIRST QUARTER 2015/16 UPDATE

Robert Clark provided the Board with the Operations/Maintenance First Quarter 2015/16 Update. He stated that hearing tests were conducted for 23 employees and none of the employees had additional hearing loss.

Director Baker asked if employees wear hearing protection and are conscientious about it and Mr. Clark responded yes.

Mr. Clark stated that the maintenance staff is doing a great job and that the 4th annual Leveroni Creek Bank inspection has been completed. He advised the Board that in Operations both West Marin and Stafford Treatment Plants had typical treatment plant operations for the quarter and

that three residents signed up for the Residential Recycled Water Program. Mr. Clark informed the Board that staff ran the Deer Island Recycle Water Facility for one month. He noted that salinity levels remain static in Point Reyes due to the blending with Gallagher well water.

DRAFT ANNUAL REPORT

Mr. DeGabriele provided the Board with the Draft Annual Report and requested that comments/corrections be returned to Mrs. Young by Friday, November 18th.

WAC MEETING – NOVEMBER 7, 2016

Mr. DeGabriele provided the Board with a summary of the Water Advisory Committee meeting held on November 7th. He advised the Board that the Sonoma Marin Saving Water Partnership won two awards from the United States Environmental Protection Agency – the Water Sense Excellence Award and the Professional Certifying Organization Partner of the Year award. He noted that the partnership has won an award every year since its formation.

MISCELLANEOUS

The Board received the following miscellaneous information: Disbursements, Water Research Foundation Letter and Jerome Aparton Obituary.

The Board also received the following miscellaneous item at the meeting: Russian River Fish Ladder handouts.

ADJOURNMENT

Acting President Petterle adjourned the meeting at 8:04 p.m.

Submitted by

Eileen Mulliner
Acting District Secretary

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MEMORANDUM

To: Board of Directors December 2, 2016

From: David L. Bentley, Auditor-Controller

Subj: Approve – Renewal of Grazing Leases – Grossi & Leveroni
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RECOMMENDED ACTION: Approve

FINANCIAL IMPACT: $2,705 in Annual Grazing Lease Revenue

The two attached grazing leases renew existing agreements for a two year period commencing November 1, 2016. The only change to the agreements are the annual rent amount and the dates. The agreements with Grossi and Leveroni originated in 1959. The annual rent amount is determined by reference to the wholesale value of cattle. The value of grazing land in the Bay Area decreased 25% compared to 2014 when these agreements were last renewed. In a reversal of the 2014 market, when the drought had shriveled crops and pushed up the cost of feed, resulting in a downsizing of herds and a corresponding increase in beef prices, cattle prices are now hovering near the lowest level in years as U.S. meatpackers produce the largest volume of meat in history.

George Grossi leases two parcels totaling 119 acres. The single parcel leased by the Leveroni brothers is 27 acres. See attached map.

Since 1978 the District has calculated the value of its grazing property by tying it to the market value of the cattle the property can support. Rental rates are set as a function of the selling price of choice feeder steers (500 – 800 lbs. class). The 2016 rate translates to a lease value of $20.65 per Animal Unit Month. An AUM is the number of months of grazing a leased parcel will yield in a normal year for a cow with calf. For example, in consultation with Grossi, and based on the USDA "Soil Survey in Marin County", we have agreed that the 119 acres of land he leases can sustain 105 animal months of grazing per year. The calculation is then to multiply $20.65 times 105 to arrive at the value of the leased property.

The District adopted the AUM method from the East Bay Regional Park District, which manages thousands of acres of grazing land. The AUM method is used by the Federal Bureau of Land Management, and hence is also used by the Point Reyes National Seashore. In 2012 the Marin County Open Space District entered into a five-year grazing agreement with West Marin Rancher Bill Barboni for use of Mount Burdell property at a rate of $9.50/AUM. That agreement incorporates an obligation to perform significant fence repair work. MMWD does not lease lands for grazing.

RECOMMENDATION: Approve renewal of the grazing lease agreements with George Grossi (2 parcels totaling 119 acres) and David & Robert Leveroni (1 parcel totaling 27 acres).

Approved by GM CD

Date 12/2/2016

LEGEND:

LEVERONI GRAZING LEASE

GROSSI GRAZING LEASE

NORTH MARIN WATER DISTRICT
NOVATO, CALIFORNIA

STAFFORD WATERSHED GRAZING LEASE PARCELS

FIGURE 1

DRAWING NO.

Oct 01, 2014 - 2:12pm W:\GIS\MISC\Presentation\stafford grazing lease parcels.mxd Created by: ACANTILLER

GRAZING AGREEMENT

THIS AGREEMENT, by and between NORTH MARIN WATER DISTRICT, a public corporation, hereinafter referred to as "Lessor," and GEORGE GROSSI & SON DAIRY, hereinafter referred to as "Lessee."

WITNESSETH:

WHEREAS, Lessor is the owner of various parcels of land in the vicinity of Stafford Lake shown on the attached map which is made part hereof and described as follows:

Parcel No. 2 (portion of AP 125-090-07): Approximately eighty-eight (88) acres of land lying easterly of Stafford Lake and south of Lessor's treatment plant, which land borders but does not include the lands leased by Indian Valley Golf Club, Inc.;

Parcel No. 3 (portion of AP 121-110-34): Approximately thirty-one (31) acres of land lying north of Vineyard Road between the northeast corner of the horse ranch and the point where Vineyard Road exits the watershed;

WHEREAS, the parties desire to enter into a grazing agreement concerning said property,

NOW, THEREFORE, IT IS MUTUALLY AGREED AS FOLLOWS:

1. **GRAZING PERIOD**. In consideration of the payment of the rent hereinafter specified and except as provided in paragraph 9 hereof, Lessee shall have the exclusive grazing rights of the said property for the period commencing November 1, ~~2014~~2016, through October 31, ~~2016~~2018, to graze cattle. Lessee agrees, however, not to graze any animals on the described property during the period between November 15 or first heavy rainfall as determined solely by the Lessor, whichever shall first occur, and the following April 1 or such earlier or later date as determined and authorized by the Lessor in the event of a dry or wet spring.

2. **ANIMAL UNIT MONTHS.** In normal rainfall years and following good range management practices to maintain a healthy stand of grass, avoiding overgrazing which could result in unsightly soil erosion, or other practices which may adversely impact lake water quality, the parties agree Parcels No. 2 and No. 3 can sustain approximately 105 animal months of grazing per year. An animal month of grazing is based on the amount of food required by a 1,000-pound cow.

3. **RENT.** Lessee shall pay in advance on the 1st day of February of each year rent for Parcels No. 2 and No. 3 in accordance with the following formula:

   Annual Rent = animal months of grazing $~~27.70~~20.65 per animal month

   Annual Rent = 105 x $~~27.70~~20.65= $~~2,909.00~~2,168.00

   Under conditions such as insufficient rainfall that would result in poor grass yield or range management practices on the part of Lessee which would result in overgrazing, at the sole discretion of Lessor, the animal months of grazing may be decreased and Lessee will be reimbursed for such decrease at the rate of $~~27.70~~20.65 per animal month.

4. **RANGE MANAGEMENT.** The Lessee agrees to follow good range management practices to maintain a healthy stand of grass, avoiding overgrazing which could result in soil erosion or other practices which may adversely impact lake water quality. The parties shall mutually agree on activities to be conducted and any decrease in actual animal unit months resulting from these activities will be reimbursed to the Lessee. Lessee agrees to maintain a log of animal use on each parcel using forms provided by the Lessor and provide this information on a quarterly basis.

5. **FENCE MAINTENANCE.** Lessee agrees to maintain, at his own cost and expense, all existing fences surrounding all leased parcels and any new fencing installed at lessor's expense that may be constructed to better manage the grazing and/or protect the District watershed lands.

6. **EARLY TERMINATION.** Lessor reserves the right to terminate this agreement at any time during the term thereof upon thirty (30) days written notice to Lessee. Upon the effective date of such termination Lessor shall return on a prorata basis all prepaid rent.

7. **GRAZING ONLY, NO HORSES.** Lessee agrees that his use of the above-described real property shall be limited solely to grazing of cattle and that Lessee will not graze horses on the property.

8. **RESPONSIBILITY FOR DAMAGE.** Lessor shall not be liable for any damage to any person or property occurring on the demised premises from any cause whatever. Lessee shall hold the Lessor harmless from any such liability or claim of liability. Should it become necessary for the District to defend itself against any claims asserted, Lessee will reimburse Lessor for reasonable attorney's fees and all other costs thus incurred.

9. **PUBLIC ACCESS.** Lessee agrees to permit public access through the property through which Marin County Open Space has maintained trails, provided self closing type gates satisfactory to the Lessee are installed and maintained by the County of Marin Open Space District and provided further, notwithstanding the provisions of paragraph 8 hereof, that Lessee shall in no way be held liable by Lessor for any damage to any person or property occurring on the demised premises by hikers, horses or horse riders utilizing said public trail. In such event the parties shall mutually agree on fencing requirements, if any.

10. **POSSESSORY INTEREST**. Lessee acknowledges that he has been informed that under Section 107 of the Revenue and Taxation Code of the State of California the Marin County Assessor is required to place a value on all possessory interest. Possessory interest is defined as the right of a private taxable person or entity to use property owned by a tax-exempt agency for private purposes. A possessory interest will, therefore, be levied by the County Assessor on the leased premises against the Lessee as of the lien date, which is March 1 of each year. Any possessory interest tax so levied shall be paid by Lessee.

11. **INSURANCE.** Lessee shall procure and maintain for the duration of this agreement insurance against claims for injuries to persons or damage to property that may arise from or in connection with the grazing of animals by Lessee, its agents, representatives, employees or subcontractors. Coverage shall be at least as broad as: Farmers Comprehensive Personal Liability Insurance in an amount not less than one million dollars ($1,000,000.00) combined single limit per occurrence for bodily injury, personal injury and property damage; and Workers' Compensation Insurance in the amount required by the labor code of the State of California. The liability policy is to contain, or be endorsed to contain, the following provisions:

a) The District, its officials, employees and volunteers are to be covered as insured as respects liability arising out of activities performed by or on behalf of Lessee.

b) Lessee's insurance coverage shall be primary as respects the District, its officials, employees and volunteers. Any insurance or self-insurance maintained by the District, its officials, employees or volunteers shall be excess of Lessee's insurance and shall not contribute with it.

c) Coverage shall state that Lessee's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limit of the insurer's liability.

d) The Insurer shall not cancel the insured's coverage without first providing thirty (30) days prior written notice by certified mail to the District.

Lessee shall furnish the Lessor with certificates of insurance and with an original endorsement affecting coverage required under this agreement. The certificates and endorsements for each policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The certificates and endorsements are to be received and approved by the Lessor before grazing commences.

IN WITNESS WHEREOF, the parties have executed this agreement on the dates shown below.

ATTEST: NORTH MARIN WATER DISTRICT

_____ _____

Secretary John Schoonover, President Date

(SEAL)

GEORGE GROSSI & SON DAIRY

_____

George Grossi, Jr. Date

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GRAZING AGREEMENT

THIS AGREEMENT, by and between NORTH MARIN WATER DISTRICT, a public corporation, hereinafter referred to as "Lessor," and DAVID LEVERONI, III and ROBERT LEVERONI, hereinafter referred to as "Lessee."

WITNESSETH:

WHEREAS, Lessor is the owner of various parcels of land in the vicinity of Stafford Lake shown on the attached map which is made part hereof and described as follows:

Parcel No. 4 (portion of AP 125-090-25):
Approximately twenty-seven (27) acres of land comprising the easterly portion of the forty-three acre parcel owned by the Lessor north of Novato Boulevard; and

WHEREAS, the parties desire to enter into a grazing agreement concerning said property,

NOW, THEREFORE, IT IS MUTUALLY AGREED AS FOLLOWS:

1. **GRAZING PERIOD.** In consideration of the payment of the rent hereinafter specified, Lessee shall have the exclusive grazing rights of the said property for the period commencing November 1, ~~2014~~ 2016 through October 31, ~~2016~~2018, to graze cattle. Lessee agrees, however, not to graze any animals on the described property during the period between November 15 or first heavy rainfall as determined solely by the Lessor, whichever shall first occur, and the following April 1 or such earlier or later date as determined and authorized by the Lessor in the event of a dry or wet spring.

2. **ANIMAL UNIT MONTHS.** In normal rainfall years and following good range management practices to maintain a healthy stand of grass thus avoiding overgrazing which could result in soil erosion, or other practices which may adversely impact lake water quality, the parties agree that Parcel No. 4 can sustain approximately 26 animal months of grazing per year. An animal month of grazing is based on the amount of food required by a 1,000-pound cow.

3. **RENT.** Lessee shall pay in advance on the first day of February of each year rent for Parcel No. 4 in accordance with the following formula:

Annual Rent = animal months of grazing x $~~27.70~~20.65 per animal month
Annual Rent = 26 x $~~27.70~~20.65= $~~720.00~~537.00

Under conditions such as insufficient rainfall that would result in poor grass yield or range management practices on the part of Lessee which would result in overgrazing, at the sole discretion of Lessor, the animal months of grazing may be decreased and Lessee will be reimbursed for such decrease at the rate of $~~27.70~~20.65 per animal month.

4. **RANGE MANAGEMENT.** The Lessee agrees to follow good range management practices to maintain a healthy stand of grass, avoiding overgrazing which could result in soil erosion or other practices which may adversely impact lake water quality. The parties shall mutually agree on activities to be conducted and any decrease in actual animal unit months resulting from these activities will be reimbursed to the Lessee. Lessee agrees to maintain a log of animal use on each parcel using forms provided by the Lessor and provide this information on a quarterly basis.

5. **FENCE MAINTENANCE** Lessee agrees to maintain, at his own cost and expense, all fences surrounding all leased parcels.

6. **EARLY TERMINATION** Lessor reserves the right to terminate this agreement at any time during the term thereof upon thirty (30) days written notice to Lessee. Upon the effective date of such termination Lessor shall return on a prorata basis all prepaid rent.

7. **GRAZING ONLY, NO HORSES**. Lessee agrees that his use of the above-described real property shall be limited solely to grazing of cattle and that Lessee will not graze horses on the property.

8. **RESPONSIBILITY FOR DAMAGE.** Lessor shall not be liable for any damage to any person or property occurring on the demised premises from any cause whatever. Lessee shall hold the Lessor harmless from any such liability or claim of liability. Should it become necessary for the District to defend itself against any claims asserted, Lessee will reimburse Lessor for reasonable attorney's fees and all other costs thus incurred. Neither party shall be held liable by the other for any damage to persons or property caused by third parties trespassing on the demised property.

9. **POSSESSORY INTEREST**. Lessee acknowledges that he has been informed that under Section 107 of the Revenue and Taxation Code of the State of California the Marin County Assessor is required to place a value on all possessory interest. Possessor interest is defined as the right of a private taxable person or entity to use property owned by a tax-exempt agency for private purposes. A possessory interest will, therefore, be levied by the County Assessor on the leased premises against the Lessee as of the lien date, which is March 1 of each year. Any possessory interest tax so levied shall be paid by Lessee.

10. **INSURANCE.** Lessee shall procure and maintain for the duration of this agreement insurance against claims for injuries to persons or damage to property that may arise from or in connection with the grazing of animals by Lessee, its agents, representatives, employees or subcontractors. Coverage shall be at least as broad as: Farmers Comprehensive Personal Liability Insurance in an amount not less than one million dollars ($1,000,000.00) combined single limit per occurrence for bodily injury, personal injury and property damage; and Workers' Compensation Insurance in the amount required by the labor code of the State of California. The liability policy is to contain, or be endorsed to contain, the following provisions:

    a) The District, its officials, employees and volunteers are to be covered as insured as respects liability arising out of activities performed by or on behalf of Lessee.

b) Lessee's insurance coverage shall be primary as respects the District, its officials, employees and volunteers. Any insurance or self-insurance maintained by the District, its officials, employees or volunteers shall be excess of Lessee's insurance and shall not contribute with it.

c) Coverage shall state that Lessee's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limit of the insurer's liability.

d) The Insurer shall not cancel the insured's coverage without first providing thirty (30) days prior written notice by certified mail to the District.

Lessee shall furnish the Lessor with certificates of insurance and with an original endorsement affecting coverage required under this agreement. The certificates and endorsements for each policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The certificates and endorsements are to be received and approved by the Lessor before grazing commences.

IN WITNESS WHEREOF, the parties have executed this agreement on the date shown below.

ATTEST: NORTH MARIN WATER DISTRICT

_____ _____

Secretary John Schoonover, President Date

_____

Robert Leveroni Date

_____

David Leveroni, III Date

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ITEM #7

MEMORANDUM

To: Board of Directors

December 2, 2016

From: Katie Young, District Secretary

Subject: Final Annual Report Fiscal Year 2015-2016
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RECOMMENDED ACTION: Approve Fiscal Year 2015-2016 Annual Report

FINANCIAL IMPACT: None

The Annual Report for Fiscal Year 2015-2016 was provided to you at the November 15th meeting. There were no changes made to the draft annual report. You will receive the final hard copy at the December 20th meeting.

RECOMMENDATION:

Board Approve Fiscal Year 2015-2016 Annual Report.

Approved by GM CD

Date 12/2/2016

8

ITEM #8

MEMORANDUM

To: Board of Directors December 2, 2016

From: Pablo Ramudo, Water Quality Supervisor PR

Subject: First Quarter FY 16/17– Water Quality Report
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RECOMMENDED ACTION: Information

FINANCIAL IMPACT: $0

The water served to the communities of Novato and Point Reyes met federal and state primary and secondary water quality standards during the first quarter of fiscal year 2016-2017.

Following is a review of the activities and water quality issues in regards to:

- Source Water
- Treatment Performance
- Distribution System Water Quality
- Novato Recycled Water

NOVATO SYSTEM

Source Water: Stafford Lake

Stafford Lake water was used as a source of drinking water throughout the first quarter. Water quality was monitored on a weekly basis for chemical and mineral components as well as microbiological activity.

Algae from the raw water intake were identified and enumerated. Algae numbers were high as is typical in the summer months. Diversity was moderately high with ten species of algae recorded in appreciable numbers including several species which produce compounds that can cause adverse taste and odor. Monitoring for the compounds responsible for these objectionable tastes and odors showed that the raw water concentration of geosmin was above the threshold for for odor (10 nanograms per liter) for most of the quarter. Testing for several algal toxins was also performed with no detections.

Total organic carbon (**TOC**) reached a record high in September and ranged from 9.0-11.8 mg/L.

Treatment Performance: Stafford Treatment Plant

Total organic carbon removal remained above the 40%requirement of the Enhanced Surface Water Treatment Rule. Even with historically high raw water values, Operators were able to achieve an impressive 70-100% removal of TOC throughout the quarter. Finished water TOC concentration was 0.0 to 2.7mg/L compared to the district's goal of 2.0 mg/L. In July the 100% removal was possible only due to the replacement of granular activated carbon (**GAC**) at Stafford Treatment Plant, in August and September the majority of TOC removal was accomplished through optimized coagulation and filtration.

Treatment Performance: Stafford Treatment Plant- continued from page 1

Despite the presence of the taste and odor compound geosmin in the raw water, the concentration was within the removal capability of Stafford Treatment Plant. This removal was also accomplished by adsorption in the GAC filters

Distribution System: Novato

Of 233 samples collected for compliance with the Total Coliform Rule none were positive for coliform bacteria. Disinfection byproducts were very low for the quarter and well within standards of the Stage 2 Disinfection By-Product Rule.

There were no complaints of taste and odor attributable to algae compounds during the quarter.

POINT REYES SYSTEM

Source Water: Coast Guard Wells

Raw water quality was good throughout the quarter. Water quality parameters affected by salt water were steady throughout the quarter. The sodium concentration ranged from 40 - 52 mg/L, chloride ranged from 30 - 72 mg/L, and bromide ranged from 0.11 – 0.26 mg/L.

Source Water: Gallagher Well

Raw water quality was good throughout the quarter. Water quality parameters affected by saltwater are very low from this source and are not prone to intrusion from seawater. Sodium concentration ranged from 11-13 mg/L, chloride ranged from 12-14 mg/L, and bromide ranged from 0.04 – 0.07 mg/L.

Treatment Performance: Point Reyes Treatment Plant

Treatment was optimal throughout the quarter and finished water quality was good. Iron and Manganese removal was excellent; neither of the metals were detected in the treated water.

Water was primarily sourced from Gallagher Well which was supplemented with water from the Coast Guard wells during times of higher demand. Water from the two sources is blended prior to treatment.

Distribution System: Point Reyes

There were 22 samples collected for routine monitoring and compliance with the total coliform rule. None of the samples were positive for coliform bacteria. Chlorine residual concentrations throughout our distribution system were good. Disinfection byproducts decreased from last quarter and were relatively low.

Another round of lead and copper monitoring at customer taps was completed in July. The results were good with both lead and copper concentrations at the 90th percentile falling below the federal action level. Lead was detected in two homes as a results of lead leaching from household plumbing fixtures. We performed extensive testing for these customers in an effort to help them correct plumbing issues that are contributing to lead leaching into the water in their homes.

NOVATO RECYCLED WATER

Deer Island Recycled Water Facility

The Deer Island plant produced water for 24 days in September to provide recycled water to the North area of Novato. Recycled water quality from the deer island facility was good.

9

ITEM #9

MEMORANDUM

To: Board of Directors December 2, 2016

From: Drew McIntyre, Assistant General Manager/Chief Engineer

Subject: North Bay Water Reuse Authority Board Meeting – October 24, 2016

R:\Folders by Job No\7000 jobs\7127\Board Memos\7127 NBRWA Update 10_24_16.doc

RECOMMENDED ACTION: Information Only

FINANCIAL IMPACT: None

Supplemental information is provided as follows using item numbers referenced in the attached meeting agenda and draft minutes (Attachment 1). A complete agenda packet is available via www.nbwra.org.

2. Roll Call

NMWD Board was represented by Director Schoonover. Director Baker was also in attendance as NMWD's Board Alternate. Ryan Grisso attended this meeting as I was attending the CA-NV AWWA Annual Fall Conference in San Diego.

6. Report from the Chair (this is a new agenda item)

6a. Consultant Progress Reports

Ginger Bryant's recent efforts centered around the September 21-22 Washington D.C. trip with Supervisor Rabbitt, Brad Sherwood (SCWA Government Affairs Manager) and Ms. Bryant. The focus of the trip was on federal assistance that could be authorized in pending drought relief legislation as well as efforts to address Phase 2 authorization ambiguities.

6.b Financial Report

As of the date of this meeting, NMWD's FY17 budget was still $57,179 as approved on April 25, 2016. Refer to Item 8 for more budget related discussion.

6.c Future Meeting Dates

December 19, 2016 (Novato SD), the following 2017 meetings will be at Novato City Hall: January 23, March 27, May 22, July 24, August 28, October 23 and December 18.

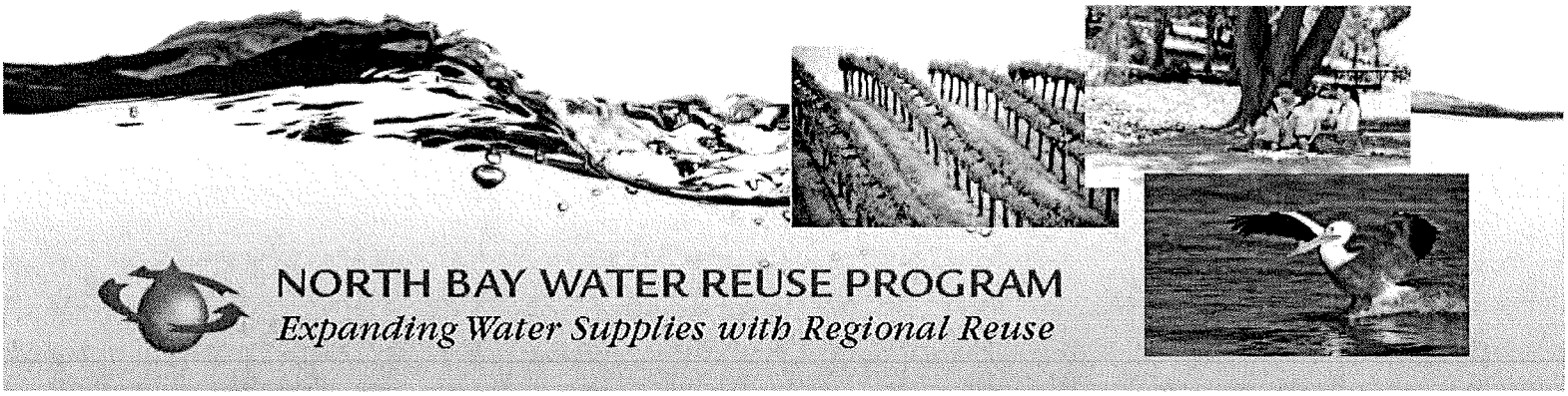
8. FY16-17 Budget Amendments

A significant amount of time was spent on discussing the merits of member agency participation costs and allocation methodology fairness. This discussion covered not only how costs are split between Phase 2 member agencies but also how much Phase 1 member agencies should pay. Some of the options presented had Phase 1 member agencies costs increasing significantly to pay for what many Phase 1 member agencies felt were strictly Phase 2 costs. The Board decided to continue the FY17 budget amendment action item to the December 19, 2016 meeting and schedule a TAC meeting on November 14, 2016 to

further discuss updated cost allocation methodologies and resulting member agency cost impacts. As a result of the November 14, 2016 TAC meeting (and subsequent Consultant Team memo dated November 23, 2016 provided as Attachment 2), the consultant team is now recommending a cost allocation methodology for Phase 1 member agencies that is similar to what has been approved in previous years. In fact, NMWD's total FY17 contribution will decrease ~$8,600 below the initial FY17 budget of $57,179 due to reduced FY17 Program Manager (Chuck Weir) and SCWA administrative expenditures. Staff recommends that NMWD vote to approve the FY17 budget amendments to be presented at the December 19, 2016 meeting.

11. Items for Future Discussion and Action

Approval of the FY17 budget amendment at the December 19, 2016 meeting will address the immediate need for completing Phase 2 studies and funding the consulting team through the end of this fiscal year. The consulting team advises that the budget authorization does not address issues associated with cost-stabilization and the ability of the NBWRA to work on additional funding beyond Title XVI. Accordingly, it is anticipated that funding issues will stay at the forefront of NBWRA issues at Board meetings in the coming months.



BOARD OF DIRECTORS MEETING

AGENDA

Monday, October 24, 2016,
9:30 AM

Novato City Hall Council Chambers
901 Sherman Avenue, Novato, CA 94945

Members and Consultants unable to attend in person may call in: Phone: +1 (602) 567-4030 (local dial in), +1(888)227-0011 (Toll Free). Access code: 2231#. Internet Access: https://Conferencing.brwncald.com/conference/2231

1. **Call to Order (1 minute)**

2. **Roll Call (1 minute)**

3. **Public Comment (3 minutes)**
(Any member of the public may address the Board at the commencement of the meeting on any matter within the jurisdiction of the Board. This should not relate to any item on the agenda. It is the policy of the Authority that each person addressing the Board limit their presentation to three minutes. Non-English speakers using a translator will have a time limit of six minutes. Any member of the public desiring to provide comments to the Board on an agenda item should do so at the time the item is considered. It is the policy of the Authority that oral comments be limited to three minutes per individual or ten minutes for an organization. Speaker's cards will be available in the Boardroom and are to be completed prior to speaking.)

4. **Introductions (2 minutes)**

Action
Pages 5 – 7

5. **Board Meeting Minutes of September 19, 2016 (2 minutes)**
(The Board will consider approving the minutes from the September 19, 2016 Board meeting.)

Information and Discussion
Pages 9 – 12
Pages 13 – 20
Page 21

6. **Report from the Chair (10 minutes)**
(The Chair will report on the following items.)
6.a Consultant Progress Reports
6.b Financial Reports for the Period Ending September 30, 2016
6.c Future NBWRA Meeting Dates

North Bay Water Reuse Authority • c/o Sonoma County Water Agency, 303 Aviation Boulevard, Santa Rosa, CA 95403
707-235-8965 • NBWRA.org

ATTACHMENT 1

Information and Discussion Pages 22 – 23

7. Board Information Requests (2 minutes)
(The Board will be provided with a brief update on their information requests.)

Discussion and Action Pages 24 – 49

8. FY2016/17 Budget Amendments (15 minutes)
(The Board will consider the recommended FY2016/17 Budget Amendments.)

Information Pages 50 – 56

9. Program Development, Federal, and State Advocacy Update (10 minutes)
(The Board will be updated on Program Development, Federal and State Advocacy activities.)

Information Pages 57 – 66

10. Engineering, Environmental, and Public Involvement Services Report (15 minutes)
(The Board will be provided with an update on the following activities.)

- Public Outreach
- Feasibility Study Report

Discussion Pages 66 – 67

11. Items for Future Discussion and Action (5 minutes)

Information Page 69

12 Comments from Chair and Board Members (5 minutes)
(The Chair and Board members may make brief announcements or reports on his or her own activities, pose questions for clarification, and/or request that items be placed on a future agenda. Except as authorized by law, no other discussion or action may be taken.)

Page 70

13. Adjournment (1 minute)

Next Board Meeting
Monday, December 19, 2016, 9:30 A. M., Novato Sanitary District

(In compliance with the Americans with Disabilities Act of 1990, if you need special assistance to participate in a Board meeting, or you need a copy of the agenda, or the agenda packet, in an appropriate alternative format, please contact the Program Manager at (510) 410-5923. Notification of at least 48 hours prior to the meeting or time when services are needed will assist in assuring that reasonable arrangements can be made to provide accessibility to the meeting or service. A copy of all the documents constituting the agenda packet is available for public inspection prior to the meeting at 500 Davidson Street, Novato, CA 94945. Any person may request that a copy of the agenda or the agenda packet be mailed to them for a fee of $.10 per page plus actual mailing costs. If you wish to request such a mailing, please contact Chuck Weir, Weir Technical Services, 3026 Ferndale Court, Pleasanton, CA 94588, 510-410-5923, chuckweir@sbcglobal.net. The agenda for each meeting is also available on-line at www.nbwra.org and will be available at the meeting.)

North Bay Water Reuse Authority
Board of Directors Meeting
Minutes
October 24, 2016

1. Call to Order

Chair Rabbitt called the meeting to order at 9:38 a.m. on Monday, October 24, 2016 at the Novato City Hall Council Chambers, 901 Sherman Avenue, Novato, CA. Consultants and others who were unable to attend participated via telephone, 1 (602) 567-4030, or 1 (888) 227-0011, access code 2231; https://Conferencing.brwncald.com/conference/2231

2. Roll Call

PRESENT:	David Rabbitt, Chair	Sonoma County Water Agency
	Bill Long, Vice Chair	Novato Sanitary District
	Keith Caldwell	Napa County
	Susan Gorin	Sonoma Valley County Sanitation District
	Jack Gibson	Marin Municipal Water District
	Rabi Elias	Las Gallinas Valley Sanitary District
	Dan St. John	City of Petaluma
	John Schoonover	North Marin Water District

ABSENT: Marin County, Napa Sanitation District

OTHERS PRESENT:	Chuck Weir, Program Manager	Weir Technical Services
	Jack Baker	North Marin Water District
	Kevin Booker	Sonoma County Water Agency
	Ginger Bryant	Bryant & Associates
	Jill Chamberlain	Brown and Caldwell
	Anne Creelock	Sonoma County water District
	Grant Davis	Sonoma county Water District
	David Graves	Napa Sanitation District
	Ryan Grisso	North Marin Water District
	Steve Hartwig	City of American Canyon
	Pam Jeane	Sonoma Valley County Sanitation District
	Sandeep Karkal	Novato Sanitary District
	Susan McGuire	Las Gallinas Valley Sanitary District
	Mark Millan	Data Instincts
	Phil Miller	Napa County
	Pilar Oñate-Quintana	The Oñate Group
	Larry Russell	Marin Municipal Water District
	Mike Savage	Brown and Caldwell
	Brad Sherwood	Sonoma County Water Agency
	Jake Spaulding	Sonoma County Water Agency
	Leah Walker	City of Petaluma

3. Public Comments
There were no comments from the public

4. Introductions
Introductions were not made.

5. Board Meeting Minutes of September 19, 2016.
A motion by Director Schoonover, seconded by Director Caldwell to approve the September 19, 2016 minutes as amended was approved with one abstention.

6. Report from the Chair

a. Consultant Progress Reports
The Board reviewed the consultant progress reports for September 2016.

b. Financial Reports
The Board reviewed the Financial Reports for the period ending September 30, 2016.

c. Future NBWRA Meeting Dates
The Board reviewed the proposed meeting dates for 2017.

7. Board Information Requests
Chair Rabbitt provided an update to the Membership Brochure development. It is intended to include: program information, costs on general membership, study and project funding. A draft is expected by the end of the year.

8. FY2016/17 Budget Amendments
Chair Rabbitt provided a summary. He indicated that there an audit of the funding received and final projects built for Phase 1. Susan McGuire asked about the revised costs since some funds were reallocated among agencies. Jake Spaulding indicated that the revised costs would be available at the next meeting.

