#### **BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA**

Application of California-American Water Company (U210W) to Obtain Approval of the Amended and Restated Water Purchase Agreement for the Pure Water Monterey Groundwater Replenishment Project, Update Supply and Demand Estimates for the Monterey Peninsula Water Supply Project, and Cost Recovery

Application No. 21-11-024 (Filed November 29, 2021)

#### PHASE 2 DIRECT TESTIMONY OF STEPHANIE LOCKE

De LAY & LAREDO David C. Laredo, CSBN 66532 Frances M. Farina, CSBN 185035 606 Forest Avenue Pacific Grove, CA 93950-4221 Telephone: (831) 646-1502 Facsimile: (831) 646-0377 Email: dave@laredolaw.net fran@laredolaw.net

Attorneys for MONTEREY PENINSULA WATER MANAGEMENT DISTRICT

August 19, 2022

| 1                    |                     | TABLE OF CONTENTS   |
|----------------------|---------------------|---|
| 2                    |                     | Page  |
| 3                    | I. INTRODUCTIO      | DN1   |
| 4                    | II. FUTURE RESI     | DENTIAL PER CAPITA WATER DEMAND   |
| 5                    | ESTIMATES           |   |
| 6<br>7               | <u>ATTACHMENT A</u> | MAKING WATER CONSERVATION A CALIFORNIA<br>WAY OF LIFE   |
| 8<br>9               | ATTACHMENT B        | SB-7 WATER CONSERVATION, WATER CONSERVATION ACT OF 2009   |
| 10                   | ATTACHMENT C        | WATER CODE §10609   |
| 11                   | ATTACHMENT D        | SENATE BILL 1157 (HERTZBERG)  |
| 12<br>13             | <u>ATTACHMENT E</u> | MONTEREY PENINSULA WATER MANAGEMENT DISTRICT<br>(MPWMD) CONSERVATION ACTIVITIES 1980 – 2022   |
| 14                   | ATTACHMENT F        | MPWMD CONSUMPTION AND PROGRAMS TIMELINE   |
| 15<br>16             | <u>ATTACHMENT G</u> | MPWMD REGULATION XV – THE MONTEREY PENINSULA<br>WATER CONSERVATION AND RATIONING PLAN   |
| 17<br>18<br>19<br>20 | <u>ATTACHMENT H</u> | MPWMD CONSERVATION REQUIREMENTS<br>RULE 141 WATER CONSERVATION REBATES<br>RULE 142 WATER EFFICIENCY STANDARDS<br>RULE 142.1 WATER EFFICIENT LANDSCAPE<br>REQUIREMENTS<br>RULE 143 WATER EFFICIENCY STANDARDS FOR EXISTING<br>NON-RESIDENTIAL USES |
| 21                   | ATTACHMENT I        | JULY 2022 REBATE PROGRAM REPORT   |
| 22<br>23<br>24       | <u>ATTACHMENT J</u> | WITH ANOTHER DRY YEAR LOOMING, CALIFORNIA<br>MOVES TO SET NEW URBAN WATER USE STANDARDS,<br>PACIFIC INSTITUTE BLOG OF DECEMBER 21, 2021   |
| 25<br>26<br>27       | <u>ATTACHMENT K</u> | RESULTS OF INDOOR RESIDENTIAL WATER USE STUDY, A<br>REPORT TO THE LEGISLATURE PREPARED PURSUANT TO<br>WATER CODE SECTION 10609.4(6)   |
| 28                   |                     | PHASE 2 DIRECT TESTIMONY OF STEPHANIE LOCKE<br>A.21-11-024<br>Pace i  |

| 1  | ATTACHMENT L | CAL-AM RESIDENTIAL PER CAPITA WATER USE                                     |
|----|--------------|---|
| 2  |              | (GALLONS PER CAPITA PER DAY – GPCD) AS REPORTED<br>TO THE STATE WATER BOARD |
| 3  |              |   |
| 4  |              |   |
| 5  |              |   |
| 6  |              |   |
| /  |              |   |
| 8  |              |   |
| 9  |              |   |
| 10 |              |   |
| 12 |              |   |
| 13 |              |   |
| 14 |              |   |
| 15 |              |   |
| 16 |              |   |
| 17 |              |   |
| 18 |              |   |
| 19 |              |   |
| 20 |              |   |
| 21 |              |   |
| 22 |              |   |
| 23 |              |   |
| 24 |              |   |
| 25 |              |   |
| 26 |              |   |
| 27 |              |   |
| 28 |              | PHASE 2 DIRECT TESTIMONY OF STEPHANIE LOCKE<br>A.21-11-024                  |
|    |              | PAGE ii   |
|    |              |   |

| 1  | <b>BEFORE THE PUBLIC UTILITIES COMMISSION</b>  |  |  |
|----|--|--|--|
| 2  | OF THE STATE OF CALIFORNIA   |  |  |
| 3  |  |  |  |
| 4  |  |  |  |
| 5  | Application of California-American Water   |  |  |
| 6  | Company (U210W) to Obtain Approval of<br>the Amended and Restated Water Purchase                               |  |  |
| 7  | Agreement for the Pure Water Monterey<br>Groundwater Benlenishment Preizet Undete<br>(Filed Nevember 20, 2021) |  |  |
| 8  | Supply and Demand Estimates for the  |  |  |
| 9  | Monterey Peninsula Water Supply Project,<br>and Cost Recovery  |  |  |
| 10 |  |  |  |
| 11 |  |  |  |
| 12 | DIRECT TESTIMONY OF STEPHANIE LOCKE  |  |  |
| 13 |  |  |  |
| 14 | I. INTRODUCTION  |  |  |
| 15 | Q1. Please state your name, business address, and telephone number.  |  |  |
| 16 | A1. My name is Stephanie Locke. My business address is 5 Harris Court, Building G, Monterey                    |  |  |
| 17 | California. My telephone number is 831-658-5630.   |  |  |
| 18 |  |  |  |
| 19 | Q2. What are your personal and professional qualifications to testify in this matter?                          |  |  |
| 20 | A2. I am the Water Demand Manager for the Monterey Peninsula Water Management District                         |  |  |
| 21 | ("MPWMD"), a Special District of the State of California. I have worked for the District for thirty-           |  |  |
| 22 | four years and have been directly involved with the development, implementation and enforcemen                 |  |  |
| 23 | of demand management and water conservation efficiency programs since 1988.                                    |  |  |
| 24 | In my capacity as Water Demand Manager, I am involved in all facets of issues that pertain                     |  |  |
| 25 | to the management of water demand on the Monterey Peninsula. My primary responsibilities                       |  |  |
| 26 | include (a) managing and coordinating all MPWMD activities related to water                                    |  |  |
| 27 | conservation/efficiency and demand management; (b) identifying and proposing changes to                        |  |  |
| 28 | PHASE 2 DIRECT TESTIMONY OF STEPHANIE LOCKE<br>A 21_11_024   |  |  |
|    |  |  |  |

policies, regulations and programs, including formulating policy, writing ordinances and project
proposals, developing and implementing programs, and monitoring and evaluating the effectiveness
of programs and ordinances related to water conservation and water demand management; (c)
reviewing and analyzing growth projections and water demand projections as they relate to water
supply planning and management.

I represent MPWMD and serve as a technical advisor to MPWMD staff and Board, local,
regional and statewide professional planning and water conservation staff, and various
environmental consultants. I am a member of and participate in the California Water Efficiency
Partnership ("CalWEP"), the Alliance for Water Efficiency, the American Water Works Association
and the Association of California Water Agencies.

I am familiar with the limitations of the existing developed water supplies, current regulatory
 restrictions and past mandatory rationing requirements. I am knowledgeable of present MPWMD
 and State of California policy regarding demand management, conservation activities, rationing and
 moratorium.

15

16 Q3. Have you testified previously before the California Public Utilities Commission?

A3. Yes. I have testified on behalf of MPWMD in numerous proceedings involving California
American Water ("Cal-Am"). Most recently, I was a witness in Application 19-07-005 by
California-American Water Company (U210W) for an Order Authorizing and Imposing a
Moratorium on Water Service Connections in the Laguna Seca Subarea of its Monterey County
District.

22

23 || Q4. What is the purpose of your testimony?

A4. My testimony supports the testimony of David J. Stoldt by refuting the Phase 2 Direct
Testimony of Ian C. Crooks ("Crooks") regarding future estimates of residential per capita water
demand. I will also provide background on the MPWMD's water efficiency programs which have
and will continue to contribute to reductions in per capita demand. Please note that capitalized terms

are defined in MPWMD Rule 11 which can be found at <u>www.mpwmd.net/regulations/rules-</u>
 <u>regulations</u>.

3

4

5

6

#### II. FUTURE RESIDENTIAL PER CAPITA WATER DEMAND ESTIMATES

Q5. Why do you believe the residential per capita demand estimates through 2045 in Crooks' testimony<sup>1</sup> are incorrect?

Mr. Crooks testimony shows per capita water use actually increasing in 2030 following the 7 A5. 8 addition of a new water supply. This is both counterintuitive and inconsistent with current and future 9 regulations. Residential per-capita water use will not increase over time and is expected to decline 10 because of plumbing codes, appliance and fixture turnover, new technology and new housing. In 11 addition to numerous local efficiency requirements, water waste restrictions, and tiered rates, the 12 adoption of "Making Water Conservation a California Way of Life" (Senate Bill ("SB") 606 and Assembly Bill ("AB") 1668 of 2018),<sup>2</sup> and its predecessor "the Water Conservation Act of 2009"<sup>3</sup> 13 will result in further reductions in per-capita water use. 14

State law (Water Code Section 10609.4)<sup>4</sup> sets efficiency standards for indoor residential
water use beginning with 55 gallons per capita per day ("GPCD") until 2025, 52.5 GPCD from
2025-2030, then 50 GPCD thereafter.

Current Senate Bill 1157 (Hertzberg)<sup>5</sup> if adopted, will reduce these standards to 47 GPCD
from 2025-2030 and 42 GPCD after January 1, 2030. The recommendation to reduce GPCD came
from the Department of Water Resources ("DWR") and the State Water Resources Control Board
("SWRCB") after completion of the Indoor Residential Water Use Study<sup>6</sup> ("IRWUS") that is well
summarized in the Pacific Institute's blog entry from December 21, 2021.<sup>7</sup>

23

28

- Phase 2 Direct Testimony of Ian C. Crooks, in A.21-11-024 July 20, 2022, Table 2, page 10, 2020 "UWMP Estimated Demand Projections", and Table 5, page 24, "Updated Demand Estimates"
   Attachment A, Making Water Conservation a California Way of Life.
- $\frac{25}{4}$   $\frac{3}{4}$  <u>Attachment B</u>, Water Conservation Act of 2009.
- 26  $\begin{bmatrix} \frac{4}{5} \frac{\text{Attachment C}}{\text{Attachment D}}, \text{ Water Code §10609, including §10609.4, Standard for Indoor Residential Water Use.} \\ \frac{5}{5} \frac{\text{Attachment D}}{\text{Attachment D}}, \text{ Senate Bill 1157 (Hertzberg).} \end{bmatrix}$
- 27  $\int_{-\infty}^{\infty} \frac{Attachment K}{K}$ , Results of Indoor Residential Water Use Study.
  - <sup>7</sup> <u>Attachment J</u>, Pacific Institute Blog of December 21, 2021.

#### PHASE 2 DIRECT TESTIMONY OF STEPHANIE LOCKE A.21-11-024

Note that the IRWUS found that lower GPCPD will occur without the "active" conservation
 programs such as rebates, conservation-oriented rate structures, and education programs which can
 provide additional water savings. SB 1157 is presently working its way toward Assembly approval
 and the Governor's signature prior to the Legislature's scheduled Aug. 31 adjournment.

The focus by State regulators on water consumption will tend to cause a reduction in per
capita residential water use, rather than an increase. Especially since the evidence shows that CalAm's total residential per capita use is actually 59.9 GPCD (indoor and outdoor use)<sup>8</sup>, not the 48
GPCD shown in Cal-Am's testimony.

Water Code Section 10609 also requires the DWR and the SWRCB to develop standards for
both residential and non-residential outdoor water use. The resulting implementation of statemandated Urban Water Use Objectives by Cal-Am will result in more efficient landscapes and
reduced outdoor water use, which will contribute to a reduction in overall residential demand and
GPCD.

It is also counterintuitive that a person would use more water than at the present when the
cost of water becomes 40%-60% higher due to the costs of a new water supply project an that same
person is not restricted from water use today.

17

18 Q6. How do MPWMD regulations contribute to reducing long-term residential GPPCD?

A6. Water users in the Monterey Division of California-American Water have been subject to
strict passive and active conservation programs since the 1980s. MPWMD has long been a leader
in developing and implementing water conservation programs.<sup>9</sup> Water use today in the Cal-Am
system has been reduced by more than 40 percent from use in the early 1990's. A great visual of
this success is the Consumption and Programs Timeline.<sup>10</sup>

- 24
- 25

26 8 SWRCB June 2014—April 2022 Urban Water Supplier Monthly Reports (Raw Dataset); Average gallons per capita per day for June 2016—April 2022; See also <u>Attachment L</u>

- 27  $\int_{10}^{9} \frac{\text{Attachment E}}{\text{Attachment F}}$ , Monterey Peninsula Water Management District (MPWMD) Conservation Activities 1980 2022.
- 28

Q7. How long has MPWMD been involved with development, administration and enforcement
 of conservation and rationing activities on the Monterey Peninsula?

A7. MPWMD has been actively involved with water conservation programs on the Monterey
Peninsula since October 1979. In 1979, the MPWMD implemented its first conservation program
that involved public speaking engagements, drought tolerant plant displays, a library of conservation
ideas and techniques, development of a drought tolerant plant list, and regular public service
announcements. In addition, the MPWMD co-sponsored public workshops on rainwater reuse and
Cisterns and prepared regular press releases regarding its activities.

9 The conservation program expanded in 1983 when MPWMD agreed to facilitate the Water
10 Conservation Plan for Monterey County. This plan was completed and adopted by the MPWMD
11 Board of Directors in 1986 and resulted in the MPWMD's first Water Demand Manager overseeing
12 its water conservation program. Ordinance No. 30, the cornerstone conservation ordinance for the
13 Monterey Peninsula that required retrofit to Ultra-Low Flush Toilets (1.6 gallons per flush) upon
14 resale and in New Construction and Remodels was adopted as Regulation XIV in July 1987.

MPWMD has also been involved in water rationing planning and implementation since its
inception in 1978. A water rationing plan developed by the Monterey Peninsula Water Management
Agency (the predecessor to the MPWMD) was available when the MPWMD was established. The
former plan was reviewed and amended in June 1981 with the adoption of MPWMD Ordinance No.
7. The rationing plan was again amended in 1988 (Ordinance Nos. 35 and 37) during droughtrelated rationing administered by MPWMD that continued through 1991. Water use reductions of
approximately 30 percent were achieved during that time.

In 1997, the MPWMD Board of Directors tasked its staff with preparing conservation and rationing plans to address regulatory compliance with SWRCB Order No. WR 95-10 and water shortages resulting from drought and other emergencies. MPWMD staff worked with a variety of community members, including Cal-Am, to conceive and develop the Expanded Water Conservation and Standby Rationing Plan, adopted by Ordinance No. 92 as "Regulation XV" in 1998.

On March 18, 2016, "The Monterey Peninsula Water Conservation and Rationing Plan" 1 2 replaced the former "Expanded Water Conservation and Standby Rationing Plan" in MPWMD Regulation XV.<sup>11</sup> The Monterey Peninsula Water Conservation and Rationing Plan consists of four 3 stages: The first stage focuses on Water Waste and conservation and is always in effect. The second 4 5 stage is a "call for action" or voluntary rationing whereby a target percentage reduction is determined, 6 and the community is asked to do their share to reduce use to meet the target. The third stage 7 implements two levels of "conservation rates" in the Cal-Am system. Stage 4 rations Households and 8 implements mandatory restrictions on Non-Essential Water Use as the first water rationing measures 9 (Residential use is approximately 70 percent of total consumption). If Household rationing does not 10 work, Non-Residential rationing would be implemented along with additional restrictions on Non-11 Essential Water Uses. There are variances available for hardship situations and for large Households. 12 A copy of the Monterey Peninsula Water Conservation and Rationing Plan (MPWMD Regulation 13 XV) is provided as Attachment G, and Cal-Am adopted the plan as its Rule 14.1.1.

14 MPWMD's Regulation XIV Water Conservation has long been regarded as a model for other 15 agencies. Adopting conservation regulations in 1987, MPWMD was one of the first water agencies 16 to require, verify, and enforce retrofit upon resale and to issue Water Permits for new construction 17 with requirements for water efficient plumbing fixtures. The Regulation has been updated throughout 18 the years to account for new technology and changes to flow rates in toilets and other appliances. Requirements for water efficient landscapes and Landscape Water Permits were added in 2016. In 19 20 addition to strict requirements for construction, Changes of Ownership/Use, and Remodels, MPWMD 21 mandated extensive retrofit requirements for Visitor-Serving Facilities (in 2000), all Non-Residential 22 customers (in 2014), and apartments and Common Interest Developments (in 2019). MPWMD Conservation Rules (Rules 141, 142, 142.1, and 143)<sup>12</sup> are provided as Attachment H. All regulations 23 24 are enforced by MPWMD through site inspections and other actions.

- 25
- 26

27

28

Attachment G, MPWMD Regulation XV, The Monterey Peninsula Water Conservation and Rationing Plan.
 Attachment H, MPWMD Conservation Requirements.

| 1  | Finally, MPWMD has contributed to development of the unique rate structures that have been              |
|----|---|
| 2  | undertaken in Monterey by Cal-Am since the development of the steeply tiered residential rate           |
| 3  | structure in 1999. For a number of years, Cal-Am had a residential rate structure based on the number   |
| 4  | of people in a dwelling and a commercial rate structure based on MPWMD's water use factors. The         |
| 5  | latter commercial rates were replaced with a unique "Rate Best Management Practices" structure          |
| 6  | where the lower three of four rate divisions require compliance with MPWMD's indoor Best                |
| 7  | Management Practices and vary based on the amount of water efficient outdoor irrigation. The            |
| 8  | residential structure based on residents was replaced with a 5-tier block rate that was reduced to 4-   |
| 9  | tiers in March 2021 due to the extreme success of the structure to reduce use by the highest water      |
| 10 | users, many of whom replaced high water use landscapes and irrigation systems with efficient ones.      |
| 11 | The current rate structures are effective and contribute to lowered demand.                             |
| 12 |   |
| 13 | Q8. Please describe those sections of MPWMD's statutory authority which are relevant to                 |
| 14 | conservation and water use efficiency.  |
| 15 | A8. When MPWMD was created, there was a recognized need to conserve water supplies (§118-               |
| 16 | 2 of MPWMD's enabling legislation found in West's California Water Code, Appendix Chapters              |
| 17 | 118-1 to 118-901.). MPWMD was given the power, both express and implied, necessary to carry             |
| 18 | out the objects and purposes of its mandate (§118-301). This includes the power to enact ordinances     |
| 19 | and resolutions and to adopt regulations to carry out its purposes (§118-308). Perhaps one of           |
| 20 | MPWMD's broadest powers appears in §118-325. This provides, "The district shall have the power          |
| 21 | as limited in this law to do any and every lawful act necessary in order that sufficient water may be   |
| 22 | available for any present or future beneficial use or uses of the lands or inhabitants within the       |
| 23 | district"   |
| 24 | Finally, §118-328 (c) gives MPWMD the power to conserve water for present and future use                |
| 25 | within the district and §118-332 enables the district to restrict the use of water during any emergency |
| 26 | caused by drought or other threatened or existing water shortage and to prohibit Water Waste. This      |
| 27 | includes the power to prohibit water use for specific purposes which are considered nonessential.       |
| 28 | PHASE 2 DIRECT TESTIMONY OF STEPHANIE LOCKE<br>A.21-11-024  |

1 Q9. What authority does MPWMD have to enforce its rules and regulations?

A9. MPWMD has authority to carry out its legislative powers and duties by ordinance, adopting
rules and regulations as authorized by §118-256. This section provides that ordinance violations
are misdemeanors punishable in accord with the California Penal Code.

5 Within the Monterey Peninsula area, MPWMD is responsible for integrated management of water resources.<sup>13</sup> MPWMD has permitting authority over Cal-Am in its Water Distribution Systems. 6 7 Each permit ("Water Permit") has conditions which are enforceable by MPWMD. MPWMD 8 functions in a regulatory capacity with respect to Cal-Am. For example, in addition to the required 9 Water Permit before construction or modification of a structure, the MPWMD Board approves a 10 quarterly Water Supply Strategy and Budget that sets monthly production targets for various Sources 11 of Supply used by Cal-Am. Through its Water Allocation Program, MPWMD has the power to limit 12 Cal-Am's annual production in normal years and during a Water Supply Emergency (e.g., drought). 13 MPWMD can further reduce Cal-Am's production and impose mandatory elevated conservation and 14 rationing programs.

MPWMD successfully defended a legal challenge to its express and implied powers to provide
and conserve water, collect money for services, and restrict water use during an emergency in a court
decision issued December 20, 2012. Monterey County Superior Court Judge Lydia M. Villarreal
denied a wide-ranging challenge to MPWMD brought by Richard and Sharlene Thum. *Thum*, *Richard et al vs. Board of Directors, et al*, was filed in Monterey County Superior Court after the
MPWMD Board denied their request for extra water fixtures added to two bathrooms at their Pebble
Beach home.<sup>14</sup>

Judge Villarreal validated the District's position as to all counts. Addressing the many
 arguments raised in this lawsuit, the Court found MPWMD Rules conform to the law, are designed to
 conserve and provide water to the Monterey Peninsula, and are not unreasonable, arbitrary or

25

28

27 <sup>14</sup> Monterey County Superior Court Case No. M113598, *Thum, Richard et al vs. Board of Directors, et al*, Decision page 11, lines 16-17.

PHASE 2 DIRECT TESTIMONY OF STEPHANIE LOCKE A.21-11-024

<sup>26 &</sup>lt;sup>13</sup> MPWMD has certain defined words in its Rules and Regulations which appear throughout this testimony in their capitalized form.

|    | PAGE 9   |
|----|--|
| -  | PHASE 2 DIRECT TESTIMONY OF STEPHANIE LOCKE<br>A.21-11-024   |
| 28 |  |
| 27 | <sup>15</sup> Thum v. Bd. of Directors Monterey Water Mgmt Dist.; Case H039566; CA6 Decision filed 12/23/14. |
| 26 |  |
| 25 |  |
| 24 | property owners.   |
| 23 | maintained over time, as this notice communicates the specific requirements to current and future            |
| 22 | that compliance with conditions of a Rebate, Water Permit or other retrofit requirement will be              |
| 21 | recorded for specific periods of time or in perpetuity. The use of deed restrictions helps to ensure         |
| 20 | voluntarily as a condition of a Water Permit, Water Credit, or Rebate. Deed restrictions may be              |
| 19 | owner to the conditions of the restrictions. In most cases, the deed restrictions are recorded               |
| 18 | recorded on the property and attach to the land, binding any tenant, successor, or assignee of the           |
| 17 | that the property is subject to specific water conservation requirements. The deed restrictions are          |
| 16 | A11. MPWMD utilizes a number of deed restrictions to provide notice on the title of a property               |
| 15 | Q11. Please explain the deed restriction process MPWMD uses in its enforcement process.                      |
| 14 |  |
| 13 | up, and may result in deed restrictions, fines, liens and other enforcement actions.                         |
| 12 | performed to verify compliance with MPWMD requirements. Violations are noticed and followed                  |
| 11 | permanent water efficiency requirements. Inspections of buildings and landscapes are regularly               |
| 10 | and meter enlargements. Deed restrictions are recorded on the property title to provide notice of            |
| 9  | (residential), changes in use (commercial), new and refurbished landscapes, fire sprinkler systems,          |
| 8  | associated with them) are required for almost all construction that involves water fixtures                  |
| 7  | engineers, etc.) to provide technical support. Water Permits (and the water efficiency measures              |
| 6  | analysts, a technician to review and process Rebate applications and other staff (hydrologists,              |
| 5  | A10. MPWMD enforces its rules using a staff team that include two field inspectors, two permit               |
| 4  | Q10. How does MPWMD enforce its water efficiency requirements?   |
| 3  | i.e., water conservation." This Superior Court decision was sustained on appeal. <sup>15</sup>               |
| 2  | types of fixtures for a property has a real and substantial relation to the object sought to be attained,    |
| 1  | capricious. The Superior Court decision stated, "Allocation of water based upon the numbers and              |

1

2

Q12. How does MPWMD coordinate with Cal-Am to support conservation programs?

A12. MPWMD is a regulatory agency that creates laws and programs to reduce water demand on
the Monterey Peninsula. MPWMD also has enforcement powers that Cal-Am does not have.
MPWMD asserts oversight by participating in California Public Utility Commission ("CPUC")
proceedings, by enforcing its regulations that affect Cal-Am, and by coordinating with Cal-Am in
the implementation of conservation programs and related public outreach.

MPWMD and Cal-Am coordinate conservation programs to avoid duplication of effort and often partner on outreach and education efforts. MPWMD supported the design and implementation of Cal-Am's unique "Rate Best Management Practices" ("Rate BMPs") rate structure for nonresidential water users. MPWMD inspects non-residential properties for compliance with indoor water efficiency requirements and then refers the outdoor water use to Cal-Am for verification with its Rate BMPs.

MPWMD also collaborates with Cal-Am to implement the area's rebate program. MPWMD administers the program to ensure that retrofits are not required by other programs so that the rebate funds are maximized. The rebate program continues to have a high level of participation and is a significant contributor to permanently reduced demand in the region.<sup>16</sup> Savings from rebate retrofits compound over the life of the retrofit, contributing to ongoing and significant reductions in residential GPPCD.

20

21 || Q14. Does this conclude your testimony?

Dated: August 19, 2022

22 A14. Yes.

23

24 25

26

27

28

<sup>16</sup> <u>Attachment I</u>, July 2022 Rebate Program Report.

# Attachment A

(Phase 2 Direct Testimony of Stephanie L. Locke)

## Final



# MAKING WATER CONSERVATION A CALIFORNIA WAY OF LIFE

Primer of 2018 Legislation on Water Conservation and Drought Planning Senate Bill 606 (Hertzberg) and Assembly Bill 1668 (Friedman) PREPARED BY



#### California Department of Water Resources

AND



State Water Resources Control Board

NOVEMBER 2018

# Table of Contents



| 01   | Introduction   | 01 |
|------|--|----|
| 02   | Use Water More Wisely  | 05 |
|      | Urban Water Use Efficiency Standards and Water Use Objective                                 | 07 |
|      | CII Performance Measures   | 10 |
|      | State-Provided Data  | 11 |
|      | Reporting Requirements   | 11 |
|      | Compliance, Enforcement, and Legislative Oversight   | 15 |
|      | Streamlining Data Reporting  | 16 |
| 03   | Eliminate Water Waste  | 19 |
|      | Affirming Existing Requirements for Water Loss<br>Standard and Reporting                     | 20 |
|      | Feasibility Study for Extending Water Loss<br>Reporting Requirements                         | 20 |
| 04   | Strengthen Local Drought Resilience  | 21 |
|      | Urban Water Suppliers  | 22 |
|      | Small Water Suppliers and Rural Communities  | 25 |
| 05   | Improve Agricultural Water Use Efficiency and Drought Planning                               | 27 |
|      | Agricultural Water Management Plans  | 28 |
|      | Reporting Requirements   | 29 |
|      | Adoption, Review, and Enforcement  | 29 |
| 06   | Implementation Schedule  | 31 |
| Арре | andices  |    |
| Α    | Summary of Actions Mandated by 2018 Legislation  | 35 |
| В    | Major State Agency Tasks for Implementing<br>2018 Senate Bill 606 and Assembly Bill 1668 for | 47 |

C Major Water Supplier Tasks for Implementing 53 2018 Senate Bill 606 and Assembly Bill 1668 for Water Conservation and Drought Planning

Water Conservation and Drought Planning

## GLOSSARY

The following key terms are listed below for easy reference. Where applicable, existing definitions from the statute and regulations are provided. Additional terms that are relevant to the 2018 legislation and its implementation are introduced in the document where appropriate. However those terms are not defined in the current statute or regulation and may be modified throughout implementation.

| agricultural<br>water supplier | (For agricultural water management plan) A water supplier or<br>contractor for water, either publicly or privately owned, providing<br>water to 10,000 or more irrigated acres, excluding recycled water,<br>as defined in CWC §10608.12(a).  | urban retail<br>water supplier                     | A water supplier, either publicly or privately owned, that directly<br>provides potable municipal water to more than 3,000 end users or<br>that supplies more than 3,000 acre-feet of potable water annually<br>at retail for municipal purposes, as defined in CWC §10608.12(t)  |
|--------------------------------|---|--|---|
|                                | (For farm-gate delivery reporting) A water supplier or contractor<br>for water, either publicly or privately owned, providing 2,000<br>acre-feet or more of surface water annually for agricultural   | urban water<br>supplier                            | The combination of urban retail or wholesale water suppliers, defined by CWC §10608.12(t) and §10608.12(w), respectively; the term is also defined by CWC §10617.   |
|                                | purposes or serving 2,000 or more acres of agricultural land, as defined in CWC §531(b).  | urban water<br>use efficiency                      | The standards effective through CWC §10609.4 (indoor residential<br>use) or adopted by State Water Board (outdoor residential, water<br>loss, and CII outdoor irrigation of landscape areas with dedicated<br>meters) pursuant to CWC §10609.2.   |
| drought risk<br>assessment     | A method that examines water shortage risks based on the driest five-year historic sequence for the agency's water supply, as   | standards  |   |
|                                | described in CWC §10635(b), as defined in CWC §10612.   | urban water  | An estimate of aggregate efficient water use for the previous   |
| irrigable land                 | Undefined in the legislation; to be defined through implementation.   | Use objective                                      | year based on adopted water use efficiency standards and local<br>service area characteristics for that year, as described in   |
| irrigated land                 | Undefined in the legislation; to be defined through   | urban<br>wholesale<br>water supplier<br>water loss | A water supplier, either publicly or privately owned, that provides<br>more than 3,000 acre-feet of water annually at wholesale for<br>potable municipal purposes, as defined CWC §10608.12(w).<br>The total of apparent losses and real losses (California Code of<br>Regulations, title 23, §638.1(a) and §638.1(k), respectively) in an<br>urban water supplier's system. Apparent losses means losses due<br>to unauthorized consumption and/or nonphysical (paper) losses<br>attributed to inaccuracies associated with customer metering or<br>systematic handling errors. Real losses means the physical water<br>losses from the pressurized potable water system and the<br>supplier's potable water storage tanks, up to the point of<br>customer consumption |
| performance<br>measures        | Actions to be taken by urban retail water suppliers that will result  |  |   |
| measures                       | industrial (CII) water users. Performance measures may include,<br>but are not limited to, educating CII water users on best<br>management practices, conducting water use audits, and<br>preparing water management plans. Performance measures do<br>not apply to process water, as defined in CWC §10608.12(n)). |  |   |
| potable reuse                  | Direct potable reuse, indirect potable reuse for groundwater recharge, and reservoir water augmentation, as defined in CWC §13561, as defined in CWC §10608.12(0).  |  |   |
| process water                  | Water used by industrial water users for producing a product or product content or water used for research and development, as defined in CWC §10608.12(p).   | water shortage<br>contingency<br>plan              | A document that incorporates the provisions detailed in<br>CWC §10632(a) and is subsequently adopted by an urban retail<br>water supplier, as defined in CWC §10617.5.  |
| recycled water                 | Water which, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur and is therefore considered a valuable resource, as defined in CWC §13050(n), as defined in CWC §10608.12(q).  | water supply<br>and demand<br>assessment           | A method that looks at current year and one or more dry year<br>water supplies and demands for determining water shortage risks<br>per CWC §10632.1, as defined in CWC §10618.  |

#### **ACRONYMS AND ABBREVIATIONS**

| 2017 Framework | Making Water Conservation a California Way of Life,<br>Implementing Executive Order B-37-16 | DWR               | California Department of Water Resources  |
|----------------|---|-------------------|---|
|                |   | GPCD              | gallons per capita daily                  |
| AB             | Assembly Bill   | Leaislature       | California State Leaislature              |
| AWMP           | Agricultural Water Management Plan  | MWELO             | Model Water Efficient Landscape Ordinance |
| CDFA           | California Department of Food and Agriculture   | SB                | Senate Bill                               |
| CEC            | California Energy Commission  | SGMA              | Sustainable Groundwater Management Act    |
| CII            | Commercial, industrial, and institutional   | State Water Board | State Water Resources Control Board       |
| CPUC           | California Public Utilities Commission  |                   | Urban Water Management Plan               |
| CWC            | California Water Code   |                   | Water Shortage Centingeney Plan           |
| DRA            | Drought Risk Assessment   | MJCL              | waler shortage Comingency Fidn            |

#### **USEFUL LINKS**

- Executive Order B-37-16, Making Water Conservation a California Way of Life: <u>https://www.gov.ca.gov/wp-content/uploads/2017/09/5.9.16</u> Attested <u>Drought\_Order.pdf</u>
- Senate Bill 606, as chaptered: <a href="http://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill\_id=201720180SB606">http://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill\_id=201720180SB606</a>
- Assembly Bill 1668, as chaptered: <a href="http://leginfo.ca.gov/pub/15-16/bill/asm/ab-1651-1700/ab-1668-bill-20160927">http://leginfo.ca.gov/pub/15-16/bill/asm/ab-1651-1700/ab-1668</a> bill 20160927 chaptered.pdf
- Senate Bill X7-7, as chaptered: <a href="http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill\_id=200920107SB7">http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill\_id=200920107SB7</a>
- DWR Water Use and Efficiency Program: <u>https://water.ca.gov/Programs/</u> Water-Use-And-Efficiency
- State Water Board Water Conservation Portal: <u>https://www.waterboards.</u> ca.gov/water\_issues/programs/conservation\_portal/

#### **PHOTOGRAPHY CREDITS**

John Chacon, DWR – Pages 19, 45 Carl Costa, DWR – Table of Contents Kelly Grow, DWR - Page 2 Paul Humes, DWR - Page 27 Dale Kolke, DWR – Pages 4, 35, 53 Florence Low, DWR - Pages i, 4 Steve Payer, DWR – Pages 31 Yung-Hsin Sun, Stantec – Cover, pages 1, 26



5/3

# 01 Introduction



In 2018, the California State Legislature (Legislature) enacted two policy bills, (Senate Bill (SB) 606 (Hertzberg) and Assembly Bill (AB) 1668 (Friedman)), to establish a new foundation for long-term improvements in water conservation and drought planning to adapt to climate change and the resulting longer and more intense droughts in California. These two bills amend existing law to provide expanded and new authorities and requirements to enable permanent changes and actions for those purposes, improving the state's

SB 606 and AB 1668 are direct outcomes of Governor Brown's Executive Order B-37-16 issued in May 2016. The recommendations in the April 2017 report entitled Making Water Conservation a California Way of Life, Implementing Executive Order B-37-16 (2017 Framework) and subsequent extensive leaislative outreach efforts informed the development of SB 606 and AB 1668. The 2017 Framework was prepared by the California Department of Water Resources (DWR), State Water Resources Control Board (State Water Board), California Public Utilities Commission (CPUC), California Department of Food and Agriculture (CDFA), and California Energy Commission (CEC) in response

Recommendations for New and xpanded Authorities

**Activities Under** 

Existing Authorities

2018 Legislation

SB 606

AB 1668

to Executive Order B-37-16 to establish a long-term framework for water conservation and drought planning. The 2017 Framework built on the conservation realized during the recent drought, as well as implementation of the Governor's California Water Action Plan.<sup>1</sup> The resulting 2017 Framework outlined a suite of actions that can be implemented under existing authorities and, where necessary, recommended additional actions that can be implemented with new or expanded authorities given by the Legislature. To that end, the Legislature enacted SB 606 and AB 1668, which provide complementary authorities and requirements that affect water conservation and drought planning for urban water suppliers, agricultural water suppliers, and small water suppliers and rural communities.

As an initial implementation action, DWR and the State Water Board prepared this primer to summarize the authorities, requirements, and schedules included in the new legislation. Where appropriate, roles and responsibilities of State agencies, water suppliers, and other parties are highlighted. During the implementation process, DWR, the State Water Board, and other State agencies will further develop data, information, guidelines, and other technical assistance to help realize the bills' intended outcomes. These agencies will solicit broad stakeholder and public participation throughout implementation.

The content of this primer is organized by the four primary goals in Executive Order B-37-16 and the 2017 Framework: (1) use water more wisely, (2) eliminate water waste, (3) strengthen local drought resilience, and (4) improve agricultural water use efficiency and drought planning. The majority of the new and expanded authorities relate to achieving the goal of using water more wisely, with the addition of a chapter in the California Water Code (CWC), Chapter 9 (commencing with §10609) of Part 2.55 of Division 6. The table on the following page presents major new and expanded authorities provided by SB 606 and AB 1668. For ease of reference, relevant law citations are included in the discussion, and applicable authorizing bills, SB 606 (SB) and AB 1668 (AB), are identified. Descriptions of new requirements and authorities are presented along with milestones and legislated deadlines. Callout boxes are used to highlight specific details or topics. Corresponding statutory roles and responsibilities are noted, where appropriate.

This document does not address actions described in the Executive Order B-37-16 and the 2017 Framework that rely on existing authorities other than to the extent necessary to describe changes made by SB 606 and AB 1668.

<sup>&</sup>lt;sup>1</sup> The California Water Action Plan was first released in 2014 and then updated in 2016.



#### Making Water Conservation a California Way of Life – Major Areas of Coverage in SB 606 and AB 1668 of 2018

| Primary Goals      | Major Areas of Coverage in SB 606 (SB) and AB 1668 (AB)   |
|--------------------|---|
|                    | Water budget-based method for quantifying urban water use objectives  |
| Use Water More     | Urban retail water use efficiency standards adoption and water use objectives   |
| Wisely             | Urban retail water use objective implementation, reporting, and enforcement   |
|                    | Expanded civil liability for violations   |
| Eliminate Water    | • Affirmation for continued implementation of existing requirements enacted by SB 555 of 2015 for setting urban retail water loss standard, methodology, and reporting requirements |
| wasie              | • Recommendations to Legislature on expanding water loss reporting requirements for urban wholesale water suppliers   |
|                    | Emergency declaration based on local water shortage   |
| Strengthen Local   | Urban water shortage contingency planning, methodology, reporting, and enforcement  |
| Drought Resilience | Amendments to existing urban water management reporting and enforcement   |
|                    | Countywide drought planning for small water suppliers and rural communities   |
| Improve            | Water budget-based method for quantifying agricultural water use efficiency   |
| Agricultural Water | Amendments to existing agricultural water delivery reporting and requirements   |
| Drought Planning   | Drought resiliency and response planning, and requirements for agricultural water use   |

# Use Water More Wisely

## 02 Use Water More Wisely

SB 606 and AB 1668 do not change existing implementation of the Water Conservation Act of 2009<sup>2</sup> through 2020. Rather, the legislation provides new and expanded authorities needed for implementation of a water budget-based approach to conservation and water use efficiency as recommended in the 2017 Framework. This approach is described in a new CWC chapter (commencing with §10609) related to the urban water use objective and water use reporting, to be realized through new urban water use efficiency standards to be adopted by the State Water Board, in coordination with DWR, by June 30, 2022. The approach aims at advancing the State's goals to mitigate for and adapt to climate change.

Most new authorities and requirements for urban water use efficiency are in AB 1668, with a few supplemental provisions in SB 606. The resulting CWC §10609 requires DWR and the State Water Board to establish standards for (1) indoor residential use; (2) outdoor residential use; (3) outdoor CII use with dedicated irrigation meters; and (4) water losses. The legislation also requires DWR and the State Water Board to establish performance measures for CII water use and appropriate variances for unique uses that can have a material effect on water use of an urban retail water supplier. The Legislature recognizes the substantial diversity of businesses and institutions throughout the state, and requires collection of additional data as part of implementation.

The legislation also requires urban retail water suppliers to calculate and report their urban water use objectives following adoption of the new standards. New State policies reflected in these CWC amendments could have substantial effects on long-term urban water use and management by urban water suppliers. For this reason, the legislation requires a thorough review of the progress, outcomes, and effects of near-term implementation. In addition, the legislation requires DWR and the State Water Board to seek broad stakeholder and public input throughout implementation.