Director Elias asked for an explanation of the cost sharing changes. He also expressed concerns with costs moving forward to FY17/18 and beyond. Mike Savage gave a summary of the proposed changes to cost sharing for Phase 2. He explained the changes in engineering cost sharing as well as general cost sharing as outlined in the packet. The proposal includes the September 2016 cost sharing method for FY14/15 and FY15/16, and new cost sharing method for FY16/17, which is more consistent with project costs. Director Caldwell expressed concern with the revised cost sharing. The return to Napa Sanitation District is approximately equal to their costs. He indicated that their staff would need to analyze the new proposal. He also expressed concern that there is no longer an opportunity for the Technical Advisory Committee (TAC) to resolve these issues prior to bring them to the Board. He suggested that the TAC meet to resolve the cost sharing issues. He also noted that his last meeting would be in December. Other Directors also expressed concerns with costs and agreed that the TAC should resolve. Director Gorin stressed the need to continue to work in a collaborative manner. Grant Davis thanked Director Caldwell for his long service to the region and NBWRA. Chair Rabbitt agreed that the TAC needs to discuss the cost sharing issues.

A motion by Director Schoonover, seconded by Director Gorin, to continue the FY2016/17 Budget Amendments to the December 19, 2016 meeting with review and recommendation by the TAC was unanimously approved.

9. Program Development, Federal, and State Advocacy Update
Ginger Bryant provided a summary of Program Development and Federal Advocacy, including a summary of the September 20-22, 2016 trip to Washington D.C., impact of the election on legislation, and that Reclamation is seeking comments on the new WaterSMART Grant Program Criteria.

Pilar Oñate-Quintana provided a summary of State Advocacy activities, including the veto of SB1328 (Greenhouse Gas Reduction Fund). Approval of AB2022 (allows bottling of advanced purified water for educational purposes), and the anticipated reintroduction of Hertzberg's Bill to reduce wastewater discharges to the ocean and bays. She also discussed State Water Board funding opportunities.

10. Engineering, Environmental, and Public Involvement Services Report
Mark Millan discussed progress on updating 4 page overview and preparing a one-sheet brochure for potential new members. They are also working on a presentation for U.S. Mayors Water Council being held in Napa on Nov 2 & 3, 2016. He also noted State Water Board public comment period on draft feasibility report on Direct Potable Reuse ends October 25, 2016. Lastly he listed dates for several upcoming conferences that may be of interest to NBWRA participants.

Mike Savage provided a summary of the efforts to develop additional projects for the Phase 2 Feasibility Study. They have identified $19.8M in projects. Three are in American Canyon and one is through Marin Municipal water District. They are developing costs for the agencies to participate in Phase 2 and plan on having an update at the December 19, 2016 meeting. He also updated the study schedule and budget process.

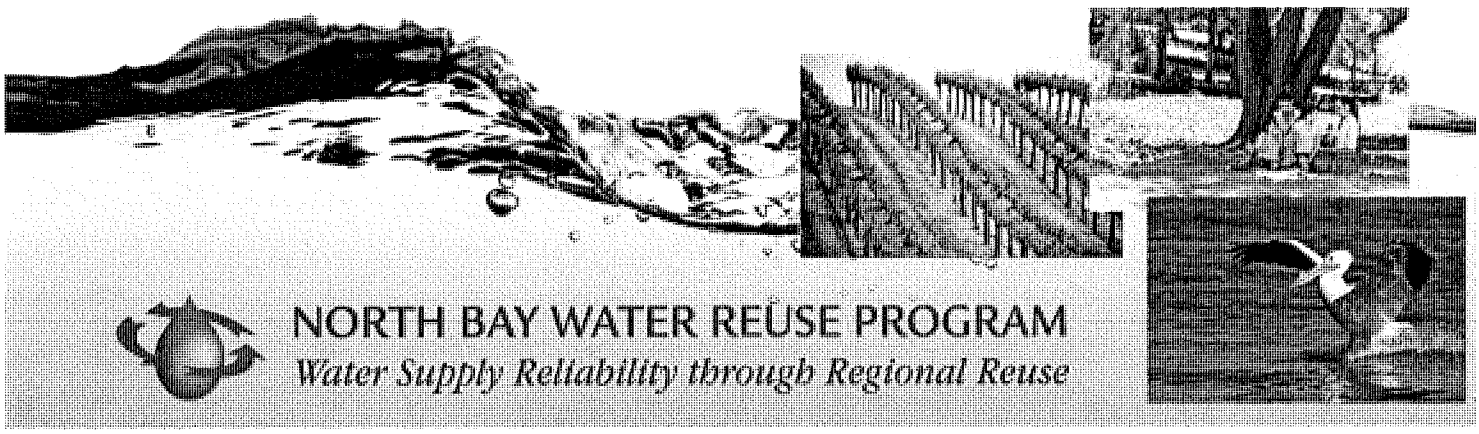
11. Items for Future Discussion and Action
Chair Rabbitt gave a brief summary of ongoing budget discussions, the consulting team's General Membership tasks and budgets are being reviewed, these include: Meetings and Communications, Public Involvement, Program Manager, Program Development, Federal and State Advocacy, and Program Administration *(SCWA)*. The outcomes from this review will be discussed at the December and January meetings.

12. Comments from Chair and Board Members
Director Long inquired about the involvement of other contractors with Sonoma County Water Agency.

13. Adjournment
Chair Rabbitt adjourned the meeting at 11:41 a.m. The next meeting will be Monday, December 19, 2016 at 9:30 a.m. at Novato City Hall Council Chambers.

Minutes approved by the Board _____.

Charles V. Weir
Program Manager



Date: November 23, 2016

To: NBWRA TAC Members

From: Consulting Team

Re: Recommendation for FY 2016/17 Budget and Revised Cost Allocation Method

Thank you for your participation in last week's budget worksession and for your input on the individual follow up calls. Your direction has helped develop the recommendation for a budget cost-allocation method for the remainder of FY 16/17 and allows work on the Phase 2 studies to resume.

Budget Cost-allocation Method Recommendation

Based on review from member agencies, it was determined the September 2016 Method - focused on equitable allocation of Phase 2 costs with no change to costs associated with Phase 1 Support and Joint Use - had the most support. Therefore, the September 2016 Method will be presented for action and approval at the December 19, 2016 Board meeting.

Table 1 Sept 2016 Method Total Cost and Remaining Balance for FY 16/17 (Recommended Method)

	LGVSD	Napa SD	Novato SD	SVCSD	SCWA	NMWD	Napa County	Petaluma
Total 3-year Costs (Sept 2016 Method)	$118,247	$1,059,561	$843,667	$794,184	$651,718	$172,276	$99,194	$1,127,173
Paid to Date	$107,556	$1,287,122	$927,439	$313,954	$423,870	$152,315	$91,775	$949,714
Balance	$10,691	-$227,561	-$83,772	$480,230	$227,848	$19,961	$7,419	$177,459

Rationale, Background and Conclusions

Included below are tables of alternative cost-allocation methods reviewed, a summary of the information presented at the TAC work session and discussed on our follow up calls. This information is provided as it may be of assistance in discussions with your Board in preparation for the December NBWRA Board meeting.

Table 2: Illustrates the Current Interim Method for allocating costs currently being used until the anticipated "true-up" of costs based on the final list of projects in the Phase 2 Program.

Table 2: May 2014 Method Total Cost and Remaining Balance for FY 16/17(Current Interim Allocation)								
	LGVSD	Napa SD	Novato SD	SVCSD	SCWA	NMWD	Napa County	Petaluma
Total 3-year Costs (May 2014 Method)[a]	$125,747	$1,580,419	$1,138,794	$378,301	$517,104	$179,776	$106,694	$967,805
Paid to Date	$107,556	$1,287,122	$927,439	$313,954	$423,870	$152,315	$91,775	$949,714
Balance	$18,191	$293,297	$211,355	$64,347	$93,234	$27,461	$14,919	$18,091

a The total 3-year costs shown here have been updated using the revised total budgets for the program and differ from those on record with SCWA which has not been revised.

Table 3: Demonstrates the allocation of costs after a "true-up" using the Current Project List Method. This is the default allocation method based on the current MOU.

Table 3 Current Project List Method Total Cost and Remaining Balance for FY 16/17 (Current Default Allocation Method)								
	LGVSD	Napa SD	Novato SD	SVCSD	SCWA	NMWD	Napa County	Petaluma
Total 3-year Costs (Current Project List Method)	$118,247	$590,773	$486,336	$643,650	$611,918	$172,276	$99,194	$2,143,625
Paid to Date	$107,556	$1,287,122	$927,439	$313,954	$423,870	$152,315	$91,775	$949,714
Balance	$10,691	-$696,349	-$441,103	$329,696	$188,048	$19,961	$7,419	$1,193,911

Table 4: Following a recent conference call with SVCSD, a request was made for a variation of the Current Project List Method shown above in Table 3. The information requested was to show how the current costs would be distributed using the method applied for Phase 1: 25% shared equally and 75% allocated based on the final project list. The table below illustrates the cost-allocation under this concept.

Table 4: Current Project List 25/75 Method Total Cost and Remaining Balance for FY 16/17 (SVCSD Requested Method)								
	LGVSD	Napa SD	Novato SD	SVCSD	SCWA	NMWD	Napa County	Petaluma
Total 3-year Costs (Current Project List 75/25)	$118,247	$685,567	$621,586	$718,567	$662,618	$172,276	$99,194	$1,787,966
Paid to Date	$107,556	$1,287,122	$927,439	$313,954	$423,870	$152,315	$91,775	$949,714
Balance	$10,691	-$601,555	-$305,853	$404,613	$238,748	$19,961	$7,419	$838,252

Rationale for Evaluating and Recommending Reallocation Methods

Phase 1 Agencies: Believe they are contributing enough to support the organization through their share of the Program Development, TFG and Joint Use Costs. After review of methods, they indicated that their Boards would be unlikely to support a change in their costs.

Phase 2 Project Cost-allocation: Based on the final projects selected by each agency, an unbalanced cost burden (similar to Phase 1 cost-allocation) was created. Although 29 projects were studied at feasibility level only 9 were selected:

- Each agency benefitted from projects studied at feasibility level; therefore, should pay their share based on that benefit.

- The costs for some tasks are not directly linked to the final Phase 2 project list and are appropriate to share equally (Meetings, Outreach, Administration, Grants Application & Management).
- Each agency's costs for the EIR/EIS and Financial Capability analysis are weighted based on the proportional value of their project's.

Cost-allocation Background and Timeline of Process

Original Cost-allocation Methods for Phase 2

- Previously 2 interim cost allocation methods were applied:
  - MOU: Allocated study costs equally between the Phase 2 Member Agencies
  - May 2014: Board adopted a new allocation based on the project list in the Scoping Study completed in 2013. This is currently used to assign costs and to invoice agencies, which is termed May 2014 Method.
- The MOU calls for a final reallocation of study costs based on the benefits received (i.e., final projects in the Selected Program)
  - MOU States "(h) For those agencies choosing to participate in Phase 2 as defined herein, they shall share equally in all Phase 2 Costs as defined herein. Should member agencies choose to construct projects as part of Phase 2, there will be an opportunity to receive reimbursement for previously allocated costs and liabilities that were not based on benefits received. Said reimbursement shall be calculated in a manner similar to that described in Paragraph (d), above."
  - The current list of projects in the Program total $55.4 million. Using that list would assign study costs based on the project costs of each agency as a percentage of $55.4 million. This is termed Current Project List Method.

Current Cost Allocation for Phase 1

- Phase 1 Support Costs for Phase 1 agencies
- Allocated based on the Phase 1 projects (Similar to the "Current Project List Method" above)

Current Joint Costs: Costs allocated equally for all Phase 1 and Phase 2 agencies

Timeline of Cost-allocation Evaluation Process:

- March 2016: as a consequence of agencies withdrawing projects from Phase 2, the cost-allocation inequities of the Current Project List Method (Phase 1 approach) were amplified and initiated discussions regarding Phase 2 budget amendments and new cost-allocation methods
- June 2016: Program Manager presented the TAC with tables similar to what is referred to here as the September 2016 Method
- September 2016: Presented cost-allocation for Phase 2 projects now termed the September 2016 Method
- October 2016: Presented transitional cost-allocation process that applies September 2016 Method for FY 14/15 & FY 15/16 and General Membership + Project Cost Method for FY 16/17, termed October 2016 Method
- November 2016:
  - Special TAC worksession to discuss cost-allocation methods. A new option was suggested to allocate meeting and public information costs in YR 3 from Phase 2 to Joint Use, termed November 2016 Method.
  - Conducted individual webmeetings with each agency to explain the allocation methods, discuss issues, and received requested analysis
  - SVCSD requested another allocation option that matched the method used Phase 1. They requested that 25% of the Phase 2 costs be allocated equally and 75% of the costs allocated based on the Projects in the final selected Program Current Project List 25/75 Method

The attached Updated Cost Allocations Memo provides detailed information for the methods considered and the results of each method.

Conclusions

Although the recommended cost-allocation method supports the approval of the amended FY 16/17 budget and completion of the Phase 2 studies, it does not address issues associated with cost-stabilization and the ability of the organization to work on additional funding beyond Title XVI. These issues will need further consideration from the Board in the coming months.

10

NOTICE OF MEETING OF
NORTH BAY WATERSHED ASSOCIATION

A meeting of the North Bay Watershed Association will be held as follows:
Date: Friday, December 2nd, 2016, Time: 9:30 a.m. – 11:30 a.m.
Location: Petaluma Community Center, 320 N. McDowell Blvd., Petaluma, CA 94954-
Conference Room 2

AGENDA Item and Recommendation

1. Call to Order (Jack Gibson, Chair) **9:30**
2. Public Comment
3. Approval of the Agenda (1 min.) *Approve*
4. Approval of Minutes (5 min) *Approve*
5. Treasurer's Report *handout* (1 min.) *Accept*
6. Director's Report information*/questions*

7. **Pharmaceuticals and Other Contaminants of Concern in our Waters:** **9:45**
   Meg Sedlack, San Francisco Estuary Institute
   Presentation and Q & A

8. **North Bay Trash Amendments/Stormwater Planning Project** **10:15**

   Rob Carson, Coordinator, Marin County Stormwater Program

   Rob will provide a status report to the Board on the ongoing work of preparing the region to comply with new pending trash reduction rules. - *Presentation and Q & A*

9. **Proposed Support for Improvements to *Game of Floods*** **10:35**

   Judy Kelly, Executive Director –*recommend approval*

10. **Introduction to the NBWA Proposed Communication Plan for 2017** **10:50**

    Judy Kelly, Executive Director - Presentation *and Q & A*

11. **Items of Interest** **11:15**

12. **Items for next agenda** **11:25**

* Harmful algae blooms in North Bay waters-
* Accomplishments under the Friends of the Petaluma River Grant
* Review and support of the 2017 NBWA Communications Plan

Next Meeting Information: January 6th, 2017 Novato Sanitary District, 500 Davidson St, Novato, CA 94945

North Bay Watershed Association

Summary of the meeting of the North Bay Watershed Association (NBWA) Board of Directors

Date: November 4, 2016 - Time: 9:30 a.m. -Location: Novato Sanitary District, 500 Davidson St. Novato

Board Member	Agency	Board Member	Agency
Mike Healy	City of Petaluma	Jack Baker	North Marin Water District
Madolyn Agrimonti	City of Sonoma & Sonoma Valley Co. SD	Brant Miller	Novato Sanitary District
Damon Connolly	County of Marin	Pamela Meigs	Ross Valley Sanitary District
Judy Schriebman	Las Gallinas Valley Sanitary District	Brad Sherwood	Sonoma County Water Agency
Jack Gibson	Marin Municipal Water District		

Directors present represented 9 of the 18 agencies signatory to the Association MOU.

1. **Call to Order** – Jack Gibson, Chair calls the meeting to order at 9:39 a.m.
2. **Public Comment** – No public comments were brought forward.
3. **Approval of the Agenda** – The agenda was unanimously approved by the Board.
4. **Approval of Minutes** – The previous Board Meeting's minutes were unanimously approved.
5. **Treasurer's Report** – Judy Kelly, NBWA Executive Director began by thanking Cheryl Howard of MMWD for her continued work to manage NBWA finances. An invoice to American Canyon for their new membership will be sent out soon. Judy has reached out to the Valley of the Moon about potential membership, but has not heard back. She requested that Board Members with connections to this organization reach out to determine their interest.
6. **Director's Report** Judy Kelly reported:
   - 2017 Board Meeting dates have been set. Locations for these meetings are being established, but scheduling has been difficult in part due to a change in policy by the Marin Community Foundation who now only accepts reservations 30 days in advance.
   - SCWA's Isolation Valve Installation Project has been featured in this month's Director's Report, and is an example of how NBWA member agencies can promote their own efforts through NBWA. To have your own organization's efforts promoted please contact Sophie Hallam-Eames or Judy Kelly.
   - There are 2 upcoming water conferences which are relevant to NBWA member agencies. See the Director's Report for more information.
   - NBWA is introducing a Lending Library, a collection of documents on relevant topics for NBWA members. To check out any document please contact Sophie Hallam-Eames. Library will be available at NBWA Board Meetings.
7. **What's New at the Regional Water Board** – Bruce Wolfe, Executive Officer, San Francisco Bay Regional Water Resources Control Board

Mr. Wolfe covered a great deal of information about the Board and current activities of the Board with a focus on North Bay issues. The following is a very abbreviated summary of the topics he addressed. For more information about Regional Board activities the reader is encouraged to see the Regional Board's website at

http://www.waterboards.ca.gov/sanfranciscobay

Established in 1949, the Regional Water Quality Control Board (RWQCB) was developed to provide oversight and a permitting process for any discharges that could impact water quality in California. Unlike other government regulatory groups, the RWQCB developed its boundaries on a watershed basis, which frequently do not match other political boundaries. Regional Boards frequently experience varying social and economic pressures, and threats to water quality that can affect their tasks. Urban areas and agriculture, industry, now including cannabis growers for Regional Board 1, and various groundwater issues require an array of approaches to protect water quality.

The RWQCB is overseen by a seven member Board, which includes members who are appointed for a 4 year term by the governor. Currently, one Board position is open. Bruce Wolfe discussed an extensive array of issues being considered at the RWQCB. The following points outline some issues of interest to the present NBWA Board Members:

- Groundwater – Under SGMA, the state is currently developing groundwater plans for all regions, and is concerned about developing salt and nutrient plans for all groundwater regions.
  Q: What is the role of fracking in ground water protection? A: No fracking in this region, but we do have oil wells. Concerns about water being used to drill, as well as waste water produced by this process.
- Mercury in Water Sources – Source is largely airborne, probably primarily from Asia, some historic sources currently regulated under permit: dentistry contributes small amount.
  Q: Did the Napa Mines contribute? A: State funding currently being used to research the Napa Mines with drones and aerial imagery.
  Q: If Dentistry only plays small role, is there a need to place restrictive economic measures on small businesses to limit mercury release? A: RWQCB needs to distinguish between historic and new mercury loads, before they can ask water agencies and others to work together to limit new loads of contaminants.
- Recycled Water – although flows of contaminated water may decrease, pollutant load may remain the same.

Bruce Wolfe offered that he would be happy to speak to agency boards or other groups about WQCB related issues.

8. **Items of Interest** - Following the Sonoma County Water Agency's Fish Ladder opening on the Russian River, the Board expressed interest in touring certain relevant sites as a group. Potential locations may include treatment plants, SCWA Fish Ladder, etc. A draft of suggestions will be available to the Board in December.
9. **Items for Next Agenda**
   Drugs in our Water – Meg Sedlack, SFEI
   Climate Adaption Planning – Brad Sherwood (SCWA) and SCWA's consultant

SUBJECT TO BOARD APPROVAL
Submitted by: Sophie Hallam-Eames
Water Agency Programs Specialist (SCWA) and NBWA Staff

Next Meeting Information: December 2, 2016 -Petaluma Community Center (Conference Room 2)
320 N McDowell Blvd, Petaluma, CA 94954

Northbay Watershed Association
Treasurer's Report
November 1 - November 22, 2016

**PLEASE NOTE BALANCES THROUGH 11/22/16 ONLY

Revenues:

Billings-Stewardship - General Benefits - 2017	146,574.60	
NBWA 2016 Conference Revenue	1,500.00	
Misc Revenue		
Total Revenues		**148,074.60**

Expenses:

Executive Director Professional Services:	37,600.00
Admin Professional Fees & Expenses:	
Administrative Support - SCWA	
Operating Expense - General Benefit - website, etc..	1,097.40
NCRCD - LandSmart for Kid, Point Blue STRAW Program	1,864.07
Sonoma Ecology Ctr - Climate Readiness	
Marin County Flood Control - Bothin/Coyote Creek	
Friends of Petaluma River - Watershed Classroom	
EOA - BASMAA Trash Project	10,332.56
2nd Nature - Rural Road Ram Project	20,000.00
Total Expenses	**70,894.03**
Change this period	77,180.57
Fund Balance as of July 1, 2016	$ 171,644.95
Fund Balance as of November 22, 2016	$ 248,825.52

December 2016 - Director's Report

NBWA Business

- On November 14th the Ad Hoc **NBWA Communication Committee** met by phone to review proposed changes to the Draft Outreach Plan. Those suggested edits and changes have been incorporated into the new verson of the Draft which will be handed out and briefly summarized at the December meeting. Board action on the Draft Plan is scheduled for the January 2017 meeting.
- Progress continues on the currently supported NBWA projects: Our NBWA funded project with Friends of the Petaluma River has concluded and the organization will deliver a final report to the Board in January. Majority funding has been invoiced for the Rural Road Assessment project as 2ndNature's work is well underway, and the BASMAA stormwater project is actively proceeding -- the Board will receive a status update on that project in the early part of the New Year.
- Advance planning: In January the Board will have hear from senior Regional Water Board about harmful algal blooms in north bay waters and the work done to date by the San Francisco Board on this issue. We will also get a final report from the Friends of Petaluma River on the work NBWA funded in natural resource education and finally, we will review and hopefully approve the proposed NBWA Communication Plan.
- NBWA Board Dates for 2017. Based on the schedule of meeting the first Friday of the month but avoiding major holiday weekends, the draft schedule for 2017 is proposed as follows:

  January 6 – Novato Sanitary District
  February 3 – Novato City Hall
  March 3 – Bel Marin Keys (pending confirmation)
  April 7 – Novato Sanitary District
  May 5 – Petaluma Community Center
  June 2 – Novato City Hall
  July 7 – Novato Sanitary District
  No August Meeting
  September 8 – Novato Sanitary District
  October 6 – Petaluma Community Center (pending application acceptance)
  November 3 – Novato City Hall
  December 1 – Novato Sanitary District

  Please mark your calendars [note: final meeting sites may change as we work to secure some meetings at the Marin Community Foundation]

Funding News

New EPA San Francisco Bay Water Quality Improvement Fund. While the situation with the Federal Budget and EPA specifically is uncertain for the coming year, sources tell me that US EPA Region 9 expects to continue to receive an allocation for funding projects from the Improvement Fund in 2017. EPA manages a competitive grant program to support projects to protect and restore San Francisco Bay. This grant program, known as the San Francisco Bay Water Quality Improvement Fund (SFBWQIF) began in 2008. The SFBWQIF has invested over $44 million in 61 projects through 36 grant awards. These projects include over 70 partners who are contributing an additional $153 million to restore wetlands and watersheds, and reduce polluted runoff. An RFP for draft proposals for this funding source would be due to EPA in the early spring of 2017. I will continue to report the status of these potential funds as we move into the next year.

Integrated Regional Water Management Plan [IRWMP] While a Draft Proposal was expected to submitted to DWR on behalf of the Bay Area Region in late October for $6.5 million, the final submission is now expected to occur in late November. The Proposal also now specifically lists many potential outreach partners including several in the North Bay. Drafters note that the included list doesn't mean an entity not listed can't participate not that if an entity is listed that final funding is assured. Among the first tasks once the grant is awarded is meeting with potential partners to see how they can participate in involving DACs and the expectation is that many to be involved. See www.bairwmp.org for news and update on this funding.

Member News

- North Marin Water District is expanding the recycled water system into the Central Service Area of Novato. This expansion in cooperation with Novato Sanitary District, will extend from Novato Sanitary District's treatment plant to Marin Country Club, serving approximately 40 large landscape customers and 3 car washes along the way. This project has been designed to reach the maximum number of large landscape users and will offset approximately 65 million gallons of potable water per year. See link below for Recycled Water Central Service Area Construction project updates. nmwdcentralexpansion.blogspot.com

Other News and Notes

- State Wildlife Conservation Board awards funds to Napa. In November, the Board awarded a $3.7 million grant to the Land Trust of Napa County for a cooperative project with the State Coastal Conservancy, California Natural Resources Agency and others to acquire a conservation easement over approximately 7,266 acres of land. This will preserve and protect managed forest lands, riparian corridors and watersheds that support rare and special status wildlife species and vegetation near the City of Calistoga in Napa County
- What might the election mean to California water issues? The Santa Rosa Press Democrat reports that "*Restoring salmon in the Russian River and protecting the North Coast from oil rigs — two long-standing campaigns with broad public support — are among the goals likely to be challenged if not stifled by the sharp right turn of Donald Trump's administration, environmental advocates and Democratic lawmakers said. More broadly, the environmental camp fears that landmark legislation, including laws that protect endangered species, clean air and water, are imperiled by Republican control of the House and Senate with an avid deregulation partner in the White House. ...* " Read more from the Santa Rosa Press Democrat here: California environmental leaders, lawmakers gird for fight against Trump
- Publication of the month. What's the latest with the **Department of Water Resources**? Published three times a year, the DWR Magazine highlights current projects of the Department and efforts by water managers around the state to innovate and address projects and challenges. The current issue includes an interesting overview of the 60-year history of the agency and stories from around the state about how districts are managing resources.

- Upcoming Meetings and Conferences. Several interesting conferences and symposium are planned for late this year and early next. Here is a link to the Maven's Notebook page where these are listed and described https://mavensnotebook.com/calendar/action~posterboard/cat_ids~336,346,376/request_format~html/. Especially interesting is the planned December 6th meeting in Sacramento to review the lessons learned in applying low impact development techniques to work on addressing Sacramento stormwater, and the January 21st California Water Law symposium in San Francisco at USF focused on the Bay-Delta issues.

ASSOCIATION OF BAY AREA GOVERNMENTS
Representing City and County Governments of the San Francisco Bay Area

ABAG

Date: November 22, 2016

To: Elected Officials of a North Bay City or County that Touches the San Francisco Bay

From: Julie Pierce
ABAG President

Subject: **Notice of Vacancy on the Governing Board of the San Francisco Bay Restoration Authority**

The North Bay seat on the Governing Board of the San Francisco Bay Restoration Authority is vacant and will be filled following a nomination process.

The San Francisco Bay Restoration Authority is a regional government entity, created in 2008 with jurisdiction extending throughout the San Francisco Bay Area. Its mission is to raise and allocate funds for the restoration, enhancement, protection and enjoyment of wetlands and wildlife in the San Francisco Bay and along its shoreline. In June of 2016 Bay Area voters approved a regional parcel tax expected to generate $25 million per year for 20 years for this purpose. More information about the Restoration Authority is available at http://sfbayrestore.org/board-documents.php

The Restoration Authority is governed by a board consisting of seven members appointed by the Association of Bay Area Governments. Those eligible for appointment to the North Bay seat on the Governing Board are elected officials of a city or county in the North Bay that touches the San Francisco Bay. ABAG is interested in appointing someone who:

- Has a demonstrated interest in the restoration and conservation of San Francisco Bay;
- Is willing to make funding decisions that are in the best interest of the Bay Area region as a whole;
- Will work collegially with elected officials from outside their own jurisdiction; and
- Has the time and interest to be an active member of the Governing Board who can regularly attend board meetings as well as take on occasional tasks requiring work between board meetings.

The appointment will be for the unexpired current term which ends on April 21, 2017 and the subsequent term from April 22, 2017 to April 21, 2021.

If you would like to be considered for appointment, please prepare a letter of interest addressed to ABAG President Julie Pierce, Association of Bay Area Governments, 375 Beale Street, Suite 700, San Francisco, California 94105. Please include a statement about your interest in serving on the Governing Board, a description of your experience with wetlands restoration, and your experience working at a regional level or other related collaborative efforts.

Your letter of interest should be emailed to Fred Castro, ABAG Clerk of the Board, at fredc@abag.ca.gov. **Please submit your letter of interest by December 16, 2016** for consideration by the ABAG Executive Board at its meeting on January 19, 2017.

11

ITEM #11

`FOR ACCESSIBLE
MEETING INFORMATION
CALL: (707) 543-3350
ADD: (707) 543-3031

TECHNICAL ADVISORY COMMITTEE

MONDAY, DECEMBER 5, 2016

9:00am

Utilities Field Operations Training Center

35 Stony Point Road, Santa Rosa, CA

1. Check In
2. Public Comment
3. Water Supply Conditions
4. Sonoma Marin Saving Water Partnership
    a. Water Production Relative to 2013 Benchmark
    b. SWRCB Urban Water Advisory Group
5. Biological Opinion Status Update
6. Items for next agenda
7. Check Out

Russian River Biological Opinion Update – December 2016

The Sonoma County Water Agency is continually planning and implementing the Russian River Biological Opinion requirements. The following project updates provide a brief synopsis of current work. For more detailed information about these activities, please visit www.sonomacountywater.org.

Fish Flow Project

On August 19, the Water Agency released the Environmental Impact Report for the Fish Habitat Flows and Water Rights Project. Open House workshops were held on August 22 (Cloverdale) and on August 24 (Monte Rio) and a public hearing was held on September 13, in Santa Rosa.

In response to public comments, Directors Carrillo and Gore proposed that the public comment period be extended and additional hearings be added. The Board of Directors approved an item to extend the Fish Flow Project Draft EIR public comment period to February 14, 2017 (a total of 180 days) and added public hearings in Cloverdale (November 16) and Guerneville (November 17). About 20 members of the public attended the Cloverdale hearing and there was one verbal comment. Approximately 120 people attended the Guerneville hearing, and there were 25 verbal comments.

Dry Creek Habitat Enhancement Project

- Miles 2 and 3: In-stream construction is complete for the season on 0.6 miles of creek downstream of the Truett Hurst Winery and on a 0.3 mile reach downstream of the Westside Road Bridge. Water Agency Staff are working with property owners to finalize designs and right-of-way agreements for remaining Mile 2 and 3 sites planned for construction in 2017.
- Miles 4-6: Planning, preliminary field investigation and design are under way for Miles 4 - 6.
- The US Army Corps is using information from Mile 2-6 to complete two feasibility studies that should pave the way for federal funding. The first Army Corps study under the Continuing Authorities Program (CAP) will help complete Miles 2 and 3. A draft CAP study was recently completed and recommends Army Corps construction of reach 4a (total length 0.4 miles) at a total federal cost of $3.28 million. The second Army Corps effort for Mile 4-6 planning, called a General Investigation (GI) Ecosystem Restoration study, has less funding restrictions and should be completed by 2018.

Fish Monitoring

As of November 19, a total of 989 Chinook salmon have been counted at the Mirabel Inflatable Dam, evidence the recently completed Russian River Fish Ladder is working as intended and providing incredible images of migrating fish. This number will be updated as fisheries staff review the video and verify the counts. Mirabel Dam was deflated for the season on November 20. Without the dam in place, fish cannot be counted in the fish ladder.

It is important to note that the number of observed fish does not represent the total number of fish migrating past the dam. Given the data gaps due to recent storms and non-operation of the east-side fish ladder video system this season, it's very difficult to compare this year's counts to previous seasons. Our current count at Mirabel could easily be 50-100% off the actual number of fish that have passed through the ladder.

Water Agency biologists continue to record adult fish entering Dry Creek and are currently performing spawning ground surveys in Dry Creek and tributary streams throughout the lower Russian River watershed.

Mirabel Screen and Fish Ladder Replacement

Construction activities are complete. Testing is ongoing on the new screens; and interpretive signs are being designed for the viewing gallery. An opening ceremony and tour was held on November 2 for elected officials and others involved in the project.

A public event was held on Saturday, November 19 and 98 people attended (despite the rainy weather). Event attendees came almost entirely from Sonoma County, but represented many different cities and towns within the county. Almost everyone saw Chinook salmon in the ladder. We will schedule similar events next season.

Russian River Estuary Management Project

- The 2016 Lagoon Management Period began on May 15 and ended on October 15.
- During the 2016 management season, the mouth of the Russian River closed five times:
    - May 31: An outlet channel was implemented on June 7, but scoured open later that day.
    - June 15: An outlet channel was implemented on June 27, which scoured open that evening.
    - July 1: The estuary self-breached on July 12.
    - September 11: The estuary self-breached on September 30.
    - October 12: Water Agency artificially breached the barrier beach on October 20.
- During the past two years, studies were conducted to determine if and how the historic Goat Rock State Park jetty impacts the formation of the barrier beach and lagoon water surface elevation. Comments have been received on the draft report, and a final report will be released in the fall.

Interim Flow Changes

The Water Agency filed a Temporary Urgency Change Petition (TUCP) with the State Water Board in order to comply with the Biological Opinion flow requirements. The State Water Board issued a TUC order in May, and the order ended in October. Reports are due in April.

Public Outreach, Reporting & Legislation

- Signage was installed for a high-visibility Dry Creek habitat enhancement project at Truett Hurst.
- Outreach continues to be focused on the Fish Flow Draft EIR, including publicizing the availability of the document, community workshops and hearings.
- The ribbon cutting and official opening of Russian River Fish Ladder and Viewing Gallery took place on November 2. Due to public demand to see the project, a November 19 open house was held for the 200+ people on the tour waiting list. Nearly 100 people attended, despite very rainy weather.

Russian River Fish Ladder and Viewing Gallery ribbon cutting, November 2, 2016.

State Water Resources Control Board Conservation Standard Tracking for the Sonoma-Marin Saving Water Partnership

Table 1: Monthly Water Use Relative to 2013 Benchmark

Water Retailer	October 2016 (Gallons)	2013 Benchmark (Gallons)	Savings Relative to 2013 Benchmark	October 2016 GPCD*	FY 2015/2016 Conservation Standard
Cal Am	20,631,000	28,632,000	28%	74	25%
Cotati	25,123,112	33,790,749	26%	111	20%
Marin Municipal	639,743,268	846,887,859	24%	109	20%
North Marin	282,345,232	313,000,000	10%	149	24%
Petaluma	206,263,683	284,716,052	28%	107	16%
Rohnert Park	124,800,933	170,000,000	27%	93	16%
Santa Rosa	538,377,225	725,805,260	26%	100	16%
Sonoma	53,601,838	83,551,564	36%	149	28%
Valley of the Moon	77,027,071	105,214,167	27%	104	20%
Windsor	87,907,757	119,097,067	26%	103	16%
SMSWP Total	**2,055,821,119**	**2,710,694,718**	**24%**	**109**	**19%**

* GPCD is provided as information only

Table 2: Aggregate June 2015 to Current Month Relative to 2013 Benchmark

Water Retailer	Aggregate June 2015 to Date (Gallons)	2013 Benchmark (Gallons)	Savings Relative to 2013 Benchmark	FY 2015/2016 Conservation Standard
Cal Am	366,025,161	467,693,000	22%	25%
Cotati	393,009,242	493,696,850	20%	20%
Marin Municipal	11,157,327,234	13,730,750,241	19%	20%
North Marin	3,782,046,460	5,001,000,000	24%	24%
Petaluma	3,716,705,384	4,804,546,909	23%	16%
Rohnert Park	2,053,539,070	2,503,000,000	18%	16%
Santa Rosa	8,209,272,135	10,753,246,381	24%	16%
Sonoma	829,832,946	1,157,004,898	28%	28%
Valley of the Moon	1,153,105,773	1,588,975,382	27%	20%
Windsor	1,530,333,153	1,950,539,473	22%	16%
SMSWP Total	**33,191,196,558**	**42,471,296,871**	**22%**	**19%**

12

ITEM #12

MEMORANDUM

To: Board of Directors December 2, 2016

From: Chris DeGabriele, General Manager

Subj: Information Regarding Appointment to Fill Prospective North Marin Water District Board Vacancy
t:\bod\elections\board vacancy 2016\bod memo info.docx

RECOMMENDED ACTION: Information Only

FINANCIAL IMPACT: None at this time

Attached please find a listing of the information necessary to appoint a Director to a vacancy created by the impending resignation of Director Rodoni. Director Rodoni intends to resign at the December 20, 2016 meeting. The attached information lays out the Government Code requirements and the practice the District has used in the past for selection of a successor along with a tentative timeline for the process. I intend to include an action item, in open session, for this topic at the December 20th meeting. The information included herein is just a refresher until the Board accepts Director Rodoni's resignation.

APPOINTMENT TO FILL NORTH MARIN WATER DISTRICT BOARD VACANCY CREATED BY RESIGNTATION OF DIRECTOR DENNIS RODONI

SUMMARY

1. Government Code section 1780 (a) requires notice to county election officials within 15 days of notice of a vacancy or of effective date of vacancy.

2. The effective date of the vacancy is important, because that is the first date on which the Board's authority to appoint a replacement arises. Sixty days after that date, if the Board of Directors has not appointed a successor, the authority to do so is automatically transferred to the Board of Supervisors. Director Rodoni advises he intends to resign from the Board at the December 20, 2016 meeting. An "Action" item in open session for "Acceptance of Resignation of Director Dennis Rodoni" will be agenized at that meeting." The action item would establish the effective date of the acceptance of resignation, and therefore would determine when the vacancy actually starts. This occasion could also be the time when the other Directors make their "farewell" comments to Director Rodoni in a public meeting.

3. No process is specified by law for how the Board is to choose a successor. The following comments are not "prioritized."

   - The Board can decide how it will announce the opportunity to seek consideration as a candidate to fill out the unexpired term to be vacated upon the effective date of Director Rodoni's resignation. The Board also can decide what process it will follow - e.g., written application forms might be used, or letters of interest might be solicited. Discussion of these issues must be done in public session.

   - The Board should decide on whether, and if so how, it will conduct interviews of candidates for appointment. This discussion, and the interviews themselves, must be conducted in open public session, since closed sessions may only be held for the purpose of discussing appointment of an employee - members of legislative bodies are expressly excluded from the definition of "employee."

   - Technically, if the Board delegates responsibility to a two-Director ad hoc committee, that committee could meet without having to comply with the notice and open meeting requirements of the Brown Act. However, use of such a committee approach could give rise to questions regarding trust within the community and within the Board itself.

- Once the Board makes an appointment, it should be made effective within 60 days after the date of the vacancy.

4. Appointment of a successor requires an affirmative vote of 3 Directors.

5. The appointed successor will hold the office until the next general election of the District (November 2017) and the seat will be "up" at the 2017 election. Whoever is elected in 2017 will serve only the two remaining years of the unexpired term. If the appointed successor runs in the 2017 election, Elections Code section 13107 requires that he/she would have to be identified on the ballot in ballot materials as an "appointed incumbent."

6. Regarding the process for selection of a successor, past practice at North Marin Water District has been to notice the vacancy in the local newspapers (Novato Advance, Marin Independent Journal, Point Reyes Light) and post the notice at District headquarters, Novato city hall, Novato library and at the Point Reyes Station and Oceana Marin post offices. The notice would also be posted on the District's website. The notice would recognize the date of the vacancy, the fact that the appointee will serve until the next scheduled general election and solicit letters of interest and resumes from residents of the District who are interested in serving. We would also issue a press release. In the past the solicitation has been held open for a period of approximately one month and interviews with applicants have been held at either a regular or special meeting of the Board in open session. Should the solicitation result in an overwhelming number of applicants a screening can be performed to reduce the number to be interviewed.

A tentative timeline for the process follows:

December 20, 2016	Announce vacancy occurred December 20, 2016
December 21, 2016	Issue public notice of vacancy and solicit letters of interest for appointment
January 20, 2016	Deadline to submit letters of interest for appointment
January 23-27, 2016	Individual screening of applicants
January 30, 2017	Tabulation of screening and schedule interview with prospective Board members
February 7, 2017 (or set Special meeting prior to February 18, 2017)	Interviews with prospective Board members and vote on appointment

13

ITEM #13

MEMORANDUM

To: Board of Directors December 2, 2016

From: Chris DeGabriele, General Manager CD

Subj: Public Review Draft: Making Water Conservation a California Way of Life
I:\gm\water conservation\making wc a ca way of life.docx

RECOMMENDED ACTION: Information Only

FINANCIAL IMPACT: None at this time

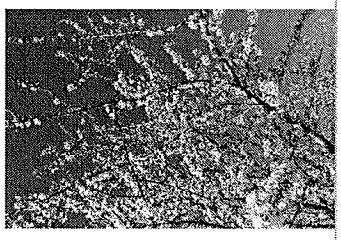
The Public Review Draft of the water conservation framework pursuant to the Governor's May 9th Executive Order to make water conservation a California way of life was released on Wednesday, November 30th. Staff is reviewing the document now and hopes to have a more detailed description of its effects on District operations at the meeting on Tuesday evening.

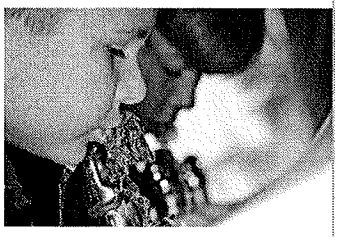
In essence, the framework will require calculation of a system-wide water budget for the District. The water budget will consist of new targets for indoor residential water use, and outdoor landscape irrigation water use, performance measures for commercial, industrial, and institutional accounts, and an allowance for system losses. The overall system water budget is expected to be less than the targets now in place pursuant to the SBX7-7, 20% reduction in per capita water use by the year 2020.

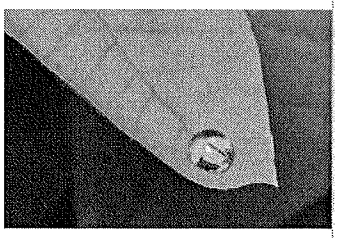
Some of the provisions of the framework can be implemented with existing authorities now in law; others will require additional statutes to be adopted by the Legislature. It's expected that the Legislature will act on these needed provisions in 2017 and 2018.

Additionally, there will be necessary changes to Urban Water Management Plans, now requiring a 5-year drought period as compared to a 3-year drought period in the current Urban Water Management Planning Act. Six stages are proposing to be included in the new Water Shortage Contingency Plans and annual assessments of available water supply for the current and a following drought year will be required to be submitted to the State Board. Monthly Reporting of water production will continue, as will the prohibition on water waste which were implemented in the 2014 Executive Order.

Public comments are to be received on the Draft framework by December 19th. The Association of California Water Agencies anticipates preparing a joint comment letter and urge individual agencies to comment. North Marin will comment and will propose that the Sonoma Marin Saving Water Partnership generate comments also.







Making Water Conservation a California Way of Life

Implementing Executive Order B-37-16

PUBLIC REVIEW DRAFT
November 2016

Water Boards

cdfa
CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

ENERGY COMMISSION

This report was prepared by the California Department of Water Resources, State Water Resources Control Board, California Public Utilities Commission, California Department of Food and Agriculture, and California Energy Commission in response to Governor Edmund G. Brown Jr's Executive Order B-37-16 and to provide information to the California Legislature and the public.

This report is available in electronic form: http://www.water.ca.gov/wateruseefficiency/conservation/

Edmund G. Brown Jr.
Governor
State of California

Mark W. Cowin
Director
California Department of Water Resources

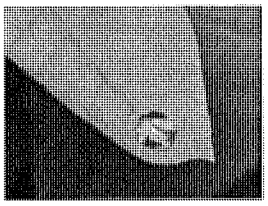
Felicia Marcus
Chair
State Water Resources Control Board

Michael Picker
President
California Public Utilities Commission

Karen Ross
Secretary
California Department of Food and Agriculture

Robert B. Weisenmiller
Chair
California Energy Commission

Executive Summary



Water resource management in California faces unprecedented challenges from climate change and a growing population. In the years ahead, the task of managing water to maintain vibrant ecosystems while supporting a robust economy will require the collective and concerted efforts of state and local governments, non-governmental organizations, businesses, and the public. Increased conservation and water use efficiency are needed to ensure the resilience of our water supplies to increasingly severe droughts and other impacts of climate change.

California is currently in the grips of an extreme drought with record low precipitation. This five-year drought has caused severe impacts across the State, including community water sources running dry, the loss of agricultural production and jobs, depletion of groundwater basins, widespread tree death, and impacts to fish and wildlife. While most urban areas have been spared from water rationing, emergency conservation has provided a critical safeguard against more dire consequences under extended drought conditions. After Governor Edmund G. Brown, Jr. called for a 25 percent reduction in urban water use in 2015, Californians rose to the challenge and saved over 24 percent during the nine months the mandate was in place.

Executive Order B-37-16, signed by Governor Brown on May 9, 2016, builds on that success to establish long-term water conservation measures and improved planning for more frequent and severe droughts. The centerpiece of the Executive Order is a requirement for the State's 410 urban water suppliers to meet new water use targets. Rather than measuring water savings as a percentage reduction from a chosen baseline, the new standards will take into account the unique climatic, demographic and land-use characteristics of each urban water agency's service area. This approach represents a fundamental shift to a conservation framework that is more durable and that can be applied equitably and uniformly across the enormous variation in local conditions in California. The new targets will ensure all urban water is used efficiently and will facilitate conservation measures such as conversion to California-friendly landscapes, replacement of inefficient fixtures and appliances, and reductions in system leakage.

Other aspects of the proposed conservation framework will:

- Provide greater consistency among water suppliers statewide in the elements of Urban Water Management Plans, Water Shortage Contingency Plans, and Agricultural Water Management Plans; and continue work with counties to improve drought planning in small communities and rural areas;
- Enable water suppliers to customize their water management strategies and plan implementation to regional and local conditions;
- Empower water suppliers to take a place-based response to water shortages caused by drought or other water emergencies, while planning for longer drought cycles; and
- Incentivize and set standards for the use of new technologies and practices to reduce leaks.

This next generation of water efficiency and conservation will fulfill the first directive of the California Water Action Plan, to "Make Conservation a California Way of Life." Improved water efficiency will also support the State's ambitious climate change goals by reducing energy use and greenhouse gas emissions associated with water use and by building resilience to future droughts.

Executive Order B-37-16 contains four inter-related objectives:

- Using Water More Wisely
- Eliminating Water Waste
- Strengthening Local Drought Resilience
- Improving Agricultural Water Use Efficiency and Drought Planning

Five state agencies – the Department of Water Resources, the State Water Resources Control Board, the California Public Utilities Commission, the California Department of Food and Agriculture, and the California Energy Commission (collectively referred to as the "EO Agencies") – are charged with implementing the Executive Order's four inter-related objectives: using water more wisely, eliminating water waste, strengthening local drought resilience, and improving agricultural water use efficiency and drought planning. Collectively, the EO Agencies will be undertaking a suite of actions that can be implemented using existing authorities, ranging from rulemaking proceedings to expanded technical assistance, to evaluation and certification of new technologies to implement the four objectives. Where necessary, the EO Agencies also recommend additional actions, authorities, and resources necessary to meet EO requirements that cannot be implemented within existing authorities.

The EO Agencies employed a robust stakeholder engagement process, which commenced with a series of public listening sessions in June 2016. The EO Agencies also convened two stakeholder advisory groups – an Urban Advisory Group and an Agricultural Advisory Group – comprised of specific stakeholder types identified in the Executive Order, as well as additional interests such as disadvantaged communities / environmental justice advocates, academia, industry, professional associations, environmental advocacy groups, and others. These meetings were open to the public and used to solicit input for EO Agency consideration. The EO Agencies will continue to solicit stakeholder and public input, make use of technical experts, and provide assistance to successfully implement this long-term framework for water conservation.

Under the proposed framework, the EO Agencies and water suppliers would meet the Executive Order's objectives through the following actions.

Using Water More Wisely

Emergency Conservation Regulations (Executive Order Item 1): The State Water Resources Control Board (Water Board) will extend its current emergency water conservation regulation, which is in effect through February 2017, for an additional 270 days based on supply conditions and water conservation levels. The Water Board will hold a public workshop and propose extended emergency regulations in January 2017, if necessary.

New Water Use Targets (Executive Order Items 2 and 6): Upon statutory authorization, the EO Agencies will adopt new water use standards for all urban water use and a new urban water use target methodology. Urban water suppliers would, in turn, be required to calculate their unique water use targets based on those standards and local conditions. The EO agencies will establish

interim targets that are applicable starting in 2018, and require full compliance with final targets by 2025. This report proposes a timeline for the EO Agencies to establish final water use standards. The report also documents the process to develop standards; reporting and compliance requirements; and assistance to be provided by the EO Agencies. Additional legal authority would be required for successful implementation.

Permanent Monthly Reporting (Executive Order Item 3): The Water Board will open a rulemaking process to establish permanent monthly urban water reporting on water usage, amount of conservation achieved, and any enforcement efforts. The rulemaking will start at the end of 2016 and run through 2017, concurrently with EO Item 4, below.

Eliminating Water Waste

Water Use Prohibitions (Executive Order Item 4): The Water Board will open a rulemaking process to establish permanent prohibitions on wasteful water practices, building on the current prohibited uses in the emergency regulation. The rulemaking will start at the end of 2016 and run through 2017, concurrently with EO Item 3.

Minimizing Water Loss (Executive Order Items 5 and 6): The EO Agencies will meet the requirements of EO Items 5 and 6 through implementation of Senate Bill 555, along with additional actions to satisfy the Executive Order's directives related to reducing water supplier leaks. Implementation actions include the following:

- Rules for validated water loss audit reports: By October 1, 2017 and annually thereafter, urban retail water suppliers must submit validated water loss audit reports to the Department of Water Resources (DWR). DWR will adopt rules for standardizing water loss audits in early 2017. DWR will also revise funding guidelines so that water suppliers that do not submit reports will be ineligible for DWR grants and loans.

- Water loss performance standards: By July 1, 2020, the Water Board will adopt rules requiring urban retail water suppliers to meet performance standards for the volume of water losses.

- Technical assistance for water loss audits: The Water Board is also funding the California Water Loss Control Collaborative' s Technical Assistance Program to ensure high quality and properly validated water loss audits. For smaller water suppliers addressing water losses, the Water Board will offer financial assistance through the Drinking Water State Revolving Fund beginning in 2017.

- Minimizing leaks: The California Public Utilities Commission (CPUC) will order large, investor-owned water utilities to accelerate work to minimize leaks. The CPUC may grant financial incentives for minimizing leaks during the review of each utility's upcoming General Rate Case applications.

Innovative Water Loss & Control Technologies (Executive Order Item 7): The California Energy Commission (CEC) is evaluating various options for certification of water loss detection and control technologies at utility, household, and appliance levels. The CEC is also making investments in research and funding programs for water saving devices and technologies.

Strengthening Local Drought Resilience

Water Shortage Contingency Plans (Executive Order Items 8, 9, and 6): Upon statutory authorization, urban water suppliers will be required to submit a Water Shortage Contingency Plan and conduct a 5-year Drought Risk Assessment every five years, and conduct and submit a water budget forecast annually. The EO Agencies will establish appropriate compliance and reporting criteria, and provide assistance to urban suppliers for meeting the requirements. Additional authorities would be required for successful implementation.

Drought Contingency Planning for Small Water Suppliers and Rural Communities (Executive Order Item 10): The EO Agencies' recommendations focus on improving drought vulnerability assessment and proactive actions, and supplier readiness and responsiveness during drought conditions. Currently, the recommendations focus on pathways for the EO Agencies to continue to work with counties to develop more specific, functional recommendations, which would be expected to continue into 2017. Additional authorities and funding may be required for successful implementation.

Improving Agricultural Water Use Efficiency and Drought Planning

Strengthened Agricultural Water Management Plan Requirements (Executive Order Items 11, 12, 13, and 6): Upon statutory authorization, agricultural water suppliers will be required to: (1) develop an annual water budget for the agricultural water service area, (2) identify agricultural water management objectives and implementation plans, (3) quantify measures to increase water use efficiency, and (4) develop an adequate drought plan for periods of limited supply. The proposal would expand existing requirements to require agricultural water suppliers providing water to over 10,000 irrigated acres of land to prepare, adopt, and submit plans by April 1, 2021, and every five years thereafter. Agricultural water suppliers would also be required to submit an annual report to DWR by April 1 of each year that documents water budget inflow and outflow components in the water budget for the preceding water year. Expanded authorities would be required for successful implementation.

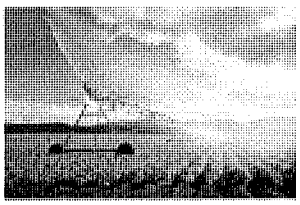


Table ES-1 summarizes the organization of the conservation framework presented in this report and the corresponding Executive Order items. For each component, the report describes the need for change, the vision for accomplishing the change, and specific actions required to realize the vision. Given the need for additional authorities, the Legislature has a critical role in successful implementation of the Executive Order.

Setting and meeting the conservation and efficiency goals described in this report represents a major step forward towards long-term water security. The framework supports the development of increased resiliency, more efficient water use, stronger water management portfolios and more robust financial systems. With the support of our businesses and residents, water agencies, environmental organizations, schools and universities, elected officials and others, we can keep California healthy, beautiful, and vibrant for decades to come.

Table ES-1. Actions and Recommendations Summarized in this Report

Chapter Section and Title where Item is Addressed	Executive Order Items: Use Water More Wisely			Eliminate Water Waste				Strengthen Local Drought Resilience			Improve Agricultural Water Use Efficiency & Drought Planning			Within Existing Authorities (Chapter 2)	Requires New Authority (Chapter 3)
	1	2	3	4	5	6	7	8	9	10	11	12	13		
2.1 Emergency Water Conservation Regulations for 2017	●													✓	
2.2 Permanent Prohibition of Wasteful Practices			●	●										✓	
2.3 Reduced Water Supplier Leaks and Water Losses					●	●								✓	
2.4 Certification of Innovative Technologies for Water Conservation and Energy Efficiency							●							✓	
3.1 New Water Use Targets Based on Strengthened Standards		●				●									✓
3.2 Water Shortage Contingency Plans						●		●	●						✓
3.3 Drought Planning for Small Systems & Rural Communities										●					✓
3.4 Agricultural Water Management Plans						●					●	●	●		✓

Note: The Executive Order directs DWR, Water Board, and CPUC to develop methods to ensure compliance with the provisions of the order, including technical and financial assistance, agency oversight, and, if necessary, enforcement action by the Water Board to address non-compliant water suppliers. These are described in Chapters 2 and 3.

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Contents

Acronyms and Abbreviations

20x2020	20 percent reduction in urban per capita water use by 2020
20x2020 Plan	20x2020 Water Conservation Plan
AB	Assembly Bill
AU	Agronomic Use
AW	Applied Water
AWMP	Agricultural Water Management Plan
AWUF	Agronomic Water Use Fraction
AWWA	American Water Works Association
BMP	best management practice
CASGEM	California Statewide Groundwater Elevation Monitoring
CCF	centum cubic feet
CCR	California Code of Regulations
CCUF	Crop Consumptive Use Fraction
CDFA	California Department of Food and Agriculture
CEC	California Energy Commission
CII	commercial, industrial, and institutional
CIMIS	California Irrigation Management Information System
CPUC	California Public Utilities Commission
CUWCC	California Urban Water Conservation Council
CWC	California Water Code
DWR	California Department of Water Resources
E	evaporation
EO	Executive Order B-37-16
EO Agencies	California Department of Water Resources, State Water Resources Control Board, California Department of Food and Agriculture, California Public Utilities Commission, California Energy Commission
EPIC	Electric Program Investment Charge
ETo	Reference evapotranspiration
ETc	evapotranspiration of crops
ETAF	Evapotranspiration Adjustment Factor

ETAW	Evapotranspiration of Applied Water
EU	Environmental Use
EWMP	Efficient Water Management Practice
GPCD	gallons per capita per day
GRC	General Rate Case
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
MOU	Memorandum of Understanding
MWELO	Model Water Efficient Landscape Ordinance
Reclamation	U.S. Department of the Interior, Bureau of Reclamation
RF	Recoverable Flows
SB	Senate Bill
SGMA	Sustainable Groundwater Management Act
SRA	Shortage Response Action
SWRCB or Water Board	State Water Resources Control Board
TWUF	Total Water Use Fraction
USEPA	U.S. Environmental Protection Agency
UWMP	Urban Water Management Plan
Water Action Plan	California Water Action Plan
Water Loss TAP	California Water Loss Control Collaborative' s Technical Assistance Program
WET	Water Energy Technology
WMF	Water Management Fraction
WSCP	Water Shortage Contingency Plan

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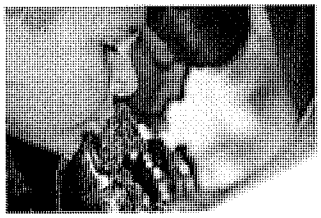
Chapter 1 – Introduction



Water has been a scarce resource in California, and conservation must become a way of life for everyone. Much has changed in the past half century, and our technology, values, and awareness of how we use water have helped to integrate conservation into our daily lives. More can be done, however, and all Californians must embrace and make part of their daily lives the principles of wise water use.

Water has played a significant role in California's history and development. Droughts have often marked critical shifts or tipping points in water resources management, altering how citizens and elected officials view and manage water. Over time, an awareness of water use and water conservation has evolved that has fueled best management practices, funding programs, and legislative and regulatory actions.

California droughts are expected to become more frequent and persistent, as warmer winter temperatures driven by climate change reduce water held in the Sierra Nevada snowpack and result in drier soil conditions. Current drought conditions, which severely impacted the State over the last several years, may persist in some parts of the State into 2017 and beyond. Recognizing these new conditions, permanent changes are needed to use water more wisely and efficiently, and prepare for more frequent, persistent periods of limited supply in all communities and for all water uses, including fish, wildlife, and their habitat needs.

This chapter describes Executive Order B-37-16 (EO), provides a brief summary of California's evolving awareness of and actions relating to drought preparedness and response, and describes the proposed framework for realizing conservation as a California way of life.

1.1 Executive Order B-37-16

Moving to bolster California's climate and drought resilience, Governor Edmund G. Brown Jr. issued the EO on May 9, 2016. The EO builds on temporary statewide emergency conservation requirements and tasks State agencies with establishing a long-term framework water conservation and drought planning, including permanent monthly water use reporting, new urban water use targets, reducing system leaks and eliminating clearly wasteful practices, strengthening urban drought contingency plans, and improving agricultural water management and drought plans.

The EO directs the California Department of Water Resources (DWR), State Water Resources Control Board (Water Board), California Department of Food and Agriculture (CDFA), California Public Utilities Commission (CPUC), and California Energy Commission (CEC) – collectively referred to as the "EO Agencies" – to summarize in a report a framework for implementing the EO and incorporating water conservation as a way of life for all Californians.

The framework described herein promotes efficient use of the State's water resources in all communities, whether conditions are wet or dry, and prepares the State for longer and more severe drought cycles that will mark our future. The EO directs DWR, the Water Board, and CPUC to develop methods to ensure compliance with the provisions of the EO, including technical and financial assistance, agency oversight, and enforcement action by the Water Board to address non-compliant water suppliers, if necessary.

The full text of the EO can be found as Attachment A and at https://www.gov.ca.gov/docs/5.9.16_Attested_Drought_Order.pdf.

The actions directed in the EO are organized around four primary objectives: (1) use water more wisely, (2) eliminate water waste, (3) strengthen local drought resilience, and (4) improve agricultural water use efficiency and drought planning.

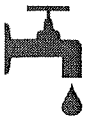
Use Water More Wisely

The EO calls for DWR and the Water Board to require monthly reporting by urban water suppliers on a permanent basis.[1] This includes information regarding water use, conservation, and enforcement.

It also directs DWR and the Water Board to develop new water use efficiency targets as part of a long-term conservation framework for urban retail water agencies – through a public process and working with partners such as urban water suppliers, local governments, and environmental groups. These targets are to go beyond the 20 percent reduction in per capita urban water use by 2020 that was embodied in Senate Bill (SB) X7-7[2], and are to be customized to fit the unique conditions of urban water suppliers.

The Water Board is also directed to adjust emergency water conservation regulations through the end of January 2017, in recognition of the differing water supply conditions across the State, and develop proposed emergency water restrictions for 2017 should the drought persist.

The "Use Water More Wisely" objective includes EO Items 1, 2, and 3.



Eliminate Water Waste

The EO calls for the Water Board to permanently prohibit wasteful practices, consistent with temporary, emergency prohibitions that were put in place in July 2014. These practices include hosing off sidewalks, driveways, and other hardscapes; washing automobiles with hoses not equipped with a shut-off nozzle; and watering lawns in a manner that causes runoff.

The Water Board and DWR are also directed to take actions to minimize water system leaks across the State. DWR estimates that leaks in water distribution systems siphon away more than 700,000 acre-feet of water a year in California – enough to supply 1.4 million homes for a year. Audits of urban water systems have found that leaks account for an average loss of 10 percent of their total supplies.

The CPUC is directed to prepare a consistent resolution for implementation by its investor-owned utilities. The CPUC is not in a regulatory capacity; see Section 2.3 for information on this directive.

The "Eliminate Water Waste" objective includes EO Items 4, 5, 6, and 7.

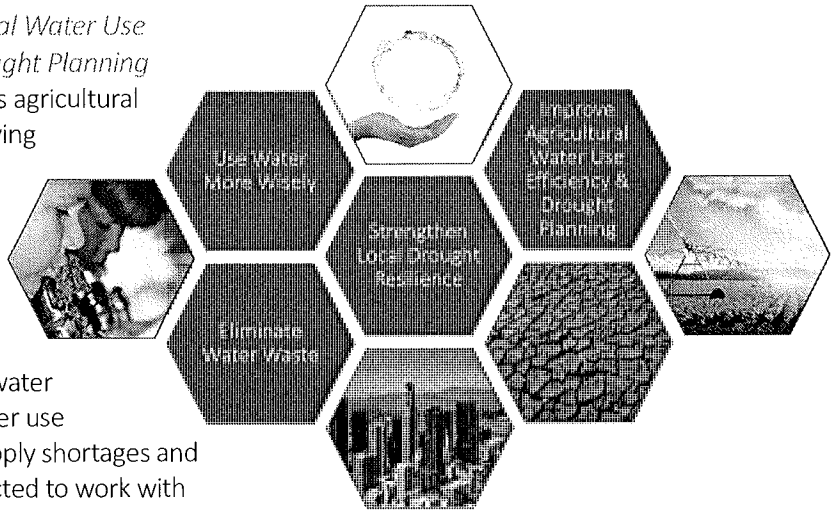
Strengthen Local Drought Resilience

DWR is directed to consult with urban water suppliers, local governments, environmental groups and other partners to strengthen standards for local Water Shortage Contingency Plans (WSCP) that are part of the Urban Water Management Plans (UWMP) that urban water suppliers must submit every five years. These strengthened standards will promote planning for adequate actions to respond to droughts lasting at least five years, as well as more frequent and severe periods of drought. For areas not covered by WSCPs, DWR is directed to work with counties to improve drought planning for small water suppliers and rural communities.

The "Strengthen Local Drought Resilience" objective includes EO Items 8, 9, and 10.

[1] This applies to urban retail water suppliers only as they provide water directly to end users (as opposed to wholesalers that do not provide water directly to end users).

[2] The Water Conservation Act of 2009.



Improve Agricultural Water Use Efficiency and Drought Planning
Current law requires agricultural water suppliers serving 25,000 irrigated acres or more to file Agricultural Water Management Plans (AWMP). In the EO, DWR is directed to update existing requirements for these plans, including requiring suppliers of irrigation water to quantify their customers' water use efficiency and plan for water supply shortages and periods of drought. DWR is directed to work with CDFA to seek public input on the updated requirements. The EO also increases the number of agricultural water suppliers that must file AWMPs by lowering the threshold to those serving 10,000 irrigated acres or more.

The "Improve Agricultural Water Use Efficiency and Drought Planning" objective includes EO Items 11, 12, and 13.

1.2 Evolution of Water Conservation in California

California has experienced several major droughts throughout its recorded history. In response to the State's highly variable and seasonal climate, Californians have developed hundreds of water projects and programs – at local, regional, and statewide scales – while learning to adapt to periodic droughts and other hydrologic extremes. Growing awareness of the critical role water plays in the State's economy, health and safety, and environment has precipitated legislative actions and funding programs that have fundamentally transformed the way California's greatest resource – water – is managed.

1.2.1 Historical Droughts

One of the most extreme examples of drought in California occurred in 1976 and 1977, with the 1976 water year ranking as the driest on record and the 1977 water year ranking among the top five driest in California's recorded history. However, while the drought caused unprecedented shortages in the municipal, industrial, and agricultural water sectors, the 1976-1977 drought is often credited with initiating an era of water conservation awareness in California, the results of which are still evident today, including formation of a drought emergency task force and emergency conservation actions. The 1976-1977 drought also caused numerous legislative proposals to be submitted, all with the goal of increasing California's drought responses and resiliency.

Other statewide droughts that have occurred in recent history include the 1987-1992 drought and the 2007-2009 drought. These droughts affected all communities and types of water users, and led to many of the requirements and guidelines in place during the recent drought. 2012 through 2014 are on record as California's driest three consecutive years and 2013 was the driest single year of record in numerous communities across the State, triggering numerous emergency actions at State and local levels.

1.2.2 Resulting Statewide Water Conservation and Related Water Management Planning Efforts

The State's arid climate and history of drought have prompted a variety of programs, actions, and efforts geared toward preparing for and responding

to periods of low water availability. The following highlights some of the key events and actions that have marked this evolution of conservation and water use efficiency in California in recent decades.

Water Conservation Act of 2009

California became the first state to adopt a water use efficiency target with the passage of SB X7-7 in 2009. SB X7-7 mandated the State achieve a 20 percent reduction in urban per capita water use by 2020. The reduction goal is also known as "20x2020." SB X7-7 directed water suppliers to develop individual targets for water use based on an historical per capita baseline.

The 20x2020 Water Conservation Plan (20x2020 Plan) set forth a statewide road map to maximize the State's urban water efficiency and conservation opportunities between 2009 and 2020, and beyond. The recommendations acknowledged that agricultural water use efficiency must be also improved.

What is Drought?

Drought can be defined in many ways, and there is no statutory process in California for defining or declaring a drought. Drought can be described in meteorological terms (a period of below normal precipitation), in hydrologic terms (a period of below average runoff), or in more qualitative terms (shortage of water for a particular purpose). Drought can be any length of time – spanning a single water year or multiple years – and rarely affects all water users or geographies equally. For example, one part of the State may experience severe drought conditions while another experiences a year of above normal rainfall. The economic, social, and environmental impacts of drought have changed over time as the State's population has grown and our extensive system of water infrastructure has evolved.

Implementation of the 20x2020 Plan includes three phases: (1) completion of the 20x2020 Plan (2009 through 2010); (2) implementation, monitoring, evaluating, and making adjustments (2011 through 2020); and (3) performance evaluation based on improvements from established baseline values for each supplier.

Mandatory Conservation, Water Use Prohibitions, and Other Water Saving Measures during the Recent Drought

As a statewide drought progressed during 2014 and into 2015, California took unprecedented steps to preserve its water supply. With issuance of an emergency drought proclamation by the Governor in 2014, the Water Board was directed to collect monthly water use data from the State's urban water suppliers. The proclamation also called on Californians to voluntarily conserve water, with a goal of reducing water use by 20 percent when compared to pre-drought water use (2013). However, the collected data showed that voluntary statewide conservation efforts had reached 9 percent – an effort that saved billions of gallons of water, but was well short of the 20 percent goal.