In this primer, the significant CWC amendments that provide new authorities and requirements for using water more wisely are grouped by six major topics: (1) urban water use efficiency standards and urban water use objective; (2) CII performance measures; (3) State-provided data; (4) reporting requirements; (5) compliance, enforcement, and legislative oversight; and (6) streamlining data reporting. All new requirements associated with urban water use efficiency standards are addressed in **USE WATER MORE WISELY** with the exception of the water loss standard that is included in **ELIMINATE WATER WASTE**.

#### An **urban water use efficiency standard** is a numeric standard for each category in CWC §10609.2, as set by the Legislature (indoor residential, see §10609.4) or as set by the State Water Board, in coordination with DWR (outdoor residential, water loss,

and CII outdoor irrigation of landscape with dedicated meters, see §10609.2).

An **urban water use objective** is an estimate of aggregate efficient water use for the previous year based on adopted water use efficiency standards and local service area characteristics for that year (CWC §10608.12(u) (AB)).

An **urban retail water supplier** is a water supplier, either publicly or privately owned, that directly provides potable municipal water to more than 3,000 end users or that supplies more than 3,000 acre-feet of potable water annually at retail for municipal purposes (CWC § 10608.12(t) (AB).

 $<sup>^2</sup>$  Also known as SB X7-7; commencing with CWC 10608.

#### URBAN WATER USE EFFICIENCY STANDARDS AND WATER USE OBJECTIVE

The legislation sets standards for indoor residential use and requires the State Water Board, in coordination with DWR, to adopt efficiency standards for outdoor residential use, water losses, and CII outdoor landscape areas with dedicated irrigation meters, as described in this section. These volumetric standards apply to an urban retail water supplier that will use the efficiency standards to calculate its urban water use objective, which is later compared with its actual aggregate water use for reporting purposes.

The Legislature deemed the State Water Board's actions for adopting and implementing water use efficiency standards to be Class 8 actions for protecting the environment, as defined in Section 15308 of Title 14 of the California Code of Regulations. Therefore, these actions are categorically exempt from provisions of the California Environmental Quality Act (CWC § 10609.34 <sup>(SB)</sup>).

All new requirements for urban water use objectives are effective after June 2022 when the State Water Board adopts urban water use efficiency standards, performance measures, and variances. The legislation does not modify the current statewide goal of a 20 percent reduction in urban per capita water use by 2020 (i.e., suppliers' 2020 targets) as established under the Water Conservation Act of 2009<sup>3</sup>. AB 1668 requires that implementation of the new authorities and requirements result in statewide conservation exceeding current statewide targets<sup>3</sup> (CWC §10609.2(d)<sup>AB</sup>). The following provides details on the legislated requirements for developing and adopting water use efficiency standards, applications of the standards in urban water use objective calculations, and additional implementation oversight.

#### **Urban Water Use Efficiency Standards**

SB 606 and AB 1668 contain specific requirements for developing and adopting water use efficiency standards. The legislation:

 Requires DWR, in coordination with the State Water Board, to conduct necessary studies and investigations and authorizes the agencies to recommend to the Legislature efficiency standards for indoor residential use that include benefit and impact assessments for applying such standards by January 1, 2021. These jointly-recommended standards may more appropriately reflect the best practices for indoor residential water use than the

<sup>&</sup>lt;sup>3</sup> AB 1668 requires the long-term water use efficiency standards be set at a level designed so that the aggregate water use objectives, "...together with other demands excluded from the long-term standards such as CII indoor water use and CII outdoor water use not connected to a dedicated landscape meter..." will exceed the 2020 statewide conservation targets (CWC § 10609.2(d)(AB)).

default standards set by the Legislature in CWC §10609.4(a) (AB). DWR will develop these recommendations in coordination with the State Water Board and collaboratively with stakeholders (CWC §10609.4(b) (AB)).

- Requires DWR, in coordination with the State Water Board, to conduct necessary studies and investigations and develop recommendations to the State Water Board by October 1, 2021 for:
  - Standards for outdoor residential water use that apply to residential irrigable lands, including provisions for swimming pools, spas, and ornamental water features that are artificially supplied with water, and incorporating principles of the Model Water Efficient Landscape Ordinance (MWELO)<sup>4</sup> (CWC §10609.6 (AD)).
  - Standards for CII outdoor irrigation of landscape areas with dedicated irrigation meters or other means of measurement, and shall incorporate principles of the MWELO (CWC §10609.8 (AB)).
  - Appropriate variances for unique uses that can have a material effect on an urban retail water supplier's urban water use objective and the corresponding thresholds of significance (CWC §10609.14 (AB)).
  - Guidelines and methodologies that identify how an urban retail water supplier calculates its urban water use objective (CWC §10609.16 🔤).
- Requires the State Water Board, in coordination with DWR, to adopt long-term standards for outdoor residential water use, outdoor irrigation with dedicated irrigation meters in connection with CII water use, and a volume for water loss by June 30, 2022. Before adoption, the State Water Board shall make proposed standards and identified potential effects available for public comment by May 30, 2022 (CWC §10609.2 (A)).
- Requires the State Water Board to adopt appropriate variances, guidelines, and methodologies for calculating urban water use objectives (CWC §10609.2(e)AB).
- Requires the State Water Board, in coordination with DWR, to adopt water loss standards for urban retail water suppliers no earlier than January 1, 2019, and no later than July 1, 2020, pursuant to CWC §10608.34<sup>5</sup> (CWC §10609.12 (AB)). See ELIMINATE WATER WASTE for additional related requirements.

Different from other water use efficiency standards, DWR and the State Water Board may develop recommendations to the Legislature on standards for indoor residential use. On the **water supplier level**, effective standards will follow provisions in CWC § 10609.4(a) (AB):

- 55 gallons per capita daily (GPCD) until January 1, 2025
- The greater of 52.5 GPCD or a standard recommended by DWR and the State Water Board for the 2025 standard from January 1, 2025, through December 31, 2029
- The greater of 50 GPCD or a standard recommended by DWR and the State Water Board for the 2030 standard after January 1, 2030

These standards do not require reporting or measurements on the customer level.

For efficiency standards related to outdoor residential irrigation and outdoor CII landscape areas with dedicated meters, "principles of the model water efficient landscape ordinance" means those provisions of the MWELO applicable to the establishment or determination of the amount of water necessary for efficient landscape irrigation. These provisions include, but are not limited to, the following (CWC §10609.9 (AB)):

- Evapotranspiration adjustment factors, as applicable
- Landscape area
- Maximum applied water allowance
- Reference evapotranspiration
- Special landscape areas, including provisions governing evapotranspiration adjustment factors for different types of water used for irrigating landscape

 $<sup>^4</sup>$  Adopted by DWR pursuant to the Water Conservation in Landscape Act of 2017 (commencing with CWC §65591).

<sup>&</sup>lt;sup>5</sup> Enacted by SB 555 of 2015.

AB 1668 requires that when adopting water use efficiency standards, the State Water Board shall consider the effects of the proposed standards on local wastewater management, developed and natural parklands, and urban tree health (CWC §10609.2(c)(AB)).

An urban retail water supplier may have certain unique uses that can have a material effect on its urban water use objective. DWR will recommend appropriate variances and, for each variance, the associated threshold of significance for consideration in adoption by the State Water Board. Appropriate variances may include, but are not limited to, the following (CWC §10609.14 (AB)):

- 1. Significant use of evaporative coolers
- 2. Significant populations of horses and other livestock
- 3. Significant fluctuations in seasonal populations
- Significant landscaped areas irrigated with recycled water having high levels of total dissolved solids
- 5. Significant use of water for soil compaction and dust control
- Significant use of water to supplement ponds and lakes to sustain wildlife
- 7. Significant use of water to irrigate vegetation for fire protection
- 8. Significant use of water for commercial or noncommercial agricultural use

Each urban retail water supplier should request and may receive approval from the State Water Board for use of adopted variances in calculating its urban water use objective. The State Water Board shall make the approved variances by urban retail water supplier and associated supporting data available on its website. To accommodate unforeseen circumstances of individual urban retail water suppliers, SB 606 allows the State Water Board to waive urban water use efficiency standard requirements for a period of up to five years. However, the permissible conditions are limited to an urban retail water supplier with deliveries that are significantly affected by changes in water use because of damages from a disaster. The State Water Board is also required to consider the breadth of the damage and the time necessary for the damaged areas to recover from the disaster (CWC §10609.38 <sup>SB</sup>).

#### Urban Water Use Objective

SB 606 establishes a method to estimate the aggregate amount of water an urban retail water supplier would have used in the previous year if all that water had been used in compliance with adopted efficiency standards. The aggregate amount, or "urban water use objective," is an estimate of aggregate efficient water use from the previous calendar or fiscal year based on adopted water use efficiency standards and local service area characteristics for that year, as described in CWC §10609.20 (CWC §10608.12(u)AB). More specifically, the annual urban water use objective is the sum of the following (CWC §10609.20(c)SB)<sup>6</sup>:

- 1. Aggregate estimated efficient indoor residential water use.
- 2. Aggregate estimated efficient outdoor residential water use.
- 3. Aggregate estimated efficient outdoor irrigation of landscape areas with dedicated irrigation meters or equivalent technology in connection with CII water use.
- 4. Aggregate estimated efficient water losses.
- 5. Aggregate estimated water use for approved variances.

By comparing the amount of water actually used in the previous year with the urban water use objective for that year, an urban retail water supplier can determine if it has achieved the required level of water use efficiency for the previous year. With this comparison, local urban retail water suppliers will be in a better position to help eliminate unnecessary use of water, that is, water used in excess of that needed to accomplish the intended beneficial use (CWC §10609(a)<sup>(AB)</sup>).

Emphasis on the aggregate amount of all categories of urban water use in meeting the urban water use objective provides an urban retail water supplier with flexibility<sup>7</sup> in promoting and implementing water conservation measures in its own service area. This emphasis also means that urban water use efficiency requirements are applicable on the water supplier

<sup>&</sup>lt;sup>6</sup> The allowable bonus incentive for potable water reuse is discussed separately later in this subsection.

<sup>&</sup>lt;sup>7</sup> That the urban water use objective may be calculated on either a fiscal or calendar year provides flexibility, as does the ability to determine what measures are to be implemented.

level and not on the individual customer level. An urban retail water supplier that does not meet its objective may be required by the State Water Board to enact policies and programs that result in additional water savings.

To maintain consistency with State policy encouraging potable reuse<sup>8</sup>, SB 606 allows a bonus incentive for an urban retail water supplier that delivers water from a groundwater basin, reservoir, or other source that is augmented by potable reuse water. The bonus incentive is to adjust the supplier's urban water use objective by the volume of potable reuse water delivered to residential customers and landscape areas with dedicated irrigation meters in connection with CII water use. The bonus incentive shall be limited in accordance with one of the following: (A) the bonus incentive shall not exceed 15 percent of the urban water supplier's water use objective for any potable reuse water produced at an existing facility; and, (B) the bonus incentive shall not exceed 10 percent of the urban water supplier's water use objective for any potable reuse water produced at any facility that is not an existing facility. An existing facility is defined as one with a completed environmental review on or before January 1, 2019, that becomes operational on or before January 1, 2022, and that uses microfiltration and reverse osmosis technologies to produce the potable reuse water (CWC §10609.20(d)<sup>(SB)</sup>). See **REPORTING REQUIREMENTS** for more information on annual reporting of urban water use and calculation of urban water use objective.

#### **CII PERFORMANCE MEASURES**

AB 1668 requires DWR, in coordination with the State Water Board, to conduct necessary studies and investigations to develop recommendations on performance measures for CII water use by October 1, 2021, for consideration in adoption by the State Water Board (CWC 10609.10(a). Prior to recommending performance measures for CII water use, DWR is required to solicit broad public participation from stakeholders and other interested parties related to the following considerations (CWC §10609.10(b).

- Cll water use classification system.
- Minimum size thresholds for converting mixed CII meters to dedicated irrigation meters.
- Technologies that could be used in lieu of requiring dedicated irrigation meters.
- Best management practices including water audits and water management plans for CII customers above a certain size, volume of use, or other threshold.

DWR's recommendations shall be consistent with the October 21, 2013, report to the Legislature by the CII Task Force titled, *Water Use Best Management Practices*<sup>9</sup>, including the technical and financial feasibility recommendations provided in that report, and shall support the economic productivity of CII sectors (CWC §10609.10(c)<sup>(M)</sup>).

For the studies, investigations, and report related to a standard for indoor residential water use that DWR will conduct in coordination with the State Water Board, AB 1668 requires collaboration with and input from a broad group of stakeholders. That group includes, but is not limited to, environmental groups; experts in indoor plumbing; and water, wastewater, and recycled water agencies (CWC § 10609.4(b)(2) (AB)).

<sup>&</sup>lt;sup>8</sup> Potable reuse includes direct and indirect reuse, as defined in CWC §13561.

<sup>&</sup>lt;sup>9</sup> See https://www.water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Water-Use-And-Efficiency/Urban-Water-Use-Efficiency/Files/CII-Volume-ljuly-2014.pdf and https://www.water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Water-Use-And-Efficiency/Urban-Water-Use-Efficiency/Files/ CII-Volume-II-july-2014.pdf

DWR, in collaboration with stakeholders, is conducting a statewide residential landscape area measurement study for California's urban retail water suppliers. The study includes pilots to develop a reliable method for estimating irrigable landscape areas for residential outdoor use. DWR will provide the landscape area data to suppliers by January 1, 2021 (CWC §10609.6(b) and (c) (AB)).

In addition to the annual water use report required under CWC §10609.24(a) (SB), SB 606 authorizes the State Water Board to issue a regulation or informational order requiring urban wholesale and retail water suppliers to provide monthly reports related to water production, water use, or water conservation (CWC §10609.28 (SB)). This provision provides the State Water Board direct authority to readopt a reporting requirement established in the recent drought emergency to ensure continuation of certain reporting.

### STATE-PROVIDED DATA

AB 1688 recognizes the need for studies and investigations to support development of urban water use efficiency standards. As part of DWR's implementation efforts, it will conduct these studies and investigations in coordination with the State Water Board and in collaboration with stakeholders. AB 1688 specifically identifies the need for landscape area data that are required for the analysis of residential outdoor water use, and other supporting data required by urban retail water suppliers to calculate their urban water use objectives:

- Requires DWR, by January 1, 2021, to provide urban retail water suppliers with data
  regarding the area of residential irrigable lands to calculate aggregated outdoor
  residential use. The data should be reasonably accurate for the intended uses, taking into
  consideration California's diverse landscapes and community characteristics
  (CWC §10609.6(b) and (c)<sup>SB</sup>).
- Requires DWR to provide landscape area data and other data for calculating an urban water use objective at a level of detail sufficient to allow an urban retail water supplier to verify its accuracy at the parcel level (CWC §10609.20(e)<sup>[SB]</sup>).
- Requires DWR to provide or otherwise identify data related to unique local conditions to support calculation of an urban water use objective (CWC §10609(b)(2)(C)AB).

## **REPORTING REQUIREMENTS**

To support implementing urban water use efficiency standards and meeting urban water use objectives, SB 606 and AB 1668 include schedule and content provisions for a critical reporting requirement – the annual water use report. The legislation also includes changes in Urban Water Management Plan (UWMP) preparation requirements. See **Related Requirements for Urban Water Management Plan Preparation, ELIMINATE WATER WASTE,** and **STRENGTHEN LOCAL DROUGHT RESILIENCE** for related requirements.

#### **Annual Water Use Report**

SB 606 and AB 1668 require each urban retail water supplier, by November 1, 2023, and by November 1 every year thereafter, to:

- Calculate its urban water use objective including estimated indoor residential water use, outdoor residential water use, outdoor irrigation of landscape areas with dedicated irrigation meters or equivalent technology in connection with CII water use, water losses, water use in accordance with approved variances, and applicable bonus incentive for potable reuse (CWC §10609.20<sup>58</sup> and §10609.14<sup>(AB)</sup>).
- Calculate its actual water use including residential water use, outdoor irrigation of landscape areas with dedicated irrigation meters in connection with CII water use, and water losses (CWC §10609.22<sup>(SB)</sup>).

Major Actions and Products Required to Implement Water Use Efficiency Standards and Urban Retail Water Supplier's Annual Reporting Requirements<sup>1</sup>

DWR



#### Summary of Urban Retail Water Supplier's Urban Water Use Objective Calculation

Urban Retail Water Supplier's Urban Water Urban Retail Water Supplier's Urban Allowable Bonus Incentive Adjustments +Use Objective, Adjusted For Bonus Water Use Objective (CWC §10609.20(c)) (CWC §10609.20(d)), which shall be **Incentive**, for annual reporting purposes limited in accordance with one of the and comparison to the actual water use Aggregate estimated efficient followina: indoor residential water use in the previous year • Volume of potable reuse water ÷ from existing facility, with completed environmental review Aggregate estimated efficient by Jan 1, 2019, that becomes outdoor residential water use operational by Jan 1, 2022, not to exceed 15% of urban water use objective Aggregate estimated efficient outdoor irrigation of landscape areas Volume of potable reuse water . with dedicated irrigation meters or from new facility, not to exceed equivalent technology in connection 10% of urban water use with CII water use objective Aggregate estimated efficient water losses +Aggregate estimated water use for variances approved by the State Water Board

 Submit an annual report to DWR on the previous year's urban water use (CWC §10609(b)(2)(E)<sup>AB</sup>; and §10609.24<sup>SB</sup>).

For the preparation of an annual water use report for the previous year, SB 606 and AB 1668 also provide several specific requirements, flexibility, and clarifications. The legislation:

- Requires the calculated urban water use objective, actual urban water use, documentation
  of implementation of performance measures for CII water use, description of progress made
  towards meeting an urban water use objective, and relevant supporting data
  (CWC §10609.24<sup>(38)</sup>).
- Provides the flexibility for reporting urban water use objective and actual water use on a calendar or fiscal year basis (CWC §10609.20(b) and §10609.22(b)<sup>SB</sup>).
- Allows calculation of an urban water use objective using landscape area and other provided data by DWR or alternative data, if demonstrated to be equivalent or superior in quality and accuracy to DWR's data. DWR may provide technical assistance to an urban retail water supplier to determine the appropriateness of using alternative data for this purpose (CWC §10609.20(e)<sup>SB</sup>).

#### Related Requirements for Urban Water Management Plan Preparation

Following the State Water Board's adoption of urban water use efficiency standards, an urban retail water supplier shall adopt and submit to DWR, by January 1, 2024, a supplement to its adopted 2020 UWMP that includes a narrative describing water demand management measures that the supplier plans to implement to achieve its urban water use objective by January 1, 2027, pursuant to urban water use efficiency standards and their implementation. This supplement is exempt from the public notice, hearing, and adoption requirements associated with UWMP updates and amendments (CWC §10621(f)(2) and §10631(e)(1)(B)<sup>SB</sup>).

There are additional provisions related to the preparation and adoption of a UWMP by an urban retail water supplier. See **ELIMINATE WATER WASTE** and **STRENGTHEN LOCAL DROUGHT RESILIENCE** for more UWMP requirements that a water supplier should consider in streamlining its efforts to comply with UWMP preparation, adoption, and submittal requirements.

SB 606 contains a provision that could affect reporting requirements and enforcement during emergency conditions. SB 606 extends the effective period of such an emergency regulation adopted by the State Water Board in response to drought conditions or Governor's proclamation of a state of emergency from 270 days to one year after its adoption (CWC § 1058.5(c) (SB)).

Reporting requirements and enforcement for urban water use objectives are always on the water supplier level (CWC §10609(a) (AB)) and not on the individual customer level. An urban retail water supplier can determine its own implementation priorities and adequate actions to achieve its urban water use objective.

### COMPLIANCE, ENFORCEMENT, AND LEGISLATIVE OVERSIGHT

SB 606 and AB 1668 allow for the imposition of civil liability for inefficient water use, provide progressive authority for the State Water Board's enforcement of annual water use reporting, and provide a right for urban retail water suppliers to petition the State Water Board to reconsider its water right orders related to water use efficiency. Details are provided below.

#### **Civil Liability**

SB 606 authorizes civil liability to be imposed by local public agencies for violations of certain new water conservation requirements that will be developed through formal rule-making processes (CWC §377<sup>(3B)</sup>).

SB 1668 authorizes civil liability for an urban retail water supplier that violates an order or regulation issued by the State Water Board under Chapter 9 (commencing with CWC §10609) of Part 2.55 of Division 6. Civil liability however, for violation of a regulation only applies to violations occurring after November 1, 2027.

#### Progressive Enforcement for Annual Urban Water Use Reporting

SB 606 provides the State Water Board with new authorities for enforcing the annual urban water use reporting requirement:

- Allows issuance of an informational order or conservation order to, or imposition of civil liability on, an urban water supplier for failure to submit an annual water use report (CWC §10609.24<sup>SB</sup>).
- Allows for specific State Water Board enforcement actions on a legislatively-defined time table, see the figure on page 17 (CWC §10609.26<sup>SB</sup>).

#### Water Right Protection

As the State Water Board also exercises oversight of the State's water rights system, both SB 606 and AB 1668 provide conditions for the State Water Board to adopt and implement water use efficiency standards. The legislation:

- Clarifies the State Water Board's adoption and implementation of water use efficiency standards are to have no effects on water rights or the applicability of CWC §1010 and §1011 related to water right holders' right to conserved water (CWC §10609.36(a)<sup>(B)</sup>).
- Clarifies the conservation orders issued by the State Water Board for compliance with annual water use reporting requirements should not contain any actions to curtail or otherwise limit the exercise of a water right of the supplier or other water right holders (CWC §10609.26(d)<sup>(B)</sup>).

• Extends existing rights to seek reconsideration of State Water Board decisions and orders to decisions and orders made under Part 2.55 (commencing with CWC §10608) of Division 6.

#### Legislative Oversight

In light of the new authorities and requirements for adopting and implementing urban water use efficiency standards, the Legislature imposed the following legislative oversight that:

- Clarifies the need for a separate authorization from the Legislature for the State Water Board to update and amend the initially adopted urban water use efficiency standards after 2022 (CWC §10609.36(b)<sup>58</sup>).
- Requires the Legislative Analyst, by January 10, 2024, to conduct a review of implementation of the urban water efficiency standards (CWC §10609.30<sup>38</sup>).
- Requires DWR and the State Water Board to appear before the appropriate policy committees of both houses of the Legislature on or around January 1, 2026, and report on implementation of the urban water use standards and water use reporting requirements (CWC §10609.32<sup>(38)</sup>).

## STREAMLINING DATA REPORTING

SB 606 and AB 1668 include additional requirements for DWR and the State Water Board to identify opportunities for streamlining water data reporting and making data and their intended use accessible by the public. The legislation:

- Requires the State Water Board to post on its website a list of all urban retail water suppliers with approved variances, the specific variance or variances, and the data supporting approvals (CWC §10609.14(e).
- Requires DWR and the State Water Board to identify urban water reporting requirements shared by both agencies to help streamline water data reporting, and post on each agency's website how the data are used for planning, regulatory, or other purposes (CWC §10609.15(a)<sup>(AB)</sup>).
- Requires DWR and the State Water Board to publish data pertaining to urban water use objective reporting requirements collected by both agencies and implement actions to improve data publication and public accessibility according to the principles and requirements of the Open and Transparent Water Data Act of 2016 (CWC §10609.15(c)<sup>(AB)</sup>).
- Requires DWR to post on its website annual urban water use reports and information received from urban retail water suppliers (CWC §10609.24(b)<sup>SB</sup>).

#### Urban Retail Water Supplier's Annual Urban Water Use Reporting Requirements and Corresponding Actions by DWR and State Water Board


#### P Milestone Schedule: Use Water More Wisely

| 2020 | Jan 1 – DWR may update MWELO or make finding that no update is warranted.  | 2024 | Jan 1 – l<br>to adop<br>to be im |
|------|--|------|----------------------------------|
|      | Dec 31 – Urban water use targets cumulatively result in a 20-percent reduction from the baseline daily per capita water use. |      | Jan 10 –                         |
| 2021 | Jan 1 – DWR/State Water Board may submit recommendation on indoor residential water use standard to Legislature.             |      | water us                         |
|      | Jan 1 – DWR provides residential irrigable land areas to urban water retailers.  |      | Nov 1 – 0<br>Nov 1 fo            |
|      | Jul 1 – Urban water suppliers submit UWMPs to DWR within 30 days of adoption.  |      | use obje                         |
|      | Oct 1 – DWR recommends standards for outdoor residential use, CII  | 2025 | Nov 1 fo<br>urban re             |
|      | variances.   |      | Nov 1 – l                        |
|      | Oct 1 – DWR develops guidelines and methodologies for calculating urban water use objectives.                                | 2026 | Jan 1 – E<br>warrante            |
|      | Oct 1 – DWR recommends performance measures for CII water use.   |      | Jul 1 – Ur                       |
| 2022 | May 30 – State Water Board identifies long-term standards for efficient use of water and proposed standards' effects.        |      | Nov 1 – l                        |
|      | Jun 30 – State Water Board adopts long-term standards for efficient  | 2027 | Jan 1 – l                        |
|      | use of water and related methodology and guidance.   |      | Jul 1 – D'                       |
|      | Jun 30 – State Water Board adopts performance measures for CII water use.  |      | Nov 1 – l                        |
|      | Jul 1 – DWR submits UWMPs report to Legislature.   |      |                                  |
| 2023 | Jan 1 – DWR may update MWELO or make finding that no update is warranted.  |      | Through                          |

Nov 1 – Urban water suppliers submit annual water use report to DWR on urban water use objective, actual urban water use, implementation of CII water use performance measures, and progress towards urban water use objective.

Nov 1 forward – State Water Board may issue informational order to urban retail water supplier that is not meeting its urban water use objective.

| 2024 | Jan 1 – Urban water suppliers adopt and submit to DWR supplement<br>to adopted 2020 UWMPs on water demand management measures<br>to be implemented by 2027 to achieve urban water use objective. |
|------|--|
|      | Jan 10 – Legislative Analyst reports to Legislature and public on evaluation of implementation of water use efficiency standards and water use reporting.  |
|      | Nov 1 – Urban water suppliers submit annual water use report to DWR.   |
|      | Nov 1 forward State Water Board may issue a written notice<br>(warning) to urban retail water supplier that is not meeting its water<br>use objective.   |
| 2025 | Nov 1 forward – State Water Board may issue conservation order to urban retail water supplier that is not meeting its water use objective.   |
|      | Nov 1 – Urban water suppliers submit annual water use report to DWR.   |
| 2026 | Jan 1 – DWR may update MWELO or make finding that no update is warranted.  |
|      | Jul 1 – Urban water suppliers submit UWMPs to DWR within 30 days of adoption.  |
|      | Nov 1 – Urban water suppliers submit annual water use report to DWR.   |
| 2027 | Jan 1 – Urban water suppliers achieve water use objective.   |
|      | Jul 1 – DWR submits UWMPs report to Legislature.   |
|      | Nov 1 – Urban water suppliers submit annual water use report to DWR.   |

Throughout this document, a milestone schedule for implementation by primary goal required by SB 606 and AB 1668 was compiled for easy reference (shown in **blue**). For completeness, other relevant requirements are also included (shown in **dark grey**). In all milestone schedules, only the lead agency is noted for each item. See **Appendix A** for details on additional coordination and collaboration requirements.

# Eliminate Water Waste

# 03 Eliminate Water Waste

Under the second primary goal in Executive Order B-37-16, Eliminate Water Waste<sup>10</sup>, the 2017 Framework included three recommendations without need for new authorities: (1) the State Water Board to open a rulemaking process to establish permanent prohibitions on wasteful water practices, (2) the State Water Board and DWR to continue implementing CWC §10608.34 (enacted by SB 555 of 2015) to minimize urban retail water loss, and (3) the CEC to evaluate options for certification of innovative water loss and control technologies. SB 606 and AB 1668 require one new study by DWR, in coordination with the State Water Board, for extending water loss reporting requirements to urban wholesale water suppliers. (See **USE WATER MORE WISELY** for application of the water loss standard in the urban water use objective and associated reporting requirements.)

# AFFIRMING EXISTING REQUIREMENTS FOR WATER LOSS STANDARD AND REPORTING

Both SB 606 and AB 1668 affirm the directive for water loss standard adoption and implementation to follow the existing requirements and process set forth in CWC §10608.34 (CWC §10631(d)(3)(A)<sup>SB</sup> and §10609.12<sup>AB</sup>). CWC §10608.34 requires the State Water Board to adopt standards for urban retail water loss no earlier than January 1, 2019, and no later than July 1, 2020. It also contains reporting requirements. Consequently, SB 606 requires each urban retail water supplier, by July 1, 2021, to adopt and submit to DWR its 2020 UWMP with additional information related to compliance with adopted water loss standards (CWC §10631(d)(3)(C)<sup>SB</sup>). The State Water Board will adhere to the procedures and requirements for stakeholder engagement and public participation in the rule making process. The water loss standard adoption by July 1, 2020, will satisfy the AB 1668 schedule for the State Water Board to adopt the long-term urban retail water use efficiency standards for water loss by June 30, 2022 (CWC §10609.2<sup>AB</sup>).

### FEASIBILITY STUDY FOR EXTENDING WATER LOSS REPORTING REQUIREMENTS

SB 606 requires that DWR, in coordination with the State Water Board, investigate the feasibility of extending the water loss reporting requirement to urban wholesale water suppliers. Targeted urban wholesale water suppliers include private and public entities that provide more than 3,000 acre-feet of water annually for potable municipal purposes at a wholesale level. The legislation requires DWR to make a recommendation to the Legislature by January 1, 2020 (CWC §10608.35 IP). In developing its recommendation, DWR will solicit broad public participation from stakeholders and other interested persons.

| Milesto<br>Waste | ne Schedule: Eliminate Water   |
|------------------|--|
| 2020             | Jan 1 – DWR submits to Legislature<br>recommendation on feasibility of<br>developing and enacting water<br>loss reporting requirements for<br>urban wholesale water suppliers. |
|                  | July 1 – State Water Board adopts<br>rules requiring urban retail water<br>suppliers to meet performance<br>standards for the volume of water<br>loss.                         |
| 2021             | Jul 1 – Water Suppliers adopt their<br>2020 UWMPs and show if they<br>have met adopted water loss<br>standard.   |
| 2022             | Jun 30 – Standards for volume of<br>water loss adopted by State Water<br>Board, pursuant to CWC<br>§ 10608.34, are used for calculation<br>of urban water use objective.       |

<sup>&</sup>lt;sup>10</sup> Discussion of water loss in this section follows the categorization of action in Executive Order B-37-16 and the 2017 Framework. The section headings in this document do not in any manner affect the scope, meaning or intent of the actual statutory language discussed herein.



## 04 Strengthen Local Drought Resilience

One of the major lessons learned from the historic 2012 through 2016 drought was that urban water suppliers, small water suppliers, and rural communities must strengthen both local drought resilience and the communication of response actions among various agencies and affected communities. Many urban water suppliers had implemented effective measures to minimize impacts from the drought; however, this outcome was not consistent throughout the state. SB 606 and AB 1668 provide new and expanded authorities and requirements to address these needs, as recommended in the 2017 Framework.

Under the new authorities and requirements, each urban wholesale and retail water supplier must prepare, adopt, and submit a Water Shortage Contingency Plan (WSCP) and conduct a Drought Risk Assessment (DRA) every five years in addition to conducting an annual water supply and demand assessment.<sup>11</sup>

Small water suppliers and rural communities are often more vulnerable during droughts because of their limited institutional and financial capacities to adapt to changed conditions. However, in recognition of potential diversity and jurisdictional complexities associated with drought planning in these areas, the 2017 Framework recommended allowing State agencies to work with local agencies, stakeholders, and communities on the development of more specific, functional recommendations. The new legislation requires DWR, in consultation with the State Water Board and stakeholders, to identify small suppliers and rural communities at risk of drought and water shortage vulnerability, and to develop by January 2020, recommendations to the Governor and Legislature for improving drought planning for those areas.

These new authorities and requirements for urban water suppliers and for small water systems and rural communities are summarized separately below.

### **URBAN WATER SUPPLIERS**

Primarily through amending the Urban Water Management Planning Act (commencing with CWC §10610), SB 606 provides new and expanded authorities and requirements to strengthen local drought resilience for urban water suppliers, including wholesale and retail water suppliers, as well as public and private water suppliers. These are the same urban water suppliers required to submit UWMPs; that is, urban water suppliers providing either more than 3,000 acre-feet of water annually or with more than 3,000 urban connections.

<sup>&</sup>lt;sup>11</sup> The annual water supply and demand assessment is the basis for the urban water supplier's annual water shortage assessment report.

Recognizing the needs for consistent and streamlined reporting requirements, SB 606 and AB 1668 include amendments for establishing consistent reporting requirements. As an example, SB 606 amends an existing UWMP requirement for a water supply reliability description for multiple dry years to be for a period of drought lasting five consecutive years, consistent with the methodology for the DRA (CWC §10631(f) SB and §10635 SB).

To encourage an urban water supplier to remain vigilant as to its drought risks, SB 606 allows an urban water supplier to update its DRA within the 5-year cycle between UWMP updates (CWC §10635(b)<sup>(SB)</sup>).

### **New and Expanded Authorities**

There are two categories of new and expanded authorities: one related to local planning requirements, and another related to coordinated implementation with delineated roles and responsibilities. Specifically, the legislation:

- Requires each urban water supplier to prepare, adopt, and periodically review a WSCP as part of its UWMP to describe the method, procedures, response actions, enforcement, and communications during six levels of water supply shortage conditions (CWC §10620(d)(2) and §10632<sup>(39)</sup>).
- Requires each urban water supplier to conduct a DRA as part of its UWMP to assess water supply reliability (or vulnerability) for a period of drought lasting five consecutive water years starting the year following when the assessment is conducted, and considering both historical drought hydrology and reliability of each source of supply (CWC §10635(b)<sup>SB</sup>).

SB 606 recognizes that a regional approach to urban water management planning reduces costs and maximizes potential contributions to conservation, efficient water use, and improved local drought resilience. However, it emphasizes that each urban water supplier shall develop its own WSCP (CWC §10620(d)<sup>SB</sup>), consistent with the UWMP requirement (CWC §10620(a)<sup>SB</sup>).

### **Reporting Requirements**

SB 606 adds new requirements and amends some existing requirements for urban water suppliers to prepare UWMPs to streamline the process and provide consistency with other provisions in SB 606 and AB 1668, as well as with other recent legislation (e.g., Sustainable Groundwater Management Act (SGMA), commencing with CWC §10720). The legislation:

- Requires each urban water supplier to update and submit its UWMP, by July 1 in years ending in 1 and 6, incorporating updated and new information from the 5 years preceding the plan update (CWC §10621(a)<sup>(SB)</sup>). The Legislature instituted several major changes in UWMP requirements for each supplier to:
  - Include in its UWMP a simple layperson's description of its water supply reliability conditions and its strategy for meeting future water supply reliability needs to provide a general understanding of its plan for overall urban water management (CWC § 10630.5<sup>(SB)</sup>).
  - If groundwater is identified as an existing or planned source of water supply and the underlying groundwater basin is subject to SGMA, include the current version of any groundwater sustainability plan or alternative adopted for SGMA compliance and actions taken by the supplier in coordination with groundwater sustainability agencies or groundwater management agencies to maintain or achieve sustainable groundwater conditions (CWC §10631(b)(4)<sup>(3)</sup>).

- Submit an updated WSCP to DWR within 30 days of its adoption (CWC §10644(b)<sup>(B)</sup>). This requirement is made consistent with that for an adopted UWMP.
- Make the adopted WSCP available for public review within 30 days after submitting a copy to DWR. DWR is subject to the same requirement after receiving the WSCP (CWC §10645(b)<sup>(38)</sup>). This requirement is made consistent with that for an adopted UWMP.
- Requires an urban water supplier, by June 1 of each year, to conduct an annual water supply and demand assessment pursuant to CWC §10632(a), and submit to DWR an annual water shortage assessment report with information on anticipated shortage, triggered shortage response actions, compliance and enforcement actions, and communication actions as described in the WSCP. An urban water supplier that relies on imported water from the State Water Project or U.S. Department of the Interior, Bureau of Reclamation shall submit its annual water supply and demand assessment within 14 days of receiving its final allocation, or by June 1 of each year, whichever is later (CWC §10632.1<sup>SB</sup>).

## **Coordinated Implementation**

SB 606 provides complementary authorities and coordinated roles among different jurisdictions for implementation:

- Urban Water Suppliers:
  - Shall declare a water shortage emergency condition when available water supply is insufficient for human consumption, sanitation, and fire protection within its service area (CWC §350<sup>39</sup>).
  - Shall follow prescribed procedures and implement determined shortage response actions in its adopted WSCP where feasible and appropriate, or take reasonable alternative actions that are not specified in its WSCP, if needed, without amending its UWMP or WSCP, provided they are included in its annual water shortage assessment report (CWC §10632.2<sup>SB</sup>).
- CPUC:
  - Shall request an urban water supplier include its most recent UWMP and WSCP as part of its general rate case filing (CWC §10621(c)<sup>SB</sup>).
- State Water Board:
  - Defer to implementation of locally-adopted WSCPs, to the extent practiceable, during a state of emergency<sup>12</sup> based on drought conditions (CWC §10632.3<sup>(38)</sup>).

SB 606 specifies WSCP content requirements as the following (CWC §10632<sup>(SB)</sup>):

- Analysis of water supply reliability
- Procedures used for conducting an annual water supply and demand assessment
- Six standard water shortage levels or equivalent
- Shortage response actions
- Communication protocols and procedures
- Customer compliance, enforcement, appeal, and exemption procedures
- Legal authority
- Financial consequence
- Monitoring and reporting requirements and procedures
- Reevaluation and improvement procedures

UWMP and WSCP adoption should follow applicable public notice, hearing, and

adoption requirements. SB 606 encourages an urban water supplier to engage diverse social, cultural, and economic elements of the population within the service area when preparing its UWMP and WSCP (CWC §10641 and §10642<sup>(SB)</sup>).

<sup>&</sup>lt;sup>12</sup> Declared under the California Emergency Services Act (commencing with § 8550, Chapter 7 of Division 1 of Title 2 of the Government Code).

DWR will provide recommendations on how countywide drought and water shortage contingency plans can be included in county local hazard mitigation plans or otherwise integrated with complementary existing planning processes. DWR will also provide guidance that outlines goals of the countywide drought plans and WSCPs and recommend components including, but not limited to, all of the following (CWC 10609.42(b) (AB)):

- 1. Assessment of drought vulnerability
- 2. Actions to reduce drought vulnerability
- Response, financing, and local communication and outreach planning efforts that may be implemented in times of drought
- 4. Data needs and reporting
- Roles and responsibilities of interested parties and coordination with other relevant water management planning efforts

- DWR:
  - May adopt regulations deemed necessary or desirable to implement the Urban Water Management Planning Act and its subsequent amendments (CWC §10657<sup>IB</sup>).
  - Shall prepare and submit to the State Water Board, by September 30 of each year, an annual report on implementation summarizing (1) submitted water supply and demand assessment results and reported water shortage conditions, (2) regional and statewide analyses of water supply conditions developed by DWR, and (3) urban water supplierspecific information regarding various shortage response actions implemented as a result of annual water shortage assessments (CWC §10644(c)(1)(B)<sup>(3B)</sup>).

#### Legislative Oversight

SB 606 imposes additional legislative oversight by requesting DWR prepare and submit to the Legislature, by July 1 in years ending in 2 and 7, a report summarizing the adoption status of UWMPs and WSCPs (CWC  $\S10644(c)(1)(A)$ <sup>(SB)</sup>). In addition, upon request by the Legislature, DWR shall prepare additional reports and data to support the Legislature in future hearings to review the effectiveness of UWMPs and WSCPs (CWC  $\S10644(c)(1)(A)$ <sup>(SB)</sup>).

### SMALL WATER SUPPLIERS AND RURAL COMMUNITIES

As demonstrated in the recent drought, small water systems and rural communities often are more vulnerable during droughts or other stressed water supply conditions because of their limited options and financial means. These small water systems and rural communities have vast diversity of geography, resources, and other characteristics. Therefore, to improve their drought resilience, they need to be anchored by and integrated with the capacity, function, and authority of the appropriate local jurisdictions for long-term effectiveness of drought preparedness and response measures.