With drought conditions worsening, and the 2014-2015 water year snowpack the lowest in the State's history, the Governor's April 1, 2015 Executive Order (EO B-29-15) directed the Water Board to develop emergency water conservation regulations to implement mandatory water reductions in cities and towns across California. EO B-29-15 also set a goal to reduce potable urban water usage by 25 percent statewide. The Water Board's adoption of the May 2015 drought emergency regulation set mandatory reductions in potable urban water use between June 2015 and February 2016 by identifying a conservation tier for each urban water supplier, based on residential per capita water use for the months of July – September 2014. Conservation tiers ranged from 4 percent to 36 percent.

Under these emergency urban water conservation regulations, statewide cumulative savings from June 2015 to March 2016 totaled 23.9 percent

compared with the same months in 2013. Statewide average water use lowered to 66 residential gallons per capita per day (GPCD) in March 2016, saving nearly 1.3 million acre-feet of water from June 2015 through March 2016.

Recognizing persistent yet less severe drought conditions during the 2015-2016 water year, the Water Board modified and extended its emergency regulation in May 2016. This new approach allowed suppliers to replace their prior percentage reduction-based water conservation standard with a localized "stress test," where they could demonstrate whether a supply shortfall would develop under three additional drought years. Mandatory conservation levels were set for suppliers with projected shortfalls following three additional dry years. Alternatively, suppliers could keep their pre-existing mandatory conservation standard rather than adopting a stress-test conservation standard.

In addition to State-mandated conservation standards, the Water Boards' emergency regulations have specific prohibitions against certain water uses. Those prohibitions include watering down a sidewalk with a hose instead of using a broom or a brush, and overwatering a landscape to where water is running off the lawn, over a sidewalk, and into the gutter.

In total, the Water Board's emergency regulations have resulted in conservation of over 2.15 million acre-feet of water, enough to supply over 10 million people for a year.

EO B-29-15 also called on DWR to establish additional water saving measures, including:

- A statewide initiative to replace 50 million square feet of lawns with drought tolerant landscapes.
- A time-limited statewide toilet replacement and appliance rebate program with the CEC.
- Updating the State Model Water Efficient Landscape Ordinance (MWELO).
- Additional requirements for AWMPs.

DWR quickly established rebate and direct installation programs for both lawn conversion and the replacement of older toilets with high efficiency toilets. In addition, DWR collaborated with nonprofits to provide over 230 workshops statewide on landscape and irrigation efficiency, turf replacement, high efficiency toilet replacement, water management planning for agricultural and urban water suppliers, and conveyance system audit and leak detection for small water systems, rural communities, agricultural water suppliers and tribal governments.

DWR developed and sponsored a key exhibit at the California State Fair, providing hands-on advice to homeowners on lawn conversion and water saving measures.

Indoor and Outdoor Water Use Efficiency

Landscaping typically accounts for over half of residential water demand, and was the focus of some of the State's earliest efforts related to water use efficiency. Passed in 1990, Assembly Bill (AB) 325, the Water Conservation in Landscaping Act, directed DWR to develop MWELO. Initially drafted in 1992 and updated in 2010, the MWELO established a water budget for new construction and certain rehabilitated landscapes. Local agencies were required to adopt the MWELO or a local ordinance at least as effective as the State ordinance. The MWELO was updated in 2015 in response to EO B-29-15. AB 2515 requires DWR to update the MWELO every three years if needed.

CONSERVATION versus EFFICIENCY

The terms water conservation and water use efficiency are often used interchangeably. As used in this report, water conservation is defined as a reduction in water loss, waste, or use. The general term water conservation may include water use efficiency, in which more water-related tasks are accomplished with lesser amounts of water.

Indoor water use has also prompted action at State and federal levels. The efficiency of water fixtures used in California residential dwellings and commercial buildings is being improved through updated requirements in the California Plumbing Code (Part 5 of the California Building Standards Code) per requirements in SB 407 of 2009 and AB 715 of 2007. In addition, new construction is subject to the requirements of the California Green Building Standards Code (Part 11 of the California Building Standards Code) that requires water fixture efficiency exceeding the existing national standards set forth by U.S. Environmental Protection Agency (USEPA) and U.S. Department of Energy. Concurrently, the CEC is updating its Appliance Efficiency Regulations to include stronger standards for fixtures sold in the State.

Water Management Planning and Funding

Conservation and water use efficiency are foundational water management tools that, along with diverse regional and statewide water portfolios, help to ensure adequate and reliable water supplies for all uses. Conservation and water use efficiency are prominent in State water management plans, integrated regional water management plans, the plans of urban and agricultural suppliers, and various associated funding programs.

The California Water Plan Update 2013 highlighted water conservation as one of 17 statewide water management objectives, and emphasized urban water conservation as a water management strategy that will be most effective at matching supply with demand. The plan recognized urban water conservation as the foundation for achieving the 20x2020 mandate.

Conservation and drought protection are also two of the focus areas of the 2014 California Water Action Plan (Water Action Plan)[3] and Water Action Plan 2016 Update. Making water conservation a California way of life is the first action identified in the plan, along with integrated water management, Sacramento-San Joaquin Delta management, ecosystem restoration, storage, and flood protection.

Water conservation in California has gained support from a series of State grant programs to provide important financial assistance required to implement conservation programs. Those State grant programs include funding from Proposition 13 (2000, $565 million), Proposition 50 (2002, $680 million), Proposition 84 (2006, $1.2 billion), and Proposition 1 (2014, $810 million).

Various federal agencies also provide conservation and drought funding, including the U.S. Department of the Interior, Bureau of Reclamation (Reclamation) and the USEPA. Reclamation's drought and conservation grant program, WaterSMART, provides assistance to water users for drought contingency planning, including climate change and actions that build towards long-term drought resiliency. USEPA provides loans to eligible recipients for various infrastructure and conservation projects through the Clean Water State Revolving Fund, which is managed and administered by the Water Board in California.

[3] *California Water Action Plan*. California Natural Resources Agency. January 2014.

California Water Action Plan

The Water Action Plan provides a roadmap for sustainable water management. It has guided the work of numerous State agencies and prioritized funding at the State level, and provided the groundwork for several important bills and legislation necessary to manage California's water supply during droughts.

Building on the 2014 plan, the 2016 Update describes 10 key actions to align State efforts and investments to ensure reliable water supplies in the future. The first action is to "make conservation a California way of life." To this end, the Water Action Plan includes several specific components:

- *Expand agricultural and urban water conservation and efficiency to exceed SB X7-7 targets*
- *Provide funding for conservation and efficiency*
- *Increase coordinated water energy efficiency and greenhouse gas reduction capacity*
- *Promote local urban conservation ordinances and programs*

The Water Action Plan also provides direction on planning activities to better prepare for droughts in the future, including preparation of drought contingency plans and water shortage contingency plans.

Groundwater Sustainability

Groundwater is an important component of California's water supply, particularly in dry years. The Sustainable Groundwater Management Act (SGMA) requires development of specialized groundwater sustainability plans in each region to support a more reliable and resilient water supply portfolio for the State as a whole. It is common for rural communities, small systems, and agriculture to rely heavily on groundwater, including private wells, to meet their supply needs. Consequently, SGMA and its implementation could have significant effects on water conservation, water use efficiency, and long-term water supply reliability.

1.2.3 Recent Drought Actions and Effects

In recent years, dry conditions throughout the State have underscored the importance of water conservation and achieving greater climate and drought resilience and preparedness.

2012 through 2014 are on record as California's driest three consecutive years with respect to statewide precipitation. 2013 was the driest on record in numerous communities across the State, including San Francisco, Sacramento, and Los Angeles. Parts of Northern California had no measurable precipitation for more than 50 consecutive days during winter months that historically see the year's highest precipitation totals. Reservoirs remained low in the spring, and groundwater pumping increased dramatically throughout the State as surface water supplies became limited or unavailable.

Persistent dry conditions prompted a series of Executive Orders from 2014 through 2016 that have guided California's drought response. The Governor proclaimed a State of Emergency on January 17, 2014. This drought proclamation directed State agencies to take specified actions and requested that Californians voluntarily reduce their water usage by 20 percent compared with the 2013 baseline. Following the 2014 emergency declaration, the Governor and State Legislature worked closely to secure and accelerate appropriation of funding for drought-related actions.[4]

[4] Emergency drought legislation contained in Senate Bills 103 and 104 provided $687 million to assist drought-stricken communities and implement projects to better capture, manage and use water resources. Over $400 million was provided through Proposition 84 bond funds for grants to local agencies for integrated regional water management projects, including projects that strengthened water conservation. Additional drought funding was also

Subsequent Executive Orders directed local urban water suppliers to immediately implement water shortage contingency plans, ordered the State's drinking water program to target communities in danger of running out of water, and supported the Water Board to administer various water rights actions, including curtailments and mandatory conservation (described earlier in this chapter).

In addition, the Water Action Plan provided guidance to State agencies to better align their priorities related to water resources management, including long-term drought resilience and response. The plan and its 2016 Update have facilitated the Governor and State Legislature's engagement in several key legislative efforts, subsequent bond initiatives, and state budgeting efforts.

Californians Respond

Californians demonstrated their inherent resilience and ability to conserve water and adapt to changing conditions. Between June 2015 and March 2016, urban water systems reduced water use by 23.9 percent, saving enough water to provide 6.5 million residents with water for one year.

"Californians stepped up during this drought and saved more water than ever before, but now we know that drought is becoming a regular occurrence and water conservation must be a part of our everyday life."

Governor Edmund G. Brown Jr.

The recent drought related actions and response activities culminated in Executive Order B-37-16 in May 2016. The EO builds on the conservation successes achieved in recent years to establish long-term water conservation measures and improve proactive drought planning and response.

The impacts of the current drought have been severe, characterized by limited or exhausted drinking water supplies in some communities, lost agricultural production and jobs, severely depleted groundwater basins, and significant harm to native habitats and species. Despite Californians responding to the call to conserve water, more frequent and extended dry periods are anticipated under our changing climate, which will be characterized by warmer winter temperatures and reduced water supplies held in mountain snowpack.

The effects of drought are likely to intensify in the future as the State population continues to grow and competition for water resources intensifies. It is recognized that permanent reductions in per capita water use, and increases in water use efficiency across all sectors, will be needed to ensure long-term water supply reliability for the State. It is also acknowledged that new goals and targets will be needed that go beyond 2020 to support continued economic prosperity and healthy ecosystems, while adapting to changing climate.

1.3 Framework for Realizing Water Conservation as a California Way of Life

This document was prepared to satisfy the Governor's directive to publish a draft framework for implementation of the EO by January 10, 2017. This report was prepared to inform the Governor, the California Legislature, and the public of the actions and recommendations of the EO Agencies in implementing the EO. Water suppliers that may be affected by the EO may use this document to better understand the proposed requirements and when those requirements could go into effect.

This section describes the process used by EO Agencies in developing the conservation

included in subsequent State budgets (http://www.ebudget.ca.gov/).

framework to satisfy the EO, including public and stakeholder engagement.

1.3.1 Satisfying Executive Order B-37-16

The EO Agencies have worked collaboratively to identify actions and recommendations that can satisfy the directives in the EO, and identify a timeline for their implementation. Underlying this process was the intent to provide:

- Clarity in the new requirements;
- Flexibility for retail water suppliers in carrying out their local responsibilities;
- Transparency in desired conservation outcomes and accountability; and
- A rational means for tracking progress over time.

The intent of the long-term conservation framework is to:

- Establish greater consistency in the elements of UWMPs, WSCPs, and AWMPs among water suppliers statewide.
- Enable water suppliers to customize water management strategies and plan implementation to regional and local conditions.
- Empower water suppliers to take a place-based response to water shortages caused by drought or other emergencies.

The EO Agencies coordinated closely in developing the recommendations for implementing the EO. This included forming cross-agency teams at agency leadership, management, and project staff levels. These teams met regularly to share progress, discuss proposals, and develop the report.

1.3.2 Public Outreach and Stakeholder Engagement

EO Agencies developed a collaborative program to formulate the long-term framework for water conservation and drought planning with extensive public outreach and stakeholder engagement (see also Attachment B).

Public Listening Sessions

The EO Agencies hosted a series of public listening sessions in Northern, Central, and Southern California in June 2016. These sessions provided an overview of the EO and solicited early stakeholder input.

Stakeholder Advisory Groups

The EO directs DWR, the Water Board, and CDFA to "consult with urban water suppliers, local governments, environmental groups, agricultural water suppliers and agricultural producers, and other partners" in carrying out several of the directives: Use Water More Wisely, Strengthen Local Drought Resilience, Eliminate Water Waste, and Improve Agricultural Water Use Efficiency and Drought Planning.

To this end, an Urban Advisory Group and an Agricultural Advisory Group were formed in July 2016 to advise the EO Agencies, solicit input on the recommendations and associated methodologies, and exchange information. Advisory Group members were invited to provide broad representation including urban water suppliers, agricultural water suppliers, local government, academia, professional organizations, environmental advocates, and other interested parties.

1.3.3 Framework Components

This report describes actions and recommendations for implementing the EO.

- Actions are efforts that have been or may be undertaken within existing authorities to implement portions of the EO. Actions that can be implemented under existing policy or

regulatory authorities include potential 2017 emergency water conservation regulations, permanent restrictions on water waste, efforts to reduce water supplier leaks and system losses, and certification of innovative technologies for water and energy conservation.

- Recommendations are efforts proposed by the EO Agencies that may be undertaken to implement portions of the EO but that will require additional authorities. Recommendations include new water use targets, water shortage contingency plans, drought planning for small systems and rural communities, and agricultural management plans.

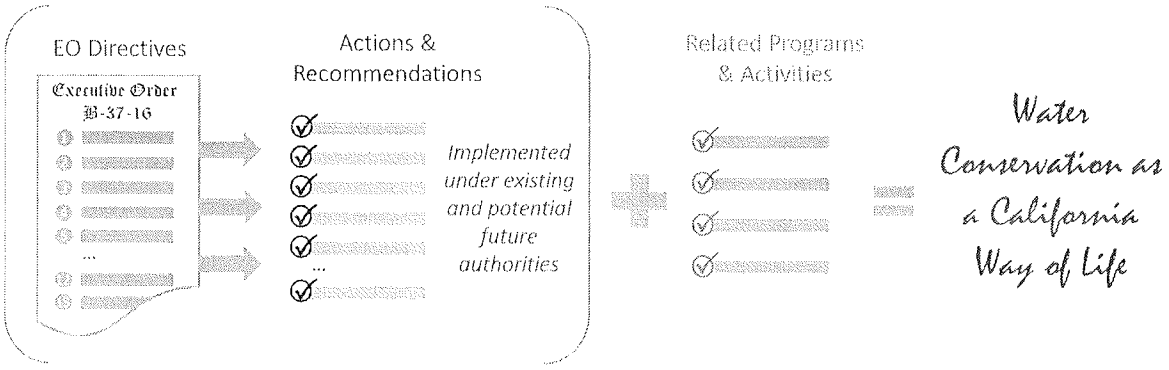
In addition to the actions and recommendations specific to meeting the directives of the EO, the EO Agencies are engaged in various other programs and activities related to water conservation, water use efficiency, and planning for droughts and other water emergencies. These ongoing efforts encompass technical assistance, funding mechanisms, guidance documents, rulemaking, and enforcement. Related programs and activities are critical to achieving the State's water use efficiency and conservation goals.

The EO actions and recommendations, along with other related State programs and activities, constitute the framework for making conservation a California way of life (Figure 1-1), as described in the EO and in the Water Action Plan.

1.3.4 Organization of this Report

This report describes proposed State actions and recommendations associated with the 13 items included in the EO, as summarized in Table 1-1.

Figure 1-2 illustrates the organization of this report. Chapter 1 provides introductory and background information setting the context for current efforts to improve conservation within the State of California, including a description of the directives in the EO. Chapters 2 and 3 describe how the directives contained in the EO are being and will be implemented. Chapter 4 provides a summary and timeline for implementing the identified actions and recommendations as part of the long-term framework for making conservation a California way of life. Attachment A includes the full language of the EO, and Attachment B summarizes the public outreach and stakeholder engagement conducted to support framework development.



Many of the needed actions and recommendations in this report cannot be implemented without new or expanded authorities and additional resources. This document describes the additional steps, resources, and legislative authority that will be needed. The actions and recommendations herein, together with existing State programs and activities related to conservation and water use efficiency, represent a statewide framework for making conservation a California way of life.

Figure 1-1. Framework for Making Water Conservation a California Way of Life

Table 1-1. EO Actions and Recommendations Summarized in this Report

Chapter Section and Title where EO Item is Addressed	EO Item: Use Water More Wisely			Eliminate Water Waste				Strengthen Local Drought Resilience			Improve Agricultural Water Use Efficiency & Drought Planning			Within Existing Authorities (Chapter 2)	Requires New Authority (Chapter 3)
	1	2	3	4	5	6	7	8	9	10	11	12	13		
2.1 Emergency Water Conservation Regulations for 2017	●													✓	
2.2 Monthly Reporting and Permanent Prohibition of Wasteful Practices			●	●										✓	
2.3 Reduced Water Supplier Leaks and Water Losses					●	●								✓	
2.4 Certification of Innovative Technologies for Water Conservation and Energy Efficiency							●							✓	
3.1 New Water Use Targets Based on Strengthened Standards		●				●									✓
3.2 Water Shortage Contingency Plans						●		●	●						✓
3.3 Drought Planning for Small Systems & Rural Communities										●					✓
3.4 Agricultural Water Management Plans						●					●	●	●		✓

Note: The EO directs the DWR, the Water Board, and CPUC to develop methods to ensure compliance with the provisions of the EO, including technical and financial assistance, agency oversight, and, if necessary, enforcement action by the Water Board to address non-compliant water suppliers.

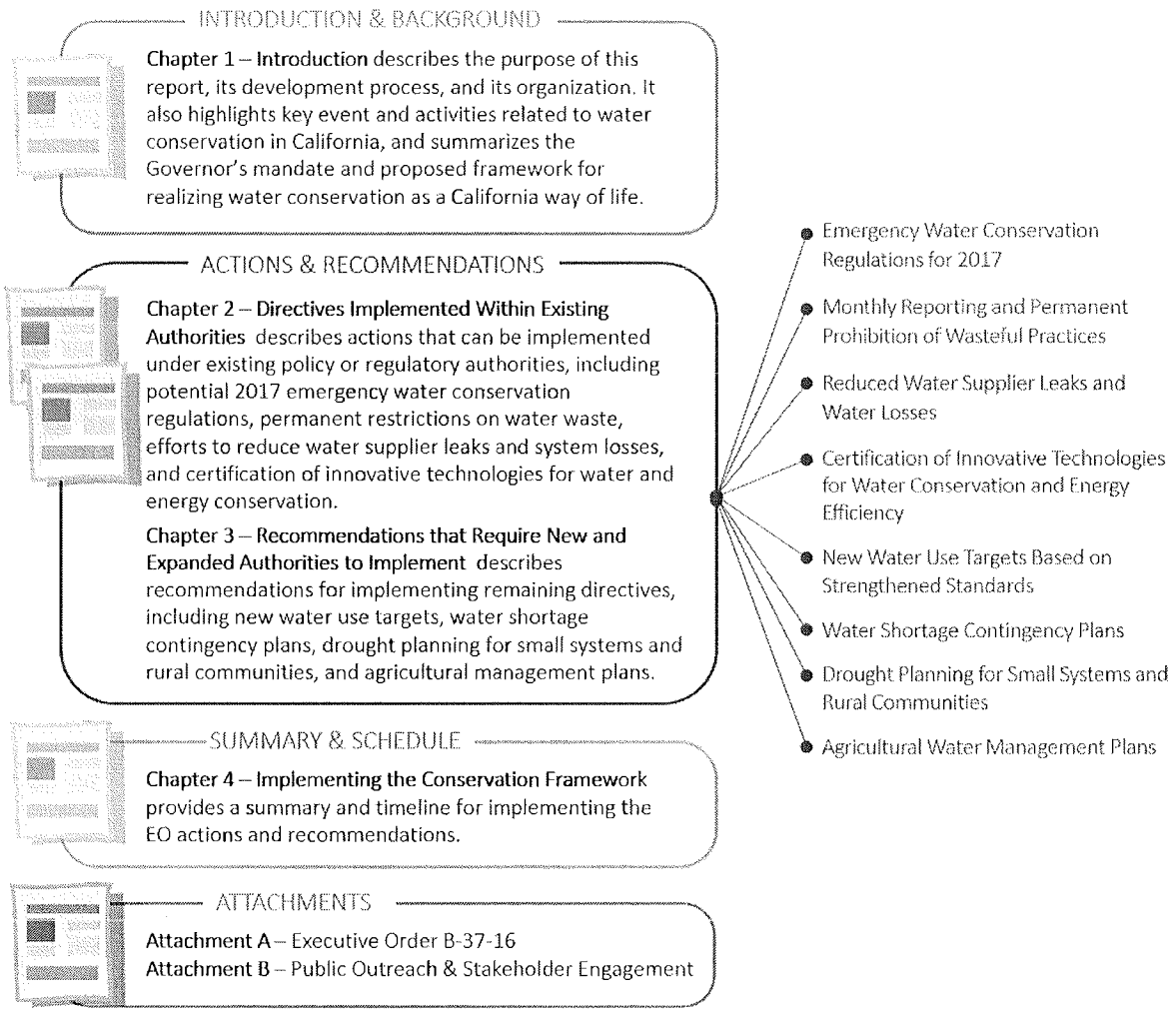
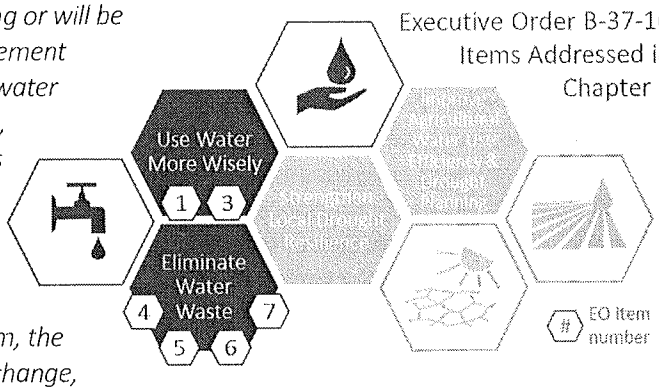


Figure 1-2. Report Organization

Chapter 2 – Directives Implemented Within Existing Authorities

This chapter describes actions that are ongoing or will be undertaken within existing authorities to implement portions of the EO. These include emergency water conservation regulations for 2017 (EO Item 1), monthly reporting and permanent restrictions on water waste (EO Items 3 and 4), efforts to reduce water supplier leaks and system losses (EO Items 5 and 6), and certification of innovative technologies for water and energy conservation (EO Item 7). For each item, the chapter includes descriptions of the need for change, the directive as stated in the EO, and implementation considerations. A summary of implementation activities and schedule are included in Chapter 4.



2.1 Emergency Water Conservation Regulations for 2017

2.1.1 Need for Change

The current emergency regulation for statewide urban water conservation is set to expire on February 28, 2017. However, drought conditions may persist through 2016 and beyond.

2.1.2 EO Directive

Water conservation regulations for 2017 address EO Item 1 that states:

> *The State Water Resources Control Board (Water Board) shall, as soon as practicable, adjust emergency water conservation regulations through the end of January 2017 in recognition of the differing water supply conditions across the state. To prepare for the possibility of another dry winter, the Water Board shall also develop, by January 2017, a proposal to achieve a mandatory reduction in potable urban water usage that builds off the mandatory 25% reduction called for in Executive Order B-29-15 and lessons learned through 2016.*

2.1.3 Implementation

Recognizing persistent yet less severe drought conditions due to precipitation near historical averages, the Water Board extended the emergency water conservation regulation on May 18, 2016. The current regulation requires locally developed conservation standards based upon each local water agency's specific circumstances. It replaces the prior percentage reduction-based water conservation standard with a localized "stress test" approach. These standards require local water agencies to ensure a three-year supply assuming three more dry years like the ones the State experienced from 2012 to 2015. Water agencies that would face shortages under three additional dry years are required to meet a state-mandated conservation standard equal to the amount of shortage. The May 2016 regulation is in effect from June 2016 through February 2017.

A majority of urban water suppliers determined that they have sufficient potable water supplies using the supply reliability test from the May 2016 regulation. The Water Board is monitoring drought conditions and urban potable water production and anticipates holding public workshops in winter of 2016/2017 to solicit public feedback on

changing and extending the emergency regulation in January 2017.

2.1.4 Reporting, Compliance Assistance, and Enforcement

Under the existing emergency regulations, urban water suppliers submit monthly reports to the Water Board on water production, program implementation, and local enforcement activities. The Water Board tracks progress and works with water suppliers to achieve compliance and enforce as needed. The Water Board shares supplier reports and water savings information on its website. These same reporting requirements and enforcement activities will continue under extended emergency regulations.

2.2 Monthly Reporting and Permanent Prohibition of Wasteful Practices

2.2.1 Need for Change

California faces decreasing water supplies through a combination of climate change, increasing population, and economic growth. To thrive as a state and make conservation a way of life in California, we must use our water resources effectively and stop wasteful practices. Regular and consistent supplier reports have been in place for several years and are an invaluable tool for understanding urban water supplier responses to policy changes and for statewide water management. EO items 3 and 4 direct DWR and the Water Board to extend some provisions in the emergency regulations to become permanent practices.

2.2.2 EO Directive

EO Item 3 establishes continued reporting and data collection requirements by urban water suppliers, and it states:

> *The Department and the Water Board shall permanently require urban water suppliers to issue a monthly report on their water usage, amount of conservation achieved, and any enforcement efforts.*

EO Item 4 focuses on prohibiting waste of potable water:

> *The Water Board shall permanently prohibit practices that waste potable water, such as:*
>
> - *Hosing off sidewalks, driveways and other hardscapes;*
> - *Washing automobiles with hoses not equipped with a shut-off nozzle;*
> - *Using non-recirculated water in a fountain or other decorative water feature;*
> - *Watering lawns in a manner that causes runoff, or within 48 hours after measureable precipitation; and*
> - *Irrigating ornamental turf on public street medians.*

2.2.3 Implementation

The Water Board will be conducting a rulemaking process to establish permanent monthly reporting requirements and prohibitions on wasteful water practices, building on what currently exists in the emergency regulation. This process will start at the end of 2016 and run through 2017. The Water Board plans to hold public workshops to solicit public comments during the rulemaking process.

The Water Board will implement these EO items using its rulemaking process with the following basic steps:

- Water Board staff gather data on potential impacts of proposed prohibitions and prepare draft regulatory documents.
- The Water Board solicits stakeholder input through workshops and comment periods, responds to stakeholder input, and revises

draft regulations as needed. There may be multiple iterations of this step.

- The Water Board adopts the final regulatory package of documents, including final regulations and conformance to California Environmental Quality Act requirements and submits to the Office of Administrative Law for approval.

2.2.4 Reporting, Compliance Assistance, and Enforcement

With permanent monthly reporting requirements in place, urban water suppliers will continue to submit monthly reports to the Water Board on water production, program implementation, and local enforcement activities. The Water Board will continue to track progress and work with water suppliers to achieve compliance, and enforce as needed. The Water Board will continue to post this information publicly on its website.

2.3 Reduce Water Supplier Leaks and Water Losses

2.3.1 Need for Change

Existing studies suggest that leaks and breaks in water systems (water losses) account for about 10 percent of total urban water production. DWR estimated almost 700,000 acre-feet per year of water lost at the utility level. Cost-effective water loss reduction represents a potentially significant source of conservation savings.

> Water Loss
>
> *There are two types of water loss – real (e.g., leaks or breaks) and apparent (e.g., meter errors). Although the amount of water lost by water suppliers throughout the State due to distribution system leaks is not well-documented, a commonly used estimate is 10 percent of volume supplied.*

2.3.2 EO Directive

EO Items 5 and 6 address minimizing system leaks and losses as well as accelerating data collection:

5. *The Water Board and the Department shall direct actions to minimize system leaks that waste large amounts of water. The Water Board, after funding projects to address health and safety, shall use loans from the Drinking Water State Revolving Fund to prioritize local projects that reduce leaks and other water system losses.*

6. *The Water Board and the Department shall direct urban and agricultural water suppliers to accelerate their data collection, improve water system management, and prioritize capital project to reduce water waste. The California Public Utilities Commission shall order investor-owned water utilities to accelerate work to minimize leaks.*

2.3.3 Implementation

The EO Agencies will meet the requirements of EO Items 5 and 6 through implementation of SB 555, and additional actions to satisfy the EOs directives related to reducing water supplier leaks. Signed in October 2015, SB 555 focuses on identifying real and apparent losses in urban retail water suppliers' distribution systems. It requires the following:

- Annual reporting by urban retail water suppliers
- DWR to perform rulemaking for water loss audit verification
- DWR and the Water Board to provide assistance to retail water suppliers
- The Water Board to set water loss standards between 2019 and 2020

Implementing the water loss audit program as required by SB 555 is a first step towards minimizing system leaks that waste water. As urban

retail water suppliers evaluate and identify distribution system water losses, steps can be taken to address those losses.

The SB 555 regulations for water loss audit validation are scheduled to be adopted by the California Water Commission in January 2017.

Requirements Related to Urban Water Suppliers

DWR. DWR is preparing rules for water suppliers to follow in preparation of their validated water loss audits. Setting audit standards will improve the reliability of water loss audit data.

By January 1, 2017, DWR must adopt rules for:

- Conduct of standardized water loss audits
- Process for validating a water loss audit prior to submission to DWR
- Technical qualifications and certification requirements for validators
- Method of submitting a validated audit report
- Audit review

DWR must also provide technical assistance to guide water loss detection programs, and update adopted rules within 6 months of the release of subsequent editions of the American Water Works Association's Water Audits and Loss Control Programs, Manual M36.

In late 2016, DWR will identify urban retail water suppliers with high water losses, based on evaluation of the water loss audits submitted with the 2015 UWMPs. Suppliers ranked with high losses will be prioritized for technical assistance. Beginning in 2017, DWR will offer either workshops or one-on-one meetings to these suppliers. The aim of these interactions will be to assist the suppliers in preparing and implementing water loss reduction plans. DWR will provide guidance to suppliers on prioritizing their investments in water loss repair.

DWR will serve as a public information source for water loss data received with UWMPs and the annual water loss audit reporting. A public portal has been established,[1] and in 2017 this website will be enhanced to make the water loss audit reporting data accessible.

Water Board. No earlier than January 1, 2019, and no later than July 1, 2020, the Water Board must adopt rules requiring urban retail water suppliers to meet performance standards for the volume of water losses. In adopting these rules, the Water Board will employ life-cycle cost accounting to evaluate the costs of meeting the performance standards. The Water Board will identify compliance and enforcement mechanisms for water loss standards when the standards are adopted. These standards will be utilized for calculating the water targets discussed in Section 3.1 of this report.

As part of implementing SB 555, the Water Board is funding the California Water Loss Control Collaborative' s Technical Assistance Program through the California-Nevada Section of the American Water Works Association to further the preparation of consistent and high quality water loss audits. The program has held several technical assistance workshops in 2016 and will continue to offer technical assistance on water loss audits in 2017.

The Water Board will also evaluate whether to require urban water suppliers to conduct component analysis to identify cost-effective investments in water loss control ahead of the standards' rulemaking in 2019.

The Water Board will make water loss data available publicly.

CPUC. The CPUC requires reporting of water loss by investor-owned utilities. The CPUC will comply

[1] https://wuedata.water.ca.gov/

with EO Item 6 by ordering its investor-owned water utilities to accelerate work to minimize leaks to further the EO goal of eliminating water waste.

CPUC will use data received from its investor-owned utilities to identify how reductions in non-revenue water can be made. Resolution W-5119 will then be submitted for adoption by the CPUC before the end of 2016 acknowledging the progress Class A[2] investor-owned water utilities have made in keeping non-revenue water percentages stable since the Rate Case Plan Decision[3] was adopted. CPUC will encourage further work to accelerate efforts to minimize leaks, recognizing that system leaks are one component of non-revenue water.

Class A Water Utilities have been reporting non-revenue water metrics through each of their General Rate Case (GRC) Applications in accordance with the prescribed American Water Works Association (AWWA) methodology. This non-revenue water metric can be broken down further, as defined by AWWA in Table 2-1.

As evidenced in Table 2-1, non-revenue water is made up of multiple components, with system leaks being one component. Class A Water Utilities do not currently have the capability to break down their non-revenue water number into the components as defined by AWWA[4], instead reporting this number as a total percentage using AWWA's water loss audit software. However, Class A Water Utilities provide several additional metrics related to system leaks in their GRC applications, including the following:

- Identifying non-revenue water in centum cubic feet (CCF) and percentage of total water production for the last authorized test year, last five years recorded data, and proposed test year amounts.
- Submitting the results of a water loss audit performed no more than 60 days in advance of the submission of the proposed application. The audit report will be prepared using the free Audit Software developed by the AWWA and available on the AWWA website.
- In connection with the water loss audit described above, the utility shall conduct and submit the results of a cost/benefit analysis for reducing the level of non-revenue water reported in the water loss audit. If non-revenue water is more than approximately seven percent for each district or service area, submit a plan to reduce non-revenue water to a specific amount.
- Identifying specific measures taken to reduce non-revenue water in the last five years and proposed test year of the GRC application.
- Identifying the number of leaks in the last five years.
- Describing its leak detection program.
- Providing leak repair time and cost statistics for the last five years.
- Identifying specific measures taken to reduce number of leaks in the last five years and proposed test year.

[2] Class A Water Utilities are defined as utilities having greater than 10,000 service connections.

[3] The Rate Case Plan Decision adopted a schedule for the investor-owned utilities to file General Rate Case applications with the CPUC. The Decision also ordered the utilities to submit Minimum Data Requirements as part of their applications including information on efforts to reduce non-revenue water for the previous five years; a water loss audit in accordance with American Water Works Association; information on number of leaks in the last five years; a description of a utility's leak detection program; and various other metrics for supply and distribution infrastructure status and planning.

[4] Based on the Governor's Executive Order B-37-16 Information Request Response from the Class A Water Utilities to Terence Shia, CPUC, dated September 15, 2016.

Table 2-1. AWWA Water Balance

System Input Volume (corrected for known errors)	Authorized Consumption	Billed Authorized Consumption	Billed Metered Consumption (including exports)	Revenue Water
			Billed Unmetered consumption	
		Unbilled Authorized Consumption	Unbilled Metered Consumption	Non-Revenue Water
			Unbilled Unmetered Consumption	
	Water Losses	Apparent Losses	Unauthorized Consumption	
			Customer Metering Inaccuracies	
			Systematic Data Handling Errors	
		Real Losses	Leakage on Transmission and Distribution Mains	
			Leakage and Overflows at Utility's Storage Tanks	
			Leakage on Service Connections up tot point of metering	

This information expands on the efforts the CPUC's Class A Water Utilities have spent on minimizing leaks and keeping non-revenue water percentages stable.

The CPUC's Water Division has compiled[5] statistics on non-revenue water percentages from each Class A Water Utility since the Rate Case Plan Decision was adopted in 2008. This data indicates that Class A Water Utilities generally maintain non-revenue water percentages below 10% with some averaging around 4-7 percent. Given these numbers, the CPUC acknowledges the work the Class A Water Utilities have done in keeping non-revenue water percentages stable and encourages further work to accelerate efforts to minimize leaks. Efforts that may be undertaken to reduce non-revenue water and minimize leaks include: water loss audits; advanced meter and main replacement programs; increased inspections of service connection meters and mains; installation of leak-detection sensors in the distribution system; and deployment of advanced meter infrastructure.

Although the CPUC's Class B Water Utilities[6] do not have a defined Rate Case Plan and are not under the same reporting requirements as Class A utilities, these utilities should still propose methods to accelerate efforts to minimize leaks in their next General Rate Case filings in order to comply with the EO. Class B Water Utilities provide metrics on water loss in Schedule D of their annual reports. Testing data and the number of meters tested is provided in Schedule D-6 of the annual report, and total water delivered to metered customers is provided in Schedule D-7 of the annual report. With the focus on minimizing leaks and reducing water loss, Class B Water Utilities should continue to track this valuable information and provide the CPUC with this data in annual reports. In addition, the CPUC recommends that these utilities propose methods to accelerate efforts to minimize leaks in each of their next General Rate Case filings, where a cost/benefit analysis for reducing water loss can be conducted.

[5] Ibid.

[6] Class B Water Utilities are defined as utilities having greater than 2,000 but less than 10,000 service connections.

The CPUC will make available publicly the water loss data provided by investor-owned utilities.

Urban Retail Water Suppliers. By October 1, 2017, and annually thereafter, urban retail water suppliers must submit validated water loss audit reports to DWR. These reports will be made available for public viewing. Performing regular audits will help inform water suppliers about the extent of water losses in their service areas.

Financial Assistance. To incentivize urban retail water suppliers to comply with the requirement to submit validated water loss audit reports, DWR will revise its funding guidelines to state that water suppliers that do not submit reports are ineligible for DWR grants and loans.

The Water Board will offer financial assistance in 2017 to small water systems that have faced water shortages and required emergency assistance during the drought through the Drinking Water State Revolving Fund.

Other financial assistance programs that can be utilized for water loss reduction include the California Infrastructure and Economic Development Bank's revolving loan fund programs and the California Lending for Energy and Environmental Need Center's Program that offers low interest loans of $500,000 to $30 million for water conservation projects. The program is available to non-profit water agencies such as municipalities.

In addition, the CPUC may grant financial incentives for minimizing leaks during the review of each investor-owned utility's upcoming general rate case applications where further scrutiny can be conducted by interested parties considering the cost/benefit analysis of reducing the levels of non-revenue water.

Requirements Related to Agricultural Water Suppliers

Reducing water waste for agricultural water suppliers will be addressed through new AWMP requirements that include quantifying measures to increase efficiency, developing a water balance that can identify and prioritize water loss, identifying ways to improve water system management, and drought planning (see Section 3.4).

2.3.4 Reporting, Compliance Assistance, and Enforcement

Beginning in 2017, urban retail water suppliers must submit validated water loss audit reports to DWR. Those not in compliance will not be eligible for State grant and loan funding.

Upon completion of the Water Board's rulemaking related to SB 555 water loss standards in 2020, reporting, compliance assistance, and enforcement information will be available (see Section 3.1 for further detail).

2.4 Certification of Innovative Technologies for Water Conservation and Energy Efficiency

2.4.1 Need for Change

Reducing the amount of water used by appliances can result in water savings. Setting water efficiency standards can help reduce the level of water use across the State. In addition, technologies are in various states of development and deployment that aim to find underground leaks and leaks past the utility meter. As leak detection and reduction technologies advance, water loss control measures may become more cost-effective.

2.4.2 EO Directive

EO Item 7 focuses on water conservation and energy efficiency technologies, and states:

> *The California Energy Commission shall certify innovative water conservation and water loss detection and control technologies that also increase energy efficiency.*

2.4.3 Implementation

EO Item 7 builds on Executive Order B-29-15 that incentivizes promising new technology to make

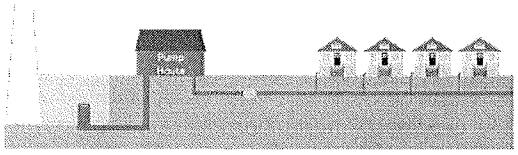
California more water efficient. This item directed the CEC to:

- Implement an appliance rebate program to replace inefficient household devices jointly with DWR and the Water Board.
- Adopt emergency regulations establishing standards to improve the efficiency of water appliances.
- Implement a Water Energy Technology (WET) Program to deploy innovative water management technologies.
- Expedite applications or petitions for power plant certifications to secure alternate water supply necessary for continued power plant operation by delegating, as appropriate, approval to the Executive Director.

Approaches to Water Conservation and Water Loss Detection and Control Technologies

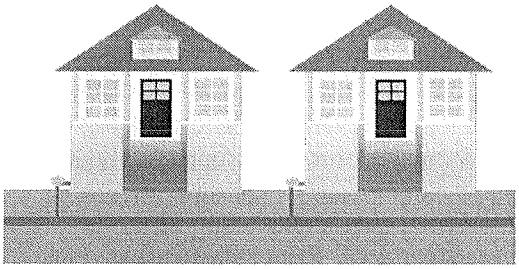
Various options for water loss detection and control are described briefly below.

Utility Level. Utility level technologies discover leaks in water distribution infrastructure prior to delivery to the customer. Some utilities have devised approaches varying from listening for the sounds from leaks to surveys from aircraft or satellites. Some utilities have begun monitoring and controlling a system's water pressure in an effort to prevent the formation of leaks and minimize water loss.



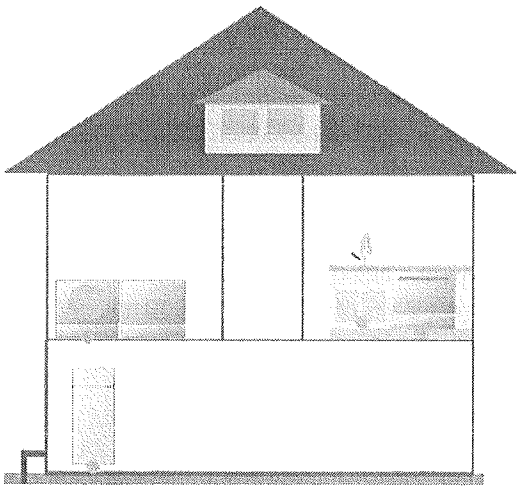
Distribution level loss detection.

House Level. Several companies are developing devices intended to monitor whole house water usage and report leaks. A typical device clamps to a house's main water supply and identifies the type of water usage by the signature of the water flow. These devices provide information to occupants via the internet.



Household level loss detection.

Appliance Level. Consumers may place a device near an appliance such as a faucet, clothes washer, water heater or dishwasher to detect leaking water. The device may alert the user through an audible alert or through a message sent to their internet connected device.



Appliance level loss detection.

CEC Research and Development Division Activities

The CEC's Electric Program Investment Charge (EPIC) Program follows an energy innovation pipeline program design, funding applied research and development, technology demonstration and deployment, and market facilitation to create new energy solutions, foster regional innovation, and bring clean energy ideas to the marketplace.

EPIC-Funded Utility Level Leak Prevention and Water Loss Detection Study. The EPIC Program is currently funding studies that will demonstrate correlating continuous acoustic monitoring, satellite imagery leak detection, district metered areas, and flow-sensitive pressure reducing valve technologies to reduce the formation of leaks and aid in the detection of leaks at four California municipal utilities. The goal is to demonstrate and improve the technologies to move them closer to commercial adoption.

CEC Efficiency Standards

Section 25402(c)(1) of the California Public Resources Code mandates that the CEC reduce the inefficient consumption of energy and water on a statewide basis by prescribing efficiency standards and other cost-effective measures for appliances that require a significant amount of energy and water to operate. Such standards must be technologically feasible and attainable and must not result in any added total cost to the consumer over the designed life of the appliance. Manufacturers must certify to the CEC that their appliances meet or exceed the applicable minimum efficiency standards.

The CEC assesses the technical feasibility of proposed standards as part of the appliance rulemaking process. Technical feasibility means determining whether technologies currently exist or will exist that can achieve the efficiency goals of the proposed standard.

In determining cost-effectiveness, the CEC considers the value of the water or energy saved, the effect on product efficacy for the consumer, and the life-cycle cost of complying with the standard to the consumer. The CEC assesses the cost effectiveness of a proposed appliance standard by surveying and comparing the cost and operation of compliant and non-compliant appliances. Any increased costs must be offset by water and energy savings due to the increase in appliance efficiency.

The CEC recently concluded a rulemaking to increase the efficiency of toilets, urinals, faucets, and showerheads that will result in saving over 150 billion gallons of water per year after full replacement. The CEC looks to further water savings by exploring appliance standards for landscape emitters and landscape irrigation controllers.

The CEC maintains a database of appliances certified by manufacturers as meeting the Appliance Efficiency Standards. The public may search the database for compliant products and use the performance data to identify appliances that use water and energy most efficiently.

Informational Proceeding Workshop. In early October 2016, the CEC conducted a public workshop to gather information on innovative water conservation and water loss detection and control technologies from industry, stakeholders, and the public. The comment period closed in late October 2016.

CEC staff will prepare and include a summary of stakeholder comments for inclusion in the final draft of this report. CEC staff will consider comments as part of the workshop process and may make recommendations for the CEC to consider in a future rulemaking.

WET Program. The CEC, jointly with DWR and the Water Board, plans to implement the WET Program to provide funding to accelerate the deployment of innovative water and energy saving technologies and reduce greenhouse gas emissions. However, launch of the program is suspended until funds are made available by the State Legislature.

2.4.4 Reporting, Compliance Assistance, and Enforcement

Reporting, compliance assistance, and enforcement do not apply to the actions associated with certification of innovative technologies for water conservation and energy efficiency.

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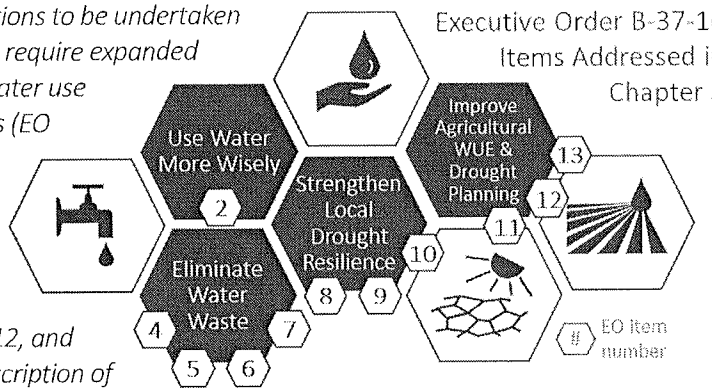
Chapter 3 – Recommendations that Require New and Expanded Authorities to Implement

This chapter describes recommended actions to be undertaken to implement portions of the EO but that require expanded statutory authority. These include new water use targets based on strengthened standards (EO Items 2 and 6), water shortage contingency planning (EO Items 6, 8, and 9), drought planning for small water suppliers and rural communities (EO Item 10), and agricultural water management planning (EO Items 6, 11, 12, and 13). For each, the chapter includes: a description of the current status and need for change; the directive as stated in the EO; and a description of reporting, compliance assistance, and enforcement. A summary of implementation activities and their schedules are included in Chapter 4.



3.1 New Water Use Targets Based on Strengthened Standards

3.1.1 Current Status and Need for Change

Urban water conservation and efficiency has been a key California water management strategy over the past 25 years starting with programs implemented during or shortly after the 1988 to 1992 drought, including MWELO and plumbing code and appliance standards. In 1991, 120 urban water suppliers[1], environmental groups and other interested parties signed a historic Memorandum of Understanding (MOU) agreeing to develop and implement comprehensive water conservation Best Management Practices (BMP). The MOU called for the creation of the California Urban Water Conservation Council (CUWCC) to oversee the implementation of the BMPs. Roughly half of urban water suppliers voluntarily joined the CUWCC in 1993, and more followed since then.

The CUWCC has played a key role in the history of urban water conservation in California, successfully creating a collaborative forum for water suppliers and the environmental community to work together to advance urban water conservation throughout the State. This voluntary documentation of conservation efforts by reporting on BMPs by water suppliers has continued through 2016. In 2009, the State conditioned grant funding eligibility for urban water suppliers on compliance with demand management measures which were defined as the CUWCC's 14 BMPs. This requirement was in place until July 1, 2016 when retail urban water suppliers' eligibility for State loan and grant funding changed to compliance with the 20x2020 urban water use targets (California Water Code (CWC) Section 10608.56).

At the end of the 2007 to 2009 drought and as part of a Sacramento/San Joaquin River Delta Legislative Package, the State set a statewide goal of reducing

[1] Urban water suppliers are defined by CWC Section 10617 as a "supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually."

urban per capita water use by 20 percent by 2020, with a 10 percent interim goal in 2015. Known as the Water Conservation Act of 2009, SB X7-7 required urban water suppliers to calculate baseline water use and set water use targets for 2020, with interim targets by 2015. Suppliers were required to report on target compliance in their UWMPs. Urban water suppliers reported a statewide average baseline water use of 199 gallons per capita per day (GPCD) for the ten-year period from 1996 to 2005, with baseline water use amongst individual suppliers showing significant variation. The statewide interim target was 179 GPCD and the final statewide 2020 target was 159 GPCD.

SB X7-7 provided several options for how suppliers could achieve higher levels of water conservation by allowing each water supplier to choose one of four methods[2] for determining their own water use target for 2020 (and interim targets for 2015). These options were designed to address regional diversity use practices, climate, history of investment in water conservation and reductions in urban water use. SB X7-7 also permitted water suppliers to join with others to meet the targets regionally. Finally, it permitted urban water suppliers to increase the use of recycled water to meet their targets.

SB X7-7 directed DWR to develop technical methodologies and criteria to ensure the consistent implementation of the Act and to provide guidance to urban water suppliers in developing baseline and compliance water use.[3]

The current historical drought (2013 – present) has placed an even greater emphasis on urban water conservation and efficiency. In January 2014, Governor Brown issued an emergency drought proclamation, and on April 1, 2015, the Governor issued an Executive Order directing the Water Board, for the first time, to enact statewide mandatory conservation requirements to achieve a 25 percent reduction in statewide urban water use. As a result of these mandatory conservation requirements, urban water suppliers reported an average per capita water use of 133 GPCD in 2015, a 33 percent reduction from the baseline conditions for SB X7-7 implementation of 199 GPCD (see Figure 3-1). In 2013, prior to the imposition of statewide mandatory conservation requirements, DWR estimated that average statewide per capita use had already declined to about 160 GPCD, an 18 percent reduction from the SB X7-7 baseline.

While some of this reduction is a result of short-term drought-related cutbacks that will likely bounce back once the drought is over, the current drought has accelerated urban water conservation, exceeding 20x2020 goals well in advance of 2020.

To build on the conservation and efficiency momentum achieved during the current drought, and to "make water conservation a California way of life" on a permanent basis, the EO directs the EO Agencies to develop new water use targets that go

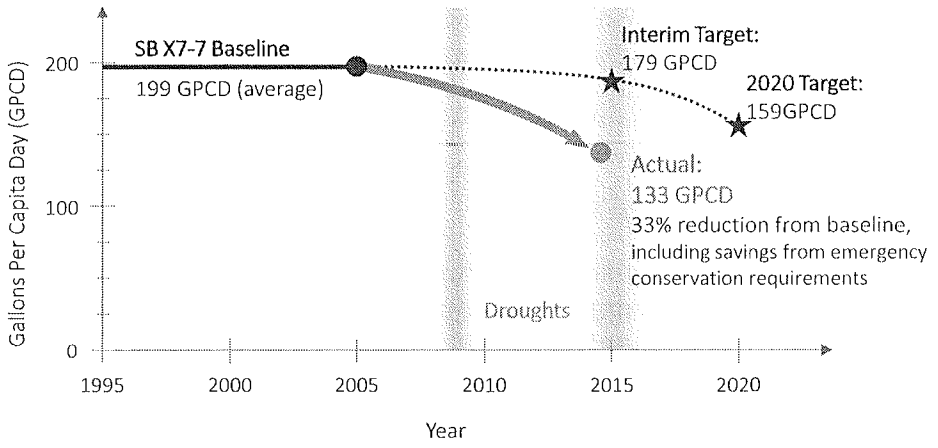
[2] As outlined in DWR's *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use* (2010, & updated in 2016), the four methods to set 2020 per capita water use targets are as follows:

- *Method 1*: Eighty percent of the water supplier's baseline per capita water use.
- *Method 2*: Per capita daily water use estimated using the sum of performance standards applied to indoor residential use; landscaped area water use based on MWELO; and a 10% reduction in CII water use.
- *Method 3*: Ninety-five percent of the applicable State hydrologic region target as stated in the State's April 30, 2009, draft 20x2020 Plan.
- *Method 4:* An approach developed by DWR and reported to the Legislature in February 2011 that identifies per capita targets that cumulatively result in a statewide 20-percent reduction in urban daily per capita water use by December 31, 2020.

[3] DWR developed 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. These are published in *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use* (DWR 2010, updated in 2016).

beyond the "20x2020" targets based on strengthened water use efficiency standards.

The EO calls for new water use targets based on strengthened water use efficiency standards, rather than a percentage reduction in urban water use. This approach builds off one of the four SB X7-7 methods urban water suppliers could use to achieve their 2020 targets (Method 2). A water use efficiency standards-based approach provides several advantages when compared with other previously used percent reduction approaches in SB X7-7. Mandatory percentage reductions may be more difficult for suppliers that have already achieved a high level of efficiency and conservation, as their overall water use may be low. Further, an efficiency approach removes negative incentives for consumers to use more water than needed during normal (non-drought) conditions such that, if required to conserve due to an emergency, it would be easier to achieve reduction targets. An efficiency-based approach also recognizes supplier efforts to reduce overall water use, including development of recycled water and turf-replacement programs, and eliminates uncertainty associated with percent reduction from a baseline.



Urban water suppliers reported an average per capita water use of 133 GPCD in 2015, a 33 percent reduction from the baseline conditions set for SB X7-7 and well below the interim target of 179 GPCD and the final target of 159 GPCD.

Figure 3-1. Conservation Targets under SB X7-7 Compared with Actual Conservation

While the Water Boards' mandatory conservation requirements were effective in reducing urban water use, those requirements function best as a short-term, interim solution. A long-term transition to conservation as a way of life must take into account the climatic, landscape, and demographic conditions unique to each supplier. The approach described in this Framework will recognize the unique geographies of the State by incorporating supplier-specific climate, population, and other settings.

3.1.2 EO Directive

New water use targets based on strengthened standards address EO Item 2, which states:

> *The Department of Water Resources (Department) shall work with the Water Board to develop new water use targets as part of a permanent framework for urban water agencies. These new water use targets shall build upon the existing state law requirements that the state achieve a 20% reduction in urban water usage by 2020. (Senate Bill No. 7 (7th Extraordinary Session, 2009-2010)). These water use targets shall be customized to the unique conditions of each water agency, shall generate more statewide conservation than existing requirements, and shall be based on strengthened standards for:*
>
> *a. Indoor residential per capita water use;*

b. *Outdoor irrigation, in a manner that incorporates landscape area, local climate, and new satellite imagery data;*

c. *Commercial, industrial and institutional water use; and*

d. *Water lost through leaks.*

EO Item 6, which addresses data collection and improved water system management, also relates to the implementation of new targets and standards directed in EO Item 2. EO Item 6 states:

> *The Water Board and the Department shall direct urban and agricultural water suppliers to accelerate their data collection, improve water system management, and prioritize capital projects to reduce water waste.*

See also Table 1-1 in Chapter 1 for a summary of the relationship between the EO items described in this chapter.

3.1.3 Recommendations

The EO Agencies recognize that improved water use efficiency on a statewide scale will take time, and recommend setting interim targets until refined standards are adopted no later than 2020, with a path of increasing progress toward achieving final compliance in 2025. This will allow time for the EO Agencies to collect data sufficient for establishing new standards, and allow water suppliers and users to plan for and adjust to the change in approach. The EO Agencies will identify and formally adopt (revised) final standards no later than 2020. Suppliers would then calculate new water use targets based on the final standards starting in 2021, with the goal of achieving full compliance with the final standards by 2025.

The standards recommended by the EO Agencies encompass residential indoor water use, outdoor irrigation water use, water system losses, and commercial, industrial and institutional uses. The EO Agencies anticipate that the greatest water efficiency savings will be achieved through changes in outdoor landscape water use, due to the relatively high use of water in this sector compared with others.

The following describes the standards framework, and the processes needed to implement the water use target directive. The discussion is divided into three parts: (1) the process for setting a water use target, (2) the process for setting standards (including provisional outdoor and indoor water use, water loss, and commercial and industrial measures), and (3) a summary of the anticipated schedule for water use standards development.

Setting a Water Use Target

Under the EO Agencies' proposed framework, each water supplier will be required to annually calculate an overall water use target and a commercial, industrial, and institutional (CII) performance-based measures.

The EO Agencies' proposed framework improves on the SB X7-7 Method 2 approach, but differs in several respects. First, under SB X7-7 Method 2, the water use target was the sum of an indoor and outdoor performance based standard and a 10 percent reduction in CII water use, and water loss was not addressed. Under the proposed framework, water loss is now included as part of the supplier's Water Use Target. Given the substantial diversity in businesses and institutions throughout California, a better approach to the CII sector would be to institute performance measures rather than a volumetric standard or budget, at this time. Data collection associated with the CII performance measures may support industry standards and volumetric approaches in the future.

The water use targets will be calculated as the sum of a supplier's residential indoor, outdoor irrigation, and distribution system water loss budgets. Each of these budgets is calculated through the application of a water use efficiency standard, described later in this section.

Indoor Water Use Budget + Outdoor Water Use Budget + Water Loss Budget = Supplier Water Use Target

Compliance will be based on the supplier's total water use target, rather than on the individual budgets. Interim targets based on residential indoor and outdoor standards will be set by water suppliers in 2018, and final targets based on indoor, outdoor and water loss standards will set by water suppliers in 2020. The interim targets will be gradually reduced over time to create a path of increasing progress toward achieving final compliance in 2025. Water suppliers that are not on track to meet interim or final standards-based targets may be provided with additional compliance assistance and/or face enforcement actions from the Water Board.

The following provides an example water use target calculation using hypothetical budgets for residential indoor water use, outdoor irrigation water use, and distribution system water loss. For illustrative purposes, the budgets are presented in three units: gallons per capita per day (GPCD), acre-feet, and centrum cubic feet (CCF).

Example Water Use Target Calculation

Sector	Budget[1] (GPCD)	Budget Volume (acre-feet)	(CCF)
Residential Indoor Water Use	55	10,492	4,570,315
Outdoor Irrigation Water Use	45	8,584	3,739,190
Water Loss	6	1,144	498,326
Target	**106**	**20,220**	**8,830,380**

Notes:
1. Budget calculations based on the following:
   Service area population = 170,319
   Days per year = 365

Water suppliers will also calculate compliance volume by subtracting water delivered to the CII sector from total water production:

Compliance Volume =
Total Water Production - CII Deliveries

To the right is an example compliance volume calculation for a hypothetical water supplier. To be in full compliance, (1) the water supplier's compliance volume must be less than or equal to the water use target, and (2) the supplier must document full implementation of the CII performance measures (as described more fully below).

Example Compliance Volume Calculation

Supplier's Water Use:

Total water production: 26,136 acre-feet
CII deliveries: 7,240 acre-feet
Target (see prior example): 20,272 acre-feet

Compliance volume = total production – CII deliveries
= 26,136 – 7,240
= 18,896 acre-feet

The supplier is in compliance because the compliance volume of 18,896 acre-feet is less than the water use target of 20,272 acre-feet.

A supplier's water use target will change each year because, although the standards are set, the targets are based on variable metrics (population, landscape area, evapotranspiration) that change from year to year. Consequently, post-submittal changes or adjustments will not be needed to account for weather or other factors. The process and methodology for setting the standards is described in the following section.

Setting Water Use Efficiency Standards

The following describes the recommended provisional standards for residential indoor water use, outdoor irrigation, and distribution system water loss, and the performance measures standard for CII water use.

Residential Indoor Water Use Standard

This standard is defined as the volume of residential indoor water used by each person per day, expressed in GPCD. The indoor residential standard will be used to calculate the residential

indoor budget of a supplier's water use target, which is a function of the total service area population.

For example:

Residential Indoor Water Use Budget = (Service area population) x (residential indoor standard) x (number of days in a year)

Until the 2025 standard for residential indoor water use is established, the existing 55 GPCD standard based on SB X7-7[4] will apply.

A recent national study[5] conducted by the Water Research Foundation suggests that the national residential indoor water use average is about 59 GPCD. Many experts believe California's average residential indoor use to be lower. DWR is currently conducting a study to estimate average statewide residential indoor GPCD. A DWR-commissioned study[6] to support the standard development suggests that compliance with the provisional residential indoor water use standards could likely be facilitated through plumbing code changes and continued appliance replacements with higher efficiency units. This study suggests that the effects of toilet replacement through SB 407[7] and continued enforcement of federal clothes washing machine water use efficiency standards would lower residential indoor water use by roughly 6 GPCD by 2030 and by 9 GPCD by 2040. This estimated level of reduction is generally consistent across all counties in California.

DWR and the Water Board will continue gathering additional data on current indoor water use to support future revisions of the existing standard downward to reflect the increased use of efficient fixtures and appliances. The updated standards will be available in 2018, with a timeline for interim and final compliance by 2025. Afterward, the EO Agencies will reevaluate the standard for potential revision every five years, beginning in 2025.

Outdoor Irrigation Standard

The proposed outdoor irrigation water use standard will be defined as percentage of reference evapotranspiration (ETo). ETo is an estimate of the evapotranspiration[8] of well-watered cool season grass and is expressed in inches of water per day, month, or year. ETo will vary across the State based on climatic factors such as solar radiation, temperature, humidity and wind. Landscape water requirements are expressed as a percentage of ETo and encompass the plant water requirements and the irrigation system efficiency. Lawns and recreational fields can require 100% of ETo or greater while low water use landscapes can require 20 to 30% of ETo. The outdoor irrigation standard will be a fraction of ETo.

Table 3-1 shows the existing SB X7-7 standards (Method 2[9]) for outdoor water use. These existing,

[4] SB X7-7 defined 55 GPCD as a provisional standard for residential indoor water use. See CWC Section 19608.20(b)(2)(A).

[5] Water Research Foundation (2016). Residential End Uses of Water Study, Version 2: Executive Report.

[6] Mitchell, D., 2016. Projected Statewide and County-Level Effects of Plumbing Codes and Appliance Standards on Indoor GPCD, for Department of Water Resources, August.

[7] California Civil Code Section 1101 et seq.

[8] Evapotranspiration is the quantity of water evaporated from adjacent soil and other surfaces and transpired by plants.

[9] In describing Method 2, CWC Section 10608.2 (b)(2) specifies that the 2020 per capita water use target is, "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 Efficiency 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

provisional standards will guide and assist water suppliers in their outdoor water use planning efforts until such time as the EO Agencies identify and adopt final standards (as described later in this section).

Table 3-1 Existing SB X7-7 Standards for Outdoor Water Use

Category		% of ETo
Residential Landscape by Parcel Development Date	Before 2010	0.8
	Between 2010 and 2015	0.7
	After 2015	0.55
Commercial Landscape		0.45
Landscapes Irrigated by Recycled Water		1.0
Special Landscape Areas (e.g., Parks and Fields)		1.0

Note that irrigation use for commercial properties without a dedicated account or meter will be subject to the CII performance measures, as described later. For the purpose of the provisional standards displayed in Table 3-1, areas irrigated with recycled water are considered special landscape areas and assigned an Evapotranspiration Adjustment Factor (ETAF) of 1.0, recognizing the higher salinity levels of recycled water.

The total outdoor water use budget for a water supplier is calculated as the sum of the individual budgets for all categories of outdoor water use within its service area. Because ETo and landscape area can change from year to year, the resulting outdoor water use budget also changes.

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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 CII uses, a 10-percent reduction in water use from the baseline CII water use by 2020."

As described previously, the outdoor irrigation budget is calculated based on the landscape area within a water supplier's service area. Currently, few water suppliers have measured or collected data on the landscape area within their service area. To facilitate the transition to the new standards-based approach, the EO Agencies will develop landscape area estimates for each urban retail water supplier in the State.

The EO Agencies will develop landscape area data in several steps. First, the EO Agencies will form an urban landscape area workgroup to provide technical guidance and input on this project. This work will include developing definitions for irrigated and irrigable landscape area. Next, pilot projects will be conducted to ensure that the process used for measuring landscape area is accurate. The landscape area workgroup will also provide input and guidance in reviewing the pilot projects' results. Accuracy assessments will be conducted for each of the pilot projects.

Based on lessons learned from the pilot projects, the EO Agencies will measure the landscape area for the remaining urban retail water suppliers. It is anticipated that this statewide landscape area measurement project will be completed in 2018. At the end of the project, in 2018, the service area landscape area data will be made available to water suppliers.

Using both the supplier service area landscape area data measured in the pilot and statewide projects and water suppliers' aggregate water delivery data, the EO Agencies will estimate service area, regional, and State average applied irrigation water levels.

In 2018, using the statewide estimates of applied irrigation water use, DWR and/or the Water Board will evaluate the existing SB X7-7 outdoor water use standards (Table 3-1) and develop final recommended standards that would begin to be phased in starting 2018 and need to be fully applied by 2025. At this time, the EO Agencies will also reevaluate the treatment of areas irrigated by

recycled water and determine the referenced acreage for residential landscape area (i.e., irrigated area or irrigable area) in budget calculations. The final outdoor standards will be set to increase the efficiency of outdoor water use and achieve water savings beyond SB X7-7 implementation.

By 2020 the EO Agencies will adopt the final outdoor landscape standards. Urban water suppliers must develop a plan for meeting their 2025 water use targets and report on it in their 2020 UWMPs. Starting with 2021 (reported on in 2022), urban water suppliers must start showing sufficient progress towards meeting the water use targets based on the 2025 standards. Water suppliers will be required to meet their water use targets by 2025.

Every five years thereafter, the EO Agencies will review the outdoor water use standard; at these times, they may consider further reducing the ETAFs for some or all categories, or making other adjustments to the standard and budget calculation. Landscape area data will also be updated periodically.

Distribution System Water Loss Standard. The standard for water system loss will be established through the SB 555 process[10] and may be expressed as volume per capita or volume per connection, accounting for relevant factors such as infrastructure age and condition. The water loss standards will include system losses and leaks, as well as other non-revenue water used for system maintenance and public safety purposes.

Per SB 555, the Water Board will establish the water loss standard by 2020 for compliance in 2025. The Water Board will reevaluate the water loss standard for potential update every five years, beginning in 2025.

Commercial, Industrial, and Institutional Performance Measures.

There is substantial diversity in businesses and institutions throughout California, resulting in a wide range of water use within the commercial, industrial, and institutional sector. Consequently, the EO Agencies will not establish a volumetric standard and budget for CII water use at this time. Instead, CII water suppliers will be required to implement the following three performance measures:

1. Convert all landscapes over a specified size threshold that are served by a mixed-meter CII account to dedicated irrigation accounts, either through the installation of a separate landscape meter or the use of equivalent technology.

2. Classify all CII accounts using the North American Industry Classification System (or another similar classification system selected by the EO Agencies). Where feasible, CII subsector benchmarks will be developed to assist water suppliers in identifying CII accounts with the potential for water use efficiency improvements.

3. Conduct water use audits or require water management plans for CII accounts over a specified size, volume, or percentage threshold.

By December of 2018, the EO Agencies will develop regulations and guidelines for the implementation of the CII performance measures. This guidance will include methods for classifying CII accounts, landscape size thresholds for dedicated metering, direction on implementing CII water audits, and guidance for preparing water management plans. The regulation and guidelines will be established through a public process, with the advice and input of a new CII workgroup to be established by the EO Agencies. Every five years, the EO Agencies will review the outcomes of performance measure implementation and consider updates, if appropriate. In the future, the EO Agencies may consider establishing industry-specific benchmarks

[10] See Section 4.3 of this report for information on SB 555, water loss audits, and water loss standards.

or other means to improve water use efficiency in the CII sector.