The Legislature found that counties can have a significant role in improving drought planning for small water suppliers and rural communities. As a result, AB 1668 directs DWR, in consultation with the State Water Board, to develop recommendations and guidance to propose to the Governor and Legislature for addressing drought planning needs of small systems and rural communities throughout the state by January 1, 2020. As part of the recommendations development process, DWR shall use available data, in consultation with the State Water Board and other relevant state and local agencies and stakeholders, to identify water supply risks and vulnerabilities for small water suppliers and rural communities, and notify the public, counties, cities, and groundwater sustainability agencies of its findings (CWC § 10609.42(AB)).





## Milestone Schedule: Strengthen Local Drought Resilience

| 2020 | Jan 1 – DWR identifies small water suppliers and rural communities at risk of drought and water shortage vulnerability, and makes notifications.                       |
|------|--|
|      | Jan 1 – DWR proposes development and implementation of<br>countywide drought and WSCPs for small water suppliers and<br>rural communities to Governor and Legislature. |
| 2021 | Jul 1 – Urban water suppliers submit UWMP update with DRA and WSCP to DWR within 30 days of adoption.  |
| 2022 | Jun 1 <sup>1,2</sup> – Urban water suppliers submit annual water shortage assessment report <sup>3</sup> to DWR.   |
|      | Jul 1 – DWR submits UWMPs/WSCPs status report to Legislature.  |
|      | Sep 30 – DWR submits annual report to State Water Board.   |
| 2023 | Jun 1 <sup>1,2</sup> – Urban water suppliers submit annual water shortage assessment report <sup>3</sup> to DWR.   |
|      | Sep 30 – DWR submits annual report to State Water Board.   |
| 2024 | Jan 1 – Urban water suppliers adopt and submit to DWR supplement to adopted 2020 UWMPs on water demand management measures to be implemented.                          |
|      | Jun 1 <sup>1,2</sup> – Urban water suppliers submit annual water shortage assessment report <sup>3</sup> to DWR.   |
|      | Sep 30 – DWR submits annual report to State Water Board.   |

| 2025 | Jun 1 <sup>1,2</sup> – Urban water suppliers submit annual water shortage assessment report <sup>3</sup> to DWR.     |
|------|--|
|      | Sep 30 – DWR submits annual report to State Water Board.   |
| 2026 | Jun 1 <sup>1,2</sup> – Urban water suppliers submit annual water shortage assessment report <sup>3</sup> to DWR.     |
|      | Jul 1 <sup>1,2</sup> – Urban water suppliers submit UWMP update with DRA and WSCP to DWR within 30 days of adoption. |
|      | Sep 30 – DWR submits annual report to State Water Board.   |
| 2027 | Jun 1 <sup>1,2</sup> – Urban water suppliers submit annual water shortage assessment report <sup>3</sup> to DWR.     |
|      | Jul 1 – DWR submits to Legislature UWMPs/WSCPs status progress report.   |
|      | Sep 30 – DWR submits annual report to State Water Board.   |

#### NOTE:

<sup>1</sup> For urban water suppliers that receive imported water, the due date is June 1 or 14 days after final allocation from State Water Project or U.S. Department of the Interior, Bureau of Reclamation, whichever is later.

 $^2\,{\rm The}$  inclusion of 2022 as the starting year is to match the availability of WSCPs that are to be adopted by urban water suppliers. DWR encourages urban water suppliers to conduct such assessments prior to 2022 and they may submit their information to DWR.

 $^{3}$  The annual water supply and demand assessment is the basis for the urban water supplier's annual water shortage assessment report.

Improve Agricultural Water Use Efficiency and Drought Planning

# 05 Improve Agricultural Water Use Efficiency and Drought Planning

Agricultural communities were severely impacted in the recent drought, resulting in unsustainable groundwater use in some areas. Based on recommendations in the 2017 Framework, AB 1668 provides new authorities to add requirements for improving agricultural water use efficiency and drought planning by requiring a water budgetbased approach to water management that is consistent with SGMA implementation, and by requesting the addition of a drought plan as part of an agricultural water supplier's agricultural water management plan (AWMP).

The schedule for an agricultural water supplier to complete, adopt, and submit its AWMP was changed to April 1 in years ending in 1 and 6. Agricultural water suppliers that are subject to AWMP and other reporting requirements are those providing water to more than 10,000 irrigated acres (excluding acreage irrigated with recycled water). However, as stated in CWC §10853, an agricultural water supplier that provides water to less than 25,000 irrigated acres, excluding recycled water, shall not be subject to the requirements unless sufficient funding has specifically been provided to that water supplier for the purpose of compliance with AWMP requirements. DWR will solicit input and feedback from stakeholders during the development of guidelines for preparation of AWMPs.

## AGRICULTURAL WATER MANAGEMENT PLANS

As part of its AWMP, AB 1668 requires an agricultural water supplier to:

- Develop an **annual water budget** based on the quantification of all inflow and outflow components for the agricultural water supplier's service area. DWR is to provide tools and resources to assist agricultural water suppliers in developing and quantifying the components necessary to develop a water budget (CWC §10826(c).
- Identify water management objectives based on the water budget and develops, prioritizes, and implements actions to meet those objectives and reduce water loss (CWC §10826(f) (AB)).
- Quantify the efficiency of agricultural water use in the service area using one of four methods published in DWR's 2012 report to the Legislature entitled "A Proposed Methodology for Quantifying Efficiency of Agricultural Water Use" (CWC § 10826(h)<sup>AB</sup>).
- Include a drought plan for periods of limited water supply that contains resilience planning and drought response planning components describing actions by the agricultural water supplier for drought preparedness and management of water supplies and allocations during drought conditions (CWC §10826.2 AB).



#### Milestone Schedule: Improve Agricultural Water Use Efficiency and Drought Planning

| 2019 | Apr 1 – Agricultural water suppliers submit<br>annual farm-gate delivery data to DWR.   |
|------|---|
| 2020 | Apr 1 – Agricultural water suppliers submit annual farm-gate delivery data to DWR.  |
| 2021 | Apr 1 – Agricultural water suppliers submit<br>annual farm-gate delivery data to DWR.<br>Apr 1 – Agricultural water suppliers update<br>AWMPs and submit no later than 30 days<br>after adoption.<br>Dec 31 - DWR submits status report on<br>efficient water management practices to<br>Legislature. |
| 2022 | Apr 1 – Agricultural water suppliers submit<br>annual farm-gate delivery data to DWR.<br>Apr 30 – DWR submits status report on<br>AWMPs to Legislature.   |
| 2023 | Apr 1 – Agricultural water suppliers submit annual farm-gate delivery data to DWR.  |
| 2024 | Apr 1 – Agricultural water suppliers submit annual farm-gate delivery data to DWR.  |
| 2025 | Apr 1 – Agricultural water suppliers submit annual farm-gate delivery data to DWR.  |
| 2026 | Apr 1 – Agricultural water suppliers submit<br>annual farm-gate delivery data to DWR.<br>Apr 1 – Agricultural water suppliers update<br>AWMPs and submit no later than 30 days<br>after adoption.<br>Dec 31 – DWR submits status report on<br>efficient water management practices to<br>Legislature. |
| 2027 | Apr 1 – Agricultural water suppliers submit<br>annual farm-gate delivery data to DWR.<br>Apr 30 – DWR submits status report on<br>AWMPs to Legislature.   |

AB 1668 specifies content requirements of an agricultural water supplier's drought plan as the following (CWC § 10826.2(AB)):

- Resilience planning
  - Data, indicators, and information needs
  - Methods and procedures for vulnerability assessment
  - Opportunities and constraints for improving resilience planning
- Drought response planning
  - Policies and a process for water shortage declaration
  - Methods and procedures for enforcement, appeal of, or exemption from triggered shortage response actions
  - Methods and procedures for monitoring and evaluation of plan effectiveness
  - Communication protocols and procedures
  - Revenue stabilization measures

## **REPORTING REQUIREMENTS**

AB 1668 adds additional specifications on the farm-gate delivery reporting for agricultural water suppliers that provide 2,000 acre-feet or more of surface water annually for agricultural purposes or serve 2,000 or more acres of agricultural land, as defined in CWC §531(b). Specifically, AB 1668 requires each agricultural water supplier to:

• Submit to DWR, by April 1 of each year, annual aggregated farm-gate delivery data organized by groundwater basin or sub-basin, if applicable, using electronic standardized formats specified by DWR (CWC §531.10AB).

AB 1668 also amends reporting requirements for agricultural water suppliers that provide water to 10,000 or more irrigated acres, excluding recycled water. The legislation requires each agricultural water supplier to:

- Use a standardized form specified by DWR to report implemented efficient water management practices as requested by existing law (CWC §10608.48(e) (AB)).
- Adopt its AWMP, by April 1 in years ending in 1 and 6, with additional provisions for submission, review, and enforcement as depicted in the flowchart on the following page (CWC §10820(AB)). The next deadline for adoption of an updated AWMP that satisfies the new requirements is April 1, 2021.

To accommodate the AWMP adoption deadline change, AB 1668 modifies DWR's reporting requirement to submit a report summarizing the status of AWMP adoptions by April 30, 2022, and thereafter in the years ending in 2 and 7 (CWC §10845<sup>(AB)</sup>).

## ADOPTION, REVIEW, AND ENFORCEMENT

AB 1668 provides new authorities and requirements for adoption and review of AWMPs, and for enforcement actions against non-compliant agricultural water suppliers. Under AB 1668, an agricultural water supplier shall submit its adopted AWMP to DWR no later than 30 days after adoption. Based on DWR's review, certain enforcement actions may be imposed by compelling data submittal with penalty or by referring to another entity to prepare the AWMP at the water supplier's expense (CWC §10820(AB)). The flowchart on the following page shows the process for AWMP adoption, review, and enforcement.

Requirements for Agricultural Water Management Plan Preparation and Adoption by Agricultural Water Suppliers, and DWR's Review and Potential Enforcement Actions (CWC §10820 (AB))



# Implementation Schedule

# 06 Implementation Schedule

SB 606 and AB 1668 provide new and expanded authorities and requirements for long-term water conservation. A high-level schedule of major milestones established in SB 606 and AB 1668 is presented on the following pages. **Appendix A** includes additional details on the mandated schedule, requirements, milestones, and corresponding roles and responsibilities.

**Appendix B** includes a list of major State agency tasks to meet the new requirements associated with implementing SB 606 and AB 1668. **Appendix C** includes a list of major water supplier tasks to meet the new requirements associated with implementing SB 606 and AB 1668.

DWR and the State Water Board continue to implement existing requirements under SB X7-7 and SB 555. To satisfy SB 606 and AB 1668, DWR, in coordination with the State Water Board, is formulating a work and communication plan for developing datasets, information, guidance, and recommendations that are required by the legislation over the next few years. This work and communication will include (1) broad stakeholder engagement, (2) enhancement of DWR and the State Water Board's organizational capacities to accommodate the expanded scopes and responsibilities related to both technical and as-needed compliance assistance, and (3) collaboration and coordination with other State agencies for implementing the 2018 legislation.

SB 606 and AB 1668 include requirements for public access to data and their use, as well as related studies, reports, and investigations. Both DWR and the State Water Board currently provide public access to data and information and will continue to do so.

#### High-Level Schedule of Major Milestones Established in SB 606 and AB 1668

|              | 2018               | 2019                  | 2020                | 2021  | 2022                                      |   |
|--------------|--------------------|-----------------------|---------------------|---|---|---|
| Legislation  | <b>L</b> SB 606 an | nd AB 1668 Become Law | 7                   |   |   |   |
|              |                    |                       | Recommendation on   | Water Loss Reporting Rec                          | quirements for Urban Wh                   | olesale Water Suppliers                         |
|              |                    |                       | S Adoptio           | n of Water Loss Standard                          | d 🕨                                       |   |
|              |                    |                       |                     | Recommendation on                                 | Indoor Residential Use S                  | itandard  |
|              |                    |                       | C                   | Indoor Residential Use                            | Standard per CWC §100                     | 509.4   |
| Urban        |                    |                       |                     | D Re  | ecommendation on Oth                      | er Standards*                                   |
| Water Use    |                    |                       |                     |   | Adoption of C                             | Other Standards*                                |
|              |                    |                       |                     | Measurements of Resi                              | dential Irrigable Lands                   |   |
|              |                    |                       |                     | Da  | ta to Locals for Calculati                | ng Urban Water Use Objectives                   |
|              |                    |                       |                     |   |   |   |
|              |                    |                       |                     | 🕲 UWMP Upda                                       | te Incorporating Water Lo                 | ss Standard Implementation                      |
|              |                    |                       |                     | UWMP Com  | pliant with WSCP and DF                   | A   |
|              |                    |                       |                     |   | 🕲 Annual Water                            | Shortage Assessment <sup>1,2</sup> • • •        |
| Drought      |                    |                       |                     |   | Annuc                                     | al Report •••                                   |
| Planning     |                    |                       |                     | Report on Small Water S<br>and Water Shortage Vul | uppliers and Rural Commu<br>nerability    | nities at Risk of Drought                       |
|              |                    |                       |                     | Recommendations for Ad                            | dressing Drought Planning N               | eeds of Small Systems                           |
|              |                    |                       |                     | and koral Commonlines                             | UWMP State<br>(Years End)                 | us Report to Legislature<br>ing in 2 and 7) ••• |
| Agricultural |                    | 🕲 Annual Farm-Gat     | e Delivery Data ••• |   | AWMP Status<br>(Years Ending)             | Report to Legislature<br>a in 2 and 7) 	ee      |
| Water Use    |                    |                       |                     | AWMP Complie<br>(Years Ending i                   | ant with New Requireme<br>in 1 and 6) ●●● | nts   |

NOTE:

<sup>1</sup> For urban water suppliers that receive imported water, the due date is June 1 or 14 days after final allocation from State Water Project or U.S. Department of the Interior, Bureau of Reclamation, whichever is later. The inclusion of 2022 as the starting year is to match the availability of WSCPs that are to be adopted by urban water suppliers.

<sup>2</sup> DWR encourages urban water suppliers to conduct such assessments prior to 2022 and submit their information to DWR.

| 2023 | 2024                    | 2025   | 2026   | 2027   |  |
|------|-------------------------|--|--|--|--|
|      |                         |  |  |  |  |
| 🕲 An | • Legislative Analyst's | s Review of Urban Wate<br>Vater Use Objective an | er Use Efficiency Imple<br>Hearing on Urban V<br>Implementation<br>ad Actual Use ••• | mentation<br>Vater Use Efficiency            | LEAD ENTITY LEGEND   Legislature  DWR  S State Water Board  Water Supplier  ACTIVITY LEGEND  Coordination and Engagement (Length not to scale)  Action/Submittal/Product  Continued Implementation   |
|      | UWMP Supplement         | with Demand Manage                               | ement to Meet 2027 Wo  | ater Use Objective                           | • • Repeated Requirements  |
|      |                         |  | UWMP Cor<br>Requireme<br>in 1 and 6)   | npliant with New<br>nts (Years Ending<br>••• | NOTE:<br>* Other standards means:<br>• Outdoor residential use<br>standard<br>• Standard for CII outdoor<br>landscape area with<br>dedicated irrigation meters<br>• Performance measures for<br>CII water use<br>• Appropriate variances<br>• Guidelines and |
|      |                         |  |  |  | methodologies for<br>calculating urban water<br>use objectives   |

# Appendix A: Summary of Actions Mandated by 2018 Legislation

# Appendix A Summary of Actions Mandated by 2018 Legislation

The following table identifies actions and entities with roles that are specified in Senate Bill (SB) 606 (Hertzberg) and Assembly Bill (AB) 1668 (Friedman). The California Department of Water Resources (DWR) and State Water Resources Control Board (State Water Board) recognize that stakeholder engagement, participation, coordination, and collaboration will be needed for development and implementation of mandated actions. The 2018 legislation includes many actions without a specific due date and some are sequentially dependent. The actions in this table are sorted chronologically with sequentially-dependent actions grouped together. The legislation also requires broad stakeholder and public participation during implementation. However, this table only includes "PP" (public participation) where those stakeholder interactions are explicitly called out in the legislation.

- L = Lead agency; Lead agency is responsible for implementing action.
- **CR** = Coordinating agency; Lead agency will coordinate with this particular agency to implement action.
- CS = Consulting agency; Lead agency will consult with this particular agency to implement action.
- **PP** = Public participation; Lead agency will solicit broad public and stakeholder participation throughout implementation.

|             |  |                      |     |                   | Rol                 | e of Ent                       |                                |                         |   |
|-------------|--|----------------------|-----|-------------------|---------------------|--------------------------------|--------------------------------|-------------------------|---|
| Due Date    | Action   | CWC Section          | DWR | State Water Board | Legislative Analyst | Urban Retail Water<br>Supplier | Agricultural Water<br>Supplier | Stakeholders/<br>Public | Related Existing<br>Authorities and<br>Requirements |
| USE WATER   | MORE WISELY  |                      |     |                   |                     |                                |                                |                         |   |
| Jan 1, 2021 | DWR, in coordination with the State Water Board, shall conduct<br>the necessary studies and investigations to develop<br>recommendations to the Legislature on standards for indoor<br>residential use that include benefit and impact assessments for<br>applying such standards. The studies and investigations shall be<br>conducted with input from a broad group of stakeholders. | 10609.4(b)           | L   | CR                |                     |                                |                                | PP                      | None.   |
| Jan 1, 2021 | DWR shall report the results of the studies and investigations on<br>indoor residential water use to each house of the Legislature.<br>DWR and the State Water Board may jointly recommend a<br>new standard for indoor residential water use to the Legislature.  | 10609.4(b)           | L   | L                 | PP                  |                                |                                | PP                      | None.   |
| Jan 1, 2021 | DWR shall provide urban retail water suppliers with data<br>regarding the area of residential irrigable lands with sufficient<br>validation for accuracy for implementation of the residential<br>outdoor standards.   | 10609.6(b); 10609(c) | L   |                   |                     |                                |                                |                         | None.   |

|             |   |                     |     |                   | Role                |                                |                                |                         |   |
|-------------|---|---------------------|-----|-------------------|---------------------|--------------------------------|--------------------------------|-------------------------|---|
| Due Date    | Action  | CWC Section         | DWR | State Water Board | Legislative Analyst | Urban Retail Water<br>Supplier | Agricultural Water<br>Supplier | Stakeholders/<br>Public | Related Existing<br>Authorities and<br>Requirements |
| Oct 1, 2021 | DWR, in coordination with the State Water Board, shall conduct<br>necessary studies and investigations to develop<br>recommendations for standards for outdoor residential water<br>use that incorporate the MWELO. The standards shall apply to<br>residential irrigable lands and include provisions for residential<br>water features.   | 10609.6; 10609.9    | L   | CR                |                     |                                |                                |                         | None.   |
| Oct 1, 2021 | DWR, in coordination with the State Water Board, shall conduct<br>necessary studies and investigations to develop<br>recommendations for standards for outdoor irrigation of<br>landscape areas with dedicated irrigation meters or other<br>means of calculating outdoor irrigation use in connection with<br>Cll water use for adoption by the State Water Board. The<br>standards shall incorporate the MWELO principles and exclude<br>commercial agricultural use.   | 10609.8; 10609.9    | L   | CR                |                     |                                |                                |                         | Section 10608.20(a)(2)(C)                           |
| Oct 1, 2021 | DWR, in coordination with the State Water Board, shall conduct<br>necessary studies and investigations on performance measures<br>for CII water use. DWR, in coordination with the State Water<br>Board, shall conduct broad public participation from<br>stakeholders on the following: CII water use classification<br>system, minimum size thresholds for converting mixed CII meters<br>to dedicated irrigation meters, technologies that can be used<br>in lieu of required dedicated irrigation meters, and CII water<br>use best management practices. | 10609.10(a) and (b) | L   | CR                |                     |                                |                                | PP                      | Section 10608.20(a)(2)(C)                           |
| Oct 1, 2021 | DWR, in coordination with the State Water Board, shall<br>recommend performance measures for CII water use that<br>includes a CII water use classification system for significant<br>water uses, the thresholds for requirement of a dedicated<br>irrigation meter, and best management practices.  | 10609.10(a)         | L   | CR                |                     |                                |                                | PP                      | Section 10608.20(a)(2)(C)                           |

L = Lead agency; Lead agency is responsible for implementing action

**CR** = Coordinating agency; Lead agency will coordinate with this particular agency to implement action

**PP** = Public participation; Lead agency will solicit broad public and stakeholder participation throughout implementation

CS = Consulting agency; Lead agency will consult with this particular agency to implement action

|                                    |  |                |     |                   | Role                | e of Ent                       |                                |                         |   |
|------------------------------------|--|----------------|-----|-------------------|---------------------|--------------------------------|--------------------------------|-------------------------|---|
| Due Date                           | Action   | CWC Section    | DWR | State Water Board | Legislative Analyst | Urban Retail Water<br>Supplier | Agricultural Water<br>Supplier | Stakeholders/<br>Public | Related Existing<br>Authorities and<br>Requirements |
| Jun 30, 2022                       | State Water Board, in coordination with DWR, shall adopt CII water use performance measures.   | 10609.10(d)(1) | CR  | L                 |                     |                                |                                |                         | Section 10608.20(a)(2)(C)                           |
| After<br>Jun 30, 2022 <sup>1</sup> | Urban retail water suppliers shall implement the CII performance measures adopted by the State Water Board.  | 10609.10(d)(2) |     |                   |                     | L                              |                                |                         | Section 10608.20(a)(2)(C)                           |
| Oct 1, 2021                        | DWR, in coordination with the State Water Board, shall develop<br>appropriate variances for unique uses that can have a<br>material effect on an urban retail water supplier's urban water<br>use objective and the corresponding thresholds of significance<br>for each recommended variance. | 10609.14       | L   | CR                |                     |                                |                                |                         | None.   |
| Not Specified                      | State Water Board, in coordination with DWR, shall adopt by regulation variances recommended by DWR.   | 10609.2(e)     | CR  | L                 |                     |                                |                                |                         | None.   |
| Not Specified                      | State Water Board shall post on its website a list of urban retail<br>water suppliers with approved variances, the specific variance<br>or variances approved for each urban retail water supplier,<br>and the data supporting approvals of each variance.                                     | 10609.14(e)    |     | L                 |                     |                                |                                |                         | None.   |
| Not Specified                      | Urban retail water agencies shall request and receive approval<br>by the State Water Board prior to including any specific<br>variances in calculating an urban retail water agency's water<br>use objective.  | 10609.14(d)    |     | L                 |                     | L                              |                                |                         | None.   |

#### NOTE:

<sup>1</sup> Action will be implemented after performance measures for CII water use are adopted by the State Water Board. Pursuant to Section 10609.10(d)(1), the State Water Board shall adopt performance measures for CII water use on or before June 30, 2022.

- L = Lead agency; Lead agency is responsible for implementing action
- **CR** = Coordinating agency; Lead agency will coordinate with this particular agency to implement action

- **PP** = Public participation; Lead agency will solicit broad public and stakeholder participation throughout implementation
- CS = Consulting agency; Lead agency will consult with this particular agency to implement action

|  |   |                          |     |                   | Role                |                                |                                |                         |   |
|--|---|--------------------------|-----|-------------------|---------------------|--------------------------------|--------------------------------|-------------------------|---|
| Due Date                                   | Action  | CWC Section              | DWR | State Water Board | Legislative Analyst | Urban Retail Water<br>Supplier | Agricultural Water<br>Supplier | Stakeholders/<br>Public | Related Existing<br>Authorities and<br>Requirements |
| Not Specified                              | DWR and the State Water Board shall publicly publish the urban<br>water use reporting requirements commonly required by both<br>agencies and implement actions for improved data<br>publication and public accessibility, including the following:<br>how each agency can integrate various datasets in a publicly<br>accessible location, and identify and implement priority<br>actions.  | 10609.15                 | L   | L                 |                     |                                |                                |                         | Section 10608.52(a)                                 |
| Oct 1, 2021                                | DWR, in coordination with the State Water Board, shall develop<br>guidelines and methodologies that identify how an urban retail<br>water supplier calculates its urban water use objective.  | 10609.16                 | L   | CR                |                     |                                |                                |                         | None.   |
| Not Specified                              | DWR shall provide, or otherwise identify, data related to unique<br>local conditions to support the calculation of an urban water<br>use objective.   | 10609(b)(2)(C)           | L   |                   |                     |                                |                                |                         | None.   |
| Not Specified                              | State Water Board, in coordination with DWR, shall adopt by regulation guidelines and methodologies recommended by DWR pertaining to the calculation of an urban retail water supplier's urban water use objective.   | 10609.2(e)               | CR  | L                 |                     |                                |                                |                         | None.   |
| Nov 1, 2023,<br>and annually<br>thereafter | Each urban retail water supplier shall calculate its urban water<br>use objective no later than November 1, 2023 and November 1<br>each year thereafter.  | 10609.20                 |     |                   |                     | L                              |                                |                         | None.   |
| May 30, 2022                               | State Water Board, in coordination with DWR, shall identify the<br>proposed standards for 1) outdoor residential water use, and 2)<br>outdoor irrigation of landscape areas with dedicated irrigation<br>meters in connection with CII water use for public comments.<br>State Water Board, in coordination with DWR, shall consider the<br>proposed standards' potential effects on local wastewater<br>management, developed and natural parklands, and urban<br>tree health. | 10609.2(b)(3) and<br>(c) | CR  | L                 |                     |                                |                                | PP                      | None.   |

L = Lead agency; Lead agency is responsible for implementing action

**CR** = Coordinating agency; Lead agency will coordinate with this particular agency to implement action

**PP** = Public participation; Lead agency will solicit broad public and stakeholder participation throughout implementation

CS = Consulting agency; Lead agency will consult with this particular agency to implement action

|  |   |  |     |                   | Role                | e of Ent                       | tity                           |                         |   |
|--|---|--|-----|-------------------|---------------------|--------------------------------|--------------------------------|-------------------------|---|
| Due Date                                   | Action  | CWC Section  | DWR | State Water Board | Legislative Analyst | Urban Retail Water<br>Supplier | Agricultural Water<br>Supplier | Stakeholders/<br>Public | Related Existing<br>Authorities and<br>Requirements |
| Not Specified                              | State Water Board shall hold at least one public meeting before taking any action on any standard/variance recommended by DWR.  | 10609.18   |     | L                 |                     |                                |                                | PP                      | None.   |
| Jun 30, 2022                               | State Water Board, in coordination with DWR, shall adopt<br>urban water use standards, performance measures (CII only),<br>and related methodology and guidance.  | 10609.2(a) and (b);<br>10609.10(d)(1);<br>10609.16 | CR  | L                 |                     |                                |                                |                         | Section 10608.20(a)(2)(C)                           |
| Not Specified                              | DWR may adopt regulations regarding definitions of water,<br>water use, and reporting periods. DWR shall solicit broad public<br>participation to develop the definitions.  | 10657  | L   |                   |                     |                                |                                | PP                      | None.   |
| Nov 1, 2023,<br>and annually<br>thereafter | Urban water suppliers shall submit annual reports to DWR by<br>November 1, 2023 and by November 1 of each year thereafter<br>on urban water use objectives, actual urban water use,<br>implementation of CII water use performance measures, and<br>progress towards urban water use objective. | 10609.24(a)  |     |                   |                     | L                              |                                |                         | None.   |
| Nov 1, 2023,<br>and annually<br>thereafter | DWR shall post annual urban water use reports and information received from urban retail water suppliers.   | 10609.24(b)  | L   |                   |                     |                                |                                |                         | None.   |
| On or after<br>Nov 1, 2023                 | State Water Board may issue an informational order on water<br>production, water use, and water conservation to urban retail<br>water suppliers not meeting their water use objective in order<br>to identify technical assistance needs.   | 10609.26(a)(1);<br>10609.24(c)                     |     | L                 |                     |                                |                                |                         | None.   |
| Jan 1, 2024                                | Urban water suppliers shall adopt and submit to DWR a<br>supplement to their adopted 2020 UWMPs on implementation<br>of demand management measures to achieve their urban<br>water use objective.   | 10621(f)(2);<br>10631(e)(1)(B)                     |     |                   |                     | L                              |                                |                         | None.   |

- L = Lead agency; Lead agency is responsible for implementing action
- **CR** = Coordinating agency; Lead agency will coordinate with this particular agency to implement action

- **PP** = Public participation; Lead agency will solicit broad public and stakeholder participation throughout implementation
- **CS** = Consulting agency; Lead agency will consult with this particular agency to implement action

|                              |   |                |     |                   | Role                | e of Ent                       | ity                            |                         |   |
|------------------------------|---|----------------|-----|-------------------|---------------------|--------------------------------|--------------------------------|-------------------------|---|
| Due Date                     | Action  | CWC Section    | DWR | State Water Board | Legislative Analyst | Urban Retail Water<br>Supplier | Agricultural Water<br>Supplier | Stakeholders/<br>Public | Related Existing<br>Authorities and<br>Requirements |
| On or after<br>Nov 1, 2024   | State Water Board may issue a written warning notice to urban retail water suppliers not meeting their water use objective.   | 10609.26(b)    |     | L                 |                     |                                |                                |                         | None.   |
| On or after<br>Nov 1, 2025   | State Water Board may issue a conservation order to urban<br>retail water suppliers not meeting their water use objective. The<br>order may consist of referral to DWR for technical assistance,<br>requirements for education and outreach, requirements for<br>local enforcement, and other efforts to assist urban retail water<br>suppliers in meeting their water use objective. | 10609.26(c)    |     | L                 |                     |                                |                                |                         | None.   |
| On or around<br>Jan 10, 2024 | Legislative Analyst shall provide a report to both houses of the<br>Legislature and the public a report evaluating the<br>implementation of the water use efficiency standards and<br>water use reporting. DWR and the State Water Board shall<br>provide the necessary data to the Legislative Analyst for the<br>report.  | 10609.30       | CR  | CR                | L                   |                                |                                |                         | None.   |
| Jan 1, 2026                  | DWR Director and State Water Board Chairperson shall appear<br>before the appropriate policy committees of both houses of<br>the Legislature and report on implementation of the urban<br>water use standards and water use reporting requirements.   | 10609.32       | L   | L                 |                     |                                |                                |                         | None.   |
| Jan 1, 2027                  | Urban retail water suppliers shall achieve urban water use objectives by Jan 1, 2027.   | 10631(e)(1)(B) |     |                   |                     | L                              |                                |                         | None.   |

- L = Lead agency; Lead agency is responsible for implementing action
- **CR** = Coordinating agency; Lead agency will coordinate with this particular agency to implement action

- **PP** = Public participation; Lead agency will solicit broad public and stakeholder participation throughout implementation
- CS = Consulting agency; Lead agency will consult with this particular agency to implement action

|  |  |  |     |                   | Role                | e of Ent                       | ity                            |                         |   |
|--|--|--|-----|-------------------|---------------------|--------------------------------|--------------------------------|-------------------------|---|
| Due Date   | Action   | CWC Section                            | DWR | State Water Board | Legislative Analyst | Urban Retail Water<br>Supplier | Agricultural Water<br>Supplier | Stakeholders/<br>Public | Related Existing<br>Authorities and<br>Requirements |
| ELIMINATE  | WATER WASTE  |  |     |                   |                     |                                |                                |                         |   |
| Jan 1, 2020  | DWR, in coordination with the State Water Board, shall conduct<br>studies and investigations and make recommendation to<br>Legislature on the feasibility of developing and enacting water<br>loss reporting requirements for urban wholesale water suppliers.<br>DWR, in coordination with the State Water Board, shall solicit<br>broad stakeholder participation. | 10608.35                               | L   | CR                |                     |                                |                                | PP                      | Section 10608.34                                    |
| Jun 30, 2022   | Standards for volume of water loss adopted by State Water<br>Board, in coordination with DWR, pursuant to CWC §10608.34,<br>are used for calculation of urban water use objective.   | 10609.2(a)                             | CR  | L                 |                     |                                |                                |                         | Section 10608.34                                    |
| Jul 1, 2021,<br>and each<br>update<br>thereafter       | Urban retail water suppliers shall include in their UWMPs information on whether the supplier met its distribution loss standards.   | 10631(d)(3)(C)                         |     |                   |                     | L                              |                                |                         | Section 10631                                       |
| STRENGTHE  | N LOCAL DROUGHT RESILIENCE   |  |     |                   |                     |                                |                                |                         | ·   |
| July 1, 2021,<br>and every<br>five years<br>thereafter | Urban water suppliers shall update, adopt, and submit to DWR<br>UWMPs by July 1 in years ending in six and one. If regulated by<br>the California Public Utilities Commission, most recent plan and<br>WSCP to be included in supplier's general rate case filings.<br>UWMPs must include a drought risk assessment for water<br>service area.                       | 10621(a); 10621(c);<br>10635(b); 10642 |     |                   |                     | L                              |                                | PP                      | Section 106.21(a);<br>Section 10631                 |
| Jan 1, 2024  | Urban water suppliers shall adopt and submit to DWR a supplement to the adopted 2020 UWMPs on water demand management measures to be implemented and compliance.   | 10621(f)(2)                            |     |                   |                     | L                              |                                |                         | None  |

- L = Lead agency; Lead agency is responsible for implementing action
- **CR** = Coordinating agency; Lead agency will coordinate with this particular agency to implement action

- **PP** = Public participation; Lead agency will solicit broad public and stakeholder participation throughout implementation
- CS = Consulting agency; Lead agency will consult with this particular agency to implement action

|  |  |                          |     |                   | Role                | e of Ent                       | ity                            |                         |   |
|--|--|--------------------------|-----|-------------------|---------------------|--------------------------------|--------------------------------|-------------------------|---|
| Due Date   | Action   | CWC Section              | DWR | State Water Board | Legislative Analyst | Urban Retail Water<br>Supplier | Agricultural Water<br>Supplier | Stakeholders/<br>Public | Related Existing<br>Authorities and<br>Requirements |
| Jun 1, 2022 <sup>2</sup> ,<br>and annually<br>thereafter | Urban water suppliers shall conduct annual water supply and<br>demand assessment by June 1 of each year and submit<br>annual water shortage assessment report to DWR. If receiving<br>water from the State Water Project or the Bureau of<br>Reclamation, urban water suppliers shall submit annual water<br>supply and demand assessment within 14 days of receiving its<br>final allocations, or by June 1 of each year, whichever is later. | 10632.1                  |     |                   |                     | L                              |                                |                         | None.   |
| Jan 1, 2020  | DWR, in consultation with the State Water Board, shall identify<br>small water suppliers and rural communities that may be at risk<br>of drought and water shortage vulnerability. DWR, in<br>consultation with the State Water Board, shall notify counties/<br>groundwater sustainability agencies and make information<br>available to the public on its website.   | 10609.42(a)              | L   | CS                |                     |                                |                                | CS                      | None.   |
| Not Specified  | Urban water suppliers shall include WSCP in UWMPs. Urban<br>water suppliers may work with others participating in area-<br>wide, regional, watershed, or basin-wide UWMP, AWMP, or<br>groundwater sustainability plan development.   | 10620(d)(2);<br>10632(a) |     |                   |                     | L                              |                                |                         | Section 10632                                       |

#### NOTE:

<sup>2</sup> The inclusion of 2022 as the starting year is to match the availability of WSCPs that are to be adopted by urban water suppliers. DWR encourages urban water suppliers to conduct such assessments prior to 2022 and submit their information to DWR.

- L = Lead agency; Lead agency is responsible for implementing action
- **CR** = Coordinating agency; Lead agency will coordinate with this particular agency to implement action

- **PP** = Public participation; Lead agency will solicit broad public and stakeholder participation throughout implementation
- **CS** = Consulting agency; Lead agency will consult with this particular agency to implement action

|   |   |                |     |                   | Role                | e of Ent                       | ity                            |                         |   |
|---|---|----------------|-----|-------------------|---------------------|--------------------------------|--------------------------------|-------------------------|---|
| Due Date  | Action  | CWC Section    | DWR | State Water Board | Legislative Analyst | Urban Retail Water<br>Supplier | Agricultural Water<br>Supplier | Stakeholders/<br>Public | Related Existing<br>Authorities and<br>Requirements |
| Jan 1, 2020   | DWR, in consultation with the State Water Board, shall propose<br>to the Governor and Legislature development and<br>implementation of countywide drought and WSCPs for small<br>water suppliers and rural communities. DWR, in consultation<br>with the State Water Board, shall recommend how to include<br>countywide drought and WSCPs in county local hazard<br>mitigation plans or other processes. DWR's guidelines,<br>developed in consultation with the State Water Board, shall<br>outline goals of countywide drought and WSCPs and<br>recommend components for the plan. | 10609.42 (b)   | L   | CS                |                     |                                |                                | PP                      | None.   |
| Jul 1, 2022,<br>and every<br>five years<br>thereafter | DWR must include WSCPs in a report on status of UWMP<br>adoption to the Legislature, and submit the report on or before<br>July 1 in years ending in seven and two. DWR, in coordination<br>with the State Water Board, shall provide a copy of the report<br>to each urban retail water supplier concerned. DWR shall also<br>prepare a report and provide data for any Legislative hearings,<br>on request.   | 10644(c)(1)(a) | L   |                   |                     |                                |                                |                         | Section 10231.5                                     |
| Sept 30,<br>2022, and<br>annually<br>thereafter       | DWR must prepare and submit an annual report to the State<br>Water Board summarizing water supply and demand<br>assessment results, reported water shortage conditions, and<br>regional and statewide analysis of water supply conditions by<br>September 30 of every year.   | 10644(c)(1)(b) | L   |                   |                     |                                |                                |                         | None.   |

- L = Lead agency; Lead agency is responsible for implementing action
- **CR** = Coordinating agency; Lead agency will coordinate with this particular agency to implement action

- **PP** = Public participation; Lead agency will solicit broad public and stakeholder participation throughout implementation
- **CS** = Consulting agency; Lead agency will consult with this particular agency to implement action

|   |   |   |     |                   | Role                | e of Ent                       | ity                            |                         |   |
|---|---|---|-----|-------------------|---------------------|--------------------------------|--------------------------------|-------------------------|---|
| Due Date  | Action  | CWC Section                               | DWR | State Water Board | Legislative Analyst | Urban Retail Water<br>Supplier | Agricultural Water<br>Supplier | Stakeholders/<br>Public | Related Existing<br>Authorities and<br>Requirements |
| IMPROVE A   | AGRICULTURAL WATER USE EFFICIENCY AND DROU  | JGHT PLANNING                             |     |                   |                     |                                |                                |                         |   |
| Apr 1, 2019,<br>annually<br>thereafter                | Agricultural water suppliers shall submit an annual report to<br>DWR summarizing aggregated farm-gate delivery data on a<br>monthly or bimonthly basis organized by basin by April 1 of<br>each year.   | 531.10(a)(1)                              |     |                   |                     |                                | L                              |                         | Section 531.10.(a)                                  |
| Annually  | DWR shall post all aggregated farm-gate delivery reports on its website in a timely manner.   | 531.10(a)(3)                              | L   |                   |                     |                                |                                |                         | Section 531.10.(a)                                  |
| Apr 1, 2021,<br>and every<br>five years<br>thereafter | Agricultural water suppliers shall update AWMPs with newly<br>required content and submit AWMPs to DWR by April 1, 2021.<br>AWMPs shall be updated thereafter in years ending in six and<br>one. Prior to adopting AWMPs, the agricultural water supplier<br>shall make the proposed plan available for public inspection,<br>and shall hold a public hearing on the plan.  | 10820(a)(2)(A) and<br>(B); 10826.2; 10841 |     |                   |                     |                                | L                              |                         | Section 18020;<br>Section 10826                     |
| Every five<br>years                                   | DWR shall review submitted AWMPs, in coordination with the<br>California Department of Food and Agriculture and the State<br>Water Board, and notify non-compliant suppliers and identify<br>specific deficiencies. The supplier shall have 120 days to<br>remedy an identified deficiency. DWR, in coordination with the<br>State Water Board, shall take action against and penalize<br>suppliers either not submitting a plan or submitting a non-<br>compliant plan and failing in revisiting it. | 10820(b)                                  | L   | CR                |                     |                                |                                |                         | None.   |

- L = Lead agency; Lead agency is responsible for implementing action
- **CR** = Coordinating agency; Lead agency will coordinate with this particular agency to implement action

- **PP** = Public participation; Lead agency will solicit broad public and stakeholder participation throughout implementation
- **CS** = Consulting agency; Lead agency will consult with this particular agency to implement action

|  |  |             | Role of Entity |                   |                     |                                |                                |                         |   |
|--|--|-------------|----------------|-------------------|---------------------|--------------------------------|--------------------------------|-------------------------|---|
| Due Date   | Action   | CWC Section | DWR            | State Water Board | Legislative Analyst | Urban Retail Water<br>Supplier | Agricultural Water<br>Supplier | Stakeholders/<br>Public | Related Existing<br>Authorities and<br>Requirements |
| Apr 30, 2022,<br>and every<br>five years<br>thereafter | DWR shall submit a report on the status of AWMP adoption to<br>the Legislature due April 30, 2022 and thereafter in the years<br>ended in seven and two. DWR shall provide a copy of the<br>report to each agricultural water supplier concerned, and shall<br>also prepare reports and provide data for legislative hearings<br>on request. | 10845(a)    | L              |                   |                     |                                |                                |                         | Section 10845(a)                                    |

| AWMP =                  | Agricultural Water Management Plan  | L =                                 | Lead agency; Lead agency is responsible for implementing action  |
|-------------------------|---|-------------------------------------|--|
| Bureau of Reclamation = | U.S. Department of the Interior, Bureau of Reclamation  | Legislature =                       | California State Legislature   |
| CII =                   | commercial, industrial, and institutional   | MWELO =                             | Model Water Efficient Landscape Ordinanc   |
| CR =                    | Coordinating agency; Lead agency will coordinate with this particular<br>agency to implement action | PP =                                | Public participation; Lead agency will solicit broad public and<br>stakeholder participation throughout implementation |
| <b>CS</b> =             | Consulting agency; Lead agency will consult with this particular agency State Water Board = St      | State Water Resources Control Board |  |
| 0110                    |   | UWMP =                              | Urban Water Management Plan  |
| CWC =                   | C = California water Code WSCP :  |                                     | Water Shortage Contingency Plan  |
| DWR =                   | California Department of Water Resources  |                                     |  |

# **Appendix B: Major** State Agency Tasks for Implementing 2018 Senate Bill 606 and Assembly Bill 1668 for Water Conservation and Drought Planning

## Appendix B Major State Agency Tasks for Implementing 2018 Senate Bill 606 and Assembly Bill 1668 for Water Conservation and Drought Planning

The California Department of Water Resources (DWR) and State Water Resources Control Board (State Water Board) have compiled a list of major tasks with deliverables and products to meet the new requirements associated with implementing Senate Bill (SB) 606 (Hertzberg) and Assembly Bill (AB) 1668 (Friedman) (see Table B-1). Table B-1 only includes deadlines that are specified in the legislation. In other instances, "TBD" is listed. Table B-2 presents the State Water Board's actions related to compliance and enforcement and drought planning.

DWR and the State Water Board will solicit input and feedback from stakeholders during task execution through the formation and conduct of advisory groups as well as other public venues. More information on these groups and venues will be available during implementation.

|      | Table B-1. SB 606 and AB 1668  |  |   |   |  |  |  |  |  |  |
|------|--|--|---|---|--|--|--|--|--|--|
|      | Major Tasks <sup>1</sup> for DWR and State Water Board   |  |   |   |  |  |  |  |  |  |
| Task | Description  | Doadlino   | Agonovlios                                    | CWC   |  |  |  |  |  |  |
| #    | Description  | Deddinie   | Agency(les)                                   | Section   |  |  |  |  |  |  |
| Ur   | oan Water Use and Drought Planning   |  |   |   |  |  |  |  |  |  |
| 1    | May adopt regulation on monthly report relating to water production, water use or water conservation.  | No date specified; After<br>Jan 1, 2019                          | State Water Board                             | 10609.28 SB   |  |  |  |  |  |  |
| 2    | Streamline water suppliers' data reporting and make submitted data publicly available and accessible.  | No date specified; begin<br>data review and analysis<br>Jul 2019 | State Water Board and<br>DWR                  | 10609.15 <sup>AB</sup>                                  |  |  |  |  |  |  |
| 3    | Recommend to Legislature feasibility of extending water loss reporting requirements to urban wholesale water suppliers.  | Jan 1, 2020  | DWR in coordination with<br>State Water Board | 10608.35(a)   |  |  |  |  |  |  |
| 4    | Adopt water loss standard for urban retail water suppliers.  | Jul 1, 2020  | State Water Board                             | 10631(d)(3)(C) <sup>SB</sup> ;<br>10609.2 <sup>AB</sup> |  |  |  |  |  |  |
| 5    | Update UWMP Guidebook and Templates for new water shortage contingency planning, drought risk assessment, and other requirements (e.g., water loss standard implementation if not updated previously). | No date specified;<br>TBD, prior to Jul 2021                     | DWR   | 10632 <sup>(SB)</sup> ;<br>10631(d)(3) <sup>(SB)</sup>  |  |  |  |  |  |  |

In chronological order by topic, the major tasks for DWR and the State Water Board, include:

#### NOTES:

<sup>1</sup> The list of major tasks includes tasks with major deliverables and products required by the new legislation, and other tasks deemed by DWR and the State Water Board necessary to implement the legislation. The detailed requirements on coordination with other state and local government agencies and stakeholders are not elaborated in the list but will be incorporated in task execution.

|           | Table B-1. SB 606 and AB 1668         Major Tasks <sup>1</sup> for DWR and State Water Board  |  |   |                                  |  |  |  |  |  |  |
|-----------|---|--|---|----------------------------------|--|--|--|--|--|--|
| Task<br># | Description   | Deadline   | Agency(ies)                                   | CWC<br>Section                   |  |  |  |  |  |  |
| Url       | oan Water Use and Drought Planning (Continued)  |  |   |                                  |  |  |  |  |  |  |
| 6         | Recommend to Legislature indoor residential water use efficiency standards based on indoor residential water use study.   | Jan 1, 2021  | DWR in coordination with<br>State Water Board | 10609.4(b)(1)AB                  |  |  |  |  |  |  |
| 7         | Provide residential irrigable landscape area measurement to urban retail water suppliers.   | Jan 1, 2021  | DWR   | 10609.6(b)                       |  |  |  |  |  |  |
| 8         | Provide data regarding unique local conditions to support calculation of urban water<br>use objective, including CIMIS dataset improvement and population data.   | No date specified; TBD,<br>prior to Oct 1, 2021, to<br>match date for<br>recommending<br>standards | DWR   | 10609(b)(2)(c)                   |  |  |  |  |  |  |
| 9         | Develop and recommend to State Water Board outdoor residential water use efficiency standards.  | Oct 1, 2021  | DWR in coordination with<br>State Water Board | 10609.6(a)(1)                    |  |  |  |  |  |  |
| 10        | Develop and recommend to State Water Board CII water use standard for outdoor irrigation of landscapes with dedicated meters.   | Oct 1, 2021  | DWR in coordination with<br>State Water Board | 10609.8(a)                       |  |  |  |  |  |  |
| 11        | Develop and recommend to State Water Board on CII performance measures.   | Oct 1, 2021  | DWR in coordination with<br>State Water Board | 10609.10(a)                      |  |  |  |  |  |  |
| 12        | Develop and recommend to State Water Board on variances.  | Oct 1, 2021  | DWR in coordination with<br>State Water Board | 10609.14(a)                      |  |  |  |  |  |  |
| 13        | Develop and recommend to State Water Board guidelines and methodologies for water use objective calculation.  | Oct 1, 2021  | DWR in coordination with<br>State Water Board | 10609.16 AB                      |  |  |  |  |  |  |
| 14        | Identify potential effects of standards on wastewater management, parklands, and urban tree health.   | May 30, 2022   | State Water Board                             | 10609.2(c)                       |  |  |  |  |  |  |
| 15        | Develop guidelines, forms, and web portal for annual water supply and demand assessment report.   | No date specified; TBD, prior to Jun 1, 2022   | DWR   | 10632.1 SB                       |  |  |  |  |  |  |
| 16        | Adopt water use efficiency standards for outdoor residential water use and outdoor irrigation of landscape areas with dedicated irrigation meters in connection with Cll water use and Cll water use performance measures <sup>2.</sup> | Jun 30, 2022   | State Water Board in coordination with DWR    | 10609.2 (AB);<br>10609.10(d)(AB) |  |  |  |  |  |  |

#### NOTES:

<sup>1</sup> The list of major tasks includes tasks with major deliverables and products required by the new legislation, and other tasks deemed by DWR and the State Water Board necessary to implement the legislation. The detailed requirements on coordination with other state and local government agencies and stakeholders are not elaborated in the list but will be incorporated in task execution.

 $^2$  The standard for a water loss volume will be adopted in 2020 (see task #4).

|           | Table B-1. SB 606 and<br>Major Tasks <sup>1</sup> for DWR and St   | I AB 1668<br>ate Water Board   |   |                  |
|-----------|--|--|---|------------------|
| Task<br># | Description  | Deadline   | Agency(ies)   | CWC<br>Section   |
| Url       | ban Water Use and Drought Planning (Continued)   |  |   |                  |
| 17        | Adopt guidelines and methodologies for water use objective calculation, and variances <sup>3.</sup>  | No date specified; TBD,<br>prior to Jun 30, 2022, to<br>match standard<br>adoption and allow<br>sufficient time for water<br>suppliers to prepare their<br>annual report by<br>Nov 1, 2023 | State Water Board   | 10609.2 (AB)     |
| 18        | Prepare and submit to Legislature a report summarizing status of UWMP adoption.  | Jul 1, 2022  | DWR   | 10644(c)(1)(C)SB |
| 19        | Submit report to State Water Board on results of urban annual water supply and demand assessments and DWR analysis of regional and statewide water supply conditions.  | Annually on Sep 30;<br>starting 2022   | DWR   | 10644(c)(1)(B)SB |
| 20        | Provide data to the Legislative Analyst Office for developing the review on implementation of urban water use efficiency standards for submitting to the Legislature .   | No date specified; TBD,<br>prior to Jan 10, 2024, in<br>advance of Legislative<br>Analyst report to<br>Legislature   | State Water Board and<br>DWR  | 10609.30 SB      |
| 21        | Chairperson of the State Water Board and Director of DWR Report on the implementation of the water use efficiency standards and water use reporting to the Legislature in the hearing before the appropriate policy committees of both houses. | On or around<br>Jan 1, 2026  | State Water Board and<br>DWR  | 10609.32 SB      |
| Sm        | nall Water Systems and Rural Communities   |  |   |                  |
| 22        | Develop report on small water suppliers and rural communities at risk of drought and<br>water shortage vulnerability with website publication and notification to<br>corresponding counties and groundwater sustainability agencies.           | Jan 1, 2020  | DWR in consultation with<br>State Water Board and<br>other relevant state<br>agencies and local<br>government and<br>stakeholders | 10609.42(a)(AB)  |
| 23        | Recommend to Governor and Legislature for addressing drought planning needs of small water systems and rural communities.  | Jan 1, 2020  | DWR in consultation with<br>State Water Board   | 10609.42(b)AB    |

NOTES:

<sup>1</sup> The list of major tasks includes tasks with major deliverables and products required by the new legislation, and other tasks deemed by DWR and the State Water Board necessary to implement the legislation. The detailed requirements on coordination with other state and local government agencies and stakeholders are not elaborated in the list but will be incorporated in task execution.

 $^{3}\,\mbox{State}$  Water Board may continue to adopt additional acceptable variances afterward, if warranted.

|           | Table B-1. SB 606 and AB 1668         Major Tasks <sup>1</sup> for DWR and State Water Board  |  |   |                 |  |  |  |  |  |  |
|-----------|---|--|---|-----------------|--|--|--|--|--|--|
| Task<br># | Description   | Deadline   | Agency(ies)                                   | CWC<br>Section  |  |  |  |  |  |  |
| Ac        | gricultural Water Use   |  |   |                 |  |  |  |  |  |  |
| 24        | Develop agricultural farm-gate delivery data submittal guidelines for annual report.  | No date specified; TBD,<br>prior to Apr 1, 2019,<br>reporting deadline | DWR   | 531.10(a)(1)AB  |  |  |  |  |  |  |
| 25        | Develop tools and resources to assist agricultural water suppliers in developing and quantifying components necessary to develop water budgets. | No date specified; TBD,<br>prior to Apr 2021<br>reporting deadline     | DWR   | 10826(c)        |  |  |  |  |  |  |
| 26        | Develop tools to help agricultural water suppliers quantify efficiency of agricultural water use within their service areas.                    | No date specified; TBD,<br>prior to Apr 2021<br>reporting deadline     | DWR   | 10826(h) 🕾      |  |  |  |  |  |  |
| 27        | Develop standardized reporting form for implementation of efficient water<br>management practices and online submittal tool.                    | No date specified; TBD,<br>prior to Apr 2021<br>reporting deadline     | DWR   | 10608.48(e)     |  |  |  |  |  |  |
| 28        | Update AWMP Guidebook.  | No date specified; TBD,<br>prior to Apr 2021<br>reporting deadline     | DWR   | 10820(a)(2)(AB) |  |  |  |  |  |  |
| 29        | Prepare and submit to the Legislature a report on implementation of agricultural efficient water management practices.                          | Dec 31, 2021   | DWR in consultation with<br>State Water Board | 10608.48(g)     |  |  |  |  |  |  |
| 30        | Prepare and submit to Legislature a report summarizing status of AWMPs adopted.   | Apr 30, 2022   | DWR   | 10845(a)        |  |  |  |  |  |  |

#### NOTES:

<sup>1</sup> The list of major tasks includes tasks with major deliverables and products required by the new legislation, and other tasks deemed by DWR and the State Water Board necessary to implement the legislation. The detailed requirements on coordination with other state and local government agencies and stakeholders are not elaborated in the list but will be incorporated in task execution.

| AB =          | Assembly Bill                                       | SB =                | Senate Bill                         |
|---------------|---|---------------------|-------------------------------------|
| AWMP =        | Agricultural Water Management Plan                  | State Water Board = | State Water Resources Control Board |
| CII =         | commercial, industrial, and institutional           | TBD=                | To Be Determined                    |
| CIMIS =       | California Irrigation Management Information System | UWMP =              | Urban Water Management Plan         |
| CWC =         | California Water Code                               | AB                  | AB 1668                             |
| DWR =         | California Department of Water Resources            | (92)                | SB 606                              |
| Legislature = | California State Legislature                        | 30                  |                                     |

| Table B-2. Compliance and Enforcement Actions for State Water Board to Implement |   |                         |                  |  |  |  |
|--|---|-------------------------|------------------|--|--|--|
| Water Conservation Provisions in SB 606 and AB 1668                              |   |                         |                  |  |  |  |
| Item<br>#  | Description   | Deadline                | CWC Section      |  |  |  |
| 1  | Provide progressive enforcement: May issue informational orders.                                  | On or after Nov 1, 2023 | 10609.26(a)(1)SB |  |  |  |
| 2  | Provide progressive enforcement: May issue written notices.                                       | On or after Nov 1, 2024 | 10609.26(b)SB    |  |  |  |
| 3  | Provide progressive enforcement: May issue conservation orders.                                   | On or after Nov 1, 2025 | 10609.26(c)(1)SB |  |  |  |
| 4  | Provide progressive enforcement: May impose civil liability (fine) for a violation of regulation. | After Nov 1, 2027       | 1846.5(b)(2)     |  |  |  |

| V | EV | • |
|---|----|---|
|   |    | • |

| AB =  | Assembly Bill                            | State Water Board = | State Water Resources Control Board |
|-------|--|---------------------|-------------------------------------|
| CWC = | California Water Code                    | AB                  | AB 1668                             |
| DWR = | California Department of Water Resources | SB                  | SB 606                              |
| SB =  | Senate Bill                              | 30                  |                                     |

# Appendix C: Major Water Supplier Tasks for Implementing 2018 Senate Bill 606 and Assembly Bill 1668 for Water Conservation and Drought Planning
# Appendix C Major Water Supplier Tasks for Implementing 2018 Senate Bill 606 and Assembly Bill 1668 for Water Conservation and Drought Planning

The California Department of Water Resources (DWR) and State Water Resources Control Board (State Water Board) have compiled a list of major tasks for urban and agricultural water suppliers to meet new requirements associated with implementing Senate Bill (SB) 606 (Hertzberg) and Assembly Bill (AB) 1668 (Friedman). These major tasks are as mandated in the 2018 legislation. Table C-1 presents the major tasks for urban retail water suppliers. Table C-2 presents the major tasks for urban wholesale water suppliers. Table C-3 presents the tasks for agricultural water suppliers. All tasks are presented in chronological order.

| Table C-1. SB 606 and AB 1668                |  |   |   |  |  |
|--|--|---|---|--|--|
| Major Tasks for Urban Retail Water Suppliers |  |   |   |  |  |
| Task   | Description  | Deadline  | CWC   |  |  |
| #  |  |   | Section                                     |  |  |
| 1  | Update and adopt UWMP and submit to DWR. If regulated by CPUC, include most recent plan in general rate case filings.  | Jul 1, 2021, and every five years thereafter      | 10621(a)<br>10621(c)<br>B                   |  |  |
| 2  | Prepare and adopt WSCP and DRA as part of UWMP <sup>1</sup> . If regulated by CPUC, include WSCP in general rate case filings.   | Jul 1, 2021, and every five years thereafter      | 10621(c)\$B;<br>10632(a)\$B;<br>10635(b)\$B |  |  |
| 3  | Prepare and submit to DWR annual water shortage assessment report <sup>2</sup> .   | Jun 1, 2022, and annually thereafter <sup>3</sup> | 10632.1 SB                                  |  |  |
| 4  | Submit annual report to DWR on urban water use objectives, actual urban water use, implementation of CII water use performance measures, and progress towards urban water use objective. | Nov 1, 2023, and annually thereafter              | 10609.24(a)                                 |  |  |
| 5  | Adopt and submit to DWR supplement to adopted 2020 UWMP on implementation of demand management measures to achieve their urban water use objective.                                      | Jan 1, 2024                                       | 10621(f)(2)SB                               |  |  |

NOTES:

<sup>1</sup> If an urban water supplier revises its WSCP, the supplier must submit a copy of the revised WSCP to DWR not later than 30 days after adoption (CWC § 10644(b)).

<sup>2</sup> For urban water suppliers that receive imported water, the due date is June 1 or 14 days after final allocation from State Water Project or Bureau of Reclamation, whichever is later. The inclusion of 2022 as the starting year is to match the availability of WSCPs that are to be adopted by urban water suppliers. DWR encourages urban water suppliers to conduct such assessments prior to 2022 and submit their information to DWR.

<sup>3</sup> The annual water supply and demand assessment is the basis for the urban water supplier's annual water shortage assessment report.

| CII =  | Commercial, industrial, and institutional | DWR =  | California Department of Water Resources |
|--------|---|--------|--|
| CPUC = | California Public Utilities Commission    | UWMP = | Urban Water Management Plan              |
| DRA =  | Drought Risk Assessment                   | WSCP = | Water Shortage Contingency Plan          |

KEY:

|           | Table C-2. SB 606 and AB 1668<br>Major Tasks for Urban Wholesale Water Suppliers   |  |  |  |  |
|-----------|--|--|--|--|--|
| Task<br># | Description  | Deadline   | CWC<br>Section   |  |  |
| 1         | Update and adopt UWMP, and submit to DWR. If regulated by CPUC, include most recent plan in general rate case filings.         | Jul 1, 2021, and every five years thereafter     | 10621(a)\$B;<br>10621(c)\$B  |  |  |
| 2         | Prepare and adopt WSCP and DRA as part of UWMP <sup>1</sup> . If regulated by CPUC, include WSCP in general rate case filings. | Jul 1, 2021, and every five years thereafter     | 10621(c) <sup>SB</sup> ;<br>10632(a) <sup>SB</sup> ;<br>10635(b) <sup>SB</sup> ;<br>10640(a) <sup>SB</sup> |  |  |
| 3         | Prepare and submit to DWR annual water shortage assessment report <sup>2</sup> .   | Annually on Jun 1;<br>starting 2022 <sup>3</sup> | 10632.1SB  |  |  |

NOTES:

<sup>1</sup> If an urban water supplier revises its WSCP, the supplier must submit a copy of the revised WSCP to DWR not later than 30 days after adoption (CWC § 10644(b)).

<sup>2</sup> For urban water suppliers that receive imported water, the due date is June 1 or 14 days after final allocation from State Water Project or Bureau of Reclamation, whichever is later. The inclusion of 2022 as the starting year is to match the availability of WSCPs that are to be adopted by urban water suppliers. DWR encourages urban water suppliers to conduct such assessments prior to 2022 and submit their information to DWR.

<sup>3</sup> The annual water supply and demand assessment is the basis for the urban water supplier's annual water shortage assessment report.

KEY:

**CPUC** = California Public Utilities Commission

DRA = Drought Risk Assessment

 $\ensuremath{\textbf{DWR}}$  = California Department of Water Resources

UWMP = Urban Water Management Plan

**WSCP** = Water Shortage Contingency Plan

|  | Table C-3. SB 606 and AB 1668  |  |                              |  |  |  |
|--|--|--|------------------------------|--|--|--|
| Major Tasks for Agricultural Water Suppliers |  |  |                              |  |  |  |
| Task<br>#                                    | Description  | Doadlino                                     | CWC                          |  |  |  |
|  |  | Deddiine                                     | Section                      |  |  |  |
| 1  | Submit annual report to DWR summarizing aggregated farm-gate delivery data on a monthly or bimonthly basis organized by basin. | Apr 1, 2019, and annually thereafter         | 531.10(a)                    |  |  |  |
| 2  | Update AWMP with newly required content, including development of drought plan, and submit to DWR.                             | Apr 1, 2021, and every five years thereafter | 10820(a)(2)(A) and<br>(B) AB |  |  |  |
|  |  |  |                              |  |  |  |

KEY:

AWMP = Agricultural Water Management Plan

**DWR** = California Department of Water Resources



California Department of Water Resources



State Water Resources Control Board

# Attachment B

(Phase 2 Direct Testimony of Stephanie L. Locke)

| California<br>LEGISLATIVE INFORMATION |                  |                |              |                 |                  |              |  |
|---------------------------------------|------------------|----------------|--------------|-----------------|------------------|--------------|--|
| Home                                  | Bill Information | California Law | Publications | Other Resources | My Subscriptions | My Favorites |  |

### SB-7 Water conservation. (2009-2010)



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

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

This bill would revise existing law relating to agricultural water management planning to require agricultural water suppliers to prepare and adopt agricultural water management plans with specified components on or before December 31, 2012, and update those plans on or before December 31, 2015, and on or before December 31 every 5 years thereafter. An agricultural water supplier that becomes an agricultural water supplier after December 31, 2012, would be required to prepare and adopt an agricultural water management plan within

one year after becoming an agricultural water supplier. The agricultural water supplier would be required to notify each city or county within which the supplier provides water supplies with regard to the preparation or review of the plan. The bill would require the agricultural water supplier to submit copies of the plan to the department and other specified entities. The bill would provide that an agricultural water supplier is not eligible for state water grants or loans unless the supplier complies with the water management planning requirements established by the bill.

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

Vote: majority Appropriation: no Fiscal Committee: yes Local Program: no

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

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

### PART 2.55. SUSTAINABLE WATER USE AND DEMAND REDUCTION CHAPTER 1. General Declarations and Policy

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

(a) Water is a public resource that the California Constitution protects against waste and unreasonable use.

(b) Growing population, climate change, and the need to protect and grow California's economy while protecting and restoring our fish and wildlife habitats make it essential that the state manage its water resources as efficiently as possible.

(c) Diverse regional water supply portfolios will increase water supply reliability and reduce dependence on the Delta.

(d) Reduced water use through conservation provides significant energy and environmental benefits, and can help protect water quality, improve streamflows, and reduce greenhouse gas emissions.

(e) The success of state and local water conservation programs to increase efficiency of water use is best determined on the basis of measurable outcomes related to water use or efficiency.

(f) Improvements in technology and management practices offer the potential for increasing water efficiency in California over time, providing an essential water management tool to meet the need for water for urban, agricultural, and environmental uses.

(g) The Governor has called for a 20 percent per capita reduction in urban water use statewide by 2020.

(h) The factors used to formulate water use efficiency targets can vary significantly from location to location based on factors including weather, patterns of urban and suburban development, and past efforts to enhance water use efficiency.

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

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

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

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

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

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

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

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

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

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

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

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

(k) Advance regional water resources management.

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

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

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

(b) This part does not limit or otherwise affect the application of Chapter 3.5 (commencing with Section 11340), Chapter 4 (commencing with Section 11370), Chapter 4.5 (commencing with Section 11400), and Chapter 5 (commencing with Section 11500) of Part 1 of Division 3 of Title 2 of the Government Code.

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

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

### CHAPTER 2. Definitions

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

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

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

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

(2) For an urban retail water supplier that meets at least 10 percent of its 2008 measured retail water demand through recycled water that is delivered within the service area of an urban retail water supplier or its urban

wholesale water supplier, the urban retail water supplier may extend the calculation described in paragraph (1) up to an additional five years to a maximum of a continuous 15-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

- (A) Metered.
- (B) Developed through planned investment by the urban water supplier or a wastewater treatment agency.
- (C) Treated to a minimum tertiary level.

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

(2) For reservoir augmentation, water supplies that meet the criteria of paragraph (1) and are conveyed through a distribution system constructed specifically for recycled water.

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

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

(2) The use of recycled water.

(3) The desalination of brackish groundwater.

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

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

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

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

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

### CHAPTER 3. Urban Retail Water Suppliers

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

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

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

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

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

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

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

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

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

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

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

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

(A) Consider climatic differences within the state.

(B) Consider population density differences within the state.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(d) (1) Any ordinance or resolution adopted by an urban retail water supplier after the effective date of this section shall not require existing customers as of the effective date of this section, to undertake changes in product formulation, operations, or equipment that would reduce process water use, but may provide technical assistance and financial incentives to those customers to implement efficiency measures for process water. This section shall not limit an ordinance or resolution adopted pursuant to a declaration of drought emergency by an urban retail water supplier.

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

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

(1) Through an urban wholesale water supplier.

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

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

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

(5) By hydrologic region.

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

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

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

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

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

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

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

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

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

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

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

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

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

### CHAPTER 4. Agricultural Water Suppliers

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

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

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

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

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

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

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

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

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

- (A) More efficient water use at the farm level.
- (B) Conjunctive use of groundwater.
- (C) Appropriate increase of groundwater recharge.
- (D) Reduction in problem drainage.
- (E) Improved management of environmental resources.

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

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

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

- (7) Construct and operate supplier spill and tailwater recovery systems.
- (8) Increase planned conjunctive use of surface water and groundwater within the supplier service area.
- (9) Automate canal control structures.
- (10) Facilitate or promote customer pump testing and evaluation.

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

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

- (A) On-farm irrigation and drainage system evaluations.
- (B) Normal year and real-time irrigation scheduling and crop evapotranspiration information.
- (C) Surface water, groundwater, and drainage water quantity and quality data.
- (D) Agricultural water management educational programs and materials for farmers, staff, and the public.

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

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

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

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

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

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

(h) The department may update the efficient water management practices required pursuant to subdivision (c), in consultation with the Agricultural Water Management Council, the United States Bureau of Reclamation, and

the board. All efficient water management practices for agricultural water use pursuant to this chapter shall be adopted or revised by the department only after the department conducts public hearings to allow participation of the diverse geographical areas and interests of the state.

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

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

### CHAPTER 5. Sustainable Water Management

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

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

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

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

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

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

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

(b) No later than January 1, 2011, and updated as part of the California Water Plan, the department, in consultation with the board, and with public input, shall propose new statewide targets, or review and update existing statewide targets, for regional water resources management practices, including, but not limited to, recycled water, brackish groundwater desalination, and infiltration and direct use of urban stormwater runoff.

### CHAPTER 6. Standardized Data Collection

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

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

### CHAPTER 7. Funding Provisions

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

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

(c) Notwithstanding subdivision (a), the department shall determine that an urban retail water supplier is eligible for a water grant or loan even though the supplier has not met the per capita reductions required pursuant to Section 10608.24, if the urban retail water supplier has submitted to the department for approval a schedule,

financing plan, and budget, to be included in the grant or loan agreement, for achieving the per capita reductions. The supplier may request grant or loan funds to achieve the per capita reductions to the extent the request is consistent with the eligibility requirements applicable to the water funds.

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

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

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

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

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

### CHAPTER 8. Quantifying Agricultural Water Use Efficiency

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

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

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

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

(3) Notwithstanding paragraph (1), the department shall determine that an urban water supplier is eligible for a water management grant or loan even though the supplier is not implementing all of the water demand management measures described in Section 10631, if the urban water supplier has submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement,

for implementation of the water demand management measures. The supplier may request grant or loan funds to implement the water demand management measures to the extent the request is consistent with the eligibility requirements applicable to the water management funds.

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

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

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

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

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

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

(i) Compliance on an individual basis.

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

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

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

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

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

(e) The urban water supplier may submit to the department copies of its annual reports and other relevant documents to assist the department in determining whether the urban water supplier is implementing or

scheduling the implementation of water demand management activities. In addition, for urban water suppliers that are signatories to the Memorandum of Understanding Regarding Urban Water Conservation in California and submit biennial reports to the California Urban Water Conservation Council in accordance with the memorandum, the department may use these reports to assist in tracking the implementation of water demand management measures.

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

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

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

### PART 2.8. AGRICULTURAL WATER MANAGEMENT PLANNING

### CHAPTER 1. General Declarations and Policy

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

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

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

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

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

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

(e) There is a great amount of reuse of delivered water, both inside and outside the water service areas.

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

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

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

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

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

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

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

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

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

### CHAPTER 2. Definitions

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

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

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

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

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

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

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

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

### CHAPTER 3. Agricultural Water Management Plans Article 1. General Provisions

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

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

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

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

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

### Article 2. Contents of Plans

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

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

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

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

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

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

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

(c) Include an analysis, based on available information, of the effect of climate change on future water supplies.

(d) Describe previous water management activities.

(e) Include in the plan the water use efficiency information required pursuant to Section 10608.48.

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

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

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

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

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

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

### Article 3. Adoption and Implementation of Plans

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

**10841.** Prior to adopting a plan, the agricultural water supplier shall make the proposed plan available for public inspection, and shall hold a public hearing on the plan. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned agricultural water supplier pursuant to Section 6066 of the Government Code. A privately owned agricultural water supplier shall provide an equivalent notice within its service area and shall provide a reasonably equivalent opportunity that would otherwise be afforded through a public hearing process for interested parties to provide input on the plan. After the hearing, the plan shall be adopted as prepared or as modified during or after the hearing.

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

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

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

(1) The department.

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

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

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

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

(6) The California State Library.

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

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

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

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

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

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

designed to consider the effectiveness of plans submitted pursuant to this part.

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

### CHAPTER 4. Miscellaneous Provisions

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

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

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

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

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

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

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

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

# Attachment C

(Phase 2 Direct Testimony of Stephanie L. Locke)

### WATER CODE

# DIVISION 6. CONSERVATION, DEVELOPMENT, AND UTILIZATION OF STATE WATER RESOURCES [10000 - 12999]

(Heading of Division 6 amended by Stats. 1957, Ch. 1932.)

### PART 2.55. SUSTAINABLE WATER USE AND DEMAND REDUCTION [10608 - 10609.42]

(Part 2.55 added by Stats. 2009, 7th Ex. Sess., Ch. 4, Sec. 1.)

### CHAPTER 9. Urban Water Use Objectives and Water Use Reporting [10609 - 10609.38]

(Chapter 9 added by Stats. 2018, Ch. 15, Sec. 7.)

<u>10609.</u>

(a) The Legislature finds and declares that this chapter establishes a method to estimate the aggregate amount of water that would have been delivered the previous year by an urban retail water supplier if all that water had been used efficiently. This estimated aggregate water use is the urban retail water supplier's urban water use objective. The method is based on water use efficiency standards and local service area characteristics for that year. By comparing the amount of water suppliers will be in a better position to help eliminate unnecessary use of water; that is, water used in excess of that needed to accomplish the intended beneficial use.

- (b) The Legislature further finds and declares all of the following:
- (1) This chapter establishes standards and practices for the following water uses:
- (A) Indoor residential use.
- (B) Outdoor residential use.
- (C) CII water use.
- (D) Water losses.

(E) Other unique local uses and situations that can have a material effect on an urban water supplier's total water use.

- (2) This chapter further does all of the following:
- (A) Establishes a method to calculate each urban water use objective.

(B) Considers recycled water quality in establishing efficient irrigation standards.

(C) Requires the department to provide or otherwise identify data regarding the unique local conditions to support the calculation of an urban water use objective.

(D) Provides for the use of alternative sources of data if alternative sources are shown to be as accurate as, or more accurate than, the data provided by the department.

(E) Requires annual reporting of the previous year's water use with the urban water use objective.

(F) Provides a bonus incentive for the amount of potable recycled water used the previous year when comparing the previous year's water use with the urban water use objective, of up to 10 percent of the urban water use objective.

(3) This chapter requires the department and the board to solicit broad public participation from stakeholders and other interested persons in the development of the standards and the adoption of regulations pursuant to this chapter.

(4) This chapter preserves the Legislature's authority over long-term water use efficiency target setting and ensures appropriate legislative oversight of the implementation of this chapter by doing all of the following:

(A) Requiring the Legislative Analyst to conduct a review of the implementation of this chapter, including compliance with the adopted standards and regulations, accuracy of the data, use of alternate data, and other issues the Legislative Analyst deems appropriate.

(B) Stating legislative intent that the director of the department and the chairperson of the board appear before the appropriate Senate and Assembly policy committees to report on progress in implementing this chapter.

(C) Providing one-time-only authority to the department and board to adopt water use efficiency standards, except as explicitly provided in this chapter. Authorization to update the standards shall require separate legislation.

(c) It is the intent of the Legislature that the following principles apply to the development and implementation of long-term standards and urban water use objectives:

(1) Local urban retail water suppliers should have primary responsibility for meeting standards-based water use targets, and they shall retain the flexibility to develop their water supply portfolios, design and implement water conservation strategies, educate their customers, and enforce their rules.

(2) Long-term standards and urban water use objectives should advance the state's goals to mitigate and adapt to climate change.

(3) Long-term standards and urban water use objectives should acknowledge the shade, air quality, and heat-island reduction benefits provided to communities by trees through the support of water-efficient irrigation practices that keep trees healthy.

(4) The state should identify opportunities for streamlined reporting, eliminate redundant data submissions, and incentivize open access to data collected by urban and agricultural water suppliers.

(Amended by Stats. 2019, Ch. 497, Sec. 287. (AB 991) Effective January 1, 2020.)

<u>10609.2.</u>

(a) The board, in coordination with the department, shall adopt long-term standards for the efficient use of water pursuant to this chapter on or before June 30, 2022.

(b) Standards shall be adopted for all of the following:

(1) Outdoor residential water use.

(2) Outdoor irrigation of landscape areas with dedicated irrigation meters in connection with CII water use.

(3) A volume for water loss.

(c) When adopting the standards under this section, the board shall consider the policies of this chapter and the proposed efficiency standards' effects on local wastewater management, developed and natural parklands, and urban tree health. The standards and potential effects shall be identified by May 30, 2022. The board shall allow for public comment on potential effects identified by the board under this subdivision.

(d) The long-term standards shall be set at a level designed so that the water use objectives, together with other demands excluded from the long-term standards such as CII indoor water use and CII outdoor water use not connected to a dedicated landscape meter, would exceed the statewide conservation targets required pursuant to Chapter 3 (commencing with Section 10608.16).

(e) The board, in coordination with the department, shall adopt by regulation variances recommended by the department pursuant to Section 10609.14 and guidelines and methodologies pertaining to the calculation of an urban retail water supplier's urban water use objective recommended by the department pursuant to Section 10609.16.

(Added by Stats. 2018, Ch. 15, Sec. 7. (AB 1668) Effective January 1, 2019.)

10609.4.

(a) (1) Until January 1, 2025, the standard for indoor residential water use shall be 55 gallons per capita daily.

(2) Beginning January 1, 2025, and until January 1, 2030, the standard for indoor residential water use shall be the greater of 52.5 gallons per capita daily or a standard recommended pursuant to subdivision (b).

(3) Beginning January 1, 2030, the standard for indoor residential water use shall be the greater of 50 gallons per capita daily or a standard recommended pursuant to subdivision (b).

(b) (1) The department, in coordination with the board, shall conduct necessary studies and investigations and may jointly recommend to the Legislature a standard for indoor residential water use that more appropriately reflects best practices for indoor residential water use than the standard described in subdivision (a). A report on the results of the studies and investigations shall be made to the chairpersons of the relevant policy committees of each house of the Legislature by January 1, 2021, and shall include information necessary to support the recommended standard, if there is one. The studies and investigations shall also include an analysis of the benefits and impacts of how the changing standard for indoor residential water use will impact water and wastewater management, including potable water usage, wastewater, recycling and reuse systems, infrastructure, operations, and supplies.

(2) The studies, investigations, and report described in paragraph (1) shall include collaboration with, and input from, a broad group of stakeholders, including, but not limited to, environmental groups, experts in indoor plumbing, and water, wastewater, and recycled water agencies.

(Added by Stats. 2018, Ch. 15, Sec. 7. (AB 1668) Effective January 1, 2019.)

# 10609.6.

(a) (1) The department, in coordination with the board, shall conduct necessary studies and investigations and recommend, no later than October 1, 2021, standards for outdoor residential use for adoption by the board in accordance with this chapter.

(2) (A) The standards shall incorporate the principles of the model water efficient landscape ordinance adopted by the department pursuant to the Water Conservation in Landscaping Act (Article 10.8 (commencing with Section 65591) of Chapter 3 of Division 1 of Title 7 of the Government Code).

(B) The standards shall apply to irrigable lands.

(C) The standards shall include provisions for swimming pools, spas, and other water features. Ornamental water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, shall be analyzed separately from swimming pools and spas.

(b) The department shall, by January 1, 2021, provide each urban retail water supplier with data regarding the area of residential irrigable lands in a manner that can reasonably be applied to the standards adopted pursuant to this section.

(c) The department shall not recommend standards pursuant to this section until it has conducted pilot projects or studies, or some combination of the two, to ensure that the data provided to local agencies are reasonably accurate for the data's intended uses, taking into consideration California's diverse landscapes and community characteristics.

(Added by Stats. 2018, Ch. 15, Sec. 7. (AB 1668) Effective January 1, 2019.)

<u>10609.8.</u>

(a) The department, in coordination with the board, shall conduct necessary studies and investigations and recommend, no later than October 1, 2021, standards for outdoor irrigation of landscape areas with dedicated irrigation meters or other means of calculating outdoor irrigation use in connection with CII water use for adoption by the board in accordance with this chapter.

(b) The standards shall incorporate the principles of the model water efficient landscape ordinance adopted by the department pursuant to the Water Conservation in Landscaping Act (Article 10.8 (commencing with Section 65591) of Chapter 3 of Division 1 of Title 7 of the Government Code).

(c) The standards shall include an exclusion for water for commercial agricultural use meeting the definition of subdivision (b) of Section 51201 of the Government Code.

(Added by Stats. 2018, Ch. 15, Sec. 7. (AB 1668) Effective January 1, 2019.)

10609.9.

For purposes of Sections 10609.6 and 10609.8, "principles of the model water efficient landscape ordinance" means those provisions of the model water efficient landscape ordinance applicable to the establishment or determination of the amount of water necessary to efficiently irrigate both new and existing landscapes. These provisions include, but are not limited to, all of the following:

(a) Evapotranspiration adjustment factors, as applicable.

(b) Landscape area.

(c) Maximum applied water allowance.

(d) Reference evapotranspiration.

(e) Special landscape areas, including provisions governing evapotranspiration adjustment factors for different types of water used for irrigating the landscape.

(Added by Stats. 2018, Ch. 15, Sec. 7. (AB 1668) Effective January 1, 2019.)

# 10609.10.

(a) The department, in coordination with the board, shall conduct necessary studies and investigations and recommend, no later than October 1, 2021, performance measures for CII water use for adoption by the board in accordance with this chapter.

(b) Prior to recommending performance measures for CII water use, the department shall solicit broad public participation from stakeholders and other interested persons relating to all of the following:

(1) Recommendations for a CII water use classification system for California that address significant uses of water.

(2) Recommendations for setting minimum size thresholds for converting mixed CII meters to dedicated irrigation meters, and evaluation of, and recommendations for, technologies that could be used in lieu of requiring dedicated irrigation meters.

(3) Recommendations for CII water use best management practices, which may include, but are not limited to, water audits and water management plans for those CII customers that exceed a recommended size, volume of water use, or other threshold.

(c) Recommendations of appropriate performance measures for CII water use shall be consistent with the October 21, 2013, report to the Legislature by the Commercial, Industrial, and Institutional Task Force entitled "Water Use Best Management Practices," including the technical and financial feasibility recommendations provided in that report, and shall support the economic productivity of California's commercial, industrial, and institutional sectors.