Schedule for Water Use Standards Development, Review and Revision

The following summarizes anticipated EO Agencies actions and timeline for developing, reviewing, applying, and revising the water use standards. This timeline is subject to resource availability.

Water Use Standards Development Timeline

2017
- DWR completes pilot projects on landscape area measurements

2018
- DWR completes statewide landscape area measurements to support development of outdoor landscape standard
- EO Agencies estimates service area, regional, and State average applied irrigation levels
- EO Agencies recommend final 2025 compliance standards for indoor and outdoor water use
- EO Agencies set provisional indoor and outdoor residential standards, and water suppliers set interim targets.
- EO Agencies develop regulations and guidelines for the implementation of CII performance measures
- DWR provides urban water suppliers with the service area landscape area data

2019
- EO Agencies provide guidance and methodologies for all standards

2020
- By 2020, EO Agencies complete rulemaking and adopt final 2025 indoor, outdoor and water loss standards

2025
- EO Agencies review and consider updates to the standards, starting in 2025 and every five years thereafter; revisions will follow the requirements for rulemaking and provide opportunity for public comment and input

3.1.4 Reporting, Compliance Assistance, and Enforcement

Specific reporting and compliance dates are subject to EO Agencies requisite actions as described above. Compliance dates would be extended as necessary to accommodate any serious delays in completion of those actions.

Reporting

Beginning in 2019, water suppliers must submit limited annual progress reports showing implementation of the recommended CII performance measures, and to measure progress toward meeting interim and final targets. In their 2020 UWMPs, urban water suppliers must submit a plan for meeting their 2025 water use targets.

Starting in 2022, the annual progress report for the prior year will address all water use standards and will include the following three elements:

1. Calculation of progress towards meeting the water use standards based on prior year target developed using 2025 standards and annual production data.
2. Documentation of CII performance measures implementation.
3. A narrative description of refined actions to be taken by the supplier to ensure compliance by 2025.

Water suppliers will submit annual progress reports every year from 2022 through 2025, documenting annual water production relative to the water use targets and CII performance measure implementation for the previous year. In 2026, water suppliers will submit a concluding annual compliance report documenting accomplishments and outcomes in complying with the 2025 water use targets.

Suppliers will continue to submit annual compliance reports in 2026 and thereafter, repeating the 5-year reporting cycle and using updated standards adopted by the EO Agencies, as

applicable. Additionally, suppliers will continue to submit monthly and annual water use data, per existing requirements.

The 5-year cycle for water suppliers to update their UWMPs is similar to the 5-year cycle for the EO Agencies to update the water use standards; it is expected that updated standards will be available six months to a year prior to the July deadline for submitting UWMPs. Reporting in future UWMP updates will, therefore, incorporate the water use efficiency standards and supplier accomplishments in meeting them.

Assistance and Compliance

The EO Agencies propose that compliance will be assessed on total water use in comparison to a supplier's total water use target, rather than on the individual water budgets by sector (indoor, outdoor, and water loss). Full compliance will be met when the supplier's total water use is less than or equal to the target, and the supplier has implemented the CII performance measures.

The EO Agencies will review the monthly and annual reports and data submitted by water suppliers for completeness and progress in achieving interim targets starting in 2018 and compliance with final targets by 2025. Where necessary, DWR or the Water Board may provide feedback, direction, or suggestions for water suppliers to improve their compliance and progress. The Water Board may also issue formal Enforcement Orders to suppliers not on track to meet interim or final targets.

DWR will provide technical assistance to suppliers in preparing their annual progress reports and will continue to revise UWMP guidance, as needed, to reflect updated standards and water use compliance requirements. The EO Agencies will actively communicate the need for the water use targets and their implementation through public outreach and engagement, sharing the responsibility for public education with water suppliers.

Water suppliers must be in compliance with the new standards-based water use targets by 2025 to be eligible for State grant and loan funding.

Enforcement

Water suppliers that are not in compliance with the new standards-based water use targets by 2025 may be provided with additional compliance assistance and/or face enforcement actions from the Water Board. This could include:

- Information orders
- Conservation orders
- Cease and desist orders
- Administrative civil liability penalties (such as fines)

The EO Agencies will conduct enforcement only at the supplier level, based on compliance with the total water use target for the entire service area and associated performance measures for CII water use. Water suppliers may implement discretionary actions of their choosing on individual water accounts or users to ensure that their overall water use efficiency targets are met.

Water suppliers are required to continue submitting monthly water use reports to the Water Board for their water use, amount of conservation achieved, and any enforcement efforts, as directed in EO Item 3.

Water suppliers failing to submit annual reports for standard compliance, UWMPs, or monthly reports for water use per schedule will be subject to earlier enforcement action.

MWELO Updates and Standards

DWR may consider updating the MWELO to better align the model ordinance language with the water use efficiency standards. Better alignment will provide land use agencies with tools to implement complementary actions that assist water suppliers in complying with the standards.

3.2 Water Shortage Contingency Plans

3.2.1 Current Status and Need for Change

Current Status

Current statutes direct urban suppliers[11] to provide a water shortage contingency analysis as a component of their UWMPs, which are updated every five years. Some urban water suppliers have exceeded the existing shortage contingency analysis requirements, documenting them in official WSCPs; these plans are used to satisfy the UWMP requirements submitted to DWR. However, this is not a requirement under current guidance[12], and suppliers have used varying assumptions in their analyses. Consequently, WSCPs are varied in their form, approach, and functionality, in part due to the lack of statewide standards.

Need for Change

During the on-going historical drought, some water suppliers that had inadequately assessed the risk of water shortage were unprepared to effectively respond to the realized supply shortages. However, many other suppliers showed high levels of resiliency due to their adequate planning and well-defined contingency actions.

Supplier experiences during the current drought have prompted the need to elevate water shortage contingency planning for urban water suppliers throughout the State. Water shortage contingency planning is important because it can affect the basic health and safety of California residents. It can also be very costly for both the State and local communities to engage in last minute, emergency efforts to alleviate water supply crises when they happen.

Urban water suppliers should evaluate the potential impacts on their water supplies considering the full range of plausible water supply and demand conditions in order to properly assess their potential risk and exposure to shortage in frequency, severity, and potential consequences. Each water supplier establishes its accepted tolerance for risk that varies based on many intertwined technical, legal, economic, and political considerations. It is critical that water suppliers inform their customers of the accepted risk and potential consequences.

As these factors are often changing, a supplier must diligently assess them in a manner that allows confident management in accordance with its risk tolerance.

3.2.2 EO Directive

The water shortage contingency planning discussed in this section focuses on the requirements for DWR to develop measures to strengthen local drought resilience. Specifically, EO Items 8 and 9 state:

8. *The Department shall strengthen requirements for urban Water Shortage Contingency Plans, which urban water agencies are required to maintain. These updated requirements shall include adequate actions to respond to droughts lasting at least five years, as well as more frequent and severe periods of drought. While remaining customized according to local conditions, the updated requirements shall also create common statewide standards so that these plans can be quickly utilized during this and any future droughts.*

9. *The Department shall consult with urban water suppliers, local governments, environmental groups, and other partners*

[11] UWMPs are only prepared by urban water suppliers, defined as a "supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually" (CWC Section 10617). According to DWR, there are approximately 440 urban water suppliers in the State that must prepare UWMPs.

[12] 2015 Urban Water Management Plan: Guidebook for Urban Water Suppliers, DWR, January 2016.

to update requirements for Water Shortage Contingency Plans. The updated draft requirements shall be publicly released by January 10, 2017.

EO Item 6, which relates to accelerated data collection for urban water suppliers, also has ties to EO Items 8 and 9, above. See also Table 1.1 in Chapter 1.

3.2.3 Recommendations

DWR recommends strengthening local drought resilience through improved planning and annual assessments. In addition, the proposed planning and assessment methods will allow for local control in defining the risk tolerance, with improvements in information dissemination to both customers and the State during drought conditions. This could lead to reductions in long-term impacts on customers in the wake of more frequent and severe drought conditions under climate change.

The EO Agencies established the following primary objectives in the design of the recommendations:

- Assure that an urban water supplier has adequately planned for, and can quickly respond with adequate, pre-determined actions, to droughts lasting at least five years, as well as during more frequent and severe periods of drought; and
- Provide DWR with information necessary to evaluate specific urban supplier responses throughout the State to drought conditions, to allow focused attention where necessary and forestall overarching mandates that may conflict with existing adequate local plans and responses.

To achieve these objectives, DWR recommends the following requirements for urban water suppliers and EO Agencies:

Urban Water Suppliers

Each urban water supplier will prepare and adopt an updated WSCP and submit it to DWR for review as part of the UWMP. A key component of the WSCP will be establishing the methodologies, data requirements, and policy considerations for an annual assessment of shortage risks in the current year plus one or more dry years. Following the procedures detailed in the adopted WSCP, the supplier will annually assess its actual or potential water shortage condition, respond accordingly, and report pertinent information to DWR.

Additionally, the procedures and methods for a Drought Risk Assessment that evaluates plausible worst-case supply conditions for a period of at least five years will be reported in the UWMP.

Updated Contents of the Urban Water Management Plans

Updated contents for suppliers' UWMPs include the following:

1. 5-Year Drought Risk Assessment – Define the methodology, data requirements, and basis for one or more plausible supply shortage conditions necessary to conduct a drought risk assessment that examines shortage risks for the next five or more consecutive years.

2. Evaluation Criteria – Define a set of evaluation criteria that will be used to conduct the drought risk assessment. The evaluation criteria will be locally applicable and include, but not be limited to, the following factors:

    a) Historical drought hydrology

    b) Plausible climate change effects for existing supplies and demands (e.g. precipitation or ETo changes)

    c) Plausible regulatory changes that can affect existing supplies and demands (e.g., Water Use Efficiency emergency regulations)

    d) Demand projections

3. Conduct a Drought Risk Assessment – Suppliers will conduct a drought risk assessment at a minimum of every five years, per the procedures set forth in the urban water management plan.

Contents of the Water Shortage Contingency Plan

The supplier's WSCP must provide details for each of the following standard sections:

1. Annual Water Budget Forecast Procedures – Define the process, data inputs, and water year schedule to generate the Water Budget Forecast used in the annual assessment.

2. Annual Assessment Methodology – Define the methodology necessary to conduct an Annual Water Budget Forecast assessing shortage risks for the current year and one or more dry year(s), assuming a dry year triggers Shortage Response Actions.

3. Evaluation Criteria – Define a set of evaluation criteria that will be used to conduct the Water Budget Forecast. The evaluation criteria will be locally applicable and include, but not be limited to these factors:

   a) Current year unconstrained demand, considering weather, growth or other influencing factors, such as policies to manage current supplies to meet demand objectives in future years, as applicable.

   b) Current year available supply, considering hydrologic and regulatory conditions in the current year and an additional dry year, as appropriate for the current supply sources.

   c) Existing infrastructure and operational capabilities and plausible constraints.

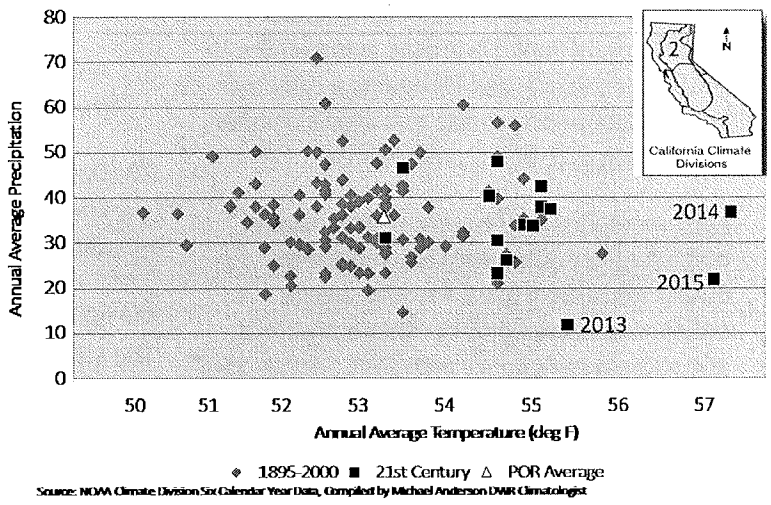
4. Shortage Levels – WSCPs must include six standard shortage levels, representing the actual shortage, or predicted shortage determined by the Water Budget Forecast, defined as:

   - Shortage Level 1: Up to 10 percent shortage
   - Shortage Level 2: Up to 20 percent shortage
   - Shortage Level 3: Up to 30 percent shortage
   - Shortage Level 4: Up to 40 percent shortage
   - Shortage Level 5: Up to 50 percent shortage
   - Shortage Level 6: Greater than 50 percent shortage

5. Shortage Response Actions (SRA) – For each Shortage Level, define a progressive series of SRAs that include a locally appropriate mix of short-term water efficiency and/or demand reduction actions, supply augmentation, and/or operational changes necessary to respond to actual or predicted shortage conditions. The SRAs must include actions necessary to respond to shortages.

6. Communication Plan – Describe the planned communications approach and anticipated actions intended to quickly inform customers, the public, and regional and State interests, about current shortages or predicted shortages as determined by the Water Budget Forecast, expected implementation of SRAs, and other necessary communications.

When developing a WSCP, water suppliers should consider the potential risks associated with climate conditions that are outside of the historical norm, as evidenced below in the graphic of the ongoing drought.



7. Customer Compliance, Enforcement, and Appeal/Exemption Procedures – Describe methods and procedures in place to (1) gain customer compliance with triggered SRAs – especially with actions requiring mandatory demand reductions, (2) enable enforcement to assure compliance, and (3) enable a customer appeal/exemption process that allows unique circumstances to be accommodated.

8. Implementation Authorities – Demonstrate that necessary authorities are in place to quickly implement SRAs. Identify specific ordinances, resolutions, or other authorities, and address compliance with CWC Section 350 et seq. Should a water supplier enter into Shortage Level 3 or higher, as described herein, there should be a water shortage emergency declaration and all appropriate actions described in CWC Section 350 et seq., must be implemented.

9. Financial Plan for Drought Conditions – Describe management of revenue and expense variances when SRAs are triggered, including but not limited to, customer rate adjustments, or use of financial reserves. Specifically describe compliance with SB 814 (CWC Section 365 et seq.).

10. Monitoring and Reporting Requirements and Procedures – Outline internal and external monitoring and reporting procedures to assure appropriate data are being collected, tracked, and analyzed for purposes of monitoring customer compliance, and to meet DWR reporting requirements.

11. Re-evaluation and Improvement Process – Identify procedures for monitoring and systematically evaluating the functionality of a WSCP to assure shortage risk tolerance is adequate, and appropriate mitigation strategies are available.

Implementing Water Shortage Contingency Plans

As articulated in the WSCP, the supplier will follow its prescribed procedures to assess current year and one or more dry year water supply reliability conditions. Specifically, the supplier will:

1. Annually conduct a Water Budget Forecast per the procedures set forth in the WSCP.

2. Depending on the results of the Water Budget Forecast, appropriate SRAs will be triggered corresponding to the projected Shortage Level.

EO Agencies

The EO Agencies will set forth planning and reporting criteria, evaluate submitted data, support compliance and enforcement, and provide technical assistance. The EO Agencies anticipate that suppliers that conduct thorough shortage planning will continue to do so under the new requirements, while those that do not will be prompted to improve their planning to levels that limit or eliminate the need for State intervention in drought response.

DWR actions will include the following:

1. Prepare Compliance Criteria – DWR will prepare necessary documents (and regulations, if necessary) detailing the WSCP and annual assessment compliance criteria that must be met by water suppliers. The criteria will include articulating the necessary data and information that must be submitted by suppliers (1) every five years, and (2) annually. Failure to comply will result in to-be-defined enforcement measures.

2. Develop Information Submittal Tools – DWR will prepare new or augment existing reporting procedures and websites to facilitate supplier reporting. Existing requirements for data and information reporting will be utilized where feasible in order to minimize additional reporting burdens on suppliers.

3. Evaluate Statewide Water Supply Conditions – On an as-needed basis, DWR will assess regional and statewide water supply conditions – such as those created by prolonged or severe hydrologic drought – to understand the likelihood and degree that urban suppliers would be implementing SRAs.

4. Review and Assess Supplier-Reported Information – DWR will review supplier-specific data and information submitted for compliance with stated criteria. The review will also allow DWR to evaluate local shortage conditions compared to the statewide water supply conditions, and prepare necessary reports for the Governor's Office and the Legislature.

5. Compliance and Enforcement – A key factor to strengthen local drought resilience is to hold suppliers accountable for being prepared to quickly respond to long-lasting and potentially more frequent and severe supply shortages. By requiring suppliers to submit adopted WSCPs and perform and submit annual assessments, the EO Agencies will have supplier-specific information that can be used to assess compliance with overall objectives. As part of recommendations, the State will define the compliance assistance and enforcement protocols.

6. Technical and Financial Assistance – To facilitate improved drought planning for all urban water suppliers, the EO Agencies will continue to offer technical and financial assistance through various existing programs and seek additional funding. Additionally, DWR will update its 2008 Drought Guidebook to incorporate the strengthened WSCP recommendations, provide further details for the recommended components and definitions, provide example drought risk assessment methods and supply shortage scenarios, and suggest various SRAs.

3.2.4 Reporting, Compliance Assistance, and Enforcement

The reporting and compliance processes described in this section will result in transparent communication of effective planning by local water suppliers and will provide the EO Agencies with an effective monitoring tool. The end result of data reporting and collection should be in a data exchange system with a public-facing GIS application that allows policy makers, water managers, and the public to view actual or predicted shortage conditions and SRAs in any part of the State.

The water supplier will follow the reporting procedures set forth in its WSCP and UWMP. The following reporting cycle is anticipated:

- Every five years
  - Submit the adopted WSCP to DWR, including the associated Drought Risk Assessment in the UWMP and supporting data.
  - Make the WSCP available to customers (website, hardcopy at desk).
- Annually
  - Submit Water Budget Forecast results and selected SRAs to DWR, including an indication of the shortage reduction anticipated to occur with the selected SRAs.
  - Communicate Water Budget Forecast results and selected SRAs to customers (website, hardcopy at desk).

DWR will review submitted data for completeness and adequacy, using criteria to be developed by DWR, in consultation with the Water Board and CPUC, for further assistance and potential enforcement actions, where applicable. DWR will receive the WSCPs and the associated reports and make them available to the public.

3.3 Drought Planning for Small Water Suppliers and Rural Communities

3.3.1 Current Status and Need for Change

Current Status

Small water suppliers and rural communities are not covered by established planning requirements, which apply to large urban water suppliers and larger agricultural suppliers (see sections 3.2 and 3.4). Often, small suppliers and rural communities lack resources and mechanisms to compel drought planning efforts. Drought planning helps to identify potential shortage conditions and justify local expenditures and measures to provide sufficient safe water.

While small water suppliers have a fiduciary relationship with their customers, self-supplied domestic water users (rural communities) rely on the county. Counties have legal and fiduciary responsibilities to assist with the general well-being of their citizens and provide for the health and safety of their citizens; they are, however, limited in enforcing any water curtailment or conservation policies.

Many State agencies have regulatory responsibilities and technical and financial assistance programs targeting rural communities and small water suppliers. Examples include the Water Board's Division of Drinking Water and their requirements for safety consideration of public water systems, and CPUC's jurisdiction over small investor-owned utilities on their operation and maintenance.

In addition, SGMA could have significant effects on management and long-term water supply reliability. SGMA applies to 127 high and medium-priority groundwater basins (as defined by DWR's California Statewide Groundwater Elevation Monitoring, or CASGEM, program). Any local agency that has water supply, water management, or land use responsibilities within a groundwater basin may elect to be a "groundwater sustainability agency" (GSA) for that basin. However, if a basin (or portion thereof) is not within the management area of a GSA, the county within which the basin is located will be presumed to be the GSA for that basin or portion. When preparing required groundwater sustainability plan(s) (GSPs), the GSA(s) and the county will need to incorporate appropriate drought planning and response measures to adequately protect small water suppliers and rural communities from possible future shortages. If the county declines its SGMA responsibilities, leaving unmanaged areas in a high or medium-priority basins, the State may be required to intervene and directly manage groundwater resources in the basin.

Need for Change

The ongoing drought has brought attention to the reality that many small water suppliers and rural communities are struggling to meet demands with significantly reduced water supplies – or even running out of water altogether.

The fundamental difference in customer relationships and access to resources between large and small water suppliers, self-supplied systems and counties requires unique approaches to facilitating improved drought planning.

California became the first state to legally recognize the human right to water with the signing of AB 685 in September 2012. This law aims to ensure universal access to safe, clean, affordable, and accessible water. When communities run out of water, State and local emergency measures must be taken and these measures are expensive to implement.

Recent policy and legislative efforts have focused on trying to assure sustainable potable water supplies exists to meet the health and safety needs of the citizens. In conjunction with these efforts, the EO directs DWR to work with counties throughout the State to facilitate improved drought planning for rural communities and small water suppliers.

3.3.2 EO Directive

EO Item 10 focuses on improved drought resiliency to small water suppliers and rural communities. The State's primary intent of this directive is to assure the availability and reliability of potable water supplies to meet the health and safety needs of citizens not otherwise receiving water from designated urban water suppliers. EO Item 10 states:

> *For areas not covered by a Water Shortage Contingency Plan, the Department shall work with counties to facilitate improved drought planning for small water suppliers and rural communities.*

3.3.3 Recommendations

Recommendations in this section focus on improved drought planning for small water suppliers and rural communities throughout every county in California.

EO Agencies are considering various actions to satisfy EO Item 10. The recommendations described below are intended to illustrate options currently under consideration and to describe the types of activities underway. This process to develop recommendations will continue into 2017.

The intent of these recommendations is for the EO Agencies and counties to collectively:

- Improve assessment of drought vulnerability to understand relative risks and prioritize actions.
- Take proactive actions to reduce drought vulnerability when and where appropriate.
- Improve availability and readiness of appropriate responses for when drought impacts do occur, including financing when and where appropriate.

The EO Agencies recommend the following efforts continue as a pathway to developing recommendations:

1. Improve engagement with cities and counties, as well as stakeholders such as the League of California Cities, the California State Association of Counties, the Regional Council of Rural Counties, the Community Water Center, and others.

2. Demonstrate funding commitments from the EO Agencies for continued engagement, for initial data collection and analysis, and for improved communications and outreach.

Although conversations and work among EO Agencies, counties, and interested and affected parties have been preliminary, the EO Agencies anticipate more specific, functional recommendations would address the following:

1. Reporting and Data Recording – Improved data collection, management, analysis, sharing, and transparency at all levels is foundational to the ability to plan. Data analysis will allow for better coordination among stakeholders and improve on both long-term actions as well as immediate responses to drought risks, especially in rural communities.

2. Communications Planning – Improved monitoring and communications among stakeholders, from the State, through the counties, and to the water suppliers and citizens.

3. County Demonstration of Drought Planning – While some portion of a county's citizenry may be covered by an urban supplier's WSCP or a small suppliers' drought plan (not required), there is nothing currently available to demonstrate that drought risk is being addressed for all county citizens. To address this need, counties may be required to submit drought planning information to the EO Agencies, possibly through documents such as:

   a) A county Drought Response Plan.

b) Drought-specific policies in a county General Plan.

c) Drought-specific protocols defined in a county (or multi-jurisdictional) Hazard Mitigation Plan.

d) A Groundwater Sustainability Plan.

4. Roles and Responsibilities – Defined State Agency and county roles, responsibilities, and funding mechanisms.

5. Coordination – Coordination with SGMA efforts to assure drought planning and responses are reflected in Groundwater Sustainability Plans (where applicable).

3.3.4 Reporting, Compliance Assistance, and Enforcement

As the recommendations for satisfying EO Item 10 are still under development, no reporting, compliance assistance, or enforcement actions have been identified at this time but will be considered as development progresses.

3.4 Agricultural Water Management Plans

3.4.1 Current Status and Need for Change

Current Status

SB X7-7 requires agricultural water suppliers that provide water to more than 25,000 irrigated acres[13] to (1) adopt and submit AWMPs to DWR, and (2) implement Efficient Water Management Practices (EWMP) including the measurement and volumetric pricing of water deliveries, both on or before December 31, 2012. AWMPs must be updated on December 31, 2015, and every five years thereafter (CWC Section 10820 (a)).

Agricultural water suppliers that provide water to 10,000 and up to 25,000 irrigated acres[14] are currently not required to prepare and submit plans unless State funds are available to support the planning efforts (CWC Section 10853). SB X7-7 permits water suppliers that are contractors under the Reclamation Reform Act or Central Valley Project Improvement Act requirements to submit their federal plans in lieu of a plan meeting the SB X7-7 criteria. Those suppliers must also provide additional information on water measurement and pricing to meet the SB X7-7 requirements of CWC Section 10608.48 and California Code of Regulations (CCR) Section 597. DWR's *Guidebook to Assist Agricultural Water Suppliers to Prepare a 2015 Agricultural Water management Plan* (June 2015) describes how federal plans can be supplemented to satisfy the CWC and CCR requirements.

Agricultural water suppliers are required to describe certain elements such as service area and infrastructure, the quantity and quality of water resources, water uses, previous water management activities and planned implementation of EWMPs, and an analysis on the effect of climate change under SB X7-7.

CWC Section 10608.48(d) requires that an agricultural water supplier include in its AWMP:

> *...a report on which EWMPs have been implemented or 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 ten years in the future. If a supplier determines that a EWMP is not locally cost-effective or technically feasible, the supplier shall submit information documenting that determination.*

CWC Section 10608.48(a) requires that agricultural water suppliers implement EWMPs pursuant to CWC Sections 10608.48(b) and (c). Two critical EWMPs must be implemented by the agricultural water supplier serving 25,000 or more irrigated acres (CWC Section 10608.48(b)):

[13] Excluding acreage irrigated with recycled water.
[14] Excluding acreage irrigated with recycled water.

1. Measure the volume of water delivered to customers with sufficient accuracy to comply with subdivision (a) of Section CCR Section 531.1016.

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

CWC Section10608.48(c) requires implementation of 14 EWMPs if locally cost-effective and technically-feasible. Agricultural water suppliers must adopt the plan by December 31, 2012, and update it by December 31, 2015, and every five years thereafter, and submit the plan to DWR within 30 days of adoption (CWC Section 10820 (a)). Since July 1, 2013, an agricultural water supplier subject to the SB X7-7 requirements must submit an AWMP and implement applicable EWMPs to be eligible for a water grant or loan awarded or administered by the State (CWC Section 10608.56(b) and 10852). Agricultural water suppliers not implementing all of the applicable EWMPs may become eligible for State grants and loans if agricultural water suppliers provide a schedule, financing plan, and budget for the implementation of the required EWMPs (CWC Section 10608.56(d)). Grant or loan funds may be requested to implement EWMPs to the extent the grant or loan proposal is consistent with the water fund eligibility requirements (CWC Section 10608.56(d)).

AWMPs adopted by agricultural water suppliers and updated every five years are meant to be planning documents to better manage water provided for irrigation and increase the efficiency of water use in agriculture. To make AWMPs better planning documents, EO B-29-15 of April 1, 2015, required that the 2015 AWMPs include a detailed drought management plan and quantification of water supplies and demands in 2013, 2014, and 2015, to the extent that data is available. EO B-29-15 also required that agricultural water suppliers that supply water to 10,000 to 25,000 acres of irrigated lands develop AWMPs and submit their plans to DWR by July 1, 2016.

Need for Change

The EO recognizes that further improving water conservation in California will require progress in all sectors, including agriculture, and that there is a fundamental need for updating existing agricultural water management planning requirements to help advance the efficiency of agricultural water use and better prepare for periods of limited supply. This would entail updating AWMP requirements to include a drought planning component, as well as quantifiable measures to increase agricultural water use efficiency. To promote adequate drought planning across the agricultural sector, the EO requires more agricultural water suppliers to comply with the requirements by lowering the threshold of application to water suppliers with 10,000 acres of irrigated land. The EO Agencies also recognize the strong nexus of adequate agricultural water management strategies and implementation of SGMA, and propose a consistent methodology focusing on a supplier's overall water budget that can contribute to compliance for both purposes.

3.4.2 EO Directive

EO Items 11, 12, and 13 state:

11. *The Department shall work with the California Department of Food and Agriculture to update existing requirements for Agricultural Water Management Plans to ensure that these plans identify and quantify measures to increase water efficiency in their service area and to adequately plan for periods of limited water supply.*

12. *The Department shall permanently require the completion of Agricultural Water Management Plans by water suppliers with over 10,000 irrigated acres of land.*

13. *The Department, together with the California Department of Food and Agriculture, shall consult with agricultural water suppliers, local governments, agricultural producers, environmental groups, and other partners to update requirements for Agricultural Water*

Management Plans. The update draft requirements shall be publicly released by January 10, 2017.

EO Item 6 requires EO Agencies to accelerate data collection and improve water system management and prioritize capital projects to reduce water waste. This applies to agricultural water suppliers as well and is covered in this section.

3.4.3 Recommendations

To satisfy the EO directive, DWR recommends that water suppliers comply with the following: (1) develop annual water budget for the agricultural water supplier's service area, (2) identify agricultural water supplier's water management objectives and implementation plan, (3) quantify measures to increase water use efficiency, (4) develop an adequate drought plan for periods of limited supply, and (5) extend the updated requirements to more water suppliers. The following discussion provides additional details in these five recommendation areas. This information would be included as components of a supplier's AWMP.

Develop Annual Water Budget for the Agricultural Water Supplier's Service Area

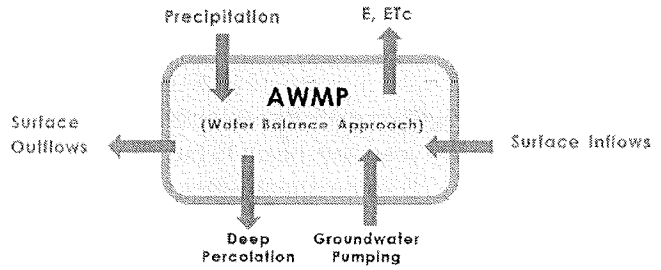
To make AWMPs more effective as planning tools and to help water suppliers identify areas where water efficiency improvements can be made, the proposed updated AWMP requirements would require suppliers to include in their plans annual water budgets that account for inflows to and outflows from the water supplier's service area. Including water budgets as part of the AWMP provides the following benefits:

- Better quantifies the flows and uses of water within the supplier's service area and better estimates unmeasurable flows, such as deep percolation.
- Provides the data necessary to quantify water management efficiency within the service area.
- Helps identify and prioritize water loss.
- Aligns AWMP reporting with implementation of SGMA.

As a part of estimating water budget, water suppliers would be required to report all water inflow and outflow components from their service area. The water budget includes two components:

- **Water Budget Inflow.** This includes surface inflow, groundwater pumping in the service area (including private groundwater pumping), and effective precipitation.
- **Water Budget Outflow.** This includes surface outflow, deep percolation and evapotranspiration (E and ETc).[15]

Agricultural water suppliers are currently required (CWC Section 10826) to describe the quantity and quality of their water resources, water uses within the agricultural water supplier's service area, overall water budget, and water use efficiency information. However, the CWC does not currently



The proposed water budget approach with major components covering the needed information for adequate agricultural water management planning and is consistent with the needs for SGMA compliance.

[15] Where E refers to evaporation and ETc refers to the evapotranspiration of crops. Evapotranspiration is the combined amount of water that enters the atmosphere by plant transpiration and surface evaporation.

require actual quantification of all components sufficient to develop a water budget.

To develop a service area water budget, the proposed revisions to the AWMP requirements would require agricultural water suppliers to quantify all currently reported components and to report on the quantity of two additional components: precipitation and private groundwater pumping.

The annual water budgets would be reported on a water year basis (beginning October 1 and ending September 31) to align with SGMA reporting requirements (CCR Section 350 et seq.).

The State, through the Agricultural Water Management Program or the Sustainable Groundwater Management program, may provide tools and resources to assist suppliers in developing and quantifying existing and new components.

Identify Water Management Objectives and Implementation Plan

The EO Agencies recommend an objective-based planning approach as part of the AWMP, in which water management objectives are identified along with actions to meet these objectives. From the water budget, agricultural water suppliers would identify and select supplier-specific water management objectives to improve water use efficiency or to meet other water management objectives. The proposed water budget approach would help agricultural water suppliers identify and prioritize water loss and identify ways to improve water system management.

In the AWMP, the supplier's objectives or intended results are identified (e.g., decrease percolation to saline ground, provide greater flexibility in irrigation deliveries), then specific efficient water management practices or measures are selected and implemented to achieve the results. Practices implemented to reduce water losses, improve water use efficiency, and attain other water management objectives would be included in an implementation plan as part of the overall AWMP.

Quantify Measures to Increase Water Use Efficiency

The proposed updates to the AWMP requirements would also require agricultural water suppliers to quantify the efficiency of agricultural water use within their service area. Agricultural water suppliers would choose the appropriate method(s) from amongst four efficiency quantification methods provided in the 2012 DWR report to the Legislature titled, "A Proposed Methodology for Quantifying the Efficiency of Agricultural Water Use." These methods can be used to calculate the ratio of beneficial water uses to amount of applied water and include the Crop Consumptive Use Fraction (CCUF), the Agronomic Water Use Fraction (AWUF), the Total Water Use Fraction (TWUF), and the Water Management Fraction (WMF). When choosing the appropriate water use fraction to determine water use efficiency, the agricultural water supplier needs to ensure that all water uses are taken into account including crop water use, agronomic water use, environmental water use, groundwater recharge, and recoverable surface flows.