(d) (1) The board, in coordination with the department, shall adopt performance measures for CII water use on or before June 30, 2022.

(2) Each urban retail water supplier shall implement the performance measures adopted by the board pursuant to paragraph (1).

(Added by Stats. 2018, Ch. 15, Sec. 7. (AB 1668) Effective January 1, 2019.)

10609.12.

The standards for water loss for urban retail water suppliers shall be the standards adopted by the board pursuant to subdivision (i) of Section 10608.34.

(Added by Stats. 2018, Ch. 15, Sec. 7. (AB 1668) Effective January 1, 2019.)

# 10609.14.

(a) The department, in coordination with the board, shall conduct necessary studies and investigations and, no later than October 1, 2021, recommend for adoption by the board in accordance with this chapter appropriate variances for unique uses that can have a material effect on an urban retail water supplier's urban water use objective.

(b) Appropriate variances may include, but are not limited to, allowances for the following:

(1) Significant use of evaporative coolers.

(2) Significant populations of horses and other livestock.

(3) Significant fluctuations in seasonal populations.

(4) Significant landscaped areas irrigated with recycled water having high levels of total dissolved solids.

(5) Significant use of water for soil compaction and dust control.

(6) Significant use of water to supplement ponds and lakes to sustain wildlife.

(7) Significant use of water to irrigate vegetation for fire protection.

(8) Significant use of water for commercial or noncommercial agricultural use.

(c) The department, in recommending variances for adoption by the board, shall also recommend a threshold of significance for each recommended variance.

(d) Before including any specific variance in calculating an urban retail water supplier's water use objective, the urban retail water supplier shall request and receive approval by the board for the inclusion of that variance.

(e) The board shall post on its Internet Web site all of the following:

(1) A list of all urban retail water suppliers with approved variances.

(2) The specific variance or variances approved for each urban retail water supplier.

(3) The data supporting approval of each variance.

(Added by Stats. 2018, Ch. 15, Sec. 7. (AB 1668) Effective January 1, 2019.)

10609.15.

To help streamline water data reporting, the department and the board shall do all of the following:

(a) Identify urban water reporting requirements shared by both agencies, and post on each agency's Internet Web site how the data is used for planning, regulatory, or other purposes.

(b) Analyze opportunities for more efficient publication of urban water reporting requirements within each agency, and analyze how each agency can integrate various data sets in a publicly accessible location, identify priority actions, and implement priority actions identified in the analysis.

(c) Make appropriate data pertaining to the urban water reporting requirements that are collected by either agency available to the public according to the principles and requirements of the Open and Transparent Water Data Act (Part 4.9 (commencing with Section 12400)).

(Added by Stats. 2018, Ch. 15, Sec. 7. (AB 1668) Effective January 1, 2019.)

# <u>10609.16.</u>

The department, in coordination with the board, shall conduct necessary studies and investigations and recommend, no later than October 1, 2021, guidelines and methodologies for the board to adopt that identify how an urban retail water supplier calculates its urban water use objective. The guidelines and methodologies shall address, as necessary, all of the following:

(a) Determining the irrigable lands within the urban retail water supplier's service area.

(b) Updating and revising methodologies described pursuant to subparagraph (A) of paragraph (1) of subdivision (h) of Section 10608.20, as appropriate, including methodologies for calculating the population in an urban retail water supplier's service area.

(c) Using landscape area data provided by the department or alternative data.

(d) Incorporating precipitation data and climate data into estimates of a urban retail water supplier's outdoor irrigation budget for its urban water use objective.

(e) Estimating changes in outdoor landscape area and population, and calculating the urban water use objective, for years when updated landscape imagery is not available from the department.

(f) Determining acceptable levels of accuracy for the supporting data, the urban water use objective, and compliance with the urban water use objective.

(Added by Stats. 2018, Ch. 15, Sec. 7. (AB 1668) Effective January 1, 2019.)

### 10609.18.

The department and the board shall solicit broad public participation from stakeholders and other interested persons in the development of the standards and the adoption of regulations pursuant to this chapter. The board shall hold at least one public meeting before taking any action on any standard or variance recommended by the department.

(Added by Stats. 2018, Ch. 15, Sec. 7. (AB 1668) Effective January 1, 2019.)

# 10609.20.

(a) Each urban retail water supplier shall calculate its urban water use objective no later than January 1, 2024, and by January 1 every year thereafter.

(b) The calculation shall be based on the urban retail water supplier's water use conditions for the previous calendar or fiscal year.

(c) Each urban water supplier's urban water use objective shall be composed of the sum of the following:

(1) Aggregate estimated efficient indoor residential water use.

(2) Aggregate estimated efficient outdoor residential water use.

(3) Aggregate estimated efficient outdoor irrigation of landscape areas with dedicated irrigation meters or equivalent technology in connection with CII water use.

(4) Aggregate estimated efficient water losses.

(5) Aggregate estimated water use in accordance with variances, as appropriate.

(d) (1) An urban retail water supplier that delivers water from a groundwater basin, reservoir, or other source that is augmented by potable reuse water may adjust its urban water use objective by a bonus incentive calculated pursuant to this subdivision.

(2) The water use objective bonus incentive shall be the volume of its potable reuse delivered to residential water users and to landscape areas with dedicated irrigation meters in connection with CII water use, on an acre-foot basis.

(3) The bonus incentive pursuant to paragraph (1) shall be limited in accordance with one of the following:

(A) The bonus incentive shall not exceed 15 percent of the urban water supplier's water use objective for any potable reuse water produced at an existing facility.

(B) The bonus incentive shall not exceed 10 percent of the urban water supplier's water use objective for any potable reuse water produced at any facility that is not an existing facility.

(4) For purposes of this subdivision, "existing facility" means a facility that meets all of the following:

(A) The facility has a certified environmental impact report, mitigated negative declaration, or negative declaration on or before January 1, 2019.

(B) The facility begins producing and delivering potable reuse water on or before January 1, 2022.

(C) The facility uses microfiltration and reverse osmosis technologies to produce the potable reuse water.

(e) (1) The calculation of the urban water use objective shall be made using landscape area and other data provided by the department and pursuant to the standards, guidelines, and methodologies adopted by the board. The department shall provide data to the urban water supplier at a level of detail sufficient to allow the urban water supplier to verify its accuracy at the parcel level.

(2) Notwithstanding paragraph (1), an urban retail water supplier may use alternative data in calculating the urban water use objective if the supplier demonstrates to the department that the alternative data are equivalent, or superior, in quality and accuracy to the data provided by the department. The department may provide technical assistance to an urban retail water supplier in evaluating whether the alternative data are appropriate for use in calculating the supplier's urban water use objective.

(Amended by Stats. 2019, Ch. 239, Sec. 2. (AB 1414) Effective January 1, 2020.)

10609.21.

(a) For purposes of Section 10609.20, and notwithstanding paragraph (4) of subdivision (d) of Section 10609.20, "existing facility" also includes the North City Project, phase one of the Pure Water San Diego Program, for which an environmental impact report was certified on April 10, 2018.

(b) This section shall become operative on January 1, 2019.

(Added by Stats. 2018, Ch. 453, Sec. 4. (SB 875) Effective September 17, 2018. Section operative January 1, 2019, by its own provisions.)

# 10609.22.

(a) An urban retail water supplier shall calculate its actual urban water use no later than January 1, 2024, and by January 1 every year thereafter.

(b) The calculation shall be based on the urban retail water supplier's water use for the previous calendar or fiscal year.

(c) Each urban water supplier's urban water use shall be composed of the sum of the following:

(1) Aggregate residential water use.

(2) Aggregate outdoor irrigation of landscape areas with dedicated irrigation meters in connection with CII water use.

(3) Aggregate water losses.

(Amended by Stats. 2019, Ch. 239, Sec. 3. (AB 1414) Effective January 1, 2020.)

10609.24.

(a) An urban retail water supplier shall submit a report to the department no later than January 1, 2024, and by January 1 every year thereafter. The report shall include all of the following:

(1) The urban water use objective calculated pursuant to Section 10609.20 along with relevant supporting data.

(2) The actual urban water use calculated pursuant to Section 10609.22 along with relevant supporting data.

(3) Documentation of the implementation of the performance measures for CII water use.

(4) A description of the progress made towards meeting the urban water use objective.

(5) The validated water loss audit report conducted pursuant to Section 10608.34.

(b) The department shall post the reports and information on its internet website.

(c) The board may issue an information order or conservation order to, or impose civil liability on, an entity or individual for failure to submit a report required by this section.

(Amended by Stats. 2019, Ch. 239, Sec. 4. (AB 1414) Effective January 1, 2020.)

### 10609.25.

As part of the first report submitted to the department by an urban retail water supplier no later than January 1, 2024, pursuant to subdivision (a) of Section 10609.24, each urban retail water supplier shall provide a narrative that describes the water demand management measures that the supplier plans to implement to achieve its urban water use objective by January 1, 2027.

(Added by Stats. 2019, Ch. 239, Sec. 5. (AB 1414) Effective January 1, 2020.)

## <u>10609.26.</u>

(a) (1) On and after January 1, 2024, the board may issue informational orders pertaining to water production, water use, and water conservation to an urban retail water supplier that does not meet its urban water use objective required by this chapter. Informational orders are intended to obtain information on supplier activities, water production, and conservation efforts in order to identify technical assistance needs and assist urban water suppliers in meeting their urban water use objectives.

(2) In determining whether to issue an informational order, the board shall consider the degree to which the urban retail water supplier is not meeting its urban water use objective, information provided in the report required by Section 10609.24, and actions the urban retail water supplier has implemented or will implement in order to help meet the urban water use objective.

(3) The board shall share information received pursuant to this subdivision with the department.

(4) An urban water supplier may request technical assistance from the department. The technical assistance may, to the extent available, include guidance documents, tools, and data.

(b) On and after January 1, 2025, the board may issue a written notice to an urban retail water supplier that does not meet its urban water use objective required by this chapter. The written notice may warn the urban retail water supplier that it is not meeting its urban water use objective described in Section 10609.20 and is not making adequate progress in meeting the urban water use objective, and may request that the urban retail water supplier address areas of concern in its next annual report required by Section 10609.24. In deciding whether to issue a written notice, the board may consider whether the urban retail water supplier has received an informational order, the degree to which the urban retail water supplier is not meeting its urban water use objective, information provided in the report required by Section 10609.24, and actions the urban retail water supplier has implemented or will implement in order to help meet its urban water use objective.

(c) (1) On and after January 1, 2026, the board may issue a conservation order to an urban retail water supplier that does not meet its urban water use objective. A conservation order may consist of, but is not limited to, referral to the department for technical assistance, requirements for education and outreach, requirements for local enforcement, and other efforts to assist urban retail water suppliers in meeting their urban water use objective.

(2) In issuing a conservation order, the board shall identify specific deficiencies in an urban retail water supplier's progress towards meeting its urban water use objective, and identify specific actions to address the deficiencies.

(3) The board may request that the department provide an urban retail water supplier with technical assistance to support the urban retail water supplier's actions to remedy the deficiencies.

(d) A conservation order issued in accordance with this chapter may include requiring actions intended to increase water-use efficiency, but shall not curtail or otherwise limit the exercise of a water right, nor shall it require the imposition of civil liability pursuant to Section 377.

(Amended by Stats. 2019, Ch. 239, Sec. 6. (AB 1414) Effective January 1, 2020.)

# <u>10609.27.</u>

Notwithstanding Section 10609.26, the board shall not issue an information order, written notice, or conservation order pursuant to Section 10609.26 if both of the following conditions are met:

(a) The board determines that the urban retail water supplier is not meeting its urban water use objective solely because the volume of water loss exceeds the urban retail water supplier's standard for water loss.

(b) Pursuant to Section 10608.34, the board is taking enforcement action against the urban retail water supplier for not meeting the performance standards for the volume of water losses.

(Added by Stats. 2019, Ch. 203, Sec. 1. (SB 134) Effective January 1, 2020.)

# 10609.28.

The board may issue a regulation or informational order requiring a wholesale water supplier, an urban retail water supplier, or a distributor of a public water supply, as that term is used in Section 350, to provide a monthly report relating to water production, water use, or water conservation.

(Added by Stats. 2018, Ch. 14, Sec. 12. (SB 606) Effective January 1, 2019.)

# 10609.30.

On or before January 10, 2024, the Legislative Analyst shall provide to the appropriate policy committees of both houses of the Legislature and the public a report evaluating the implementation of the water use efficiency standards and water use reporting pursuant to this chapter. The board and the department shall provide the Legislative Analyst with the available data to complete this report.

(a) The report shall describe all of the following:

(1) The rate at which urban retail water users are complying with the standards, and factors that might facilitate or impede their compliance.

(2) The accuracy of the data and estimates being used to calculate urban water use objectives.

(3) Indications of the economic impacts, if any, of the implementation of this chapter on urban water suppliers and urban water users, including CII water users.

(4) The frequency of use of the bonus incentive, the volume of water associated with the bonus incentive, value to urban water suppliers of the bonus incentive, and any implications of the use of the bonus incentive on water use efficiency.

(5) The early indications of how implementing this chapter might impact the efficiency of statewide urban water use.

(6) Recommendations, if any, for improving statewide urban water use efficiency and the standards and practices described in this chapter.

(7) Any other issues the Legislative Analyst deems appropriate.

(Added by Stats. 2018, Ch. 14, Sec. 13. (SB 606) Effective January 1, 2019.)

# 10609.32.

It is the intent of the Legislature that the chairperson of the board and the director of the department appear before the appropriate policy committees of both houses of the Legislature on or around January 1, 2026, and report on the implementation of the water use efficiency standards and water use reporting pursuant to this chapter. It is the intent of the Legislature that the topics to be covered include all of the following:

(a) The rate at which urban retail water suppliers are complying with the standards, and factors that might facilitate or impede their compliance.

(b) What enforcement actions have been taken, if any.

(c) The accuracy of the data and estimates being used to calculate urban water use objectives.

(d) Indications of the economic impacts, if any, of the implementation of this chapter on urban water suppliers and urban water users, including CII water users.

(e) The frequency of use of the bonus incentive, the volume of water associated with the bonus incentive, value to urban water suppliers of the bonus incentive, and any implications of the use of the bonus incentive on water use efficiency.

(f) An assessment of how implementing this chapter is affecting the efficiency of statewide urban water use.

(Added by Stats. 2018, Ch. 14, Sec. 14. (SB 606) Effective January 1, 2019.)

# 10609.34.

Notwithstanding Section 15300.2 of Title 14 of the California Code of Regulations, an action of the board taken under this chapter shall be deemed to be a Class 8 action, within the meaning of Section 15308 of Title 14 of the California Code of Regulations, provided that the action does not involve relaxation of existing water conservation or water use standards.

(Added by Stats. 2018, Ch. 14, Sec. 15. (SB 606) Effective January 1, 2019.)

# 10609.36.

(a) Nothing in this chapter shall be construed to determine or alter water rights. Sections 1010 and 1011 apply to water conserved through implementation of this chapter.

(b) Nothing in this chapter shall be construed to authorize the board to update or revise water use efficiency standards authorized by this chapter except as explicitly provided in this chapter. Authorization to update the standards beyond that explicitly provided in this chapter shall require separate legislation.

(c) Nothing in this chapter shall be construed to limit or otherwise affect the use of recycled water as seawater barriers for groundwater salinity management.

(Added by Stats. 2018, Ch. 14, Sec. 16. (SB 606) Effective January 1, 2019.)

# 10609.38.

The board may waive the requirements of this chapter for a period of up to five years for any urban retail water supplier whose water deliveries are significantly affected by changes in water use as a result of damage from a disaster such as an earthquake or fire. In establishing the period of a waiver, the board shall take into consideration the breadth of the damage and the time necessary for the damaged areas to recover from the disaster.

(Added by Stats. 2018, Ch. 14, Sec. 17. (SB 606) Effective January 1, 2019.)
# Attachment D

(Phase 2 Direct Testimony of Stephanie L. Locke)

### **SENATE BILL**

#### No. 1157

Introduced by Senator Hertzberg (Principal coauthor: Assembly Member Friedman)

February 17, 2022

An act to amend Section 10609.4-of *of, and to add Section 10609.33 to,* the Water Code, relating to water.

#### LEGISLATIVE COUNSEL'S DIGEST

SB 1157, as amended, Hertzberg. Urban water use objectives: indoor residential water use. *objectives*.

Existing law requires the Department of Water Resources, in coordination with the State Water Resources Control Board, and including collaboration with and input from stakeholders, to conduct necessary studies and investigations and authorizes the department and the board to jointly recommend to the Legislature a standard for indoor residential water use. Existing law, until January 1, 2025, establishes 55 gallons per capita daily as the standard for indoor residential water use. Existing law establishes, beginning January 1, 2025, the greater of 52.5 gallons per capita daily or a standard recommended by the department and the board as the standard for indoor residential water use, and beginning January 1, 2030, establishes the greater of 50 gallons per capita daily or a standard recommended by the department and the board as the standard for indoor residential water use. Existing law requires the board, in coordination with the department, to adopt by regulation variances recommended by the department and guidelines and methodologies pertaining to the calculation of an urban retail water supplier's urban water use objective recommended by the department.

98

This bill would eliminate the option of using the greater of 52.5 gallons per capita daily and the greater of 50 gallons per capita daily, as applicable, or a standard recommended by the department and the board as the standard for indoor residential water use. The bill would instead require that from January 1, 2025, to January 1, 2030, the standard for indoor residential water use be 47 gallons per capita daily and beginning January 1, 2030, the standard be 42 gallons per capita daily. The bill would require the department, in coordination with the board to conduct necessary studies and investigations to assess and quantify the economic benefit and impacts of meeting the 2030 indoor residential use standard on water, wastewater, and recycled water systems, as specified. The bill would require the department to summarize the findings of these studies and investigations in a report to the Legislature by January 1, 2027. The bill would require, on or before January 1, 2028, the department, in coordination with the board, to submit a report to the Legislature on the progress of urban retail water suppliers towards achieving their urban water use objective.

Vote: majority. Appropriation: no. Fiscal committee: yes. State-mandated local program: no.

The people of the State of California do enact as follows:

1 SECTION 1. Section 10609.4 of the Water Code is amended 2 to read:

3 10609.4. (a) (1) Until January 1, 2025, the standard for indoor
4 residential water use shall be 55 gallons per capita daily.

5 (2) Beginning January 1, 2025, and until January 1, 2030, the 6 standard for indoor residential water use shall be 47 gallons per 7 capita daily.

8 (3) Beginning January 1, 2030, the standard for indoor 9 residential water use shall be 42 gallons per capita daily.

(b) (1) The department, in coordination with the board, shall
conduct necessary studies and investigations—and may jointly
recommend to the Legislature a standard for indoor residential
water use that more appropriately reflects best practices for indoor
residential water use than the standard described in subdivision
(a). A report on the results of the studies and investigations shall
be made to the chairpersons of the relevant policy committees of

17 each house of the Legislature by January 1, 2021, and shall include

18 information necessary to support the recommended standard, if

98

there is one. The studies and investigations shall also include an 1 2 analysis of the benefits and impacts of how the changing standard 3 for indoor residential water use will impact water and wastewater 4 management, including potable water usage, wastewater, recycling 5 and reuse systems, infrastructure, operations, and supplies. to assess and quantify the economic benefits and impacts of meeting 6 7 the 2030 indoor residential use standard on water, wastewater, 8 and recycled water systems and shall include saturation end-use 9 studies. The studies and investigations shall build on the standards and potential effects identified pursuant to subdivision (c) of 10 Section 10609.2. To facilitate these studies and investigations, the 11 board may request necessary information from wastewater 12 agencies, including monthly influent flow, actions taken to reassess 13 treatment processes, and the impact of the implementation of this 14 15 chapter on wastewater operations, maintenance, and capital investment. The department shall summarize the findings of these 16 17 studies and investigations in a report to the Legislature on or before January 1, 2027. The report shall be submitted in 18 19 compliance with Section 9795 of the Government Code. 20 (2) If the department, in coordination with the board, determines 21 that achieving the 2030 indoor residential use standard unduly

<u>-3</u>\_

22 impacts affordability of water and wastewater services, the 23 department and board may jointly recommend to the Legislature 24 a more appropriate timeframe to achieve the 2030 indoor 25 residential use standard.

26 (3) Based upon the studies and investigations conducted 27 pursuant to paragraph (1), the board shall consider whether to 28 adopt additional variances to accommodate unique challenges 29 related to residential indoor water use pursuant to Section 10609.2. 30 Variance options may include, but are not limited to, stranded 31 assets, impacts on disadvantaged communities, impacts to 32 environmental flows, or adverse impacts to wastewater systems. 33 (2)

*(4)* The studies, investigations, and report described in paragraph *(1)* shall include collaboration with, and input from, a broad group
of stakeholders, including, but not limited to, environmental groups,
experts in indoor plumbing, and water, wastewater, and recycled

38 water agencies.

<sup>39</sup> SEC. 2. Section 10609.33 is added to the Water Code, to read:

#### SB 1157

1 10609.33. (a) On or before January 1, 2028, the department,

2 in coordination with the board, shall submit a report to the 3 Legislature on the progress of urban retail water suppliers towards

4 achieving their urban water use objective pursuant to Section

5 10609.2.

6 (b) (1) The requirement for submitting a report imposed under

7 subdivision (a) is inoperative on January 1, 2032, pursuant to

8 Section 10231.5 of the Government Code.

9 (2) A report to be submitted pursuant to subdivision (a) shall

- 10 be submitted in compliance with Section 9795 of the Government
- 11 *Code*.

0

98

# Attachment E

(Phase 2 Direct Testimony of Stephanie L. Locke)



### Monterey Peninsula Water Management District Conservation Activities 1980 – 2022

1980 Monterey Peninsula Water Management District (MPWMD or District)-wide water allocation plan was developed. This led to Sand City & Monterey County adopting internal allocation plans.

District implemented program to require water permits for new uses as a method to avoid over-commitment of supplies.

1982 Distributed conservation kits to the public.

Ad Hoc committee formed to study feasibility of reclamation, reuse, and conservation. Board approved transfer of funds to develop a water conservation plan. District began participation in joint county-wide conservation plan.

1983 Aquaculture was reviewed as a potential method for augmenting allocations and for reusing wastewater. San Diego had a pilot project at that time.

The District supported efforts to develop reclamation project to use Carmel Area Wastewater District (CAWD) recycled waste water for use on golf courses and open space.

The District assembled a library of conservation ideas and techniques. Spoke to numerous groups about water conservation, distributed drought-tolerant plant lists to local gardeners.

Provided conservation kits free of charge to the general public.

District and State co-sponsored a seminar on water conservation at the Naval Postgraduate School. Approximately 60 people attended the seminar.

District began looking at creating a leak detection program and at mandatory retrofit laws.

1984 Water savings kits were available at the District free of charge.

Recommendation to Board to establish staff position of Demand Management Coordinator for conservation outreach, public relations, and demand management.

Demand Management Coordinator and summer intern began work on a conservation program and on the District's sections of the Water Conservation Plan.

Board began review of Ordinance No. 21 which established the fixture unit method for residential demand forecasting and commercial water demand by type-of-use and regional water demand factors for processing of permits.

1985 Retrofit program implemented to promote ultra-low flush toilet installation. Promotion included advertising and exhibits.

Library display on conservation was provided to local libraries on a rotating basis.

District formed a "speaker's bureau" to provide speakers on conservation and other District activities. Notice was sent to civic and neighborhood groups.

Routine conservation hand-outs were provided at the District's offices.

Distributed District's drought-tolerant plant list to local nurseries and notified press.

District implemented Water Conservation Plan. Board formed Technical Advisory Committee (TAC) to prepare plans for retrofit ordinance.

TAC contributed to development of mandatory toilet retrofit ordinance.

District participated in Monterey County Science Fair. Board Chair awarded Certificates of Merit to the top water-related science projects. Best project received \$25.

District installed two ultra-low flush (ULF) toilets in the offices for demonstration. Another three ULF toilets were obtained for display in June.

Staff met with golf course owners and maintenance personnel to discuss conservation. District applied for state grant to assist with the program.

Board approved policy to give "credit" for ultra-low flush toilets on Water Permit applications. Instead of charging the customary 4 fixture units per toilet, ultra-low flush fixtures were charged 1.7 fixture units, saving an applicant between \$245 and \$300.

Drought tolerant garden awards program concluded. Program began in February and had 40 nominations.

Resolution 85-15 approved. Resolution requested the California Coastal Commission to direct Pebble Beach Community Services District to perform a scope of work for the reclamation project.

District hosted a booth at the Monterey County Fair. Booth included visual display about the District's allocations and conservation activities, including a landscaping contest. The event also featured drought-tolerant plants, free conservation kits, and a taped slide presentation about the District.

In-school education programs were co-sponsored by District and Cal-Am. Experts in the field gave presentations and hands-on workshops.



Public Information Program began. Program included public service announcements and advertisements.

The District sponsored a Xeriscape landscape workshop.

The District also wrote an article for state-wide publication about the District's conservation program.

A presentation was given to Monterey Peninsula College students about the District's water supply situation and the need to conserve water.

Developed an audit/leak detection program with the State Department of Water Resources. The District held a workshop to share the information with Cal-Am and other local agencies and the public.

1987 Conservation kit distribution program began. Distributed water saving kits door to door over two years to 42,000 households. During 1987, the installation rate was 85%.

With the City of Monterey's cooperation, the District mailed conservation literature to all Monterey residents.

Staff participated in radio and television interviews.

Held a public forum in the spring on the proposed conservation measures. Invitations were sent to 2,500 people.

Sponsored a water seminar with Hartnell College.

Ordinance 29 implemented a conservation fee to offset programs of the District. Ordinance 30 was implemented which required retrofit of toilets and showerheads upon change of ownership or use, the addition of 25% or more of the existing floor area, or the addition of a bathroom. An exemption from the toilet retrofit requirement was granted for toilets that used less than 3.5 gallons and had a water savings device installed to reduce the flush by 1.0 gallon.

Ordinance 30 also required certification of compliance before every transfer of title and implemented mandatory water-saving retrofits in existing commercial uses. The District hired a Conservation Representative to enforce the regulation and inspect retrofitted properties.

Co-sponsored school programs, and tours of water and wastewater plants during Water Awareness Week.

Co-sponsored Xeriscape conference with Soquel Creek Water District.

1988 Began active enforcement of Ordinance 30 (mandatory retrofit requirements). Temporary



employees inspected over 400 commercial properties for compliance with business conservation requirements.

Performed inspections of new homes and buildings included verification of conservation measures, such as drip irrigation and "instant-access" hot water (systems that make hot water available within six seconds), as well as installation of ultra-low flow fixtures throughout the property.

Conservation Kit program was completed. Ninety-four percent installation was achieved. Projected water savings of 10% are expected for the life of the installation.

Drought-related media campaign. Radio and television advertisements, as well as newspaper articles and a week-long television special on conservation tips were included in the campaign.

District-sponsored seminar "Dealing with Drought in Your Garden" was held. Capacity crowd attended the seminar held at Asilomar Conference Center.

Ordinance 35 restricted water waste and unnecessary use of water. The ordinance also established four response levels to ensure consumptive use did not exceed the anticipated water supplies. This ordinance initiated the four phases of water rationing and was the most comprehensive water conservation ordinance imposed by the District.

1989 Continued previous media and outreach efforts.

Water Rationing underway

1990 Provided conservation kits free of charge to District residents. Contractor installed high efficiency showerheads, faucet aerators and toilet dams throughout District.

Continued active enforcement of mandatory retrofit requirements and new construction water efficiency requirements.

Provided capacity fee credit for installation of high efficiency water-saving appliances when installed as part of a Water Permit application.

"Save Your Share" water conservation campaign began. Included multi-media coverage, participation at fairs, conferences and seminars. As part of this water conservation publicity effort, the District published brochures, held conservation workshops, gave presentations at schools and other local service agencies, provided table tents and mirror decals to businesses, and provided useful information to local gardeners. Staff was interviewed on National Public Radio and by the Los Angeles Times about the District's conservation program.

Actively enforced the water waste rules.



District-sponsored "Dealing with Drought" seminar at the Monterey Conference Center.

Held teacher training workshops on AIMS (Activities Involving Math and Science) as part of the Water Awareness Committee of Monterey County.

District's rationing program was at full force.

Continued provided free water conserving showerheads, faucet aerators, toilet dams, and dye tablets.

Participated in county-wide effort to prepare an emergency drought response plan.

Ordinance 43 amended Ordinance 30, eliminating the exemption for 3.5 gallons-per flush toilets. All toilets had to be replaced with ones designed to use no more than 1.6 gallons-per-flush upon change of ownership, use, expansion of 25% or more of the existing square-footage or the addition of a bathroom.

Ordinance 47 placed a temporary limit on the amount of water that could be allocated to water use expansions.

Allocation Environmental Impact Report (EIR) and Option V ratified by District Board.

Ordinance 52 adopted as an urgency ordinance.

1991 Moratorium on expansions in water use pending development of new water supply.

Rationing ended.

Continued participation in Water Awareness Committee. This group provides ongoing educational benefits to school children and the public, sponsored displays at fairs and other public gatherings in addition to providing water-related information and books to area libraries.

Developed proposal for a toilet recycling program. This program was not supported. However, the landfill in Marina recycles toilets after all non-ceramic materials are removed. Toilets are crushed and used for road aggregate. This program is promoted.

Developed a television advertisement thanking the public for their participation in the rationing program.

1992 District co-sponsored "Landscapes for the Future" seminar which featured speakers from Sunset Magazine. Seminar was co-sponsored by the California Landscape Contractors Association.

Staff completed more than 360 inspections of large commercial properties to verify compliance with business conservation laws.



Participation in the Water Awareness Committee resulted in a public education program which reached 5,000 children in primary schools.

Created, printed and donated plant tags marked "Water Conserving" to area nurseries.

Provided nurseries with wooden information displays stocked with water efficient gardening information and plant lists.

Staff gave a presentation at the California State Department of Water Resources conference held in Monterey on the State's new water conserving landscape requirements for city planners and landscape professionals.

Encouraged installation of water-saving appliances. Completed comprehensive analysis of the efficiency of these fixtures and provided capacity fee credits to applicants agreeing to install the appliance as part of a Water Permit application.

Consulted with local landscaping professionals about the state's water efficient landscape requirements.

Provided on-site water conservation training sessions to commercial water users.

Sponsored ten live theater performances by the Small Change Theater in local elementary schools.

Conducted Water Conservation Conference on how rationing might affect lifestyles.

Ordinance 61 amended the restrictions for water waste and repealed the water supply emergency. The water waste provisions of this ordinance will not sunset.

1993 Irrigation demonstration project completed at La Mirada Adobe (Monterey Peninsula Museum of Art). The project consists of six cisterns capable of storing 9,000 gallons of water for use in the gardens. The gardens also demonstrate drip irrigation and mulching, and brochures are available which explain the equipment in use.

Provided conservation information and plant lists to the public via the information stands at the local nurseries.

The Water Awareness Committee sponsored various educational activities at the local public schools. The Committee co-sponsored a Garden Faire at MPC, which featured examples of water efficient practices and plants to educate the public on water-saving landscaping techniques.

Sent information to local plumbers and plumbing supply stores about the new state law which mandates the sale and installation of ultra-low flush toilets.



1994 Pebble Beach golf courses and fields at Robert Louis Stevenson School switched irrigation from Cal-Am to reclaimed water. Approximately 800 acre-feet of water per year will be saved.

Donated water conservation books and videos to local libraries. Also contributed watersaving hand-outs and posters as part of the Water Awareness Month effort.

Participated in the Garden Faire held at MPC.

Participated in a local cistern tour.

Provided and set up conservation displays at local libraries.

Presented information about District conservation and construction requirements and programs at an Office of Statewide Health Planning and Development staff meeting.

Participated in Earth Day by staffing water information booth.

Contributed articles to the Water Awareness Month insert that was published in the Monterey County Herald.

1995 Adopted Ordinance No. 75. This ordinance allows a jurisdiction to obtain water credits in its allocation for water saved through permanent retrofits of public facilities. This ordinance will encourage permanent conservation savings to occur on properties not ordinarily subject to the District's conservation laws. Examples of projects completed include the use of El Estero Lake water for irrigating the ball field and City of Monterey cemetery, and replacement of irrigation with efficient systems at the City of Pacific Grove golf course.

Water conservation was a feature of the District booth at the Earth Day festival.

Conservation messages were featured in newspaper articles, television announcements, a noon news television interview, a radio jingle contest, and library displays as part of the Water Awareness Committee.

A Water Efficiency Workshop for industrial and agricultural water users was cosponsored by the Water Awareness Committee. Speakers from the Department of Water Resources and Monterey County growers presented benefits and practical information on conservation.

1996 Adopted Ordinance No. 85 to establish a toilet rebate program.

District staff planned and developed a drought tolerant demonstration garden to replace the lawns at the District offices. The garden was planned to provide the public with an example of water efficient landscaping and irrigation techniques.



1997 Provided a water information display at the annual Monterey Bay Marine Sanctuary Day Fair.

Continued individual water waste education took place as necessary to remind water users not to wash sidewalks, leave hoses running or ignore leaks.

Continue to provide literature displays to local nurseries and regularly stocked the displays with information relating to efficient irrigation methods and drought tolerant and native plants.

Continued to provide public education to encourage Peninsula residents and businesses to continue water conservation practices learned during the drought.

1998 Adopted Ordinance No. 90. This ordinance continued the program allowing the reinvestment of toilet retrofit water savings on single-family residential properties for 90-days.

Adopted Ordinance No. 91. This ordinance continued the program allowing the reinvestment of water saved through toilet retrofits and other permanent water savings methods at publicly owned and operated facilities for 90 days.

Ordinance No. 90 and No. 91 were challenged for compliance with CEQA and nullified by the Monterey Superior Court in December 1998.

1999 Adopted Ordinance No. 92. This ordinance established the five-stage Expanded Water Conservation and Standby Water Rationing Plan.

Continued an intensive inspection program to ensure compliance with the conservation regulation.

2000 Continued offering incentives for property owners that agreed to install state-of-the-art water appliances as a condition of a Water Permit. Credit, in the form of water fixture units, remained available for installing ultra-water efficient dishwashers and washing machines, one-half gallon toilets and "instant-access" hot water systems in remodels and additions.

Expanded contact with the media via press releases encouraging water conservation and by more television coverage of water conservation issues.

Printed materials were made available to explain the need for expanded community water conservation under the State Water Board Order No. 95-10.

Continued supporting water conservation education as a member and participant in the Water Awareness Committee of Monterey County (WAC). Provided books on water efficient landscaping, drip irrigation, and other water related subjects to libraries in Monterey County and provides numerous opportunities for the public to learn about local water issues.



Adopted Ordinance No. 98. This ordinance allowed a single-family dwelling on a single-family residential site to add a second bathroom without causing a debit to the jurisdiction's allocation. The second bathroom is considered as a convenience only.

Adopted Resolution 2001-09. This resolution disallowed water use credits for outdoor water fixtures (fountains, ponds, sinks, etc.) and multiple utility sinks.

Began requiring deed restrictions to enforce requirements and protect community water usage. Board adopted extensive review process.

2002 Continued to perform inspections of new homes and buildings including verification of conservation measures.

Continued supporting water conservation education through the Water Awareness Committee of Monterey County (WAC).

Continued a comprehensive inspection program to ensure compliance with conservation regulations.

Provided free low-flow showerheads and soil moisture sensors to the public.

Conducted a presentation on District water permitting and water conservation related information to homeowners in the Hidden Hills area.

Water Awareness Committee released the new "My Watahbug Fun Book" in both English and Spanish.

Manned a booth during the Marine Sanctuary Ocean Fair. The District provided free low-flow showerheads, faucets aerators, and conservation information.

Contracted with DCI, Inc. to review water savings associated with retrofitting and adding water fixtures. Final report was inconclusive.

2003 Provided extensive notice regarding water availability in the former Water West service area, including giving a television interview, legal notices, advertisements, posting notices and a special section on the District website.

Ordinance No. 110 expanded the toilet rebate program to include rebates for high efficiency dishwashers and washing machines, dual-flush ultra-low flush toilets, hot water demand pumping systems and rainwater cisterns.

2004 Adopted Ordinance No. 109. This ordinance revised Rule 23.5 and adopted additional provisions to facilitate the financing and expansion of the CAWD/Pebble Beach Community Service District (PBCSD) Recycled Water Project.



Installed and tested a WeatherTRACK- ET irrigation controller at the District offices, resulting in an immediate reduction of 37.5% of monthly irrigation water use on the test site.

Partnered with Cal Am during Stage 3 Conservation to implement an urgent conservation campaign, notify and audit properties in the highest water use category, and influenced overall water use/Cal Am production to enable staying within the production limits.

Presented local water permitting and conservation information for a real estate course at Monterey Peninsula College.

Coordinated and hosted a groundwater seminar with WAC.

Coordinated and hosted MPWMD First Annual Open House.

Installed and tested dual-flush and one-gallon toilets at District office.

2005 Gave presentation on water conservation to the Fisherman's Flats Homeowners Association in Monterey. District staff provided free showerheads and moisture sensors to the attendees.

Initiated involvement with the California Urban Water Conservation Council (CUWCC) steering committee. The CUWCC meetings provided a forum for discussion and demonstration of the latest water conservation techniques and technology.

Hosted a presentation by Watermiser. The representative demonstrated the Waterbroom and provided information about an in-line flow restrictor and a toilet leak detector gel for flushometer toilets that Watermiser markets. The Waterbroom uses a combination of air and water pressure to clean decking, patios, tennis courts, exterior walkways, entryways, etc. This device replaces the water-wasting garden hose or power washer approach to cleaning large surface areas.

Participated in the Farmer's Market in downtown Monterey. The District collaborated with the City of Monterey and other local public agencies to provide demonstrations on equipment and to hand out information. Among the items shown was a model ultra-low flush toilet and examples of the waterless urinals and pressure reducing valves.

Participated in the Water Awareness Committee of Monterey County's 1st Annual Xeriscape Design Awards at the Monterey County Fair. MPWMD staff judged the garden displays in the horticultural center for promotion of the Water Awareness Committee's *Retire Your Turf* campaign.

Coordinated and hosted the Second Annual Open House.

2006 Joined the California Urban Water Conservation Council as a Group 3 signatory to the Memorandum of Understanding Regarding Water Conservation in California.



Represented the District at the California Urban Water Conservation Council (CUWCC) steering committee, a forum for discussion and demonstration of the latest water conservation techniques and technology.

District staff attended seminars on "Smart Technologies for Irrigation Management." "Smart technology" refers to the new irrigation controller equipment that uses local weather information to automatically adjust irrigation schedules, resulting in significant savings of both water and money. The subject matter covered soil/plant/water relationships, uniformity and irrigation efficiency, ET calculations and weather stations, smart controllers, environmental sensors and watering windows and scheduling. The information presented helped District staff with reviewing landscaping plans and water budgets.

Actively participated in the Bay Area Water Conservation Coordinators team; a resource for conservation efforts, programs, studies and experiences with various water use efficiency technologies and measures. This contact provides an important networking opportunity with industry professional helping the District continually expand its water conservation programs.

Coordinated and hosted the Third Annual Open House.

Actively supported the Water Awareness Committee.

Initiated and led the regional collaboration on the WaterWise Landscaping for Monterey County water conservation software effort. Organized, budgeted, and coordinated all efforts for the highly successful Water Wise Landscape Symposium and Vendor Expo held in Carmel Valley.

Assisted in coordination of an in-school education program featuring ZunZun and sponsored by WAC. ZunZun is a performing arts group that celebrates the environment through music. The show familiarizes young audiences with the concept of watershed and the importance of watershed in their lives. The show covers such topics as conservation, water pollution, habitat and storm drains.

Participated in the Water Awareness Committee of Monterey County's 2nd Annual Water-Wise Landscape Design Competition at the Monterey County Fair. Staff judged the garden displays in the horticultural center for promotion of the Water Awareness Committee's *Retire Your Turf* campaign.

Prepared the water conservation portions of the Integrated Regional Water Management Plan/Prop 50 Planning Grant Proposal, and Implementation Grant Proposal.

Presented water conservation information at a meeting of the National Association of the Remodeling Industry (NARI). Provided information on the expanded rebate program and the benefits of installing various water conserving technologies (dualflush/High Efficiency Toilets, High Efficiency washing machines & dishwashers etc.).



Presented to Monterey High School Civics. Provided information on the District's mission and functions, including the role of MPWMD. Emphasis was on the importance and potential of water conservation practices and technologies.

Exhibited conservation materials at the 2006 AMBAG Water Forum.

Arranged for a display of drought-tolerant plants and a landscaping slide show at the District's annual Open House.

District staff met with representatives of the Monterey County Hospitality Association (MCHA) to discussed conservation outreach to the hospitality industry.

2007 The District initiated development of the "Water-Wise Gardening in Monterey County" software. A highly successful collaboration initiated and funded by the Water Awareness Committee of Monterey County, and four of its members, i.e. MPWMD, Cal-Am, Marina Coast Water District, and Cal Water Service (which serves the Salinas area). This interactive water conservation tool provides practical ideas and examples for creating water-saving gardens. It features examples of water efficient landscaping and plants, this custom-tailored CD includes details descriptions for more than 1,000 plants and a "gardening guide" with a virtual encyclopedia of water-wise landscape design, irrigation and maintenance tips appropriate to our semi-arid, Mediterranean climate. Users optimize their experience by using "MY LIST," a feature that lets you "shop" for plants by creating a list of plants that can be printed to take to your local nursery.

Ordinance No. 127 expanded the rebate program to include rebates for High Efficiency Toilets and Zero Water Consumption Urinals.

Funded and participated in development and printing of conservation messages for towel, linen and restaurant signage with the Hospitality Association, Cal-Am and AMBAG. The table tents, stickers and mirror decals assist the hospitality industry with achieving conservation program compliance.

Attended Agricultural Water Efficiency seminar.

Distributed water saving equipment at the Monterey County Fair and the Del Rey Oaks Home Owners Association meeting.

Partnered with California American Water Company (Cal-Am) on a mailer detailing the water conservation and rebate programs.

The District with Cal-Am finalized the joint MPWMD/Cal-Am public outreach campaign, designed to inform and remind the community about requirements contained in Stage 1 of the District's Expanded Water Conservation and Standby Rationing Program.

Clarified provisions of the Expanded Water Conservation and Standby Rationing Plan.



Presented "How the Monterey Peninsula Saved 20%" at the California Water Association Conference.

Modified and expanded the rebate program and added its provisions to the MPWMD Rules and Regulations. This ordinance increased the refund amounts for water savings appliances \$100 to \$150 for High Efficiency Toilets, point of source on demand hot water, and 28 gallon washing machines; \$125 for ultra water saving dishwashers and \$200 for 18 gallon washing machines and instant access hot water systems. Water saved through this program is set aside to reduce community water use.

2008 Testified extensively and successfully throughout 2008 in support of a 3-year water conservation budget to be shared by MWMD and California American Water to achieve significant water savings on the Monterey Peninsula and to bring about revisions to California American Water's Rule 14.1, making it consistent with MPWMD Regulation XV.

Good Old Days Celebration 2008. MPWMD staff and Director Doyle handed out water conservation devices and information. The booth was located at the "Green Spot," an area dedicated to environmental protection, and was showcased by several large posters about steelhead, river restoration and the rebate program. Visitors learned about the District's extensive activities and programs.

District staff began working with representatives from Zone24x7 and PM Connect, the firms chosen to develop, deploy, and maintain a new database system for the District's Demand Management Program. The system will integrate three separate DOS-based databases that are currently maintained by the Water Demand Division, i.e., permits, conservation and rebates, and inspections and will be a single-entry, comprehensive, web-based system accessible to other agencies and the public.

Visited local restaurant management and educated about the Stage 1 Water Conservation requirements. "Water served on request" tent cards and Stage 1 brochures were delivered to over 600 establishments on the Peninsula.

Participated in Water Awareness Day at the Monterey County Fair.

Presented information on water conservation to a first grade classroom at Stevenson School. The children were given a water conservation "test" and a "goody bag" of water conservation information to take home.

Hosted a public meeting for water users of the Laguna Seca area to discuss the Seaside Adjudication and how the reclassification of the area into the Monterey Water Resource System will affect the water users. As part of this, staff presented information about the District's Expanded Water Conservation and Standby Rationing Plan.

Testified at the State Water Resources Control Board (SWRCB) regarding the Monterey



Peninsula's water conservation regulations and impacts to the community if a Cease and Desist Order were to be issued against California American Water.

Presented water conservation information related to the draft SWRCB Cease and Desist Order (CDO) at a meeting of the National Association of the Remodeling Industry (NARI).

Water conservation presentation to the Ocean View Homeowner's Association and provided tips and devices to help residents conserve water.

Distributed conservation devices, materials, and rebate applications at the Old Monterey Marketplace's farmer's market.

The District's first California Irrigation Management Information System (CIMIS) station located at Rancho Canada Golf Course began uploading information to the State of California database in August 2008.

District offices received Green Business Certification by the Monterey Bay Area Green Business Program.

Hosted a Lorman teleconference titled "New Developments in Greywater Irrigation and Funding."

Participated at the Green Building Expo and provided conservation materials to the public, answered conservation questions and promoted the rebate program.

2009 Distributed water conservation devices and information at Pacific Grove's Good Old Days Celebration. The booth was located at the "Green Spot," an area dedicated to environmental protection, and was showcased by several large posters about steelhead, river restoration and the rebate program. Visitors learned about the District's extensive activities and programs.

Member of the Monterey Business Council's Graywater/Rainwater Reuse Cluster.

Attend SBx7-7 meetings and hearings and prepared and submitted comment letter.

Participated in Cutting Day by handing out conservation information and devices.

Handed out water conservation devices and information at Monterey Peninsula College's Earth Day Celebration. The public learned about the District's extensive activities and programs.

Responded to significant water leak in the irrigation system at Monterey Peninsula College on Earth Day. Leak was located and repaired.

Attended a 2-day workshop on Commercial/Industrial and Institutional (CII) water conservation at the Food Service Technology Center in San Ramon. The class provided



key concepts for CII audits and retrofits. Topics included: Food Service Operations, Process Water, Thermodynamic Processes, Laundry and Dry Cleaning Operations, Photo and Film Processing, Pools/Spas/Fountains, Medical Facilities and Laboratories, Vehicle Washes, Alternative On-Site Water Sources, and others.

Opening speaker at the Hot Water Symposium hosted by the American Council for an Energy Efficient Economy, Asilomar Conference Center

Participated in the MPWMD annual Open House.

Handed out water conservation devices and information at the Pebble Beach Community Services District open house.

Co-sponsored Irrigation Workshop for Professional Gardeners: Water Conservation Strategies with Cal-Am.

Attended Flex Track Menu & BMP (Best Management Practice) Implementation Workshop hosted by CUWCC

Presented on food service water efficiency at a California Restaurant Association Green Building Workshop.

Sponsored three drought-tolerant demonstration gardens at Del Monte Center, and participated with a booth at its Water Awareness Day.

Attended WaterSmart Innovations 2009 Conference and Exposition. Noted presenters include Australian water expert Dr. Jim Gill, Chairman of Water Australia, and PepsiCo's Director of Sustainability, Health, Safety and Environment, Dan Bena. The conference offered 16 sessions with choices of eight different tracks.

Hosted two Irrigation Association (IA) classes at the California American Water training room. The classes were "Predicting and Estimating Landscape Water Use" and "Certified Landscape Irrigation Auditor" (CLIA). Both classes provided instruction to 15 participants on the evaluation of irrigated landscape for efficiency and ways to increase irrigation effectiveness.

Eight participants from the IA classes tested for their CLIA certification.

Participated in the Monterey Bay Aquarium's Community Event Day.

Presentation to local planners, building officials, public works, forestry and water agency staff on the District's implementation of the State Model Water Efficient Landscape Ordinance. The presentation discussed the adoption process and the possibility for future revisions on a local level. Some of the challenges of implementing the state's ordinance, including coordination and delegation issues that may arise between the builders, the land use agencies, water suppliers and regulators were discussed. Additional information was



provided on enforcement challenges, including long-term enforcement of consumption limitations resulting from compliance with the State Model Landscape Ordinance.

Panelist at California Urban Water Conservation Council (CUWCC) Plenary Meeting discussing topic of AB 1881 (Model Water Efficient Landscape Ordinance) implementation.

2010 California American Water implemented aggressive tiered rates for Non-Residential water users in March 2010.

Presented water conservation information to a local P.E.O. chapter (women's philanthropic organization). Provided free water saving equipment, including rain sensors and showerheads.

Technical advisor for Green Gardener Graywater Program curriculum. MPWMD supported first Monterey Bay Green Gardener Program Graywater Specialist Training.

Member of the Monterey Business Council's Graywater/Rainwater Reuse Cluster. A product of this collaboration was development of a Graywater Irrigation System Permitting Process and Design Criteria by the Monterey County Health Department.

Handed out conservation information and devices at the City of Monterey's Cutting Day event.

Attended SBx7-7 meetings and hearings and submitted comments.

Presenter at American Society of Irrigation Consultants national conference.

Participated in the Good Old Days festival with California American Water staff. Provided people with information about conservation requirements, available water efficient equipment and rebates.

Sponsored three drought-tolerant demonstration gardens at Del Monte Shopping Center in Monterey.

Participated in the Department of Defense Center Monterey Bay's Green Fair.

Participant of Monterey Peninsula College's Earth Day celebration.

Attended two-day training on graywater irrigation, including hands-on experience with Laundry to Landscape Systems.

Completed and submitted testimony supporting the draft conservation budget for the 2012-2014 California American Water General Rate Case.

Worked with California American Water conservation staff to compile the annual



comprehensive report on Monterey Peninsula's Water Conservation Program and to update California American Water's Urban Water Management Plan.

Participated in the Water Awareness Day at the Del Monte Shopping Center. At least 200 people participated in the event. The event offered 16 booths, five bands, two clowns and face painting, three conservation speakers, a Water Treasure Hunt and raffle with 21 raffle items given away, including the grand prize of a Maytag HE Energy Efficient Washing Machine, donated by Cal Water Service. This event was free and open to the public.

Met with PBCSD Recycled Water Project Oversight Committee to review water audit and water budget requirements for golf courses and open space.

Public outreach through televised Board meeting presentations had a focus on outdoor water conservation and efficiency and on the Rebate Program.

Interviewed for a Graywater Irrigation article in the Monterey County Weekly newspaper in May 2010.

Sponsored Basic and Advanced Rainwater Harvesting training workshops presented by the American Rainwater Catchment Systems Association (ARCSA) and provided scholarships to participants that live or work within the District that completed the training.

Water conservation movie theater ad was developed in partnership with Marina Coast Water District and Cal-Am. The ad was run at Century Cinemas for four months during the summer.

Distribute conservation awareness flyer to hospitality industry to provide information to U.S. Open Golf visitors.

Consulted with U.S. Open staff regarding car washing and avoidance of water waste during golf tournament.

Met with two vendors to review new water efficient equipment.

Compiled and printed a brochure outlining Stages 1-7 of the Expanded Water Conservation and Standby Rationing Plan.

Developed and distributed conservation mirror clings to hospitality industry. Mirror messages are required by District Regulation XIV.

Hosted demonstration of Sloan AQUS graywater reuse system. System was <u>not</u> acceptable for use in Monterey County in 2010.



Sponsored two Laundry to Landscape workshops in 2010. One was held in Seaside and the other in Carmel.

Participated in Statewide SBx7-7 public workshop to review the draft Urban Technical Methodologies.

Met with Monterey County Hospitality Association (MCHA) representatives to discuss water factors and outreach.

MPWMD and Cal-Am staff participated in the Monterey County Fair and judged the Water Wise Garden competition.

Met with Niagara Conservation to discuss a conservation retrofit concept for low-income customers using the new Stealth Ultra-High Efficiency Toilets.

Added Rebate for Graywater Irrigation Systems.

Sponsored Certified Landscape Irrigation Auditor (CLIA) training and Sprinkler System Scheduling. Both classes were taught by Andy Slack of Spot Water Management. A CLIA certification testing was conducted after the training.

MPWMD and Cal-Am staff attended WaterSmart Innovations 2010, an international conference for water conservation professionals. MPWMD staff presented on the District and Cal-Am's conservation partnership and on the school retrofit program.

MPWMD and Cal-Am separately presented water conservation seminars at the Monterey County Home Show.

MPWMD, Cal-Am and the Water Awareness Committee (WAC) participated in the local Green Building Expo.

CIMIS station added in Zone 3 at Laguna Seca Golf Ranch.

A second synthetic turf display was installed at the District office.

2011 Provided a \$100 Monterey County science fair award for "Water For Our Future." The award was given for a project that focused on safe, reliable, and sustainable water solutions.

Participated in the national "Fix a Leak Week" in March by promoting leak awareness and repair.

Sponsored and participated as an exhibitor at the May Water Awareness Day festivities at Del Monte Shopping Center.



Sponsored two Laundry to Landscape (graywater) workshops that were open to the public at no charge.

Sponsored Advanced Green Gardener training at the Monterey Adult School.

Exhibited and provided water conservation material and equipment at Monterey Peninsula College and the Naval Postgraduate School's Earth Day celebrations.

Cal-Am implemented a Landscape Grant Program for public landscapes. The program financially supported water efficient landscape conversions at public sites.

Sponsored an Irrigation System Retrofit workshop by Pacific Water Management (60 attendees).

Completed the 2010 Water Conservation Program Report for the California Public Utilities Commission in coordination with Cal-Am.

Installed a third CIMIS station in Zone 1 at Pacific Grove Municipal Golf Course.

MPWMD and California American Water participated in the annual Pebble Beach Community Services District Open House. Staff answered questions of the public and provided water saving equipment.

District and California American Water staff attended WaterSmart Innovations 2011, an international conference on water efficiency and conservation.

Exhibited at Monterey Chamber of Commerce Business Expo at the Monterey Conference Center.

2012 MPWMD sponsored Level 200 rainwater harvesting workshop on February 24 -25, 2012. The training was conducted by the American Rainwater Catchment Systems Association (ARCSA).

Convened Non-Residential stakeholders' groups to review and recommend updates to the Expanded Water Conservation and Standby Rationing Plan (Regulation XV).

Met with officials from local school districts to identify demand management options.

Collaborated with California American Water and local commercial and hospitality representatives to develop Best Management Practice (BMP) rate structure for commercial users.

Exhibited and provided water conservation material and equipment at Monterey Peninsula College and the Naval Postgraduate School's Earth Day celebrations.

Speaker presented on commercial water conservation requirements at local chambers of commerce, and at commercial and hospitality organizations.



Developed and distributed a graywater and rainwater harvesting brochure with one of the Monterey County Business Council's competitive clusters.

Reinstated the Rebate Program. MPWMD administers the program. Following approval of the 2010 GRC, funding was reinstated in November 2012.

2013 Participated in the Monterey Bay 100 Greywater Challenge. The challenge was to activate 100 greywater systems by September 30, 2013.

Conducted two Laundry to Landscape hands-on greywater system workshops.

Adopted expanded mandatory non-residential water efficiency requirements. Compliance required by December 31, 2013.

Presented information about non-residential water efficiency requirements and conservation requirements to local Chambers of Commerce.

2014 MPWMD provided input to various agencies as to development of state-wide drought regulations in 2014. MPWMD participated by assisting the Governor's Drought Task Force, participated in the Association of California Water Agencies Drought Action Group, and served on the Monterey County Drought Task Force. MPWMD presented to the local Drought Task Force on the local conservation actions, as well as its SAVE WATER GO BLUE conservation outreach campaign.

Presented to Association of California Water Agencies Region 5 membership on "Working Together in Dry Times."

Sponsored four Laundry to Landscape hands-on greywater system workshops.

Sponsored several *Rainwater Harvesting Classes* and provided rain-barrel "coupons" worth \$50 off a rain-barrel purchase.

Met with large water users to brainstorm water saving programs to reduce water use during the drought and to help the community comply with the CDO.

Cistern installation/workshops at Earthbound Farms and Carmel Valley Community Center.

Ran a successful "SAVE WATER – GO BLUE" public outreach campaign. The campaign included radio, television and print ads, free public workshop, "Drive Thru Drought Days" conservation equipment distributions, rebate program outreach, etc.

Met with hospitality industry representatives to discuss water rationing.



Collaborated with Monterey Peninsula Airport District to utilize a well water standpipe for dust control and compaction for runway extension project.

Participated in the Monterey Bay Friendly Landscaping Stakeholder Advisory Committee and promoted participation in the program, including modifying landscaping and installing a cistern at the MPWMD office as a demonstration project.

Participated in community events (such as Earth Day, County Fair, local expos and events) and provided water-saving devices and information.

Built award-winning drought tolerant lawn/garden display at the Monterey County Fair and also judged landscaping displays.

Sponsored water quality monitoring of indoor non-potable rainwater harvesting systems.

Provided information and conservation equipment at California State University Monterey Bay's "Sense of Place" fair and at the Carmel Women's Club "Green Vendor Fair."

Exhibit and speaker at the Monterey Home and Garden Expo.

2015 Spoke with students in various grades regarding the drought.

Sponsored two-day Commercial Institutional Industrial (CII) Water Auditing class for local and neighboring water agencies.

Hosted several trainings and demonstrations of laundry-to-landscape irrigation and rainwater capture, including coupons for free 3-way valves.

Made upgrades to the Water Wise Gardening for Monterey County website.

Approved rebates for removal of 56,805 square feet of residential lawn.

Began compliance verification inspections of non-residential users. All non-residential water users were required to meet conservation and efficiency requirements (including high efficiency clothes washers, ice machines, pre-rinse spray valves and toilets, showerheads and faucets by January 1, 2014).

Participated in community events such as: Good Old Days, Monterey County Fair Water Awareness Day, West End Festival, Carmel Valley Fiesta, and various Earth Day events.

Hosted several workshops with local community interest groups about the 2016 Monterey Peninsula Water Conservation and Rationing Plan prior to adoption. This plan replaced the "Expanded Water Conservation and Standby Rationing Plan".

Participated in the State Water Board's informal workgroup on next steps for water conservation regulations, and with Association of California Water Agencies in



discussions on statewide drought response.

Served on the Monterey County Drought Task Force.

Presented at American Water Works Association conference in Seattle and at the WaterSmart Innovations conference.

MPWMD staff presented conservation/efficiency related speeches to the hospitality industry and business coalition representatives, local service organizations, Monterey County Association of Realtors and individual realtor offices, homeowner's associations, local jurisdictions, and other groups.

Demonstrated an atmospheric water generator at the District office.

2016 Adopted updated water efficient landscape requirements and took on role as regional enforcement and reporting agency to the state for the Monterey Peninsula jurisdictions. MPWMD law is stricter than State Model Water Efficient Landscape Ordinance (MWELO).

Contributed to the irrigation conversion at a Salvation Army school site in Seaside by providing low water use rotary sprinkler nozzles.

Participated in community events such as: Good Old Days, Monterey County Fair, Water Awareness Day, West End Festival, Carmel Valley Fiesta, and various Earth Day events.

Held five free "Water Wise" classes focused on saving water outdoors. Classes ranged from rainwater harvesting to understanding your irrigation controller.

Prompted and contributed to a Rain Barrel giveaway where property owner could claim a free rain barrel and hardware to connect to gutter system.

Co-sponsored a Niagara Stealth 0.8 gallons per flush toilet "give-away" at a local Home Depot.

CII program inspected over 700 non-residential buildings for compliance with water efficiency requirements.

Inspected over 1,800 properties for transfer of ownership and Water Permit compliance.

Counited participation on the State Water Board's informal working group on next step for water conservation regulations and with the Association of California Water Agencies discussion on statewide drought response.

Conservation staff made presentation at the WaterSmart Innovations Conference in Las Vegas on CII inspection efforts.



2017 Adopted amendment to Regulation XIV requiring all multi-family housing and common interest developments to install and maintain low water use toilets, showerheads, faucets, common laundry rooms, and install/maintain pressure regulating devices by January 1, 2019.

Added Rebates for non-residential new technology and a rebate for meter splits at multifamily residential sites.

Participated in community events such as: Good Old Days, Monterey County Fair, Water Awareness Day, West End Festival, Carmel Valley Fiesta, and various Earth Day events.

Sponsored a "Mulch Madness" event where members of the community could pick up free mulch and low water use plants.

Executed a hands-on sheet mulching class and garden box building to remove turf and enhance the landscaping at Martin Luther King Jr. Elementary School in Seaside.

Sponsored five "Water Wise" classes focused on outdoor water efficiency.

Made presentations to local property management companies and landlords regarding conservation at their properties, including topics such as programming controllers and finding leaks.

Showcased the District's demonstration rainwater garden by working with a local chef to create a spring salad with ingredients grown in the garden. The ad was featured in the local "Edible" magazine.

Completed over 500 inspections of non-residential buildings for compliance with water efficiency requirements and referred properties to Cal-Am to conduct outdoor inspections of landscaping for compliance with rate BMPs.

Completed verification of over 2,000 residential properties for transfer of ownership requirements and Water Permit compliance.

2018 High Efficiency Appliance Retrofit Targets Program (HEART) was initiated. The program focused on Disadvantaged Communities (DACs) in the City of Seaside. The program provided free or low-cost installation of water efficiency toilets, showerheads and faucet aerators, as well as high efficiency clothes washers, high efficiency dishwashers, irrigation controllers and rain sensors. The program also offered leak detection and repair vouchers.

Participated in community events such as: Good Old Days, Monterey County Fair, Water Awareness Day, West End Festival, Carmel Valley Fiesta, and various Earth Day events.

Free mulch giveaway at City of Monterey Cutting Day. Mulch was distributed to residents at the event.



Continued to offer multiple free "Water Wise" gardening classes during the spring months that focused on outdoor water use.

Hosted community volunteers for a planting day at Martin Luther King Jr. Elementary. 10,508 square feet of turf was removed and replaced with native and low water use plants.

Over 1,900 properties were inspected for compliance with transfer of title requirements and Water Permit requirements.

2019 Participated in community events such as: Good Old Days, Monterey County Fair, Water Awareness Day, West End Festival, Carmel Valley Fiesta, and various Earth Day events.

Hosted multiple "Water Wise" workshops on rain and grey water reuse.

Co-sponsored an irrigation class free to landscapers and water professionals in the area.

Completed over 140 inspections of non-residential buildings and referred properties to Cal-Am for rate BMP non-compliance and for landscape inspections.

Over 1,700 properties were inspected for compliance with change of title requirements and Water Permit requirements.

2020 All outreach events/classes were moved to the video conferencing platforms in response to the pandemic. A total of five classes were offered throughout the year to help residents save water in their gardens.

Managed to inspect or certify over 1,300 properties for compliance with water efficiency regulations, including transfer of title, Water Permits, and non-residential properties.

Produced the first family-oriented game "Summer Splash Water Challenge." Residents participated via an interactive game board where they had to watch videos and look at their water bill to answer questions about water conservation. Game boards were submitted for a drawing, and the first prize was a High Efficiency Clothes Washer.

2021 Continued to offer online classes. Five classes throughout the fall were offered to help residents save water in their gardens and make them better gardeners.

Participated in a limited amount of in-person community events while keeping our staff safe. Continued to distribute water saving devices to the community at these events and from the office.

Inspected/certified over 1,400 properties for water efficiency regulations. This included transfer of title, Water Permits, and non-residential properties. Reinstated full-time inspection/enforcement schedule.

Year two of the "Summer Splash Water Challenge". Questions were updated, and a new



set of prizes were offered that included a rain cistern.

Assisted teaching a Horticulture 70 class at Monterey Peninsula College, including conducting catch-can tests and discussion about the CIMIS program.

2022 Continued co-sponsoring online training from Green Gardeners Group (G3).

Co-sponsored a highly successful "Mulch Madness" event that provided free and reducedcost mulch to participants.

Presented water demand and conservation information to Sotheby's and other realty offices.

Attended public events to showcase conservation devices, answer questions, and provide advice. Events included several Earth Day Events, Cutting Day, Carmel Valley Fiesta, Monterey County Fair, West End Celebration, and other events.

Year three of the "Summer Splash Water Challenge". Questions were once again updated, and a new set of prizes were offered that included a high efficiency clothes washer.

Moved to Stage 2 Water Conservation on June 1, 2022, in response to the Governor's and the State Water Board's orders to increase conservation efforts. Stage 2 calls for greater outreach and enforcement.

Other Ongoing Efforts

- Complete water demand evaluations and provide comments on development projects as a responsible agency to the California Environmental Quality Act
- Review, analyze and comment on water demand projections and recommend conditions for development projects which could affect local water resources
- Partner with the Water Awareness Committee of Monterey County and other regional groups and agencies in a leadership and sponsorship role
- Distribute free equipment and publications
- Administering the extensive MPWMD/Cal-Am Rebate Program
- Assist jurisdictions with planning and implementing water conservation measures and retrofits and management of their water
- Annually report permitting and inspections of Landscape Water Permits for the region to the Department of Water Resources.



# Attachment F

(Phase 2 Direct Testimony of Stephanie L. Locke)



1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021

Water Year

# Attachment G

(Phase 2 Direct Testimony of Stephanie L. Locke)

### **RULE 160 - REGULATORY PRODUCTION TARGETS AND PHYSICAL STORAGE TARGET**

The monthly distribution of water production from sources within the Monterey Peninsula Water Resource System (MPWRS), as shown in Tables XV-1, XV-2, and XV-3 shall be approved by the Board of Directors as part of the Quarterly Water Supply Strategy and Budget process. The Board shall hold public hearings during the Board's regular meetings in September, December, March, and June, at which time the Board may modify Tables XV-1, XV-2, and XV-3 by Resolution.

The Physical Storage Target, as shown in Table XV-4 shall be approved as of May 1 each year by the Board of Directors. The Board shall hold a public hearing during the Board's regular meeting in May, at which time the Board may modify Table XV-4 by Resolution.

Rule added by Ordinance No. 92 (1/29/99); amended by Ordinance No. 119 (3/21/2005); Ordinance No. 134 (8/18/2008); Ordinance No. 135 (9/22/2008); Ordinance No. 137 (12/8/2008); Ordinance No. 142 (1/28/2010); deleted by Ordinance No. 169 (2/17/2016); Rule added by Ordinance No. 169 (2/17/2016)

### Table XV-1

### Regulatory Water Production Targets for All California American Water Systems from Sources Within the Monterey Peninsula Water Resource System

| (All values III Acte-reet) |                   |                                     |
|----------------------------|-------------------|-------------------------------------|
| Month                      | Monthly<br>Target | Year-to-Date at<br>Month-End Target |
| October                    | 893               | 893                                 |
| November                   | 731               | 1,624                               |
| December                   | 676               | 2,300                               |
| January                    | 740               | 3,040                               |
| February                   | 662               | 3,702                               |
| March                      | 772               | 4,474                               |
| April                      | 776               | 5,250                               |
| May                        | 883               | 6,133                               |
| June                       | 882               | 7,015                               |
| July                       | 945               | 7,960                               |
| August                     | 948               | 8,908                               |
| September                  | 876               | 9,784                               |
| TOTAL                      | 9,784             |                                     |
|                            |                   |                                     |

(All Values in Acre-Feet)

#### Notes:

Monthly and year-to date at month-end production targets are based on the annual production limit specified for the California American Water (Cal-Am) systems for Water Year (WY) 2020 from Carmel River sources per State Water Resources Control Board Order WR 2016-0016 (8,310 acre-feet) and adjusted annual production limits specified for the Cal-Am satellite systems from its Coastal Subarea sources (1,474 acre-feet) and Laguna Seca Subarea sources (0 acre-feet) of the Seaside Groundwater Basin per the Seaside Basin Adjudication Decision. These values do not include consideration of any carryover credit in the Seaside Basin for WY 2020. This combined total (9,784 acre-feet) was distributed monthly based on Cal-Am's reported monthly average production for its main and satellite systems during the 2013 through 2018 period. For purposes of Rule 163.A.3 and Rule 164.A.3 the annual production limit shall add the expected production from all water supply projects, including Pure Water Monterey and the Sand City Desalination Facility.

Table XV-1 amended by Resolution 2007-05 (5/21/2007); Ordinance No. 134 (8/18/2008); Ordinance No. 135 (9/22/2008); Ordinance No. 137 (12/8/2008); Resolution 2009-08 (6/15/2009); Resolution 2009-17 (12/14/2009); Resolution 2010-06 (5/17/2010); Resolution 2011-01 (1/27/2011); Resolution 2011-12 (9/19/2011); Resolution 2012-13 (9/17/2012); Resolution 2013-15 (9/16/2013); Resolution 2014-15 (9/15/2014); Resolution 2015-18 (9/21/2015); Resolution 2016-14 (9/19/2016); Resolution 2017-15 (9/18/2017); Resolution 2018-19 (9/17/2018); Resolution 2019-12 (9/16/2019); Resolution No. 2020-13 (9/21/2020); Resolution No. 2020-19 (12/14/2020); Resolution 2021-10 (6/21/2021)
## Table XV-2

## Regulatory Water Production Targets for California American Water Satellite Systems from Sources Within the Monterey Peninsula Water Resource System

| Month     | Monthly<br>Target | Year-to-Date at<br>Month-End Target |
|-----------|-------------------|-------------------------------------|
| October   | 0                 | 0                                   |
| November  | 0                 | 0                                   |
| December  | 0                 | 0                                   |
| January   | 0                 | 0                                   |
| February  | 0                 | 0                                   |
| March     | 0                 | 0                                   |
| April     | 0                 | 0                                   |
| May       | 0                 | 0                                   |
| June      | 0                 | 0                                   |
| July      | 0                 | 0                                   |
| August    | 0                 | 0                                   |
| September | 0                 | 0                                   |
| TOTAL     | 0                 |                                     |

(All Values in Acre-Feet)

#### Notes:

Monthly and year-to date at month-end production targets are based on the adjusted annual production limit specified for the California American Water (Cal-Am) satellite systems for Water Year 2021 from its sources in the Laguna Seca Subarea of the Seaside Groundwater Basin per the Seaside Basin Adjudication Decision. This Laguna Seca Subarea total (0 acre-feet) was distributed monthly based on Cal-Am's reported monthly average production for its satellite systems during the 2013 through 2018 period.

Table XV-2 added by Ordinance No. 135 (9/22/2008); amended by Ordinance No. 137 (12/8/2008); Resolution 2009-08 (6/15/2009); Resolution 2009-17 (12/14/2009); Resolution 2010-06 (5/17/2010); Resolution 2011-01 (1/27/2011); Resolution 2011-12 (9/19/2011); Resolution 2012-13 (9/17/2012); Resolution 2013-15 (9/16/2013); Resolution 2014-15 (9/15/2014); Resolution 2015-18 (9/21/2015); Resolution No. 2016-14 (9/19/2016); Resolution 2017-15 (9/18/2017); Resolution 2018-19 ((9/17/2018); Resolution 2019-12 (9/16/2019); Resolution No. 2020-13 (9/21/2020); Resolution No. 2020-19 (12/14/2020)

#### Table XV-3

## Regulatory Water Production Targets for California American Water Systems from Carmel River Sources Within the Monterey Peninsula Water Resource System

| Month     | Monthly<br>Target | Year-to-Date<br>at Month-End Target |
|-----------|-------------------|-------------------------------------|
| October   | 667               | 667                                 |
| November  | 545               | 1,213                               |
| December  | 506               | 1,719                               |
| January   | 553               | 2,272                               |
| February  | 494               | 2,766                               |
| March     | 577               | 3,343                               |
| April     | 580               | 3,923                               |
| May       | 660               | 4,583                               |
| June      | 659               | 5,241                               |
| July      | 706               | 5,947                               |
| August    | 708               | 6,655                               |
| September | 655               | 7,310                               |
| TOTAL     | 7,310             |                                     |

(All Values in Acre-Feet)

Notes:

Monthly and year-to-date at month-end production targets are based on the annual production limit specified for California American Water (Cal-Am) for Water Year (WY) 2021 from its Carmel River system sources per State Water Resources Control Board Order WR 2016-0016 (8,310 acre-feet). This amount was distributed monthly based on Cal-Am's reported monthly average production for its Main system sources during the 2013 through 2018 period. These values incorporate consideration of the triennial reductions specified for the Cal-Am systems in the Seaside Basin Adjudication Decision, in setting the monthly maximum production targets from each source as part of the MPWMD Quarterly Water Supply Budget Strategy.

Table XV-3 added by Resolution 2014-15 (9/15/2014); amended by Resolution 2015-18 (9/21/2015); Resolution 2016-14 (9/19/2016); Resolution 2017-15 (9/18/2017); Resolution 2018-19 (9/17/2018); Resolution 2019-12 (9/16/2019); Resolution No. 2020-13 (9/21/2020); Resolution No. 2020-19 (12/14/2020)

#### Table XV-4

## Physical Storage Target for the Monterey Peninsula Water Resource System for the May-September 2020 and all WY 2022

| Producer                              | May-September<br>Demand | Carryover<br>Storage Needs<br>for Next Year<br>Demand From MPWRS | Total<br>Storage<br>Required on<br>May 1 |
|---------------------------------------|-------------------------|--|--|
| California American Water<br>(Cal-Am) | 3,688                   | 4,850  | 8,538                                    |
| <u>Non Cal-Am</u>                     | <u>1,946</u>            | <u>3,046</u>   | <u>4,992</u>                             |
| Total                                 | 5,634                   | 7,896  | 13,530                                   |
|                                       |                         |  | Total Storage<br>Available on<br>May 1   |
|                                       |                         |  | <b>28,380</b> <sup>5</sup>               |

Notes:

- 1. The May-September period refers to the remainder of the current Water Year.
- 2. Carryover Storage refers to the volume of usable surface and Groundwater that is in storage at the end of the current Water Year and is projected to be available for use at the beginning of the following Water Year.
- 3. Total Storage refers to the combination of demand remaining from May 1 to the end of the current Water Year and Carryover Storage for the next Water Year that is required to avoid imposing various levels of water Rationing. The value in **bold type** represents the storage trigger that would be used for the system in Water Year 2021. The value is based on the production limits for California American Water (Cal-Am) from Carmel River sources (7,310 Acre-Feet in WY 2021 and 3,376 Acre-Feet WY 2022) set by State Water Resources Control Board Order WR 2016-0016, the production limit for Cal-Am from the Seaside Groundwater Basin (1,474 Acre-Feet in WY 2021 and 1,474 Acre-Feet in WY 2022) set by the Court in its March 27, 2006 Adjudication Decision, and the production limit specified for non-Cal-Am users from the Monterey Peninsula Water Resource System set in the District's Water Allocation Program (Ordinance No. 87).
- 4. The rationing trigger is based on physical water availability and does not account for legal or environmental constraints on diversions from the Carmel River system.
- 5. May 1, 2019 System Storage = 28,380 Acre-Feet (25,340 Acre-Feet Carmel Valley Alluvial Aquifer; 1,390 Acre-Feet Seaside Groundwater Basin; 1,650 Acre-Feet Los Padres Reservoir); this is 90% of average and 86% of System Capacity (33,130 AF).

Table XV-4 added by Resolution 2014-07 (5/19/2014); amended by Resolution 2014-15 (9/15/2014); Resolution 2015-08 (5/18/2015); Ordinance No. 169 (2/17/2016); Resolution 2016-09 (5/16/2016); Resolution 2017-08 (5/15/2017); Resolution 2018-09 (5/21/2018); Resolution 2019-04 (5/20/2019); Resolution 2020-05 (5/18/2020); Resolution 2021-04 (5/17/2021) **160-5** 

#### **RULE 161 - GENERAL PROVISIONS**

- A. All Water Users within the Monterey Peninsula Water Management District shall comply with the District's Water Waste Prohibitions of Rule 162 and with the requirements of MPWMD Regulation XIV, Water Conservation.
- B. California American Water shall amend its Urban Water Management Plan and its Rule 14.1.1 (Standard Practice U-40-W), Water Shortage Contingency Plan - Monterey County District, to conform to this Regulation. A copy of Rule 14.1.1 shall be filed with the California Public Utilities Commission (CPUC) and the District within thirty (30) days of the effective date of this Regulation and any amendment thereto.
- C. Water Distribution Systems regulated by the CPUC shall amend their Rule 14.1 to conform to this Regulation. A copy of Rule 14.1 shall be filed with the California Public Utilities Commission (CPUC) and the District within thirty (30) days of the effective date of this Regulation and any amendment thereto.
- D. At least ten (10) days prior to a first reading of amendments to Regulation XV, a copy of the proposed changes shall be provided to the CPUC Office of Ratepayer Advocates (ORA).
- E. California American Water shall provide the District with monthly consumption reports by customer classification and jurisdiction in a format approved by the District. A Water Year summary report shall be provided by December 1 of the next Water Year. Monthly reports shall be provided within fifteen (15) days of the close of the preceding month.
- F. Each Water Distribution System Operator shall provide individual consumption data pertaining to any Water User of that Water Distribution System upon written request of the General Manager. Data shall be in the form and manner specified by the General Manager and may be subject to a non-disclosure agreement with the Water Distribution System Owner/Operator. Each failure to respond in full to such written request by the date specified therein shall result in a penalty to the Water Distribution System of five-hundred dollars (\$500) per day for each day or portion thereof that the response is delayed.
- G. The General Manager shall retain and use any data received under this provision for the sole purposes of testing, administering, evaluating or enforcing Water Rationing, Water Waste, or other provisions of the Rules and Regulations.
- H. California American Water shall maintain Non-Revenue Water in its Water District Systems at or below seven (7) percent. Average losses of more than seven (7) percent during the most recent twelve-month period shall be considered Water Waste.
- I. Each Water Distribution System Operator shall provide written notice of any adjustment to a Water Conservation or Rationing Stage to every customer via first class mail at least thirty (30) days before any change in Stage is imposed.

- J. At all times during Stages 2 through 4 each affected Water Distribution System shall send monthly conservation reminders.
- K. During a Water Supply Emergency, or at the direction of the Board of Directors, each Owner or Operator or Extractor of a private water Well, Water Distribution System, or other Water-Gathering Facility shall comply with the provisions of this Regulation, as they relate to such Well, Water Distribution System, or other Water-Gathering Facility.
- L. The owner and/or manager of rental property shall provide current and new tenants with information about the water conservation requirements, including the Water Waste and Non-Essential Water Use regulations of the District. This information shall be readily accessible on a tenant portal website with annual notification of its presence, or when notice is not provided electronically, the owner and/or manager shall annually provide written information to existing tenants and to new tenants as they move in.

Rule added by Ordinance No. 92 (1/29/99); amended by Ordinance No. 134 (8/18/2008); Ordinance No. 137 (12/8/2008); Ordinance No. 142 (1/28/2010); deleted by Ordinance No. 169 (2/17/2016); Rule added by Ordinance No. 169 (2/17/2016); Ordinance No. 182 (5/20/2019).

#### **RULE 162 - STAGE 1 WATER CONSERVATION: PROHIBITION ON WATER WASTE**

- A. Trigger. Stage 1 shall remain in effect at all times and shall apply to all Water Users subject to modification by the Board.
- B. Water Waste Prohibitions. Water Waste shall mean the indiscriminate, unreasonable, or excessive running or dissipation of water. Water Waste shall include, but not be limited, to the following:
  - 1. Waste caused by correctable leaks, breaks or malfunctions. All leaks, breaks, or other malfunctions in a Water User's plumbing or distribution system must be repaired within 72 hours of notification that a leak exists. Exceptions may be granted by the General Manager for corrections which are not feasible or practical.
  - 2. Indiscriminate or excessive water use which allows excess to run to waste.
  - 3. Washing driveways, patios, parking lots, tennis courts, or other hard surfaced areas with Potable water, except in cases where health or safety are at risk and the surface is cleaned with a Water Broom or other water efficient device or method. Water should be used only when traditional brooms are not able to clean the surface in a satisfactory manner.
  - 4. Power or pressure washing buildings and structures with Potable water, except when preparing surfaces for paint or other necessary treatments or when abating a health or safety hazard.
  - 5. Irrigation between 9 a.m. and 5 p.m. on any day, and irrigation on any day other than Saturdays and Wednesdays, except for irrigation overseen by a professional gardener or landscaper who is available on Site and that is not exceeding a maximum two watering days per week. This prohibition applies to hand watering with a hose, and irrigation systems whether spray, drip, or managed by a Smart Controller. Limited hand watering of plants or bushes with a small container or a bucket is permitted on any day at any time. Subsurface Graywater Irrigation Systems may also be operated at any time. An exemption may be given to a Non-Residential establishment whose business requires water in the course of its business practice (e.g. golf courses, nurseries, recreational space, among others) with notification by the business owner to the District, and subject to the approval of the General Manager.

Irrigation using water from a Well is exempt from the watering day restriction if irrigation is done in an efficient manner. Well irrigators located in urban areas are encouraged to display signage that indicates the water used for irrigation is from a Well or other Source of Supply on the Site.