The proposed water use fractions (described below) are practical methods for quantifying the efficiency of agricultural water use by irrigated agriculture and other beneficial uses that can help agricultural water suppliers evaluate current conditions and strategies for improving agricultural water management. All four methods described below are applicable for use at the basin- and supplier-scale. At the field-scale, only the first three methods are applicable.

i. **Crop Consumptive Use Fraction (CCUF)**

$$CCUF = ETAW/AW$$

Evapotranspiration of Applied Water (ETAW) is crop evapotranspiration minus the amount of precipitation evapotranspired by the crop.

Applied Water (AW) is the total volume of water that is applied within a boundary (e.g., field, supplier service area, or basin) in order

to meet the crop evapotranspiration, agronomic, and environmental uses from any source such as surface water (including tailwater[16] reuse), groundwater (public or private), and the initial soil moisture in the soil profile that is not from precipitation.

ii. Agronomic Water Use Fraction (AWUF)

$$AWUF = (ETAW + AU)/AW$$

Agronomic Use (AU) is the portion of applied water used for water management applications essential for crop production. Examples of essential water management applications include salinity management, frost control, and winter flooding for straw decomposition.

iii. Total Water Use Fraction (TWF)

$$TWUF = (ETAW + AU + EU)/AW$$

Environmental Use (EU) is the portion of applied water directed to environmental purposes, including water to produce and/or maintain wetlands, riparian, or terrestrial habitats.

iv. Water Management Fraction

$$WMF = (ETAW + RF)/AW$$

Recoverable Flows (RF) is the amount of water leaving a given area as surface flows to non-saline bodies or percolation to usable groundwater that is available for supply or reuse.

Components of these fractions may be empirical (measured or observed), modeled (calculated or estimated), or a combination, based on data availability and system complexity.

[16] Tailwater refers to surface water runoff from a boundary. Tailwater may be captured and reused within (returned to) the boundary.

Develop a Drought Plan for Periods of Limited Supply

The proposed updates to the AWMP requirements would also require agricultural water suppliers to include a Drought Plan. The Drought Plan should detail how the water supplier would prepare for droughts and manage water supplies and allocations during drought conditions. Some components or actions may require detailed review of conditions, policy changes, or long-term capital improvements. Additionally, as conditions change and new technology and knowledge becomes available, opportunities and constraints will change.

The Drought Plan should be prepared to provide adaptive management for and during periods of water shortages. Agricultural water suppliers would consider all items under each component and include a description of applicable items in their Drought Plan.

The Drought Plan would include a resilience component and an action plan, described below.

Resilience Component

The resilience component of the Drought Plan will include the following:

1. A description of what hydraulic levels or conditions (reservoir levels, stream flows, groundwater, snowpack etc.) are or should be monitored and measured to determine the water supply available and to identify levels of drought severity.

2. The supplier's policy or process for declaring a water shortage and for implementing the water shortage allocations and related actions.

3. A description and analysis of the agricultural water supplier's customers' vulnerability to drought (e.g., potential for crop idling, availability of multiple water sources and resilience of each source, existing water storage options).

4. A description of potential opportunities and constraints to improve drought resilience (e.g., improved groundwater or surface water storage potential, acres of permanent crops, environmental use requirements, overdrafted groundwater basin).

5. A description of actions implemented or planned for implementation to improve drought resilience (e.g., potential for improved on-farm water use efficiency measures, groundwater and surface water conjunctive use management, crop idling, and development of alternative supplies such as recycled water or tailwater reuse).

6. Discussion of the potential, if possible, for the supplier to obtain or use additional water supplies during drought conditions. These supplies could include transfers from another water agency or supplier, the use of recycled water and desalination of brackish groundwater or drainage water.

7. A description of the cost for implementing the resilience plan.

Action Plan

The Action Plan will include the following:

1. Allocation Policies – A description of the water shortage allocation policies as required by the Water Code. Water suppliers would describe their program or process for how water is allocated during a water shortage in the Drought Plan or attach a copy of their water shortage allocation policy to their AWMP.

2. Operational Adjustments – Changes in supplier water management and operations to respond to drought, including canal and reservoir operations and groundwater management.

3. Demand Management – Policies and incentives in addition to the water shortage allocation plan to lower on-farm water use.

4. Coordination and Collaboration – Include a description on how coordination and collaboration with other local suppliers, water agencies, or regional groups will be used in drought response.

5. Revenues and Expenditures – Describe how the drought and lower water allocations will affect the supplier's revenues and expenditures.

Extend Requirements to More Agricultural Water Suppliers

The proposed updates to the AWMP requirements would extend the requirement for AWMPs to include agricultural water suppliers supplying water to more than 10,000 acres of irrigated land, excluding recycled water.

3.4.4 Reporting, Compliance Assistance, and Enforcement

Reporting

All agricultural water suppliers providing water supplies to 10,000 or more irrigated acres, excluding recycled water, would be required to prepare and adopt an AWMP on or before April 1, 2021, and every five years thereafter. Agricultural water suppliers would continue to be required to submit their plans to DWR within 30 days of adoption. A water supplier that provides both urban and agricultural supplies, and is subject to both UWMP and AWMP reporting, may satisfy the AWMP requirements by adopting an UWMP that accounts for its agricultural water use and meets both requirements.

Reclamation Reform Act and Central Valley Project water suppliers that submit water conservation plans to Reclamation may still submit those plans to DWR, along with supplemental information, including: a Drought Plan for all suppliers, and water measurement and volumetric pricing for those water suppliers providing water to 25,000 irrigated acres or more, excluding recycled water (CCR Section 597.1(a) and CWC Section 10608.48(b)).

AB 1404 (Statutes of 2007, Chapter 675) requires that all agricultural water suppliers supplying 2,000 acre-feet or more of surface water annually for agricultural purposes or serving 2,000 or more acres of agricultural land must submit an annual aggregated farm-gate delivery report to DWR. Per AB 1404, an agricultural water supplier will:

- Provide DWR with monthly or bimonthly aggregated farm-gate deliveries on an annual basis, along with information on their farm-gate measurement program or practices to document that they are using "Best Professional Practices;" or
- Provide DWR with information that documents that the implementation of a program or practices to measure farm-gate deliveries using Best Professional Practices is not locally cost effective.

For the purpose of aligning agricultural water supplier annual reporting with SGMA reporting requirements, EO Agencies recommend that the annual aggregated farm-gate delivery reporting requirements for agricultural water suppliers providing water to over 10,000 irrigated acres only, be replaced by the following:

> *Agricultural water suppliers serving more than 10,000 acres of irrigated land, excluding recycled water, would submit an annual report for the prior year to DWR by April 1 of each year. The annual report should include the water budget inflow and outflow components for the preceding water year: surface inflow, supplier's groundwater pumping in the service area, effective precipitation, surface outflow, and deep percolation.*

When tools and resources are made available by the State, the annual report would also include private groundwater pumping in the service area and evapotranspiration.

Compliance Assistance

DWR will assist agricultural water suppliers in several ways:

1. AWMP Guidebook – DWR would update the AWMP Guidebook to help agricultural water suppliers better understand the CWC AWMP requirements and assist them in developing an AWMP. The Guidebook would also describe how water conservation plans submitted to Reclamation can be supplemented to satisfy the CWC and Agricultural Water Measurement Regulation requirements.

2. AWMP Workshops – Prior to finalizing the AWMP Guidebook, DWR would release a draft and hold public workshops to give opportunity for stakeholders to comment on the draft guidelines. Additional workshops would be conducted after releasing the final Guidebook.

3. California Irrigation Management Information System – DWR would continue to support and update the California Irrigation Management Information System (CIMIS) to provide climate data and resources (e.g., precipitation, crop use coefficients) necessary for calculating components of the water budget and water use efficiency fractions.

4. Water Use Efficiency Calculator – DWR would make available the water use efficiency calculator being developed and tested by the University of California through Proposition 50 and Proposition 1 grants.

The EO Agencies further recommend that DWR, through the Agricultural Water Management Program or the Sustainable Groundwater Management Program, consider providing additional tools and resources to assist suppliers in quantifying water budget components pertaining to evapotranspiration of applied water and private groundwater pumping. Examples of these tools and resources include remote sensing for measurement of actual evapotranspiration, and

models or tools for calculating deep percolation to groundwater.

DWR will lead the compliance review for submitted plans, data, and information, which are due by April 1 starting in 2021. The compliance schedule is outlined below:

1. DWR will provide an updated list of agricultural water suppliers required to submit plans to CDFA and the Water Board by March 1, 2020, and every five years thereafter.

2. DWR will continue to review each plan for meeting the requirements, including the updated and new components, as they are received. However, DWR will expedite the review if an agricultural water supplier is seeking a State grant or loan with a specific deadline. DWR may coordinate with the Water Board and CDFA on the review.

3. DWR will inform the Water Board and CDFA of the plan submittal status and review status, and post the information on DWR's website for public reference.

4. If a plan has not been submitted by July 1, 2021, and every five years thereafter or is incomplete following review, DWR will notify the agricultural water supplier, and will work with the supplier to develop a plan for corrective actions and completing the plan.

5. If the agricultural water supplier fails to submit a plan by October 31, 2021, and every five years thereafter or does not submit a plan within the negotiated plan and schedule for completion, DWR will notify the Water Board and CDFA of non-compliance for enforcement actions.

Enforcement

Water suppliers would continue to be required to have a current AWMP that has been reviewed by DWR and found to have addressed all the required elements to be eligible for State grant and loan funding.

The Water Board, in addressing agricultural suppliers that have not submitted AWMPs or have not revised AWMPs to correct identified deficiencies, may consider further enforcement actions including potential fines and civil penalties.

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Chapter 4 – Implementing the Conservation Framework

The heightened awareness of water scarcity and the severity of our current drought have prompted Californians to achieve new levels of conservation and resiliency. As proposed by the EO Agencies herein, the conservation framework provides the foundation needed to transform these emergency accomplishments into a long-term, sustainable water use practice for all Californians.

4.1 Conservation as an Integral Part of Water Management

Conservation alone cannot ensure a long-term sustainable water supply and drought protection for all Californians; however, a deep-rooted conservation ethos is fundamental to changing individual and societal behaviors and making progress toward these desired outcomes.

Conservation and drought protection are but two of the focus areas of the Water Action Plan 2016 Update, along with integrated water management, Sacramento-San Joaquin Delta management, ecosystem restoration, storage, and flood protection. The Water Action Plan also calls for increasing operational and regulatory efficiencies and identifying sustainable, integrated financing opportunities.

The framework presented in this report is designed to be part of the broader, multi-faceted implementation of the Water Action Plan. The EO Agencies will continue to work collaboratively, while maintaining open and transparent dialogue and technical exchange throughout implementation.

4.2 Support for Framework Implementation

As described below, several components are critical to enabling implementation of the recommended framework outlined herein.

4.2.1 Legislation and Regulatory Rulemaking

Many recommendations of the EO Agencies will require new and/or expanded authorities to execute. For those recommendations that fall within the existing authorities of the EO Agencies, rulemaking processes may still be needed to formalize requirements.

For recommendations related to existing authorities, the EO Agencies will conduct rulemaking processes that provide opportunities for input and comment from stakeholders, interested parties, and the public.

For recommendations requiring new authorities, the EO Agencies will coordinate with the Governor's Office in seeking amendments to existing codes, and the Legislature, as appropriate. Anticipated code amendments to support framework implementation include the following:

- **Establish New Water Use Standards and Targets:** CWC sections 10610-10656 for UWMPs; a new section added to CWC to establish and implement standards and water use targets, with associated changes in CWC Section 10608 related to existing conservation requirements.

- **Strengthening Water Shortage Contingency Planning:** CWC sections 350-359 and California Government Code sections 8550-8551 regarding emergency declaration; CWC sections 10631, 10632, and 10635 for required information reporting.

- **Improve Drought Planning for Small Water Suppliers and Rural Communities:** To be determined through continued collaboration of the EO Agencies and stakeholders, potentially requiring new language in the CWC.

- **Strengthening Requirements for Agricultural Water Management**: CWC sections 10800-10845 for AWMPs.

4.2.2 Continued Collaboration on Water Use Standard Development

In implementing this proposed conservation framework, the EO Agencies will establish water standards for implementation by 2021. Recognizing that water use efficiency is one component of sustainable water management, the EO Agencies will seek to balance the need for conservation with the need for water suppliers to continue investing in water supply portfolio diversification, including water reuse, desalination, storage and conjunctive use, stormwater capture, and sustainable groundwater use.

The EO Agencies will continue to collaborate with stakeholders and subject matter experts to ensure adequate progress is made in standard development and that the resulting standards will be implementable. For example, the need to establish a CII Technical Workgroup has already been identified through the current stakeholder engagement process. This workgroup will assist the EO Agencies with development of appropriate CII classifications and corresponding performance measures.

4.3 Implementation Considerations

The EO Agencies appreciate the long-term commitment and investment required by water suppliers throughout California in implementing the proposed long-term framework. To facilitate the success in implementation, the EO Agencies recognize the importance of the following considerations.

- **Coordination, Collaboration, and Advocacy:** The EO Agencies will continue to coordinate and collaborate to ensure that the framework is implemented as envisioned, providing improved drought protection for all communities and embodying water conservation in every aspect of our daily lives.

  The extraordinary conservation accomplished during the current drought was attributable in part to a strong, persistent, and active campaign and outreach led by the EO Agencies to promote conservation, combined with mandatory conservation requirements imposed by the Water Board. Active messaging and outreach efforts on conservation by the EO Agencies and suppliers will provide strong support to water suppliers in their efforts to promote conservation. Water use education and advocacy must continue after the drought emergency is lifted.

- **Water Rates and Proposition 218:** The EO Agencies recognize that State financial assistance, when available, will never be sufficient for water suppliers to implement all necessary actions to comply with the requirements outlined in the framework. It will be important that water suppliers have the ability to generate funding for their investment needs and stabilized revenue for steady improvements.

  The EO Agencies acknowledge the expressed challenges by water suppliers in generating sufficient local funding to support continued conservation effort and other needed investment due to potential limitations of existing law and regulations such as Proposition 218. While the framework does not contain requirements on rate structures, the EO Agencies encourage water suppliers to adopt conservation-oriented water rates and/or use a rate stabilization reserve fund to better manage revenue fluctuations that

occur during droughts or other unexpected conditions. Each water supplier should customize its rate structure with full consideration of its cost of service and with long-term financial sustainability as the goal.

- **Coordination with Land Use Agencies and Other Jurisdictions:** The EO Agencies recognize that land use agencies (i.e., cities and counties) have direct responsibilities and jurisdictions over zoning and land development, landscape requirements, and various ministerial and discretionary permits that can positively influence direct conservation and complementary actions as well as advocacy by water suppliers. Where appropriate, the EO Agencies may facilitate communications and collaboration throughout implementation.

4.4 Implementation Schedule

The schedule for implementation of the proposed actions and recommendations identified in Chapters 2 and 3 is summarized in Figure 4-1.

Any new and/or expanded authorities required for framework implementation may be addressed during the 2017 and 2018 legislative sessions. Note that the implementation process outlined in the proposed framework is subject to change based on updated information, or subsequent legislation and rulemaking.

Figure 4-1. Anticipated Implementation Timeline for EO Directives

Executive Order Items	Timeline for Actions and Implementation					
	2017	2018	2019	2020	2021	Beyond
Using Water More Wisely						
Emergency Conservation Regulations (EO Item 1)						
Conservation Requirements	■					
New Water Use Targets (EO Items 2 and 6)						
Data, Legislative Action, & Rulemaking	■	■	■	■		
Targets Reporting		■	■	■	■	■
Full Compliance Achieved						*2025*
Permanent Monthly Reporting (EO Item 3)						
Rulemaking	■	■				
Eliminating Water Waste						
Water Use Prohibitions (EO Item 4)						
Rulemaking	■	■				
Minimizing Water Loss (EO Items 5 and 6)						
Annual Water Loss Audits		■	■	■	■	■
Water Loss Rulemaking	■	■	■	■		
Innovative Water Loss & Control Technologies (EO Item 7)						
Scope Development	■					
Pre-rulemaking Activities & Rulemaking		■	■	■		
Strengthening Local Drought Resilience						
Water Shortage Contingency Plans (EO Items 8, 9, and 6)						
Legislative Action & Rulemaking		■	■	■		
Requirements in Effect				■	■	■
Drought Contingency Planning for Small Water Suppliers & Rural Communities (EO Item 10)						
Development schedule to be determined	■	■				
Improving Agricultural Efficiency and Drought Planning						
Strengthened Agricultural Water Management Plan requirements (EO Items 11, 12, 13, 6)						
Guidelines development, Legislative Action & Rulemaking		■	■	■		
Reporting requirements				■	■	■

ATTACHMENT A:
Executive Order B-37-16

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Executive Department

State of California

EXECUTIVE ORDER B-37-16
MAKING WATER CONSERVATION A CALIFORNIA WAY OF LIFE

WHEREAS California has suffered through a severe multi-year drought that has threatened the water supplies of communities and residents, devastated agricultural production in many areas, and harmed fish, animals and their environmental habitats; and

WHEREAS Californians responded to the drought by conserving water at unprecedented levels, reducing water use in communities by 23.9% between June 2015 and March 2016 and saving enough water during this period to provide 6.5 million Californians with water for one year; and

WHEREAS severe drought conditions persist in many areas of the state despite recent winter precipitation, with limited drinking water supplies in some communities, diminished water for agricultural production and environmental habitat, and severely-depleted groundwater basins; and

WHEREAS drought conditions may persist in some parts of the state into 2017 and beyond, as warmer winter temperatures driven by climate change reduce water supply held in mountain snowpack and result in drier soil conditions; and

WHEREAS these ongoing drought conditions and our changing climate require California to move beyond temporary emergency drought measures and adopt permanent changes to use water more wisely and to prepare for more frequent and persistent periods of limited water supply; and

WHEREAS increasing long-term water conservation among Californians, improving water use efficiency within the state's communities and agricultural production, and strengthening local and regional drought planning are critical to California's resilience to drought and climate change; and

WHEREAS these activities are prioritized in the California Water Action Plan, which calls for concrete, measurable actions that "Make Conservation a California Way of Life" and "Manage and Prepare for Dry Periods" in order to improve use of water in our state.

NOW, THEREFORE, I, EDMUND G. BROWN JR., Governor of the State of California, in accordance with the authority vested in me by the Constitution and statutes of the State of California, in particular California Government Code sections 8567 and 8571, do hereby issue this Executive Order, effective immediately.

IT IS HEREBY ORDERED THAT:

The orders and provisions contained in my January 17, 2014 Emergency Proclamation, my April 25, 2014 Emergency Proclamation, Executive Orders B-26-14, B-28-14, B-29-15, and B-36-15 remain in full force and in effect except as modified herein.

State agencies shall update temporary emergency water restrictions and transition to permanent, long-term improvements in water use by taking the following actions.

USE WATER MORE WISELY

1. The State Water Resources Control Board (Water Board) shall, as soon as practicable, adjust emergency water conservation regulations through the end of January 2017 in recognition of the differing water supply conditions across the state. To prepare for the possibility of another dry winter, the Water Board shall also develop, by January 2017, a proposal to achieve a mandatory reduction in potable urban water usage that builds off of the mandatory 25% reduction called for in Executive Order B-29-15 and lessons learned through 2016.

2. The Department of Water Resources (Department) shall work with the Water Board to develop new water use targets as part of a permanent framework for urban water agencies. These new water use targets shall build upon the existing state law requirements that the state achieve a 20% reduction in urban water usage by 2020. (Senate Bill No. 7 (7th Extraordinary Session, 2009-2010).) These water use targets shall be customized to the unique conditions of each water agency, shall generate more statewide water conservation than existing requirements, and shall be based on strengthened standards for:

    a. Indoor residential per capita water use;
    b. Outdoor irrigation, in a manner that incorporates landscape area, local climate, and new satellite imagery data;
    c. Commercial, industrial, and institutional water use; and
    d. Water lost through leaks.

    The Department and Water Board shall consult with urban water suppliers, local governments, environmental groups, and other partners to develop these water use targets and shall publicly issue a proposed draft framework by January 10, 2017.

3. The Department and the Water Board shall permanently require urban water suppliers to issue a monthly report on their water usage, amount of conservation achieved, and any enforcement efforts.

ELIMINATE WATER WASTE

4. The Water Board shall permanently prohibit practices that waste potable water, such as:

    - Hosing off sidewalks, driveways and other hardscapes;
    - Washing automobiles with hoses not equipped with a shut-off nozzle;
    - Using non-recirculated water in a fountain or other decorative water feature;
    - Watering lawns in a manner that causes runoff, or within 48 hours after measurable precipitation; and
    - Irrigating ornamental turf on public street medians.

5. The Water Board and the Department shall direct actions to minimize water system leaks that waste large amounts of water. The Water Board, after funding projects to address health and safety, shall use loans from the Drinking Water State Revolving Fund to prioritize local projects that reduce leaks and other water system losses.

6. The Water Board and the Department shall direct urban and agricultural water suppliers to accelerate their data collection, improve water system management, and prioritize capital projects to reduce water waste. The California Public Utilities Commission shall order investor-owned water utilities to accelerate work to minimize leaks.

7. The California Energy Commission shall certify innovative water conservation and water loss detection and control technologies that also increase energy efficiency.

STRENGTHEN LOCAL DROUGHT RESILIENCE

8. The Department shall strengthen requirements for urban Water Shortage Contingency Plans, which urban water agencies are required to maintain. These updated requirements shall include adequate actions to respond to droughts lasting at least five years, as well as more frequent and severe periods of drought. While remaining customized according to local conditions, the updated requirements shall also create common statewide standards so that these plans can be quickly utilized during this and any future droughts.

9. The Department shall consult with urban water suppliers, local governments, environmental groups, and other partners to update requirements for Water Shortage Contingency Plans. The updated draft requirements shall be publicly released by January 10, 2017.

10. For areas not covered by a Water Shortage Contingency Plan, the Department shall work with counties to facilitate improved drought planning for small water suppliers and rural communities.

IMPROVE AGRICULTURAL WATER USE EFFICIENCY AND DROUGHT PLANNING

11. The Department shall work with the California Department of Food and Agriculture to update existing requirements for Agricultural Water Management Plans to ensure that these plans identify and quantify measures to increase water efficiency in their service area and to adequately plan for periods of limited water supply.

12. The Department shall permanently require the completion of Agricultural Water Management Plans by water suppliers with over 10,000 irrigated acres of land.

13. The Department, together with the California Department of Food and Agriculture, shall consult with agricultural water suppliers, local governments, agricultural producers, environmental groups, and other partners to update requirements for Agricultural Water Management Plans. The updated draft requirements shall be publicly released by January 10, 2017.

The Department, Water Board and California Public Utilities Commission shall develop methods to ensure compliance with the provisions of this Executive Order, including technical and financial assistance, agency oversight, and, if necessary, enforcement action by the Water Board to address non-compliant water suppliers.

This Executive Order is not intended to, and does not, create any rights or benefits, substantive or procedural, enforceable at law or in equity, against the State of California, its agencies, departments, entities, officers, employees, or any other person.

I FURTHER DIRECT that as soon as hereafter possible, this order be filed in the Office of the Secretary of State and that widespread publicity and notice be given of this order.

IN WITNESS WHEREOF I have hereunto set my hand and caused the Great Seal of the State of California to be affixed this 9th day of May 2016.

Edmund G. Brown Jr.

EDMUND G. BROWN JR.
Governor of California

ATTEST:

Alex Padilla

ALEX PADILLA
Secretary of State

ATTACHMENT B:
Public Outreach and Stakeholder Engagement

On May 9, 2016 Governor Edmund G. Brown Jr. issued Executive Order B-37-16 directing State Agencies to establish a long-term framework for water conservation and drought planning that builds on the conservation accomplished during the historical drought and implementation of the Governor's Water Action Plan. The named agencies include DWR, Water Board, CPUC, CDFA, and CEC (collectively, the EO Agencies). The full text of the EO can be found at the Governor's Office Website, https://www.gov.ca.gov/docs/5.9.16_Attested_Drought_Order.pdf, or in Attachment A to this report.

The EO Agencies have developed a collaborative program to formulate the long-term framework for water conservation and drought planning called for by the EO with extensive public outreach and stakeholder engagement. In addition to public input throughout the process, the EO Agencies formed the Urban Advisory Group and Agricultural Advisory Group to provide input into the framework development. These advisory groups represent urban and agricultural water suppliers, local governments, professional associations, academics, environmental advocacy groups, and other interested parties. The framework development, associated public outreach and stakeholder engagement process, and public comments received are available at DWR's website, http://www.water.ca.gov/wateruseefficiency/conservation/.

The following provides a list of public outreach and stakeholder engagement meetings throughout the process in developing the report (in chronological order) after the issuance of the EO on May 9, 2016.

Date	Event	Location
June 3, 2016	Listening Session #1 for the Directives of Executive Order B-37-16	Sacramento, CA
June 6, 2016	Listening Session #2 for the Urban Directives of Executive Order B-37-16	Los Angeles, CA
June 7, 2016	Listening Session #2 for the Listening Session Agricultural and County Drought Planning Directives of Executive Order B-37-16	Tulare, CA
August 15, 2016	EO B-37-16 Urban Advisory Group Meeting #1	Sacramento, CA
August 25, 2016	EO B-37-16 Agricultural Advisory Group Meeting #1	Sacramento, CA
August 31, 2016	EO B-37-16 Water Shortage Contingency Planning Workshop #1	Sacramento, CA
September 1, 2016	EO B-37-16 Water Shortage Contingency Planning Workshop #2	Fountain Valley, CA
September 6, 2016	EO B-37-16 Long-Term Water Use Targets Workshop #1	Oakland, CA
September 8, 2016	EO B-37-16 Long-Term Water Use Targets Workshop #2	Los Angeles, CA
September 19 and 20, 2016	EO B-37-16 Urban Advisory Group Meeting #2	Los Angeles, CA
September 26, 2016	EO B-37-16 Agricultural Advisory Group Meeting #2	Madera, CA

Date	Event	Location
October 3, 2016	EO B-37-16 Water Shortage Contingency Planning Technical Workshop #2	Sacramento, CA
October 5, 2016	State Water Resources Control Board Workshop on EO B-37-16 and Implementation	Sacramento, CA
October 11, 2016	CEC Staff Workshop Innovative Water Conservation and Water Loss Detection and Control Technologies	Sacramento, CA
October 13, 2016	EO B-37-16 Water Shortage Contingency Planning Workshop – Focus on Drought Planning for Small Water Suppliers and Rural Communities	Sacramento, CA
October 18, 2016	EO B-37-16 Agricultural Advisory Group Meeting #3	Sacramento, CA
October 20, 2016	EO B-37-16 Urban Advisory Group Meeting #3	Sacramento, CA
December 7, 2016	EO B -37-16 Agricultural Advisory Group and Urban Advisory Group Public Draft Report Meeting	Sacramento, CA

14

ITEM #14

DISBURSEMENTS - DATED DECEMBER 1, 2016

Date Prepared 11/29/16

The following demands made against the District are listed for approval and authorization for payment in accordance with Section 31302 of the California Water Code, being a part of the California Water District Law:

Seq	Payable To	For	Amount
1	Aberegg, Michael	Prog Pymt#14: San Mateo Tank Recoat Project (Balance Remaining on Contract $33,610)	$2,695.00
2	Alpha Analytical Labs	Lab Testing	131.00
3	Alphagraphics	Printing & Processing of Recycled Water Central West Letter ($1,185), Inserting ($267) & Postage ($957)	2,409.57
4	American Family Life Ins	November Employee Contribution for Accident, Disability & Cancer Insurance	3,631.86
5	American Water Works Assoc	Membership Renewal (DeGabriele, McIntyre, Stompe, Clark, Ramudo & Chandrasekera) (1/1-12/31/17) (Budget $3,870)	3,923.00
6	Athens Administrators	December Workers' Comp Admin Fee	1,000.00
7	Badger Meter	Monthly Cellular Meter Charge (19)	16.72
8	Bakondi, Jennie	Refund Overpayment on Closed Account	75.89
9	Ballesters, Olga	Novato "Toilet Rebate" Program	100.00
10	Bold & Polisner	Brown Act ($42), Misc ($147), Novato Creek Water Rights ($210), Potter Valley Relicensing ($483), Security Apartment ($105), Shell Loop Project ($105) & Watershed ($357)	1,449.00
11	Carr, Tod	Novato "Toilet Rebate" Program	200.00
12	Cel Analytical	Lab Testing	473.00
13	Conway, John	Novato "Cash for Grass Rebate" Program	400.00
14	Core Utilities	Consulting Services: October IT Support ($5,000), Website Maintenance ($25), Resolve RWF/SCADA Report Problem ($75), SCADA ($1,150), Repair Radio Telemetry ($1,400), Resolve Thorsson Bridge/SCADA Reading Issue ($175) & Repair Link to Day Old Data ($50)	7,875.00

Seq	Payable To	For	Amount
15	Covello Group	Prog Pymt#3: RW Exp Project Central Service Area (Balance Remaining on Contract $1,012,565)	22,430.00
16	F.N. Cuthbert	Pressure Gauges (10)	167.00
17	Dickson	Recalibrate 2 Pressure Recorders	328.58
18	DLT Solutions	Autocad Subscription Renewal (12/21/16-12/20/17) (Budget $2,980)	2,888.20
19	Fedak & Brown	October Professional Services	920.00
20	Fire Hose Direct	Replace Firehose Outside of Garage	215.38
21	Fisher Scientific	Tip Rack (960) ($32), Sample Bottles (6) & Ethyl Alcohol ($69)	166.41
22	Gallagher, Marilyn	Novato "Toilet Rebate" Program	300.00
23	GHD	Prog Pymt#27: October AMI CEQA (Balance Remaining on Contract $22,453)	1,582.50
24	Grainger	Slotted Screwdrivers (2), Electrical Gloves (4 pair) ($587), Gate Valve, Hose Bibbs (20), Reducer & Marking Chalk (12-17oz cans) ($96)	734.94
25	Hach	Replacement pH Probe for Thorrson Sample Station	952.14
26	Hammer, Jon	Novato "Toilet Rebate UHET" Program	450.00
27	Idexx Laboratories	Media for Micro Analysis (Lab)	3.73
28	JW Mobile	Smoke Check ('02 Intl 4400, '07 Intl 4300, '09 Peterbilt, '12 Intl 4400, '15 Intl 4400) ($150 ea) & Repair Hydraulic Hose & Purge System @ STP ($800)	1,550.00
29		Cafeteria Plan: Uninsured Medical Reimbursement	429.00
30	Koenig, Alexa	Refund Overpayment on Closed Account	252.17
31	Lemos, James	Exp Reimb: DMV Class A Permit Test	73.00
32	Maltby Electric	Dual Lock Hasps (3)	162.13
33	Maroevich, Angela	Novato "Cash for Grass Rebate" Program	319.00

Seq	Payable To	For	Amount
34	McLellan, WK	Misc Paving (12 Locations) ($6,378) & Striping (1523 & 1530 S. Novato Blvd)	7,865.05
35	McLaughlin, Patricia	Novato "Cash for Grass Rebate" Program	400.00
36	McPhail Fuel	Propane Tank Lease for O.M. Standby Generator	65.10
37	Moylan, Brian	Refund Overpayment on Closed Account	168.23
38	Mutual of Omaha	December Group Life Insurance Premium	882.40
39	Pace Supply	Gaskets (4), Elbows (4) ($533), Valve, Corp Stops (4) ($776), Ball Valves (4), Mega Lug & Elbow ($166)	1,651.37
40	Parkinson Accounting Systems	October Professional Services: GL Postings by Source Report	292.50
41	NMWD Petty Cash	Flowers for Retiring WAC Secretary ($13), Bridge Toll ($5), Safety Snack ($15), Holiday Party Decorations ($39) & Safety Buck	72.98
42	Pieczonka, Aaron	Novato "Smart Irrigation Controller" Program	273.11
43	Point Reyes Prop Mgmt Assn	November HOA Fee (25 Giacomini Rd)	75.05
44	Pollard Water	Meter Pit Cover Keys (2)	13.66
45	Randall Bros. Automotive	Smog Tests (6)	270.00
46	Red Wing Shoe Store	Safety Boots (Reed & Castellucci)	337.65
47	Schwaab	4" Regulation 15 Stamp (Grisso)	87.28
48	Skarshaug, David	Novato "Toilet Rebate" Program	200.00
49	Sonoma County Water Agency	October Contract Water	480,109.19
50	SpeedTech Lights	LED Work Lights (4)	235.74
52	Terryberry	Service Awards (Castellucci, Sjoblom & Arendell)	415.43
53	USA BlueBook	Effluent Sump Pump Check Valves (2)	184.14
54	Verizon Wireless	Cellular Charges: Data ($197) & Airtime ($112)	309.56

Seq	Payable To	For	Amount
55	VWR International	Buffer Solutions (2) (Lab) ($100), Phosphate Buffer & Beaker ($65) (STP)	225.52
56	Waste Management	Misc Debris (3 yds)	104.47
57	Young, Katie	Exp Reimb: Notary Exam ($40) Mileage ($26) & Lunch	83.91
58	ZFA Structural Engineers	Professional Services: Lynwood Pump Station Addition	300.00
		TOTAL DISBURSEMENTS	**$552,926.56**

The foregoing payroll and accounts payable vouchers totaling $552,926.56 are hereby approved and authorized for payment.