6. Hand watering by a hose, during permitted hours, without a quick acting Positive Action Shut-OffNozzle.

- 7. Irrigating during rainfall and for 48 hours after Measurable Precipitation.
- 8. Use of water for irrigation or outdoor purposes in a manner inconsistent with California's Model Water Efficient Landscape Ordinance (Code of Regulations, Title 23, Water, Division 2, Department of Water Resources, Chapter 2.7, and any successor regulations) where applicable, or in a manner inconsistent with local regulations.
- 9. Operation of fountains, ponds, lakes or other ornamental use of Potable water without recycling, and except to the extent needed to sustain aquatic life, provided such animals are of significant value and have been actively managed.
- 10. Individual private washing of cars with a hose except with the use of a Positive Action Shut-Off Nozzle.
- 11. Washing commercial aircraft, cars, buses, boats, trailers or other commercial vehicles with Potable water, except at water efficient commercial or fleet vehicle or boat washing facilities where equipment is properly maintained to avoid wasteful use.
- 12. In-Bay or Conveyor Car Washes permitted and constructed prior to January 1, 2014, that do not recycle and reuse at least 50 percent of the wash and rinse water. In-Bay or Conveyor Car Washes that were permitted and constructed after January 1, 2014, that do not either: (1) use and maintain a water recycling system that recycles and reuses at least 60 percent of the wash and rinse water; or (2) use Recycled Water provided by a water supplier for at least 60 percent of its wash and rinse water.
- 13. Charity car washes.
- 14. Use of Potable water for street cleaning.
- 15. Failure to meet MPWMD Regulation XIV water efficiency standards for an existing Non-Residential User after having been given a reasonable amount of time to comply.
- 16. Serving drinking water to any customer unless expressly requested, by a restaurant, hotel, café, cafeteria or other public place where food is sold, served or offered for sale.
- 17. Visitor-Serving Facilities that fail to adopt and promote towel and linen reuse programs and provide written notice in the rooms, whereby towels and linens are changed every three days or as requested by action of the guest.
- 18. Washing of livestock with a hose except with the use of a Positive Action Shut-Off Nozzle.

- 19. Transportation of water from the Monterey Peninsula Water Resource System without prior written authorization from the MPWMD.
- 20. Delivery, receipt, and/or use of water from an unpermitted Mobile Water Distribution System.
- 21. Unreasonable or excessive use of Potable water for dust control or earth compaction without prior written approval of the General Manager where Non-Potable Water or other alternatives are available or satisfactory.
- 22. Use of unmetered fire hydrant water by individuals other than for fire suppression or utility system maintenance purposes, except upon prior approval of the General Manager.
- 23. Water use in excess of a Water Ration.
- 24. Non-compliance with Regulations XIV and XV.
- C. The following activities shall not be cited as Water Waste:
  - 1. Flow resulting from firefighting or essential inspection of fire hydrants;
  - 2. Water applied to abate spills of flammable or otherwise hazardous materials, where water application is the appropriate methodology;
  - 3. Water applied to prevent or abate health, safety, or accident hazards when alternate methods are not available;
  - 4. Storm run-off;
  - 5. Flow from fire training activities during Stage 1 Water Conservation through Stage 3 Water Conservation;
  - 6. Reasonable quantities of water applied as dust control as required by the Monterey Bay Air Resources District, except when prohibited;
  - 7. When a Mobile Water Distribution System Permit is not obtained by a State licensed Potable water handler by reason of an emergency or health related situation, authorization for the Mobile Water Distribution System Permit shall be sought from the District by submittal of a complete application compliant with Rule 21, within five working days following commencement of the emergency or health related event.

- D. Prohibitions against Water Waste and Non-Essential Water Use shall be enforced by the District and its designated agents, unless indicated otherwise. All notices and assessments of Water Waste and/or excess water use charges made by a Water Distribution System Operator shall be reported to the District within thirty (30) days.
- E. Each occurrence of Water Waste or Non-Essential Water Use that continues after the Water User has had reasonable notice to cease and desist that type of water use shall constitute a Flagrant Violation.
- F. Repeated occurrences of Water Waste or Non-Essential Water Use, which continue or occur after the Water User has had a reasonable notice to cease and desist that type of water use, or which continues or occurs after the Water User has had a reasonable opportunity to cure any defect causing that type of water use, shall provide cause for the placement of a Flow Restrictor with a maximum flow rate of six (6) CCF/month within the water line or Water Meter. Exemptions to the installation of a Flow Restrictor as a means to enforce the Water Ration shall occur when there are provable risks to the health, safety and/or welfare of the Water User. An exemption shall be made for Master Meters serving three or more Multi-Family Households or Master Meters serving both Residential and Non-Residential Users by substituting an excess water use charge equivalent to the appropriate Water Meter size, Rationing stage, and 4th offense amount times the number of Dwelling Units located on the Water Meter during each month in which a violation of the Water Ration occurs. The Responsible Party shall be liable for payment of all excess water use charges.
- G. Water Waste Fines shall be assessed as shown in Table XV-5. Table XV-5 may be amended by Resolution of the Board. Amendments to this table shall be concurrently made to the Fees and Charges Table found in Rule 60.
- H. In addition to Water Waste fines and fees described in this Rule 162, enforcement of all District Rules and Regulations is subject to District Regulation XI and may include an Administrative Compliance Order, a Cease & Desist Order, or other remedy available to the District under its Regulation XI.

Rule added by Ordinance No. 92 (1/28/99); amended by Ordinance No. 119 (3/21/05); Ordinance No. 125 (9/18/2006); Ordinance No. 134 (8/18/2008); Ordinance No. 135 (9/22/2008); Ordinance No. 137 (12/8/2008); Resolution No. 2009-17 (12/14/2009); Ordinance No. 142 (1/28/2010); deleted by Ordinance No. 169 (2/17/2016); Rule added by Ordinance No. 169 (2/7/2016); Ordinance No. 177 (9/18/2017); Ordinance No. 179 (8/20/2018)

## Table XV-5 Water Waste Fines

| First offense  | No fee: Written notice and opportunity to correct<br>the situation   |
|--|--|
| Fine for first Flagrant Violation  | \$100*   |
| Fine for second Flagrant Violation within two (2) months                       | \$250*   |
| Fine for third and subsequent Flagrant Violations<br>within twelve (12) months | \$500*   |
| Fine for Administrative Compliance Order or<br>Cease & Desist Order            | Up to \$2,500 per day* for each ongoing violation,<br>except that the total administrative penalty<br>shall not exceed one hundred thousand dollars<br>(\$100,000.00) exclusive of administrative costs,<br>interest and restitution for compliance re-<br>inspections, for any related series of violations |
| Late payment charges   | Half of one percent of the amount owed per<br>month  |
| *Fines triple for customers using over 500,000 galle                           | ons/year   |

Table XV-5 added by Ordinance No. 169 (2/17/2016)

#### **RULE 163 - STAGE 2 WATER CONSERVATION: VOLUNTARY REDUCTION IN USE**

## A. Trigger.

- 1. Physical Shortage Trigger (California-American Water Company Distribution Systems): Stage 2 shall take effect for all California-American Water Company Water Distribution Systems that rely, in whole or in part, on production or production offsets from the Carmel River System or the Seaside Coastal Subareas, on June 1 or such earlier date as may be set by the Board following the District's May Board meeting if Total Storage Available in Table XV-4 is below the Total Storage Required, but at least 95 percent of Total Storage Required. The amount of voluntary reduction shall equal the percentage shortfall in Total Storage Required.
- 2. Physical Shortage Trigger (Non-California-American Water Company Distribution Systems): Stage 2 shall take effect for any Water Distribution System, other than California-American Water Company's Water Distribution Systems, that relies in whole or in part on production or production offsets from the Carmel River System or the Seaside Coastal Subareas on June 1 or such earlier date as may be set by the Board following the District's May Board meeting if Total Storage Available in Table XV-4 is below the Total Storage Required. The amount of voluntary reduction shall equal the percentage shortfall in Total Storage Required.
- 3. Regulatory Trigger Production Targets: Stage 2 shall take effect on the California-American Water Company Water Distribution System when the most recent 12 month California American Water production from the MPWRS is greater than the then-current annual production target as determined in Table XV-1 but no greater than 105 percent of the annual production target. The amount of voluntary reduction shall equal the percentage overage of the annual production.
- 4. Regulatory Trigger Regulatory Order: Stage 2 shall take effect in any Water Distribution System when that system is directed to reduce use by a governmental or regulatory agency. The amount of voluntary reduction shall equal the percentage directed by that governmental or regulatory agency relative to a base year determined by the governmental or regulatory agency.
- 5. Emergency Trigger: Stage 2 shall take effect for any Water Distribution System, private Well, or Water User when the Board finds that a Water Supply Emergency exists for a Water Distribution System. Stage 2 shall take effect upon adoption of a Resolution of the District Board of Directors, or a declaration of a Water Supply Emergency by the Water Distribution System Operator or a State or County entity, due to a catastrophic event. In that Resolution or declaration, there shall be a finding of an immediate need to reduce production and shall name the Water Distribution System(s) affected. The amount of voluntary reduction shall be determined by the Board, the Water Distribution System

Operator, or the State or County entity.

- B. The Water Distribution System Owner or Operator shall provide notice of the amount of voluntary reduction requested to affected Water Users pursuant to Rule 161.
  Additional noticing and public outreach may be provided by the District at the direction of its Board of Directors.
- C. The District and its agents shall increase enforcement activities related to Water Waste prohibitions.
- D. Stage 1 shall remain in effect.
- E. Sunset.
  - 1. Without further action of the Board of Directors, Stage 2, when implemented pursuant to Rule 163-A-1 and Rule 163-A-2, shall sunset and water use restrictions shall revert to Stage 1 when remaining Total Storage Available computed consistent with Table XV-4 is greater than remaining Total Storage Required for two (2) consecutive months.
  - 2. Without further action of the Board of Directors, Stage 2, when implemented pursuant to Rule 163-A-3, shall sunset for the California American Water Company and water use restrictions shall revert to Stage 1 when that Water Distribution System's 12 month total production has been less than or equal to its then-current annual production target for two (2) consecutive months.
  - 3. Without further action of the Board of Directors, Stage 2, when implemented pursuant to Rule 163-A-4, shall sunset for that Water Distribution System(s) and water use restrictions shall revert to Stage 1 when the governmental or regulatory agency rescinds the request.
  - 4. Stage 2, when implemented pursuant to Rule 163-A-5, shall sunset and water use restrictions shall revert to Stage 1 when the Board finds that a Water Supply Emergency no longer exists.

Rule added by Ordinance No. 92 (1/28/99); amended by Ordinance No. 119 (3/21/2005); Ordinance No. 125 (9/18/2006); Ordinance No. 134 (8/18/2008); Ordinance No. 135 (9/22/2008); Ordinance No. 137 (12/8/2008); deleted by Ordinance No. 169 (2/17/2016); Rule added by Ordinance No. 169 (2/17/2016)

#### **RULE 164 - STAGE 3 WATER CONSERVATION: CONSERVATION RATES**

## A. Trigger.

- 1. Stage 2 Deemed Unsuccessful: Stage 3 shall take effect for all California-American Water Company Water Distribution Systems if Stage 2 has been implemented pursuant to Rule 163-A-1 or Rule 163-A-3 and has failed to sunset after a period of six (6) months.
- 2. Physical Shortage Trigger: Stage 3 shall take effect for all California-American Water Company Water Distribution Systems on June 1, or such earlier date as may be set by the Board following the District's May Board meeting, if Total Storage Available in Table XV-4 is below 95% of Total Storage Required.
- 3. Regulatory Trigger Production Targets: Stage 3 shall take effect for all California-American Water Company Water Distribution Systems when the most recent 12 month California American Water production from the MPWRS is greater than 105 percent of the then-current annual production target as determined in Table XV-1 and Stage 2 has not been implemented.
- 4. Regulatory Trigger Regulatory Order: Stage 3 shall take effect for all California-American Water Company Water Distribution Systems when directed by a governmental or regulatory agency to implement Stage 3.
- 5. Emergency Trigger: Stage 3 shall take effect for all California-American Water Company Water Distribution Systems when the Board findsthataW ater Supply Emergency exists and upon adoption of a Resolution of the Board of Directors, or a declaration of a Water Supply Emergency by California American Water, or by a State or County entity due to a catastrophic event. In that Resolution or declaration, there shall be a findingofanimmediateneedto reduce production through the imposition of Stage 3 Conservation Rates.
- B. Stages 1 and 2 shall remain in effect.
- C. If Stage 2 has not already been implemented, Stage 2 shall be triggered simultaneously with Stage 3.
- D. Thirty days prior to implementation of Stage 3, California American Water shall fi le to implement Level 1 Conservation Rates within its Main California-American Water Company Water Distribution System, the Bishop Water Distribution System, Hidden Hills System, and Ryan Ranch Water Distribution System and shall provide notifi cation to its customers that such rates shall be implemented after thirty (30) days. Prior to an increase to Level 2 Conservation Rates, California American Water shall provide notifi cation to its customers that such rates shall be implemented after thirty (30) days.

- 1. Level 1 Conservation Rates comprised of a 25 percent surcharge shall be implemented on the then existing rates for a minimum of three (3) months. The surcharge shall not apply to Tier 1 Residential customers.
- 2. Level 2 Conservation Rates comprised of a 40 percent surcharge shall be implemented on the then existing rates (without the 25 percent Level 1 surcharge) if after the imposition of Level 1 Conservation Rates for three (3) months, the monthly production in the California American Water System exceeds the monthly production target for the previous two (2) consecutive months. The surcharge shall not apply to Tier 1 Residential customers.

#### E. Sunset.

- 1. Without further action of the Board of Directors, Stage 3, when implemented pursuant to Rule 164-A-2, shall sunset and water use restrictions shall revert to Stage 1 when remaining Total Storage Available computed consistent with Table XV-4 is greater than remaining Total Storage Required for two (2) consecutive months.
- 2. Without further action of the Board of Directors, Stage 3, when implemented pursuant to Rule 164-A-3, shall sunset and water use restrictions shall revert to Stage 1 when the 12 month total production has been less than or equal to its then-current annual production target for two (2) consecutive months.
- 3. Without further action of the Board of Directors, Stage 3, when implemented pursuant to Rule 164-A-4, shall sunset and water use restrictions shall revert to Stage 1 when the governmental or regulatory agency rescinds the request and Rules 164-A-2 and 164-A-3 do not apply.
- 4. Stage 3, when implemented pursuant to Rule 164-A-5, shall sunset and water use restrictions shall revert to Stage 1 when the Board finds that a Water Supply Emergency no longer exists and Rules 164-A-2 and 164-A-3 do not apply.

Rule added by Ordinance No. 92 (1/28/99); amended by Ordinance No. 119 (3/21/2005); Ordinance No. 125 (9/18/2006); Ordinance No. 134 (8/18/2008); Ordinance No. 135 (9/22/2008); Ordinance No. 137 (12/8/2008); deleted by Ordinance No. 169 (2/17/2016); Rule added by Ordinance No. 169 (2/17/2016)

#### RULE 165 - STAGE 4: WATER RATIONING

## A. Trigger.

- Stage 3 Deemed Unsuccessful (California-American Water Company Distribution Systems): Stage 4 shall take effect for all California-American Water Company Water Distribution Systems if Stage 3 has been implemented and has failed to sunset after a period of 8 months.
- 2. Physical Shortage Trigger. Stage 3 Deemed Unsuccessful for California-American Water Company Distribution Systems and Stage 2 Deemed Unsuccessful for Non-California American Water Systems: Stage 4 shall take effect for any Water Distribution System that relies, in whole or in part, on production or production offsets from the Carmel River System or the Seaside Coastal Subareas if Stage 2 (Non-California-American Water Company Water Distribution Systems, private Wells, or Water Users) and Stage 3 (California-American Water Company Distribution Systems) have been implemented and have failed to sunset after a period of eight (8) months.
- 3. Regulatory Trigger: Stage 4 shall take effect in any Water Distribution System when that system is directed by a governmental or regulatory agency to enact Stage 4.
- 4. Emergency Trigger: Stage 4 shall take effect for any Water Distribution System, private Well, or Water User when the Board finds that a Water Supply Emergency exists and upon adoption of a Resolution of the Board of Directors, or a declaration of a Water Supply Emergency by the Company, or a State or County entity, due to a catastrophic event. In that Resolution or declaration, there shall be a finding of an immediate need to reduce production through the imposition of Stage 4 Water Rationing.
- 5. Stage 4 shall not be triggered if the General Manager determines upon credible evidence that the production targets associated with a final Cease and Desist Order are likely to be met by adhering to the requirements of a lesser Stage. The General Manager shall record this determination and any amendment thereto, by memorandum which may be appealed to the Board in accord with Regulation VII, Appeals.
- 6. Delay of Stage Implementation. The Board may delay implementation of Stage 4 Water Rationing for any Water Distribution System to ensure adequate operation of the program. Delays authorized by the Board shall not exceed sixty (60) days.
- B. Amount of Reduction.
  - 1. The amount of mandatory reduction shall equal the shortfall in Total Storage Available as compared to the Total Storage Required; or

- 2. The amount of mandatory reduction shall equal the overage of the last 12 months actual production as compared to the then-current annual production target; or
- 3. The amount of mandatory reduction shall equal some other amount as reflected in a governmental or regulatory order.
- C. Stages 1, 2, and 3 (if applicable) shall remain in effect.
- D. Additional Prohibitions.
  - 1. The Board shall consider prohibiting all or specific Non-Essential Water Uses. The Board may enact such prohibitions by Resolution.
  - California American Water shall maintain Non-Revenue Water at or below seven (7) percent.
  - 3. Moratorium. Upon implementation of Stage 4, the Board shall declare a moratorium on accepting Water Permit applications within the affected Water Distribution System other than those applications that rely upon a Water Credit, Water Use Credit, or Water Use Permit. The Board may amend the moratorium to include the use of Water Credits and/or Water Use Credits if warranted. All pending Water Permits not issued within 120 days of declaration shall be suspended. Water Use Permits shall be exempt from any moratorium on Water Permits.
  - 4. No New Potable Water Service: Upon declaration of Stage 4 Water Rationing, no new Potable water service will be provided, no new temporary Water Meters or permanent Water Meters will be provided, and no statements of immediate ability to serve or provide Potable water service (e.g. will-serve letters, certificates, or letters of availability) will be issued by the Water Distribution System Operator, except under the following circumstances:
    - a. The project is necessary to protect the public health, safety, or welfare;
    - b. The setting of meters in the California-American Water Company Water Distribution System shall not be terminated or diminished by reason of any water emergency, water moratorium or other curtailment on the setting of meters for holders of Water Use Permits;
    - c. This provision does not preclude the resetting or turn-on of Water Meters to provide continuation of water service or the restoration of service that has been interrupted for a period of one year or less.

- 5. No New Annexations: Upon the declaration of a Stage 4, California-American Water Company will suspend annexations to its Service Area. This subsection does not apply to boundary corrections and annexations that will not result in any increased use of water, or annexations required by a regulatory agency.
- 6. Customers utilizing portable Water Meters or hydrant Water Meters or using hydrants to fill water tanks without the use of a Water Meter, shall be required to cease use of the water, except upon prior approval of the General Manager. Portable Water Meters shall be returned to the Water Distribution System at least thirty (30) days before the implementation of Stage 4.
- 7. Draining and refilling of swimming pools or spas except: (a) to prevent or correct structural damage or to comply with public health regulations, or (b) upon prior approval of the General Manager.
- 8. Restriction on Watering or Irrigating: Watering or irrigating of Lawn, landscape or other vegetated area with Potable water will be subject to restriction at the direction of the District. This restriction does not apply to the following categories of use, or where the District has determined that recycled Non-Potable Water is available and may be applied to the use:
  - a. Businesses dependent on watering or irrigating in the course of business such as agriculture, nursery, and similar uses;
  - b. Maintenance of existing landscaping necessary for fire protection;
  - c. Maintenance of existing landscaping for soil erosion control;
  - d. Maintenance of plant materials identified to be rare or essential to the well-being of protected species;
  - e. Maintenance of landscaping within active Public parks and playing fields, Day Care Centers and school grounds, provided that such irrigation does not exceed one (1) day per week;
  - f. Actively irrigated environmental mitigation projects.
- E. Residential Rations.
  - Upon adoption of a Resolution by the Board for a specific reduction in Residential water use, daily Household Water Rations shall be set at a level to achieve the necessary reduction. In no case shall daily Household Water Rations be less than 90 gallons per Household. This shall be known as the Minimum Daily Water Ration.

Where two or more Households are served by a Master Meter, it shall be the responsibility of the Water Users to divide the Water Rations among the Water Users.

2. Additional Water Rations for Large Households:

Where four or more Permanent Residents occupy a single Household served by one Water Meter, the Minimum Daily Water Ration may be increased by the amounts listed below:

|  | Residential<br>Household<br>Gallons per Day |
|--|---|
| Fourth Permanent Resident                                      | 30  |
| Fifth Permanent Resident                                       | 25  |
| Sixth Permanent Resident                                       | 20  |
| Seven or More Permanent Residents<br>(Per Additional Resident) | 15  |

- 3. Procedure for Obtaining Additional Water Rations for Large Households:
  - a. The Applicant shall complete a Residency Affidavit (obtained from the District) that requests the name, age and verification of full-time Permanent Residents for each resident in the Household for which the additional Water Ration is requested. The information on the application shall be presented under penalty of perjury. The additional Water Ration request shall be submitted to the General Manager, who will approve or disapprove the request within 10 business days of submission of a completed application.
  - b. If the application is disapproved, the General Manager will explain in writing the reason for the disapproval, and if the Applicant is not satisfied with the decision of the General Manager, the Applicant may appeal the General Manager's decision to the Board of Directors.
- 4. Procedure for Obtaining Additional Water Rations Where Two or More Households are Served by a Master Meter:
  - a. The Applicant must fill out the required form that lists the number of Residences served by the Master Meter and submit a use permit issued by the Jurisdiction for the Multi-Residential Dwelling Units served by the Master Meter. The District shall retain the right to require Residency Affidavits to determine the appropriate Water Rations. The additional Water Ration request shall be submitted to the General Manager, who will approve or disapprove the request within 10 business days of submission of a completed application. The Application shall be

submitted under penalty of perjury.

- b. If the application is disapproved, the General Manager will explain in writing the reason for the disapproval, and if the Applicant is not satisfied with the decision of the General Manager, the Applicant may appeal the General Manager's decision to the Board of Directors.
- 5. Additional Water Ration for Special Needs. Where more water than allowed in Sections 3 or 4 above is necessary to preserve the health or safety of a Household, the General Manager may increase the Water Ration during the period of need according to the needs of the Applicant.
  - a. The Applicant or his or her representative may file a request for an additional Water Ration and shall state to the General Manager: (1) the amount of the requested additional Water Ration, and (2) a general statement in support of the need. Where appropriate, Applicant shall provide a letter from a medical doctor stating the need for additional water usage and projected amount and duration of that need, if possible, or other appropriate justification for the special need.
  - Additional Water Rations shall require the replacement of inefficient water fixtures to comply with Rule 142-E, Residential and Non-Residential Change of Ownership, Change of Use, and Expansion of Use Water Efficiency Standards.
  - c. Additional Water Rations shall require the Connection have a working Pressure Regulating Valve that maintains water pressure at a maximum of 60 psi.
  - d. If the General Manager does not approve an additional Water Ration, the Applicant may appeal to the Board. An appeal from the General Manager's decision must contain all of the following: (a) a copy of the original application; (b) a copy of the written explanation of the General Manager's decision; and (c) a written explanation of why the Applicant believes the decision should be changed.
- 6. Misrepresentation. Any Water User intentionally over-reporting the number of Permanent Residents in a Household may be charged with a misdemeanor punishable as an infraction as provided by Section 256 of the Monterey Peninsula Water Management District Law, Statutes of 1981, Chapter 986, as well as fines and penalties set forth in this Regulation. During this Stage 4, whenever there is a change in the number of Permanent Residents, the Water User shall notify the District.

- F. Non-Residential Water Rations.
  - 1. If Residential Water Rationing does not achieve measurable results as expected after a period of six (6) months, upon adoption of a Resolution by the Board for a specific reduction in Non-Residential water use, Non-Residential Water Rations shall be implemented at a level to achieve the necessary reduction in use.
  - 2. Non-Residential Water Rations shall be determined by selection by the District of a previous year for which Stages 2, 3, or 4 Conservation or Rationing was not in place and then reducing each month's water use by a percentage determined by the District to achieve the Non-Residential reduction in use. Where a previous year history is deemed to be unavailable or inappropriate by the District, a Non-Residential Water Ration shall be established by the District based on type of Non-Residential water use, building design, and water fixtures.
  - 3. Exemptions: In the Resolution to implement a level of Non-Residential Rationing, the Board shall include an exemption for compliance with District Rule 143 and an exemption for a Non-Residential establishment whose business requires water in the course of its business practice (e.g. laundromats, nurseries, among others).
  - 4. An Applicant or his or her representative may file a request for an additional Water Ration. The Applicant shall state in a letter to the General Manager: (1) the amount of the requested additional Water Ration, and (2) a general statement in support of the need.
  - 5. Additional Water Rations shall require the Connection have a working Pressure Regulating Valve that maintains water pressure at a maximum of 60 psi.
  - 6. If the request for an additional Water Ration is disapproved, the General Manager will explain in writing the reason for the disapproval, and if the Applicant is not satisfied with the decision of the General Manager, the Applicant may appeal to the Board of Directors for a hearing.
- G. Irrigation required by the Mitigation Program adopted when the Water Allocation Program Environmental Impact Report was adopted in 1990, and as required by SWRCB Order No. WR 95-10, shall not be subject to reductions in use. Required irrigation of the Riparian Corridor shall be identified and reported by California American Water separately from other Non-Revenue Water.
- H. CAWD/PBCSD Wastewater Reclamation Project Recycled Water Users. Recycled Water Irrigation Areas receiving water from the CAWD/PBCSD Wastewater Reclamation Project shall be subject to Stage 4 for Potable water used during an Interruption or emergency, in accordance with contractual Agreements between the District and the respective Owners of the Recycled Water Irrigation Areas.

- 1. The Owners of the Recycled Water Irrigation Areas shall have the respective irrigation requirements thereof satisfied to the same degree as any non-Project Golf Course or open space which derives its Source of Supply from the California American Water system. The irrigation requirements of the Recycled Water Irrigation Areas will be determined based on the most-recent non-Rationed four-year average irrigation water demand, including both Recycled Water and Potable water, for each respective Recycled Water Irrigation Area.
- 2. Each Recycled Water Irrigation Area shall be entitled to receive the average irrigation requirement determined above, reduced by the percentage reduction required by the current stage of Water Rationing. If the quantity of Recycled Water that is available is less than the quantity of water that the Recycled Water Irrigation Area is entitled to, Potable water shall be provided to make up the difference and satisfy the irrigation requirements of the Recycled Water Irrigation Areas to the same degree that the irrigation requirements of non-Project Golf Course and open space Users are being satisfied. The preceding sentence shall not apply to the extent that the irrigation requirements of any Recycled Water Irrigation Area are met with water legally available to Buyer from any source other than the Carmel River System or the Seaside Groundwater Basin, including percolating Groundwater underlying Buyer's Property, to make up any such difference.
- 3. When Recycled Water (as defined in Rule 23.5) is available in sufficient quantities to satisfy the irrigation requirements of the Recycled Water Irrigation Areas, such irrigation shall not be subject to Stage 4, and neither Potable water nor any water described in the preceding sentence (whether or not it is Potable) shall be used for irrigation of the Recycled Water Irrigation Areas except to the extent allowed in the circumstances described in the next two sentences.
- 4. If there is an Interruption in Recycled Water deliveries to any Recycled Water Irrigation Area (as the capitalized terms are defined in Rule 23.5), the temporary use of Potable water for irrigating each such Recycled Water Irrigation Area is authorized in the manner described in Rule 23.5, Subsection F.
- 5. If the District has adopted an ordinance in response to any emergency caused by drought, or other threatened or existing water shortage pursuant to section 332 of the Monterey Peninsula Water Management Law, said ordinance shall prevail over contrary provisions of this Rule. Notwithstanding the preceding sentence, Potable water shall be made available for irrigating tees and greens of the Recycled Water Irrigation Areas in sufficient quantities to maintain them in good health and condition during an Interruption, without any limitation on the duration.
- 6. The District shall have no obligation to furnish Potable water for irrigation of the Recycled Water Irrigation Areas except in the circumstances set forth above.

- 7. If (1) an emergency or major disaster is declared by the President of the United States, or (2) a "state of war emergency," "state of emergency," or "local emergency," as those terms are respectively defined in Government Code section 8558, has been duly proclaimed pursuant to the California Emergency Services Act, with respect to all or any portion of the territory of MPWMD, the provisions of this section shall yield as necessary to respond to the conditions giving rise to the declaration or proclamation.
- I. Sunset.
  - 1. Without further action of the Board of Directors, Stage 4, when implemented due to non-compliance with regulatory targets, shall sunset for all California-American Water Company Water Distribution Systems and water use restrictions shall revert to Stage 1 when the 12 month total production has been less than or equal to its then-current annual production target for two (2) consecutive months.
  - 2. Physical Shortage Trigger: Without further action of the Board of Directors, Stage 4 shall sunset and water use restrictions shall revert to Stage 1 when remaining Total Storage Available computed consistent with Table XV-4 is greater than remaining Total Storage Required for two (2) consecutive months.
  - 3. Regulatory Trigger: Without further action of the Board of Directors, Stage 4 shall sunset for that Water Distribution System(s) and water use restrictions shall revert to Stage 1 when the governmental or regulatory agency rescinds the request.
  - 4. Emergency Trigger: Stage 4 shall sunset and water use restrictions shall revert to Stage 1 when the Board finds that a Water Supply Emergency no longer exists.
  - 5. Restoration of Lower Stage. A Resolution causing the sunset of one or more provisions of Stage 4 may also activate any lower Stage as may be warranted for good cause by circumstances affecting a particular Water Distribution System, private Well, or Water User.

Added by Ordinance No. 92 (1/28/99); amended by Ordinance No. 119 (3/21/2005); Ordinance No. 125 (9/18/2006); Ordinance No. 134 (8/18/2008); Ordinance No. 135 (9/22/2008); Ordinance No. 137 (12/8/2008); Ordinance No. 142 (1/28/2010); deleted by Ordinance No. 169 (2/17/2016); Ordinance No. 177 (9/18/2017)

#### **RULE 166 - WATER RATIONING EXEMPTIONS AND VARIANCES**

- A. Special Needs Exemptions. The following needs shall be given additional Rations:
  - 1. Medical and/or sanitation needs certified by a doctor;
  - 2. Hospital and/or health care facilities that have achieved all BMPs for those uses;
  - 3. Riparian irrigation using water efficient irrigation technology when required as a condition of a River Works Permit issued by the District;
  - 4. Non-Residential Users that can demonstrate compliance with all District regulations appropriate for the type of use and where there is minimal exterior water use on the Water Meter or water supply serving the use.
- B. Hardship Variances. The following shall be given consideration of additional Rations to meet extraordinary needs:
  - 1. Health and safety situations on a case-by-case basis;
  - 2. Drinking water for large livestock;
  - 3. Commercial laundromats with signs advising full loads only;
  - 4. Business in a home on a case-by-case basis;
  - 5. Emergency, extreme, or unusual situations on a case-by-case basis.
- C. No Exemption or Variance. The following categories of water use shall not qualify for an additional Ration:
  - 1. Short-Term Residential Housing as defined in Rule 11 (Definitions);
  - 2. Guests and short-term visitors;
  - 3. Irrigation, other than variances allowed for required riparian irrigation or safety;
  - 4. Filling pools, spas, ponds, fountains, etc.;
  - 5. Leaks that are not repaired within 72 hours of notice.
- D. Mandatory Conditions of Approval. Prior to approving any variance, the Site must be in compliance with all applicable District Rules and Regulations and the water conservation standards. Verification by District inspection may be conducted prior to granting a variance.

Rule added by Ordinance No. 92 (1/29/99); amended by Ordinance No. 119 (3/21/2005); Ordinance No. 125 (9/18/2006); Ordinance No. 134 (8/18/2008); Ordinance No. 135 (9/22/2008); Ordinance No. 137 (12/8/2008); Ordinance No. 142 (1/28/2010); deleted by Ordinance No. 169 (2/17/2016); Rule added by Ordinance No. 169 (2/17/2016)

#### **RULE 167 - DEFINITIONS USED IN REGULATION XV**

Acre-Foot - "Acre-Foot" shall mean an amount of water equal to 325,851 gallons.

- Administrative Compliance Order "Administrative Compliance Order" shall mean a written order issued by the General Manager directing any Person responsible for serious, continuing or recurring violations to take affirmative action to remedy consequences of those violations. Administrative Compliance Orders are in addition to all other legal remedies, criminal or civil, which may be pursued by the Water Management District. An Administrative Compliance Order may be issued in conjunction with a Cease & Desist Order.
- **Applicant** "Applicant" shall mean the Person or Persons responsible for completing the requirements of an application.
- **Best Management Practices (BMPs)** "Best Management Practices" shall mean a conservation measure or series of measures that is useful, proven, cost-effective, and generally accepted among conservation experts to reduce water consumption and protect water quality.
- Bishop Water Distribution System "Bishop Water Distribution System" or "Bishop" shall mean the California American Water subsystem as described in the purchase agreement between Bishop Water Company and California American Water dated September 1, 1996.
- **California-American Water Company Water Distribution System** "California-American Water Company Water Distribution System" shall mean all California-American Water Company Water Distribution Systems that rely, in whole or in part, on production or production offsets from the Carmel River System or the Seaside Coastal Subareas.
- **Carmel River System** "Carmel River System" shall mean water from the Carmel River and underlying alluvial aquifer.
- CAWD/PBCSD Wastewater Reclamation Project Recycled Water Users "CAWD/PBCSD Wastewater Reclamation Project Water Users" shall mean those Users of the wastewater reclamation project undertaken by the Carmel Area Wastewater District and the Pebble Beach Community Services District that supplies Reclaimed Water to the Golf Courses and certain open space areas within Pebble Beach.
- Cease & Desist Order "Cease & Desist Order" shall mean an order issued by the General Manager prohibiting a Person from continuing a particular course of conduct. Cease & Desist Orders are in addition to all other legal remedies, criminal or civil, which may be pursued by the Water Management District. A Cease & Desist Order may be issued in conjunction with an Administrative Compliance Order.
- CCF "CCF" (or one-hundred cubic feet) is equivalent to 748 gallons.

- **Conservation Rates** "Conservation Rates" shall mean the increase in the water rates for California American Water customers at levels of either 25 percent (Level 1 Conservation Rates) or 40 percent (Level 2 Conservation Rates). Conservation Rates do not apply to Residential Tier 1 water use.
- **Conveyor Car Wash** "Conveyor Car Wash" shall mean a commercial car wash where the vehicle moves on a conveyor belt during the wash and the driver of the vehicle can remain in, or wait outside of, the vehicle.
- District See Monterey Peninsula Water Management District.
- **Dwelling Unit** "Dwelling Unit" shall mean single or multiple residences suitable for single household occupancy but shall not refer to non-permanent student or transient housing, the occupancy of which is projected to average 24 months or less.
- **Extractor** "Extractor" shall means a user, or consumer of water delivered by a water Well or Water-Gathering Facility, which is not a part of any Water Distribution System.
- Flagrant Violation "Flagrant Violation" shall mean any willful or wanton disregard of the Rules and Regulations of the District which results in unreasonable waste, contamination, or pollution of District waters by any Extractor, User, or by the Owner or Operator of a Well, Water-Gathering Facility or Water Distribution System.
- **Flow Restrictor** "Flow Restrictor" shall mean a device placed into the Water Distribution System by the distribution system Operator, or put into the output of a private Well, that restricts the volume of flow to the User.
- Graywater Irrigation System "Graywater Irrigation System" shall mean an onsite wastewater treatment system designed to collect Graywater and transport it out of the structure for distribution in an Irrigation System.
- Hidden Hills System "Hidden Hills System" shall mean the California American Water subsystem as described in the purchase agreement between Carmel Valley Mutual Water Company and California American Water recorded July 8, 1994, Document #49389, Reel 3125, Page 696.
- Household "Household" shall mean all the people who occupy a housing unit. A housing unit is a house, an apartment, a mobile home, a group of rooms, or a single room occupied (or if vacant, intended for occupancy) as separate living quarters. Separate living quarters are those in which the occupants live separately from any other people in the building and that have direct access from the outside of the building or through a common hall.
- **In-Bay Car Wash** "In-Bay Car Wash" shall mean a commercial car wash where the driver pulls into bay, parks the car, and the vehicle remains stationary while either a machine moves over the vehicle to clean it or one or more employees of the car wash clean the vehicle, instead of the vehicle moving through a tunnel.

- Interruption "Interruption" shall mean an interruption for longer than 12 hours in the supply of Recycled Water to a Recycled Water Irrigation Area.
- Laguna Seca Subarea "Laguna Seca Subarea" shall mean one of the subdivisions of the Southern Seaside Subbasin. Its boundary is shown on a map maintained at the offices of the Water Management District, as that map may be amended from time to time.
- Landscaping Deleted by Ordinance No. 172 (8/15/2016).
- Lawn "Lawn" shall mean an area of land planted with live, healthy grass which is regularly maintained, irrigated and groomed at a low, even height.
- Main California American Water System "Main California American Water System" shall mean the California American Water's Water Distribution System that derives its Source of Supply from the Carmel River System and the Seaside Coastal Subareas of the Seaside Groundwater Basin.
- Master Meter "Master Meter" shall mean a single Water Meter that supplies water to more than one Water User.
- Measurable Precipitation "Measureable Precipitation" shall mean rainfall of 0.1 inch or more.
- Minimum Daily Water Ration "Minimum Daily Water Ration" shall mean a minimum Water Ration of 90 gallons per day per Household.
- Mobile Water Distribution System "Mobile Water Distribution System" shall mean any Potable or Non-Potable Water delivery that originates at a location apart from the Site of use and that is delivered via a truck or other movable container. This definition includes, but is not limited to, trucked water. This definition shall not apply to deliveries of water by commercial companies in volumes less than or equal to 55 gallons per container.
- Model Water Efficient Landscape Ordinance "Model Water Efficient Landscape Ordinance" shall mean the ordinance found at California Code of Regulations, Title 23. Waters, Division 2. Department of Water Resources, Chapter 2.7.
- Monterey Peninsula Water Management District (District) "Monterey Peninsula Water Management District" ("District") is a public agency created by the California State Legislature in 1977 and approved by the voters on June 6, 1978. The enabling legislation is found at West's California Water Code, Appendix Chapters 118-1 to 118-901.
- Monterey Peninsula Water Resource System (MPWRS) "Monterey Peninsula Water Resource System" ("MPWRS") shall mean the surface water in the Carmel River and its tributaries, Groundwater in the Carmel Valley Alluvial Aquifer which underlies the Carmel River, and Groundwater in the Seaside Groundwater Basin.

MPWMD – See Monterey Peninsula Water Management District.

- **Multi-Family Household** "Multi-Family Household" shall mean a Household where two or more Dwelling Units receive water from a Master Meter.
- Non-Essential Water Use "Non-Essential Water Use" shall mean uses of water that are acceptable during times of normal water availability, as long as proper procedures to maximize efficiency are followed. However, when water is in short supply, Non-Essential Water Uses must be curtailed to preserve limited water resources for essential uses. Non-Essential Water Uses do not have health or safety impacts, are not required by regulation, and are not required to meet the core functions of a Non-Residential use.
- Non-Potable Water "Non-Potable Water" shall mean water which is not fit for human consumption.
- Non-Residential "Non-Residential" shall mean water uses not associated with Residential use. These uses include Commercial, Industrial, Public Authority, Golf Course, Other Use, Non-Revenue Metered Use, and Reclaimed Water.
- Non-Revenue Water "Non-Revenue Water" shall mean those components of system input volume that are not billed and produce no revenue; equal to unbilled authorized consumption, plus apparent losses, plus real losses.
- **Open Space** "Open Space" shall mean public land area left in an un-built state as defined in the California Government Code, Section 65560. Open Space includes plazas, parks, and cemeteries.
- **Owner or Operator** "Owner or Operator" shall mean the Person to whom a Water Gathering Facility is assessed by the County Assessor, or, if not separately assessed, the Person who owns the land upon which a Water-Gathering Facility is located.
- **Permanent Resident** "Permanent Resident" shall mean a Person who resides continuously in a Dwelling Unit for more than 30 days or a resident that can submit such other evidence to clearly and convincingly demonstrate permanent residency.
- **Positive Action Shut-Off Nozzle** "Positive Action Shut-Off Nozzle" shall mean a device that completely shuts off the flow of water from a hose when released.
- Potable "Potable" shall mean water that is suitable for drinking.
- **Pressure Regulating Device** "Pressure Regulating Device" shall mean a water pressure reducing device installed in the water line after the Water Meter that automatically reduces the pressure from the water supply main to a lower pressure.
- **Production Limit** "Production Limit" shall mean the maximum production permitted for a Water Distribution System.
- **Reclaimed Water** "Reclaimed Water" shall mean wastewater that has been treated to the tertiary level, including disinfection. Reclaimed Water is a form of Recycled Water.