Auditor-Controller — Date 11/28/2016

for

General Manager — Date 11/28/2016

DISBURSEMENTS - DATED NOVEMBER 23, 2016

Date Prepared 11/21/16

The following demands made against the District are listed for approval and authorization for payment in accordance with Section 31302 of the California Water Code, being a part of the California Water District Law:

Seq	Payable To	For	Amount
P/R*	Employees	Net Payroll PPE 11/15/16	$133,339.82
EFT*	US Bank	Federal & FICA Taxes PPE 11/15/16	$53,993.93
EFT*	State of California	State Taxes & SDI PPE 11/15/16	$10,022.24
EFT*	CalPERS	Pension Contribution PPE 11/15/16	$35,238.57
EFT*	US Bank	September Bank Analysis Charge (Lockbox $912, Credit Card Processing $738 & Other $598) (Less Interest of $148)	$2,100.30
1	Ahlborn Fence & Steel	Fence Repair on Novato Blvd ($4,125) (80') & Re-align, Add 6' & Double Gate @ Plum Street Tank ($7,825)	11,950.00
2	All Star Rents	Concrete Drill Rental (1 Day) (Davies P/S)	112.16
3	Alpha Analytical Labs	Lab Testing	144.00
4	Amazon/Genuine-Hardware	Replacement Construction Printer	543.74
5	Automatic Sprinkler Testing & Inspection	Annual Fire Service Testing (59 of 217)	6,060.00
6	Athens Administrators	October Bill Review Fees	8.65
7	AT&T	Leased Lines	66.12
8	Backflow Distributors	Backflow Freeze Bag (36" x 24" x 3")	106.49
9	Bakondi, Daniel	Refund Overpayment on Closed Account	30.00
10		Vision Reimbursement	200.10
11	Bio-Acoustical	Hearing Tests (22 Employees)	542.50
12	Blue, Eileen	Refund Employee Benefit Deductions (Includes Interest)	50.00
13	California Water Service	Sept-November Water Services (0 ccf) (O.M.)	236.72

Seq	Payable To	For	Amount
14	Clark, Robert E.	Exp Reimb: Travel Expenses for Danish Water Technology Alliance Fact Finding Trip	1,220.30
15	Comcast	November Internet Connection	151.16
16	Environmental Management	Repair Road & Cover Pipe for Wildhorse Tank #2 ($2,000) & Haul off Trench Spoils for NMWD Yard ($5,000)	7,000.00
17	Farey, Michael and Allison	Refund of Deposit-New Development-WC Restriction - Novato	1,000.00
18	Fastenal	Sockets (3)	27.69
19	Filippi, Connie	Refund Employee Benefit Deductions (Includes Interest)	50.00
20	Francis, Anna	Refund of Deposit-New Development-WC Restriction - West Marin	1,000.00
21	Frontier Communications	Leased Lines (9)	1,572.11
22	Golden Gate Petroleum	Gasoline ($2.24/gal) & Diesel ($2.31/gal)	1,932.54
23	Grainger	1 1/2" Couplings (11), Sump Pumps (3) (O.M. Ponds, Lynwood P/S & Center Tank Valve) ($726), Pressure Washer Hose 3/8" (50') ($121) & Striping Paint (12-20oz cans) ($126)	989.09
24	R.M. Harris	Refund RW Load Security Deposit Less Charge for 7 RW Loads and 2 RW Truck Magnets	15.00
25	Holton, Nancy	Refund Employee Benefit Deductions (Includes Interest)	50.00
26	Instrument Technology	Magnet Valve Cover Remover	271.88
27		Vision Reimbursement	54.36
28	Kauwe, Joseph	Refund Employee Benefit Deductions (Includes Interest)	50.00
29		Cafeteria Plan: Uninsured Medical Reimbursement	15.00
30	Landeros, Dianne	Refund Employee Benefit Deductions (Includes Interest)	50.00
31	Lindsey, Lisa	Novato "Toilet Rebate" Program	200.00

Seq	Payable To	For	Amount
32	Maendl, Michael & Anita	Novato "Cash for Grass" Rebate Program	200.00
33	Manzoni, Alicia	Refund Employee Benefit Deductions (Includes Interest)	50.00
34	Marin Landscape Materials	Concrete (42 sacks)	236.60
35	Marin County	Renew Annual Encroachment Permit with the County of Marin	490.00
36	Marin Reprographics	Laser Bond Paper (34" x 150') (4)	230.34
37	McWhirr, Helen	Refund Overpayment on Closed Account	42.46
38	Microtech Scientific	Lauryl Sulfate Broth (Lab)	186.61
39	Norman, Karen	Refund Overpayment on Closed Account	129.77
40	North Bay Gas	October Cylinder Rental ($98) & Acetylene	127.00
41	Novato Chamber of Commerce	Membership Renewal (11/16-10/31/17) (Budget $850) (Bentley)	850.00
42	Pace Supply	Repair Clamp (4" x 1") ($378), Couplings (37) ($482), Tee Flange (12" x 8") ($510), Ball Valves (18) ($517), Nipples (3), Elbows (3), Pipe Wrap Tape (100') ($341), Bushings (3) & Spool Flanges (2) ($319)	2,624.62
43	Pacific Surfacing	Refund RW Load Security Deposit Less Charge for 3 RW Loads & 2 RW Truck Magnets	35.00
44	Pecunia, Jennifer	Refund Employee Benefit Deductions (Includes Interest)	50.00
45	PG&E	Power: Bldgs/Yard ($5,337), Rectifier/Controls ($549), Pumping ($31,351), Treatment ($115) & Other ($71)	37,423.60
46	Player, Todd	Novato "Toilet Rebate" Program	200.00
47	Sequoia Safety Supply	Jacket ($64), Overalls & Safety Glasses (24) ($86)	188.58
48	Shirrell Consulting Services	November Dental Insurance Admin Fee	299.45
49	State Water Resources Control	T4 Certification Application (Jeff Corda)	105.00
50	State Water Resources Control	RW N- Plum Storage SRF Loan Principal and Interest (Pymt #5)	29,413.76

Seq	Payable To	For	Amount
51	TelePacific Communications	October Telephone Charges	629.49
52	Township Building Services	October Janitorial Services ($1,823) & Supplies ($300)	2,122.40
53	United Parcel Service	Delivery Services: Sent Invoices & Back-up to Caltrans (Engineering)	10.88
54	US Bank Credit Card	Weekly Planner ($14) (Jackson), Business Lunches (DeGabriele) ($79), ACWA Conference Registration in Anaheim 11/29-12/1 (McIntyre & DeGabriele) ($1,390), Birthday Breakfasts ($148), Facebook Ad for Chief Engineer Position ($3), Airfare for ACWA Conference ($236) (DeGabriele & McIntyre)	1,869.53
55	Williamson, Nancy	Refund Employee Benefit Deductions (Includes Interest)	50.00
56	Young, Katie	Refund Employee Benefit Deductions (Includes Interest)	50.00
		TOTAL DISBURSEMENTS	**$348,009.56**

The foregoing payroll and accounts payable vouchers totaling $348,009.56 are hereby approved and authorized for payment.

FOL

Auditor-Controller — Date 11/21/16

Chris DeGabriele — 11/21/2016

General Manager — Date

DISBURSEMENTS - DATED NOVEMBER 17, 2016

Date Prepared 11/15/16

The following demands made against the District are listed for approval and authorization for payment in accordance with Section 31302 of the California Water Code, being a part of the California Water District Law:

Seq	Payable To	For	Amount
1	Asbury Environmental Services	Used Oil Recycling (70 gal)	$120.00
2	AT&T	Internet Service @ PRTP	80.00
3	AT&T	Leased Lines	684.42
4	AYS Engineering Group	Prog Pymt#2: Consultation, Monitoring, Soil Profiling & Testing for Ocean Marin Disposal Field Project (Balance Remaining on Contract $20,738)	3,497.20
5	Bank of Marin	Bank of Marin Loan Principal & Interest (Pymt 61 of 240)	46,066.67
6	Buck's Saw Service	Chainsaw Chain, Hedge Trimmer ($452)	471.97
7	Building Supply Center	Sheet Metal Screws	27.93
8	CDW-Government	PLC Battery Back-up (Deer Island RWF)	345.67
9	Clipper Direct	Commuter Benefit Program (2)	216.00
10	Cummings Trucking	Rock (74 yds) ($1,945) & Sand (48 yds) ($1,749)	3,694.10
11	Dell Computers	Additional RAM for Admin Office Server	296.88
12	Diggs, James	Retiree Exp Reimb (November Health Ins)	306.09
13	Ferguson Waterworks	Connection Rings (30)	89.72
14	Fisher Scientific	Stainless Steel Rack for Test Tubes ($206), Plastic Rack ($180) & Safety Box for Disposal of Broken Bottles	404.05
15	Flo-Line Technology	Sewage Pump Mounting Bracket Assembly (2)	690.01
16	Friedman's Home Improvement	25' Power Pole (Zone A Improvements-Frosty Lane)	379.10

Seq	Payable To	For	Amount
17	Grainger	9" & 12" Reciprocating Saw Blades (30) ($213), Concrete Floats (2), Fluorescent Flood Lights (6) ($101), Halogen Light Bulbs (8) (500 watts), Marking Chalk (12-17oz cans), Marking Paint (36-17oz cans) ($115), Surge Valve Limit Switches, Striping Paint (24-20 oz cans) ($144), Float Switches (2) ($97)	811.11
18	Hardy Diagnostics	Standards (Lab)	174.06
19	Harrington Industrial Plastics	1/2" Ball Valves (2) (STP)	251.32
20	Haulot-Hayes, Laura	Novato "Toilet Rebate" Program	196.00
21	HERC Rentals	3-Yard Wheeler Loader Rental (2 weeks)	1,810.67
22	Iannicchéri, Albert	Novato "Cash for Grass" Program	400.00
23		Vision Reimbursement	189.00
24	Jarjoura, Tony	Novato "Smart Irrigation Controller" Program	30.00
25		Cafeteria Plan: Uninsured Medical Reimbursement	162.00
26		Vision Reimbursement	20.65
27	Kessler, Sue	Retiree Exp Reimb (November Health Ins)	315.28
28	Kruger	Sand Pump Impeller (2) (STP)	3,971.36
29	Landeros, Dianne	Exp Reimb: Baywork Training in Oakland 11/9/16, Mileage ($39), Bridge Toll ($5) & Parking ($16)	59.88
30	Lincoln Life	Deferred Compensation PPE 11/15/16	14,751.74
31	Marin Landscape Materials	Cinder Blocks for Replacing a Retaining Wall @ Woodland Heights Tank,($1,461), Sand (1/2 yd), Crushed Rock (2 yds) ($115), & Landscape Fabric (900 S.F.) ($196)	1,804.71
32	Marin County Recorder	Aug-Sept Official Record Copy	8.00

Seq	Payable To	For	Amount
33	Marin County Ford	Rebuild Transmission ('10 F150) ($3,121), Motor Oil (17 qts), Air Filters (2), Oil Filters (3), Transmission Shift Cable ($103) ('10 F150 4 x 4), Transmission Fluid (4 qts), Locknuts (4), Replacement Mirrors (2) ($326) ('08 F250 4 x 4), Brake Kit ($92) ('15 F250 4 x 4), Battery, Core & Credit ($117) ('10 F150 4 x4), Door Handle, Motor Oil (4 qts) (Less Credit of $600 for Core Deposit)	3,378.50
34	Medora Corporation	Replacement Battery for Solar Bee Mixing Unit (4)	4,158.90
35	Mello, John	Retiree Exp Reimb (November Health Ins)	949.78
36	Micro Technology	Lauryl Sulfate Broth	186.61
37	Miller Pacific Engineering	Progress Pymt#4: Recycled Water Central Service Area (Balance Remaining on Contract $23,015)	5,009.00
38	Moore, Doug	Retiree Exp Reimb (November Health Ins)	949.78
39	Nationwide Retirement Solution	Deferred Compensation PPE 11/15/16	1,580.00
40	New Pig Corporation	Disposable Gloves (40-4ml)	436.33
41	North Marin Auto Parts	Sockets (2), Plugs (2), Seven Conductors (5), Armorall Wipes (2), Reflective Tape (3), Transmission Cleaner, Wiper Blades (8) ($161), Oil Filter (2), Air Filter (2) ($60), Fuel Filter, Battery ($112), Cable Crimper ($87), Motor Oil (8 qts) ($69), Clear Worklights, Pigtails ($251), LED Rope Light Kit for Service Body Interior Lighting ($390), Worklight Bracket (2), Mount, Electronic Light Switches (3), Wire Terminals (25), Wire Cover Loom & Wire (100') ($53)	1,453.88
42	North Bay Gas	Nitrogen ($1,185), Acetylene ($467), Carbon Dioxide ($35), & October Cylinder Rental ($468)	2,154.34
43	Novato Builders Supply	Lumber ($312), Concrete (1 yd) ($195), Stakes, Flag Tape, & Screws	633.26
44	NTU Technologies	Polymer Emulsion (12,000 lbs) (STP)	16,675.00

Seq	Payable To	For	Amount
45	Office Depot	Quarterly Office Supply Order: Pens(144) ($244), Leather Binder (1.25") ($91), Calculator ($54), Heavy Duty Stapler ($84), Chairmats (2) ($163), Clipboards (2) ($66), Stamp ($29), & Annual Calendar Order (29) ($643)	1,841.21
46	Olin	Sodium Hydroxide (13 tons)	4,903.92
47	O'Reilly Auto Parts	Ratchet Straps (4)	32.61
48	Pini Hardware	Masonry Adhesive, Ball Valve, Snap Swivels for Flag Pole, Hand Soap for Front Office, Seed Spreader, Rakes (2) ($42), Caulking Gun, Seed (3lbs), All Purpose Cleaner & Duster, Mouse Traps (4), PVC Pipe, Fittings, Check Valves, & PVC Pipe Couplings	185.68
49	Radio Shack	Backflow Pressure Recorder Batteries	23.91
50	Red Wing Shoe Store	Safety Boots (Barrilleaux & Kane)	351.70
51		Cafeteria Plan: Childcare Reimbursement	208.33
52	Scott Technology Group	Quarterly Maintenance on Engineering Copier (7/16-10/15/16)	594.60
53	Sequoia Safety Supply	Safety Gloves (300) & Brief Relief Urine Bags (100) ($260)	318.96
54	Shirrell Consulting Services	October Dental Expense	5,483.21
55	Sloat Garden Center	Plants for Woodland Tank Retaining Wall	117.33
56	SPX Flow US	Replacement STP Mixer	6,709.27
57	Stafford, Vernon	Retiree Exp Reimb (November Health Ins)	315.28
58		Cafeteria Plan: Uninsured Medical	481.72
59	Syar Industries	Asphalt (6 tons)	754.01
60	Synectic Technologies	Phone System Quarterly Maintenance Agreement (10/15-1/16)	446.70
61	Thatcher of California	Ferric Chloride (STP) (20 Tons)	8,639.19
62	Thomas Scientific	Petri Dish (500) (Lab)	91.31
63	United Parcel Service	Deposit on Account for Monthly Payment Plan	250.00

Seq	Payable To	For	Amount
64	United Rentals	Weed Wacker Parts	501.66
65	US Bank	October Safekeeping Fee-Treasury Securities	126.50
		TOTAL DISBURSEMENTS	**$152,268.07**

The foregoing payroll and accounts payable vouchers totaling $152,268.07 are hereby approved and authorized for payment.

Auditor-Controller Date 11/14/16

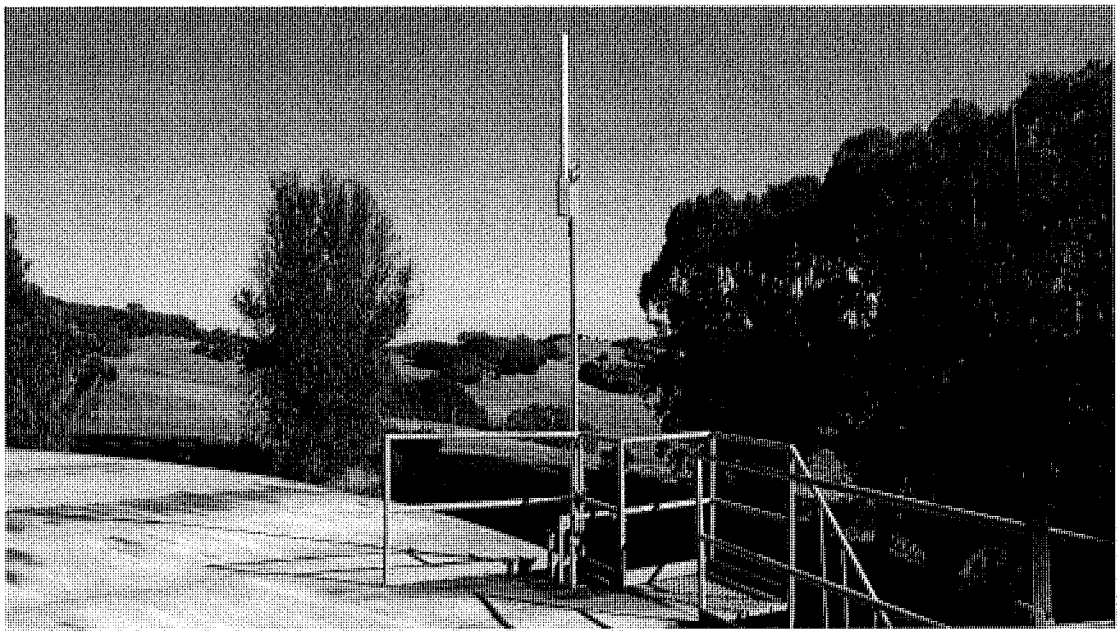
General Manager Date 11/14/2016

November 29, 2016

Subject: Pilot Project to Consider Installation of AMI System
Service Location:

The North Marin Water District (NMWD) is evaluating an Advanced Meter Information (AMI) system to improve meter reading accuracy, efficiency and customer service. A pilot program is planned this winter to aid in evaluating the feasibility of AMI use in Novato. With AMI, digital meter data is sent securely to NMWD headquarters via radio signal. The AMI system will provide early leak identification and enable customers to view near real-time water use information online.

As part of the pilot project, NMWD will be installing a radio antenna on a District facility located in your area. The antenna will receive water meter data and transmit it to NMWD headquarters for billing purposes. The plan is to install 26 antennas ranging in height from 10' to 26', with the typical height being 14', primarily on water storage tanks. A typical installation will look similar to the photograph below of the 10' high existing radio antenna atop the District's San Mateo Water Storage Tank.



You are invited to attend a public meeting to learn more about the District's AMI pilot project and to ask questions you may have regarding AMI. The meeting will take place at 7:00 PM on Tuesday, December 13, 2016, at the North Marin Water District Office located at 999 Rush Creek Place in Novato.

Alternatively, you can submit questions by mail to:

North Marin Water District
PO Box 146
Novato, CA 94948

Or by email to: Info@nmwd.com with "AMI Project" in the subject line.

The North Marin Water District takes pride in delivering high quality and cost effective water service. We look forward to answering any questions you may have regarding this proposed project.

Sincerely,

Chris DeGabriele
General Manager

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Association of
California Water Agencies
Since 1910
Leadership • Advocacy • Information | Service

Nov. 21, 2016

North Marin Water District
cdegabriele@nmwd.com

Dear Chris DeGabriele:

Congratulations! Your agency is the top ACWA Outreach winner in your region. The outstanding effort made by you and all members enrolled in the Outreach Program has helped ACWA accomplish its legislative goals this year.

Here's a list of the winning agencies in each region for the 2016 Outreach Recognition Awards.

Region 1: North Marin Water District
Region 2: Rio Alto Water District
Region 3: City of Roseville
Region 4: (Tie) San Juan Water District, Oakdale Irrigation District
Region 5: Monterey Peninsula Water Management District
Region 6: Kings River Conservation District
Region 7: Wheeler Ridge-Maricopa Water Storage District
Region 8: Three Valleys Municipal Water District
Region 9: Cucamonga Valley Water District
Region 10: Vista Irrigation

ACWA will acknowledge your agency and the other regional winners at the ACWA 2016 Fall Conference & Exhibition at the Anaheim Marriott, Thursday, Dec. 1 General Luncheon. The overall winner will be announced at the luncheon.

Thank you for all of your hard work this year on helping advance ACWA's legislative goals!

Sincerely,

John Coleman
ACWA President

Sonoma State University
School of Business & Economics

Katie Young

has successfully completed all the requirements of the

Human Resource Management Certificate Program

and is hereby awarded this certificate of completion by the
School of Extended Education

Fall 2016

36 Contact Hours/3.6 CEU's

Susan Adams, Program Coordinator
School of Business & Economics

Robert Eyler, Dean
School of Extended and International Education

Novato water meter reader fakes data, customers' bills spike

By **Mark Prado**, *Marin Independent Journal*

POSTED: 11/17/16, 4:38 PM PST | UPDATED: 1 DAY AGO5 COMMENTS

A water meter reader gone rogue is leading to some higher-than-usual water bills for North Marin Water District customers in Novato.

Water district officials reported getting an unusually high number of complaints from customers about pricey bills in September and October.

"All the calls we got triggered an investigation," said Chris DeGabriele, general manager of the district.

It turned out there was a reason for the spike. Customers were undercharged over the summer by a meter reader who apparently was estimating water use, instead of logging in actual totals as he entered figures into his hand-held computer while making his rounds in the field.

When bills were adjusted to reflect actual use, the make-up tallies made it appear as though customers were using more water in the period than they actually did. Those catch-up counts of water catapulted users into higher — and more expensive — tiers of water use, even though their usage was stable.

Water officials say customers will have those fees waived. In fact, because it is having trouble identifying which customers' meters were not read, all tier charges will be waived from the Nov. 10 through Jan. 5 billing cycles. That move approved by the water board Tuesday will cost the district at least $50,000 in revenue. The district has an overall budget of about $35 million.

About 15 to 20 percent of the district's roughly 60,000 customers are affected. Because meters are read once every two months, bills received this month or in December may include a catch-up cost arising from the prior under-reported meter reading.

After the complaints came in about high bills, water district officials conducted an audit. They noticed July and August meter readings were abnormally low for summer, a time when water consumption typically increases as the days grow warmer. Initially, water officials were perplexed at the low readings.

Eventually staffers discovered the employee "had been recording a significant number of meter reads in quick succession," wrote David Bentley, the water district's auditor controller, in a report on the investigation. "The hand-held computer into which the (employee) enters meter reads time stamps each read. Staff discovered that an (employee) hired in May of 2015 was reading meters at a speed that defied reason."

Some of the meters were read in less than 10 seconds, according to general manager DeGabriele.

"That's when we knew something was amiss," he said.

The worker apparently figured that if he entered a low total, customers wouldn't complain and he wouldn't have to read every meter.

The employee was confronted and he admitted he had been "just punching in the numbers" and he was fired, according to Bentley's report.

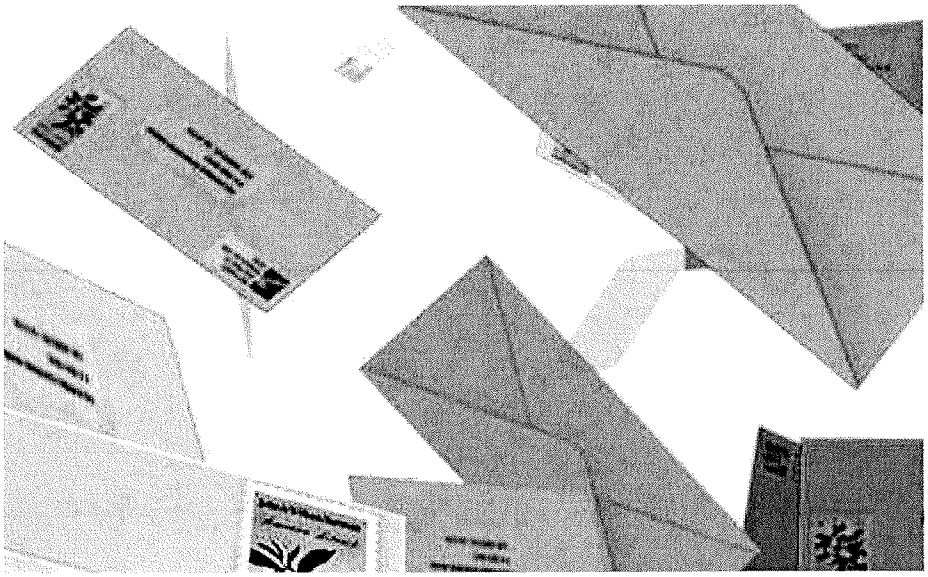
"We really have no idea (why)," DeGabriele said.

It will take another six weeks of readings to accurately assess water use in areas that were read incorrectly. New controls are being put into place, including random field audits to assure readings are correct. Other mechanisms will alert supervisors if reads are occurring too fast.

In addition, the water district is planning to install "advanced meter information" equipment to enable remote, more accurate meter reading rather than the traditional manual process within the next two years.

"We do apologize to all our customers for this," DeGabriele said.

Marin IJ Readers' Forum for Nov. 18



POSTED: 11/17/16, 10:51 AM PST | UPDATED: 3 DAYS AGO6 COMMENTS

North Marin apologizes for water bill errors

North Marin Water District has been alerted by a number of our customers that they have received higher than normal water bills for the recent September-October billing period.

Our staff has investigated and determined that bills for these same customers during the prior period (July-August) were under-reported as a result of a serious error in judgment by a former district meter reader.

On his own volition, and without knowledge of anyone else at NMWD, this individual did not read and report actual data from the customer meter, but instead entered estimated water use into the NMWD billing program. These estimates were significantly below the customers' typical water use for the earlier period (July-August), and even below last year's water use.

Because meters are read every other month and water meters record the total amount flowing through the meter, the bill customers receive in November or December may include a "catch-up" amount arising from the under-reported prior meter reading.

The Board of Directors has authorized that these "catch-up" bills will be based on the base rate and higher tier rates will not apply. Customers who find that the "catch-up" bill creates a hardship to pay should call the office at 415-897-4133 between 8 a.m. and 5 p.m. Monday through Friday to arrange a payment plan with our staff.

I personally am very sorry that this incident occurred and I apologize to all NMWD customers, the staff and Board of Directors. I accept full responsibility for the totally unauthorized and improper conduct of a NMWD employee.

To prevent recurrence of this problem, NMWD has implemented several operational controls, including random audits of meter reads and closer oversight of meter reading practices.

NMWD also plans to implement the installation of Advanced Meter Information (AMI) equipment to enable remote, more accurate meter reading rather than the traditional manual process. The AMI method will also offer additional advantages including earlier leak detection and enable customers to review their own near real-time water use data.

NMWD plans to initiate an AMI "pilot project" this winter and implement a districtwide program within the next two years.

Should NMWD customers have questions about this incident, AMI or your water service, please contact NMWD.

— Chris DeGabriele, general manager, North Marin Water District

BOD Misc

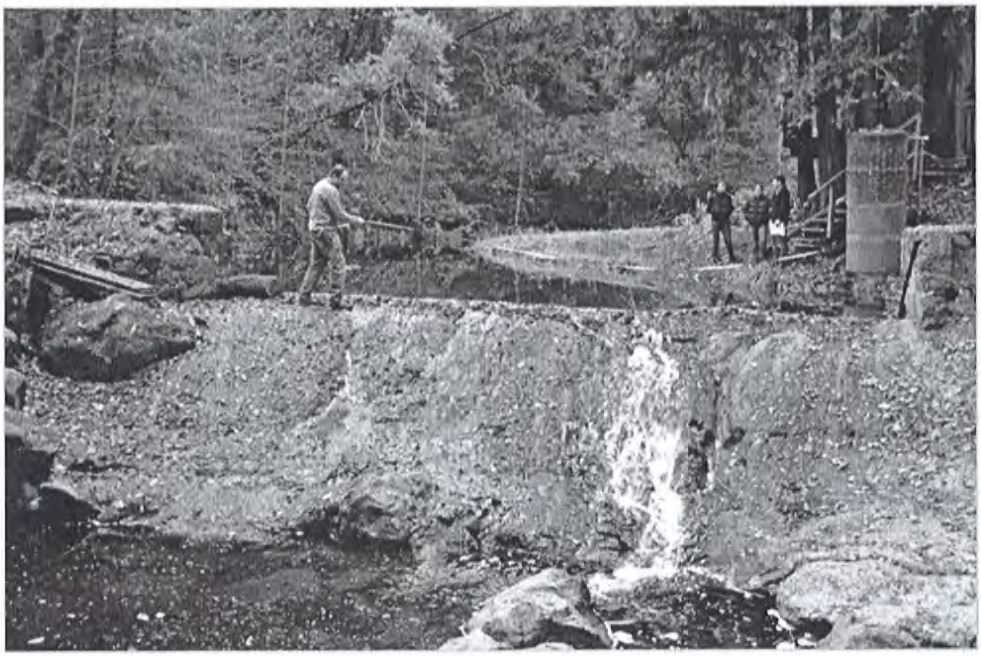
Climate.gov
science & information for a climate-smart nation

Dam bypass spells victory for Russian River salmon

Author:
Deborah Seiler

November 14, 2016

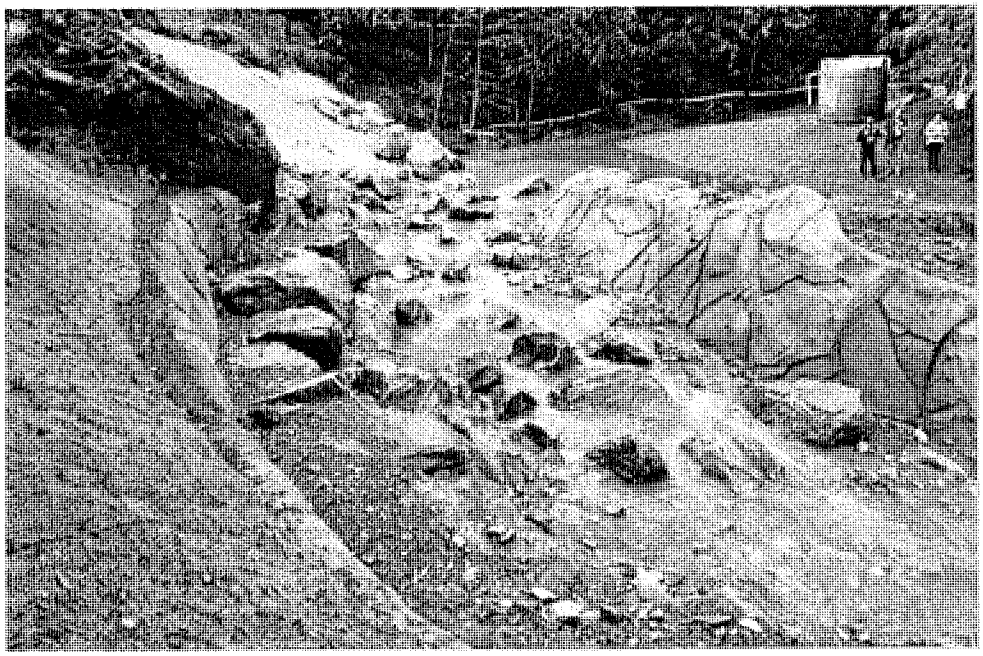
Salmon conservation achieved a major victory this October as construction finished on a fish passage and stream restoration project in Mill Creek, California. After California Sea Grant identified that a flashboard dam was stopping endangered coho salmon from moving upstream, a recovery plan by the NOAA National Marine Fisheries Service billed it as the highest priority barrier for remediation in the Russian River.



Derek Acomb of California Department of Fish and Wildlife measures the flashboard dam on Mill Creek prior to remediation. The dam was creating a near-total barrier for endangered coho salmon in the Russian River to access prime spawning habitat above. Photo Credit: Prunuske Chatham, Inc.

Mill Creek winds past redwood forests, vineyards and private homes west of Healdsburg, California. A major tributary to the Russian River, it harbors some of the best habitat for federally endangered coho salmon and threatened steelhead trout in the watershed.

Restoration Grant Program, and the Sonoma County Water Agency. Local landowners made a key contribution by providing access to the restoration site, even allowing heavy machinery to cross and operate on their property.



First flows through the side channel at the Mill Creek fish passage in October 2016. Photo credit: Joe Pecharich, NOAA.

"Coho salmon are now one of the most imperiled of California's native fishes," said Joe Pecharich, fisheries biologist with the NOAA Restoration Center in Santa Rosa. "The Mill Creek Dam Fish Passage Project is one of the most important actions we can take to help bring them back in the Russian River. Its completion is a major step forward for coho salmon and steelhead. We want to thank Trout Unlimited, Prunuske Chatham, Inc., and most of all, the neighboring residents who really made it possible."

Obedzinski hopes to see coho salmon spawning in the upper reaches of Mill Creek this winter, and is already tracking their progress. "It's a really exciting time. We've had a lot of rain in the last couple of weeks, and adults are starting to come into the lower river. Based on our tracking equipment, we think over 130 fish have already migrated into the river from the ocean."

Novato
Advance 11/22/16

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Lazy water district employee fired

About 1 in 5 water bills for customers of the North Marin Water District in Novato were falsely read during the summer by a lazy employee, producing cheaper bills during the summer and higher bills once the meters were read accurately.

The revelation came to light last week after a report was presented to the NMWD. The district then waived the fee increases for customers affected. The move will cost the district about $92,000.

The report found that an employee simply made up numbers on his meter-reading rounds instead of actually checking the meters. That produced lower water bills during the summer, which went undetected by the district. Then, when the meters were accurately read, it produced much higher bills, throwing customers into higher tiers of rates. That resulted in many complaints.

After the district investigated, they found the lazy employee — who admitted to guessing at usage — and fired him. The district has apologized to its customers and plan to implement changes to see that it cannot happen again.