- **Recycled Water** "Recycled Water" shall mean treated or recycled waste water of a quality suitable for Non-Potable uses such as landscape irrigation and Water Features. This water is not intended for human consumption.
- **Recycled Water Irrigation Areas** "Recycled Water Irrigation Areas" shall mean the golf courses and other vegetated areas located within the Del Monte Forest that are being irrigated with Recycled Water.
- **Residency Affidavit** "Residency Affidavit" shall mean a document attesting to the number of Permanent Residents in a Household.
- **Residential** "Residential" shall mean water used for household purposes, including water used on the premises for irrigating lawns, gardens and shrubbery, washing vehicles, and other similar and customary purposes pertaining to Single-Family and Multi-Family Dwellings.
- **Responsible Party** "Responsible Party" shall mean the Person or Persons who assume through the District Permit process legal responsibility for the proper performance of the requirements of a Permit holder as defined in the Rules and Regulations and/ or in conditions attached to a Permit. "Responsible Party," when used in the context of The 2016 Monterey Peninsula Water Conservation and Rationing Plan, shall mean the Person who is responsible for paying the water bill. When a property is served by a private Well or a small Water Distribution System, the "Responsible Party" shall be the Water Users of the Well and the small distribution system Operator.
- **Riparian Corridor** "Riparian Corridor" shall mean all that area which comprises the Riverbed and riverbanks of the Carmel River which lies within the boundaries of the Carmel River Management Zone (Zone No. 3), and all those areas which lie within 25 lineal feet of the Riverbank Assessment Line, excepting however, all lands which lie outside of the Zone No. 3 boundary, and exempting lawns, landscaping and cultivated areas as shown on the spring 1983 aerial photographs taken by California American Water pursuant to the agreement with the District in accord with MPWMD Rule 123 A.
- Ryan Ranch Water Distribution System "Ryan Ranch Water Distribution System" or "Ryan Ranch" shall mean the California American Water subsystem as described in the purchase agreement between Neuville Co. N.V. (a Delaware Corporation) and California American Water dated April 30, 1990.
- Seaside Basin Adjudication Decision "Seaside Basin Adjudication Decision" or "Seaside Decision" shall mean the March 27, 2006 court adjudication, as amended, determining water rights in the Seaside Groundwater Basin that restrict California American Water production from the Coastal Subareas and Laguna Seca Subarea of the basin.
- Seaside Groundwater Basin "Seaside Groundwater Basin" shall mean the set of geologic formations that stores, transmits, and yields water in the Seaside area, comprising of the Northern Seaside Subbasin and the Southern Seaside Subbasin. The Seaside Groundwater Basin also includes those areas known as the Northern Coastal Subarea, the Northern Inland Subarea, the Southern Coastal Subarea and the Laguna Seca Subarea.

- **Short-Term Residential Housing** "Short-Term Residential Housing" shall mean one or more Residential Dwelling Units on a property that are occupied by visitors, are operated as a business and for which a fee is charged to occupy the premises.
- Single Residential Household "Single Residential Household" shall mean a Household that receives its water supply through a Water Meter that is not shared with other Households.
- Site "Site" shall mean any unit of land which qualifies as a Parcel or lot under the Subdivision Map Act, and shall include all units of land: (1) which are contiguous to any other Parcel (or are separated only by a road or easement); and (2) which have identical owners; and (3) which have an identical present use.; or (4) are an Accredited Institution of Higher Education Site, a Department of Defense Site, a Jurisdiction Site, or a Public School District Site. The term "Site" shall be given the same meaning as the term "Parcel".
- Smart Controller "Smart Controller" shall mean a weather-based device (typically a "timer") that automatically controls an outdoor Irrigation System. Smart Controllers use weather, site or soil moisture data as a basis for determining an appropriate watering schedule. Smart Controllers (commonly referred to as ET controllers, weather-based irrigation controllers, smart sprinkler controllers, and water smart controllers) are a new generation of irrigation controllers that utilize prevailing weather conditions, current and historic Evapotranspiration, soil moisture levels, and other relevant factors to adapt water applications to meet the actual needs of the plants.
- Source of Supply "Source of Supply" shall mean the Groundwater, surface water, Reclaimed Water sources, or any other water resource where a Person, Owner or Operator gains access by a Water-Gathering Facility.
- Sub-potable Water Deleted by Ordinance No. 177 (9/18/2017).
- **Total Storage Available** "Total Storage Available" shall mean the usable water as measured by the District on May 1 in any year that is contained in the Carmel Valley Alluvial Aquifer plus usable water in the Seaside Groundwater Basin and the usable water in the Los Padres Reservoir.
- Total Storage Required "Total Storage Required" shall mean the combination of demand remaining from May 1 to September 30 and carryover storage for the next Water Year that is required to meet the following Water Year production limit for California American Water from Carmel River sources set by State Water Resources Control Board Order WR 2009-0060, plus the production limit for California American Water from the Seaside Groundwater Basin set by the Court in its March 27, 2006 Seaside Basin Adjudication Decision and the production limit specified for non-California American Water Users from the Monterey Peninsula Water Resource System set in the District's Water Allocation Program.

- User "User" shall mean a customer or consumer of water delivered by a Water Distribution System. User does not include any Owner or Operator of a Water Distribution System. Each residence, commercial enterprise, or industrial enterprise shall be deemed a separate and distinct User.
- Visitor-Serving Facility "Visitor-Serving Facility" shall include all hotels, motels, restaurants, convention/meeting facilities, and service stations within the Monterey Peninsula Water Management District. Other facilities may be designated as a Visitor-Serving Facility by the General Manager upon finding that such facility exists primarily for the use of tourists and the traveling public. Short term rentals of private property are not included under this definition.
- Water Broom "Water Broom" shall mean a water efficient broom-like cleaning device that uses a combination of water and air to clean hard surfaces with no runoff.
- Water Credit "Water Credit" shall mean a record allowing reuse of a specific quantity of water upon a specific Site. A Water Credit differs from a Water Use Credit in that it is not characterized by a Permanent Abandonment of Use, but may be the result of a temporary cessation of use.
- Water Distribution System "Water Distribution System" shall mean all works within the District used for the collection, storage, transmission or distribution of water from the Source of Supply to the Connection of a system providing water service to any Connection including all Water-Gathering Facilities and Water-Measuring Devices. In systems where there is a Water Meter at the point of Connection, the term "Water Distribution System" shall not refer to the User's piping; in systems where there is no Water Meter at the point of Connection System" shall refer to the User's piping.
- Water Distribution System Operator "Water Distribution System Operator" shall mean the Person or Persons who assume through the District permit process legal responsibility for the proper performance of the requirements of a Water Distribution System Permit holder as defined in the Rules and Regulations and/or in conditions attached to a permit.
- Water-Gathering Facility "Water-Gathering Facility" shall mean any device or method, mechanical or otherwise, for the production of water from dams, Groundwater, surface water, water courses, Reclaimed Water sources, or any other Source of Supply within the Monterey Peninsula Water Management District or a zone thereof. Water-Gathering Facilities shall include any water-production facility as defined in the Monterey Peninsula Water Management District Law. This definition shall not apply to on-site Cisterns that serve existing single-Connection Residential situations where rainwater is captured for on-site landscape irrigation use.
- Water Ration "Water Ration" shall mean a specific amount of water available to each Water User during Stage 4 Water Rationing.

- Water Supply Emergency "Water Supply Emergency" shall mean a declaration pursuant to Regulation XV, The 2016 Monterey Peninsula Water Conservation and Rationing Plan, that a water shortage emergency condition prevails within one or more Water Distribution Systems.
- Water Use Credit "Water Use Credit" shall mean a limited entitlement by a Person to use a specific quantity of water upon a specific Site. Water Use Credits shall be limited by time, and by other conditions as set forth in the District's Rules and Regulations.
- Water User "Water User" shall mean Users of water for domestic or other uses from any Water Distribution System or private Well.
- Water Waste "Water Waste" shall mean the indiscriminate, unreasonable, or excessive running or dissipation of water as defined in Rule 162.
- Water Year "Water Year" shall mean the period from October 1 of one year to September 30 of the succeeding year.
- Well "Well" shall mean any device or method, mechanical or otherwise, for the production of water from Groundwater supplies within the District excluding seepage pits and natural springs.
- Water Meter "Water Meter" shall mean any measuring device intended to measure water usage. The term "Water Meter" shall have the same meaning as the term "Water-Measuring Device."

Rule added by Ordinance No. 92 (1/28/99); amended by Ordinance No. 119 (3/21/2005); Ordinance No. 125 (9/18/2006); Ordinance No. 134 (8/18/2008); Ordinance No. 135 (9/22/2008); Ordinance No. 137 (12/8/2008); Ordinance No. 142 (1/28/2010); deleted by Ordinance No. 169 (2/17/2016); Rule added by Ordinance No. 169 (2/17/2016); Ordinance No. 177 (9/18/2017)

# Attachment H

(Phase 2 Direct Testimony of Stephanie L. Locke)

#### **RULE 141 - DEFINITIONS**

Definitions relocated from Rule 141 to Rule 11 by Ordinance No. 71 (12/20/93)

#### **RULE 141 - WATER CONSERVATION REBATES**

#### A. **QUALIFYING DEVICES**

Rebates are available for purchase of the following Qualifying Devices within the boundaries of the Monterey Peninsula Water Management District. Qualifying Devices and the associated Rebate amount are shown in Table XIV-1.

#### B. <u>REBATE AMOUNTS</u>

Rebates shall be issued by the District on a first-come, first-served basis as long as funds remain available. Rebate amounts shall be listed in Table XIV-1 which may be modified from time to time by resolution of the Board. At no time shall a Rebate exceed the purchase price of the Qualifying Device.

## Table XIV-1 Rebate Amounts Updated December 13, 2021

| Qualifying Device  | Maximum Rebate   |
|--|--|
| High Efficiency Toilet   | \$75   |
| Ultra High Efficiency Toilet   | \$125  |
| Toilet Flapper   | \$15   |
| Pint Urinal (in a Residential use only)  | \$250  |
| Zero Water Consumption Urinal  | \$250  |
| High Efficiency Dishwasher (Residential)   | \$125  |
| High Efficiency Clothes Washer (Residential)   | \$500  |
| Instant-Access Hot Water System (per Qualifying Property)  | \$200  |
| On-demand hot water pump or point of source water heater<br>(maximum of two per Qualifying Property)   | \$100  |
| Smart Flowmeter (one per User on a Site)   | \$200  |
| Graywater Irrigation System supplied by one Clothes Washer   | \$100  |
| Graywater Irrigation System supplied by one or more Bathrooms that<br>have a Bathtub/Shower connected to a Graywater Irrigation System.<br>Residential limit: 4. | \$100 per Bathroom   |
| Non-Residential Graywater system   | Case-by-case basis   |
| Weather Based or Smart Irrigation Controller   | \$100 for up to four stations.<br>An additional \$10 shall be<br>available per station up to<br>twenty (20) stations   |
| Soil Moisture Sensor(s) on a conventional automatic Irrigation System<br>(gypsum block Soil Moisture Sensors shall not qualify for Rebate)                       | \$25   |
| Cistern water tanks installed on Sites supplied with water from the<br>Monterey Peninsula Water Resource System (per Qualifying Property)                        | \$50 per 100 gallons for the<br>first 500 gallons and \$25 per<br>100 gallons of water storage<br>capacity to a maximum<br>storage capacity of 25,000<br>gallons |
| Lawn removal and replacement with low water use plants or permeable<br>surfaces <sup>1</sup> (Prequalification required - See MPWMD Rule 141-F)                  | \$1.00 per square-foot to a<br>maximum of 2,500 square-<br>feet  |
| Rotating Sprinkler Nozzle (minimum purchase and installation of ten)   | \$4 each   |
| Water Broom  | \$150  |
| Commercial High Efficiency Clothes Washer in a Residential or<br>Multi-Family Residential use.   | \$1,000  |

<sup>&</sup>lt;sup>1</sup> Lawn removal Rebate at a Public facility may exceed the square-footage limitation subject to Board approval.

| Commercial Ozone Laundry System                                    | \$1,000             |
|--|---------------------|
| Cooling Tower Conductivity Controller                              | \$1,000             |
| Cooling Tower Conductivity/pH Controller                           | \$2,500             |
| High Efficiency Connectionless Food Steamer (per compartment)      | \$1,500             |
| Commercial Waterless Wok Stove                                     | \$5,000             |
| Water Efficient Commercial Steam or Combi Oven                     | \$2,500             |
| High Efficiency Commercial Dishwasher                              |                     |
| Under counter model  | \$1,000             |
| Single tank door type model  | \$1,500             |
| Single tank conveyor   | \$2,000             |
| Multi-tank conveyor  | \$2,500             |
| X-ray film processor recirculation system                          | \$2,500             |
| Medical equipment steam sterilizer retrofit with a water tempering | \$1,500             |
| device   |                     |
| Dry Vacuum Pump (per 0.05 HP to a limit of 4 HP)                   | \$200               |
| Removal of whirlpool (or jetted water system) bathtub in Visitor-  | \$250               |
| Serving Facility   |                     |
| Multi-Family Dwelling Meter Split                                  | \$100/dwelling unit |

Table added by Ordinance No. 163 (3/16/2015) and revised by Resolution 2015-04 (4/20/2015); Resolution 2015-25 (12/14/2015); Ordinance No. 176 (1/25/2017; Ordinance No. 177 (9/18/2017); Resolution 2021-09 (6/21/2021); Resolution 2021-16 (12/13/2021)

## C. <u>REBATE ELIGIBILITY</u>

- 1. Rebates shall be issued for Qualifying Devices installed on Sites located within the District that are served by Water Distribution Systems regulated by the District. The Site shall be in compliance with District Rules prior to issuance of a Rebate.
- 2. No Rebate shall be issued for installation of Qualifying Devices that are required to be installed and maintained by Regulation II (Permits) or Regulation XIV (Water Conservation) of the District with the exception of High Efficiency Toilets installed at Sites owned and operated by California Non-Profit Corporations. No Rebate shall be issued for installation of Qualifying Devices that were required to obtain a Water Permit. Rebates shall be available until the date the retrofit becomes mandatory, such as the date a Change of Ownership or Change of Use occurs or a Water Permit is issued unless modified by the Board of Directors. Rebates shall not be available for Qualifying Devices that have been required to be installed and maintained by local, State, or Federal water conservation programs.
- 3. Rebates shall be available only for the initial purchase of a Qualifying Device. Rebates shall not be issued for replacement of an existing Qualifying Device
except for High Efficiency Clothes Washers that have been removed from the Qualifying Property by a previous owner/tenant or that are being replaced after eight or more years and High Efficiency Dishwashers and Ultra-High Efficiency Toilets replaced after ten years. Applicants submitting an application for a High Efficiency Clothes Washer Rebate on a Site that has previously qualified for a High Efficiency Clothes Washer Rebate may be required to provide information to substantiate a subsequent Rebate.

- 4. Ultra High Efficiency Toilets shall meet or exceed the EPA WaterSense labeling criteria and shall bear the WaterSense Label and be listed on the WaterSense website.
- 5. Rebates shall be available for a maximum of twenty (20) toilets on all Non-Residential Qualifying Properties with the exception of Qualifying Properties owned and operated by a California Non-Profit Corporation or that participate in the District's High Efficiency Appliance Retrofit Target (HEART) program.
- 6. Outdoor Water Use Rebates
  - a. Rebates for Cisterns shall be limited to 25,000 gallons of storage capacity on a Qualifying Property. All Cistern Rebate Sites shall have sufficient roof area to fill the capacity of the Cistern(s) after first flush during a "normal" Water Year and may require verification of usable roof area by Site inspection.
  - b. Rebates for Lawn removal shall be available only to Qualifying Properties irrigated with water from the Monterey Peninsula Water Resource System.
  - c. To be eligible for any Rebate for Lawn Removal, Lawns must be green, regularly maintained at a low even height, irrigated regularly, and be well cared for at the time of application for a Rebate. Dead Lawns or Lawns that have been removed prior to issuance of a Lawn Rebate prequalification statement from the District shall not be eligible for a Rebate.
  - d. A minimum of 250 square-feet of Lawn shall be removed to qualify for Rebate.
  - e. Eligibility for any Lawn Removal Rebate shall be determined upon receipt of a complete application as described in Rule 141-E. The District will notify the Applicant by written prequalification documentation that the proposed Lawn removal and replacement proposal has been "prequalified."

- 7. Non-Residential Rebates
  - a. An X-ray film processor recirculation system shall be listed as a qualifying model by the California Urban Water Conservation Council Resource Center.
  - b. Rebates for Dry Vacuum Pumps shall be available only when the Qualifying Device is replacing a water (liquid) ring pump.
  - c. Rebates for retrofitting medical steam sterilizers with water tempering devices are limited to those sterilizers that use a continuous water flow to cool the steam discharge.

# D. <u>CONDITIONS OF APPROVAL</u>

- 1. Applications for all Rebates with the exception of Lawn removal Rebates, shall be submitted within 120 days of purchase of Qualifying Devices.
- 2. Applicant shall install the fixture and/or appliance at the property listed on the application form.
- 3. Applicant shall certify under the penalty of perjury that the information on the application is true and complete.
- 4. Rebates shall only be granted for Qualifying Devices that meet the definitions as provided in Rule 11.
- 5. Applicant agrees that the District may conduct an inspection of the Rebate Site to verify installation of Qualifying Devices.
- 6. Rebates for Weather Based Irrigation Controllers
  - a. Rebates shall only be granted for Weather Based Irrigation Controllers that meet minimum quality and dependability requirements as determined by product testing conducted by the Irrigation Association.
  - b. Irrigation System shall be a fully operational, and shall be efficiently designed, or modified if necessary, to include proper distribution uniformity, matched spray heads or emitters with similar precipitation rates, efficient hydrozoning, and proper spacing.
  - c. Site shall include at least 1,500 square-feet of automatically irrigated Landscaping.
  - d. Recipients of Rebates for Weather Based Irrigation Controllers shall agree to have a deed restriction recorded on the title of the property allowing public access to water use records prior to issuance of a Rebate.

The application shall not be deemed complete until the deed restriction document has been notarized and returned to the District and has been successfully recorded. Rejected notarizations shall void the date of completion until the document has been recorded.

- 7. Rebates for Lawn removal and replacement with low water use plants or permeable surfaces.
  - a. Lawn removal and replacement at a Qualifying Property shall be subject to annual visual verification by the District.
  - b. Determinations of eligibility for Lawn removal and replacement Rebates shall be at the discretion of the General Manager.
  - c. Applications for Lawn removal Rebates shall require prequalification. The prequalification process is explained in Rule 141-F-2, Process.
  - d. Lawn must be replaced with low water use plants or permeable surfaces (e.g., mulch, decomposed granite, Synthetic Turf, permeable pavers). Concrete and grouted pavers do not qualify.
  - e. If converted area is irrigated, a Drip Irrigation System must be installed and maintained. Overhead irrigation shall not be installed.
  - f. Planted areas must be mulched to a minimum depth of three inches from the plant to the drip line of the plant.
  - g. Lawn shall not be relocated to another area on the Site. The total Lawn area shall be listed on the deed restriction that restricts the changed Landscaped Area for fifteen (15) years.
  - h. Recipients of Rebates for Lawn removal shall agree to have a deed restriction recorded on the title of the property allowing public access to water use records prior to issuance of a Rebate. The application shall not be deemed complete until the deed restriction document has been notarized and returned to the District and has been successfully recorded. Rejected notarizations shall void the date of completion until the document has been recorded.
  - i. Lawn removal Rebates shall require recordation of a deed restriction on the title of the property prior to release of Rebate funds that specifies that the property is restricted to the changed Landscaped Area for a period of fifteen (15) years. The deed restriction shall be rescinded upon repayment to the District of the full Rebate amount and any processing fee required pursuant to Regulation VI, Fees. The application shall not be deemed complete until the deed restriction document has been notarized and returned to the District and has been successfully recorded. 141-6

- 8. Graywater Irrigation System Rebates shall be granted when the following conditions have been met:
  - a. Applicant shall comply with the Monterey County Department of Health's Graywater Irrigation Systems Permitting Process and Design Criteria.
  - b. Any necessary building/plumbing permits have been completed and copies provided with the Rebate application.
  - c. MPWMD staff may verify Graywater Irrigation Systems by Site inspection or other means.
- 9. Multi-Family Dwelling Meter Split Rebates shall only be approved and processed after verification that a Water Meter has been installed by the Water Distribution System Operator.
- 10. Rebates for Smart Flowmeters. Qualifying Devices shall meet the following requirements:
  - a. Eligible Smart Flowmeters shall measure total water usage at least hourly and report water usage on a web portal or smartphone application.
  - b. Limit of one Smart Flowmeter Rebate per User on a Parcel.
  - c. An Applicant for a Smart Flowmeter shall obtain authorization from the Water Distribution System Operator when a flowmeter is attached to the Water Meter.
  - d. The Smart Flowmeter shall be designed for at least two years of continuous operation.
  - e. Property owner shall agree to keep the flowmeter installed and operational for a minimum of two years.
  - f. Applicant shall submit a photograph of the installed Smart Flowmeter with the Rebate application.

# E. <u>APPLICATION</u>

1. A completed application for Rebate shall include the name and address of the Applicant, property owner's name, telephone numbers, address of property where the fixture and/or Qualifying Device is being installed, Assessor's Parcel Number, water company account number, date of retrofit, brand and model of Qualifying Device installed, name of installer and receipt for the purchase of the appliance. The application shall also request information about how the Applicant learned of the Rebate program.

- Lawn removal Rebate applications shall follow the process shown in Rule 141-F 2.
- 3. Applications for Rebate shall include either the original or a full copy of the receipt for purchase.
- 4. Written authorization of the current property owner or property manager shall be required for Applicants who are not the owners of the property for which a Rebate is requested. The authorization must indicate consent to the Applicant receiving a Rebate for installation of the Qualifying Devices. Applications submitted without approval will be denied.

## F. <u>PROCESS</u>

- 1. Upon receipt of an application, the District shall verify completion and accuracy of information and shall verify the purchase of the Qualifying Device(s) by reviewing the purchase receipt(s).
- 2. Lawn removal Rebate application process.
  - a. Prequalification: Applicants must complete and submit a Lawn Rebate application form that includes the following documents:
    - Water records (either copies of bills or a printout from the Water Distribution System) for the two most recent years;
    - (2) A drawn Site plan showing a detailed description (including measured areas) of the Lawn replacement project, including square-footage of Lawn to be removed, names and numbers of plants or other surfaces to be installed, and the irrigation plan.
    - (3) Two to three current photographs of the Lawn to be removed. A minimum of 250 square-feet of Lawn shall be removed to qualify for Rebate.
  - b. The Lawn Rebate Application shall be reviewed for completeness. The Applicant may be contacted to arrange a Site inspection to verify the Lawn.
  - c. When a determination has been made that removal of Lawn will result in permanent and quantifiable water savings, and when present funding is available in an amount sufficient to fund a Rebate for the Lawn removal, the District shall issue a Lawn Rebate prequalification letter. The Applicant shall have 120 days from the date of the prequalification letter to complete the project and submit receipts, arrange for a final inspection by the District, and successfully record deed restrictions. Applications not completed within 120 days of the date of the prequalification letter 141-8

shall be denied.

- d. Rebates shall be subject to availability of funding.
- 3. The District shall search its records and shall verify compliance with previous retrofit requirements. If no violation is found, a Rebate shall be processed if funds are available in the Rebate Account.
- 4. Information contained on the application shall be added to the District's records for future use in assessing water savings achieved through the Rebate Program.
- 5. When funds are available in the Rebate Account, a Rebate check shall be processed and mailed to the Applicant.

Added by Ordinance No. 129 (8/20/2007); amended by Ordinance No. 139 (5/21/2009); Ordinance No. 140 (11/16/2009); Ordinance No. 144 ((8/16/2010); Ordinance No. 148 (4/18/2011); Ordinance No. 149 (9/19/2011); Ordinance No. 153 (6/19/2012); Ordinance No. 156 (11/18/2013); Ordinance No. 159 (4/21/2014); Ordinance No. 163 (3/16/2015); Ordinance No. 176 (1/25/2017); Ordinance No. 177 (9/18/2017); Ordinance No. 179 (8/20/2018); Ordinance No. 182 (5/20/2019); Ordinance No. 189 (12/13/2021)

#### **RULE 142 - WATER EFFICIENCY STANDARDS**

- A. <u>Water Efficiency Standards</u>.
  - 1. All Sites supplied with water from a Water Distribution System regulated by the District shall comply with these standards.
  - 2. All New Construction of New Structures shall install and maintain plumbing fixtures and conservation standards as set forth in this Rule.
  - 3. No plumbing fixture shall be replaced with fixtures which allow greater water use.
  - 4. All new and replacement water fixtures shall comply with then-current California plumbing and energy standards/codes when more restrictive than the District's.
  - 5. Manufactured Homes shall be subject to these standards.
- B. <u>Former Rules</u>. Water Permit requirements change periodically to reflect current efficiencies. Sites with uncompleted Water Permits that have not received a final inspection shall at a minimum comply with the requirements in place at the time the Water Permit was issued unless required to install more efficient fixtures as a result of a subsequent triggering event (e.g. new/amended Water Permit or Change of Ownership/Use).
- C. <u>Residential Water Efficiency Standards for New Structures.</u>

All Residential New Structures receiving a Water Permit, shall meet or exceed the following standards:

- 1. High Efficiency or Ultra High Efficiency Toilets shall be installed;
- Urinals, when installed in a Residential use, shall be designed to flush with one
  (1) gallon of water. After January 1, 2016, newly installed Urinals shall flush with no more than 0.125 gallon per flush;
- 3. Showerheads, Rain Bars, or Body Spray Nozzles must be designed and manufactured to emit a maximum of 2.0 gallons per minute of water;
- 4. All shower fixtures should be equipped with scald protection valves rated for 2.0 gallons per minute Showerheads;
- 5. High Efficiency Clothes Washer(s) and High Efficiency Dishwasher(s) shall be required when installed in a Residential use;
- 6. Lavatory Sink faucets shall emit a maximum of 1.2 gallons of water per minute at 60 psi;

- 7. Kitchen Sink, Utility Sink, and Bar Sink faucets shall emit a maximum of 1.8 gallons of water per minute at 60 psi. Faucets may have the capability to temporarily increase flow to 2.2 gallons per minute for filling pots and pans, but must default back to a maximum Flow Rate of 1.8 gallons per minute measured at 60 psi;
- 8. Instant-Access Hot Water Systems shall be installed;
- 9. All hot water pipes shall be insulated;
- 10. Sodium chloride (salt) water softeners shall be discouraged in New Construction. Alternate technologies such as potassium chloride shall be recommended. When a sodium chloride water softener is to be installed within the MPWMD, the unit shall use demand-initiated regeneration which senses when the resin must be recharged, either electronically or with a meter that measures and calculates usage. This requirement shall be specified on the Construction Drawings;
- 11. Landscaping. All New Construction (including new buildings with landscape or other new landscape, such as a park, playground, or Greenbelt without an associated building) shall install and maintain landscapes that comply with Rule 142.1.
- 12. Rainwater collection/Irrigation Systems are encouraged to supplement irrigation for new landscaping. New Structures shall be encouraged to include one or more rainwater Cisterns and a system to provide at least 75 percent of exterior irrigation during normal rainfall years. Systems must be compliant with local catchment system standards.
- 13. Graywater collection/Irrigation Systems are encouraged to supplement irrigation for new Landscaping. Systems must be compliant with local catchment system standards, including Monterey County Environmental Health Bureau.
- 14. All Sites utilizing a Graywater reuse system shall install and maintain a Backflow Prevention Device as required by any Water Distribution System Operator that supplies water to the Site.
- D. <u>Non-Residential Water Efficiency Standards for New Structures.</u>

All Non-Residential New Structures receiving a Water Permit shall meet or exceed the following standards:

- 1. High Efficiency or Ultra High Efficiency Toilets shall be installed;
- 2. Urinals shall be Pint Urinals or Zero Water Consumption Urinals and shall be clearly specified on the final Construction Drawings. Zero Water Consumption Urinals shall be encouraged in settings where there is a regular maintenance staff;
- 3. Showerheads, Rain Bars, or Body Spray Nozzles must be designed and

manufactured to emit a maximum of 2.0 gallons per minute of water;

- 4. All shower fixtures should be equipped with scald protection valves rated for 2.0 gallons per minute Showerheads;
- 5. Public Washbasins shall emit a maximum of 0.5 gallon of water per minute at 60 psi. Private Washbasins (e.g. hotel or motel guest rooms and hospital patient rooms) shall emit a maximum of 1.2 gallons of water per minute at 60 psi. All other sinks shall emit a maximum of 2.2 gallons of water per minute at 60 psi unless higher flow is required by Health and Safety Code;
- 6. Public Washbasins equipped with automatic shut off devices or sensor faucets shall operate with a maximum flow of 0.25 gallons per cycle;
- 7. High Efficiency Clothes Washers shall be installed when a Clothes Washer is installed in a New Structure permitted under this Regulation;
- 8. High Efficiency Dishwashers or High Efficiency Commercial Dishwashers shall be installed and maintained on the Site when a Dishwasher is installed in a New Structure permitted by a Water Permit;
- 9. Instant-Access Hot Water System(s) shall be installed for hot water access points to ensure that hot water is available within ten (10) seconds;
- 10. All hot water pipes shall be insulated;
- 11. Sodium chloride (salt) water softeners shall be discouraged in New Construction. Alternate technologies, such as potassium chloride shall be recommended. When a sodium chloride water softener is to be installed within the MPWMD, the unit shall use demand-initiated regeneration which senses when the resin must be recharged, either electronically or with a meter that measures and calculates usage. This requirement shall be specified on the Construction Drawings;
- 12. Water Efficient Pre-Rinse Spray Valves shall be utilized when a pre-rinse spray valve is installed;
- 13. There shall be no single-pass water use systems in ice machines, hydraulic equipment, refrigeration condensers, X-ray processing equipment, air compressors, vacuum pumps, etc. Air-cooled or better technology shall be installed when available;
- 14. Water cooled refrigeration equipment shall be prohibited when there is alternative cooling technology available at the time the Water Permit is issued;
- 15. Cooling Towers shall be equipped with conductivity controllers that are used to increase the number of cycles that can be achieved;

- 16. Boilerless steamers or connectionless steamers shall be installed in place of boilerbased steamers when a steamer is installed in New Construction;
- 17. Landscaping. All New Construction (including new buildings with landscape or other new landscape, such as a park, playground, or Greenbelt without an associated building) shall install and maintain landscapes that comply with Rule 142.1.
- Rainwater collection/Irrigation Systems are encouraged to supplement irrigation 18. for new landscaping. New Structures shall be encouraged to include one or more rainwater Cisterns and a system to provide at least 75 percent of exterior irrigation during normal rainfall years. Systems must be compliant with local catchment system standards.
- 19. Graywater collection/Irrigation Systems are encouraged to supplement irrigation for new landscaping. Systems must be compliant with local catchment system standards, including Monterey County Environmental Health Bureau.
- 20. All Sites utilizing a Graywater reuse system shall install and maintain a Backflow Prevention Device as required by any Water Distribution System Operator that supplies water to the Site.
- The implementation of water conservation Best Management Practices shall be 21. integrated into construction and operation of the project to the extent possible.
- 22. The use of Alternative Water Sources for indoor toilet flushing and other uses allowed by the Jurisdiction shall be encouraged.
- 23. Visitor-Serving and Public and Quasi-Public Facilities shall display in visible locations in all restrooms, kitchens, and dining areas, placards or decals approved by the District promoting public awareness of the need for water conservation and/or advising the public that waste of water is prohibited.
- 24. The owner and/or manager of rental property shall provide current and new tenants with information about the water conservation requirements, including the Water Waste and Non-Essential Water Use regulations of the District. This information shall be readily accessible on a tenant portal website with annual notification of its presence, or when notice is not provided electronically, the owner and/or manager shall annually provide written information to existing tenants and to new tenants as they move in.
- 25. Visitor-Serving Facilities shall promote towel and linen reuse programs by providing written notice in the rooms, whereby towels and linens are changed every three days or as requested by action of the guest.
- 26. Visitor-Serving Facilities shall provide written notice that drinking water is available only upon request. Notification of this requirement shall be provided on 142-4

the table(s) or menu(s) of each facility. Visitor-Serving Facilities shall not provide drinking water from the Monterey Peninsula Water Resource System at the table unless specifically requested.

27. Facilities utilizing alternative sources of irrigation water (i.e. purified recycled water, Non-Potable Water, rainwater and Graywater, etc.) shall be encouraged to provide notice of the alternative supply, either by erecting a sign in compliance with local codes or by identifying the alternative supply in other venues such as in newsletters, websites, menus, etc.

### E. <u>Residential and Non-Residential Change of Ownership, Change of Use, and Expansion</u> of Use Water Efficiency Standards

Sites that have a Change of Ownership, or receive a Water Permit for a Change of Use or Expansion of Use shall meet or exceed the following standards:

- 1. High Efficiency or Ultra High Efficiency Toilets shall be installed;
- 2. Urinals shall be at a minimum High Efficiency Urinals (when installed prior to January 1, 2016). Newly installed Urinals shall be Pint Urinals or Zero Water Consumption Urinals. Zero Water Consumption Urinals shall be encouraged in settings where there is a regular maintenance staff;
- 3. Showerhead Flow Rates shall meet or exceed water efficiency standards for New Structures;
- 4. Bathroom faucet Flow Rates shall meet or exceed water efficiency standards for New Structures;
- 5. Kitchen faucet Flow Rates shall meet or exceed water efficiency standards for New Structures;
- 6. Remodels or relocations of water fixtures or appliances that involve hot water shall be encouraged to install an Instant-Access Hot Water System and insulate all new hot water pipes;
- 7. Pre-rinse spray valves shall meet or exceed the District's definition for Water Efficient Pre-Rinse Spray Valves;
- 8. Changes of Use and Expansions of Use that require a Water Permit shall not install any single-pass water use systems in ice machines, hydraulic equipment, refrigeration condensers, X-ray processing equipment, air compressors, vacuum pumps, etc. Air-cooled or better technology shall be installed when available;
- 9. Changes of Use and Expansions of Use that require a Water Permit shall not install any water cooled refrigeration equipment when there is alternative water efficient cooling technology available at the time the Water Permit is issued;

- 10. Automatic Irrigation Systems, with the exception of Weather- Based Irrigation Systems, shall be retrofit to include a Rain Sensor;
- 11. The implementation of Non-Residential Best Management Practices shall be integrated into construction and operation of Non-Residential uses to the extent possible;
- 12. Projects that include Rehabilitated Landscapes (modified Landscape Area is equal to or greater than two thousand five hundred (2,500) square feet) shall comply with Rule 20-B and Rule 142.1
- F. Water Efficiency Standards for Multi-Family Residential Sites and Common Interest Developments:
  - Multi-Family Residential Sites and Common Interest Developments with four or more Dwelling Units, shall meet or exceed the following water efficiency standards before January 1, 2019<sup>1</sup>:
    - a. High Efficiency or Ultra High Efficiency Toilets shall be installed. Multi-Family Residential Sites and Common Interest Developments with Ultra-Low Flush Toilets installed prior to January 1, 2014, shall be exempt from this toilet retrofit requirement.;
    - b. Urinals shall be at a minimum High Efficiency Urinals (if installed prior to January 1, 2016). Newly installed Urinals shall be Pint Urinals or Zero Water Consumption Urinals;
    - c. Showerheads, Rain Bars, or Body Spray Nozzles must be designed and manufactured to emit a maximum of 2.0 gallons per minute of water at 60 psi;
    - d. Washbasin faucets shall emit a maximum of 1.2 gallons of water per minute at 60 psi;
    - e. Kitchen Sink, Utility Sink, and Bar Sink faucets shall emit a maximum of 1.8 gallons of water per minute at 60 psi. Faucets may have the capability to temporarily increase flow to 2.2 gallons per minute for filling pots and pans, but must default back to a maximum Flow Rate of 1.8 gallons per minute measured at 60 psi;
    - f. Common Laundry Rooms. By January 1, 2019 all Clothes Washers installed in Common Laundry Rooms within the District shall meet the definition of High Efficiency Clothes Washer rated with a Water Factor of 5.0. Washer/extractors that do not comply with the 5.0 Water

<sup>1</sup> Individually owned condominiums and cooperatives that are subject to Rule 142-E shall be exempt from this requirement.

Factor shall be programmed by a manufacturer/vendor technician to only function on the low water setting (non-user selected setting). A written statement shall be provided to MPWMD by the manufacturer/vendor's technician stating that the machines have been programmed to only use the low water setting and that there is no way to manipulate the water usage via a user setting. This statement shall be maintained by MPWMD.

- g. Clothes Washers located inside Dwelling Units should be encouraged to replace Clothes Washers with High Efficiency Clothes Washers;
- h. Water Pressure Regulating Devices shall be installed and maintained to maintain water pressure between 50 and 65 psi.
- i. Automatic Irrigation Controllers properly adjusted to adhere to the District's Stage 1 Water Conservation Requirements (Rule 162) shall be installed, used, and maintained.
- 2. The owner (or his authorized agent) of a Multi-Family Residential Site or Common Interest Development manager shall certify compliance with this regulation by one of the following methods:
  - a. Provide the District with a District-certified inspection report that provides all Site information required by the District and that verifies installation of Low Water Use Plumbing Fixtures throughout the Site, as required by Regulation XIV and Regulation XV; or
  - b. Provide documentation to the District from a District-certified city or county building official that provides all Site information required by the District and that certifies installation of Low Water Use Plumbing Fixtures throughout the Site, as required by Regulation XIV and Regulation XV; or
  - c. Provide owner/association certification that plumbing fixtures throughout the Site have been retrofitted in compliance with Regulation XIV and Regulation XV. The owner, his authorized agent, or CID manager shall forward a copy of this certification, together with a dated copy of the purchase receipt for each Low Water Use Plumbing Fixture and a dated copy of the labor contract or a statement of selfinstallation which evidences complete installation to the District. The District may verify certification by an onsite inspection.

Rule added by Ordinance No. 30 (7/13/87); amended by Ordinance No. 71 (12/20/1993): Ordinance No. 125 (9/18/2006); Ordinance No. 141 (11/16/2009); Ordinance No. 151 (11/19/2012); Ordinance No. 170 (5/16/2016); Ordinance No. 172 (8/15/2016); Ordinance No. 177 (9/18/2017); Ordinance No. 182 (5/20/2019)

#### **RULE 142.1 - WATER EFFICIENT LANDSCAPE REQUIREMENTS**

- A. <u>Purpose</u>. The purpose of this Rule is to provide landscape standards that minimize water use, eliminate Water Waste, and reduce storm water Runoff by requiring low water landscape plantings, design, and irrigation methods. Pursuant to Government Code Section 65595, this Rule is intended to be at least as effective in water conservation as the State's Model Water Efficient Landscape Ordinance and is intended to apply in lieu of the State Model Water Efficient Landscape Ordinance.
- B. <u>Applicability</u>. The provisions of this Rule shall apply to all of the following categories of landscaping:
  - 1. New Construction projects requiring a grading permit, building permit or design approval with an associated new aggregate Landscape Area equal to or greater than five hundred (500) square feet;
  - 2. New landscapes requiring a grading permit, building permit or design approval with an aggregate Landscape Area equal to or greater than five hundred (500) square feet;
  - 3. Rehabilitated Landscapes having an aggregate Landscape Area equal to or greater than two thousand five hundred (2,500) square feet that are associated with a grading permit, building permit or design approval.
- C. <u>Exceptions</u>. This Rule does not apply to:
  - 1. Local, state or federal historical sites listed in either the County's Local Official Register of Historic Resources, the California Register of Historic Places, or the National Register of Historic Places;
  - 2. Ecological Restoration Projects that do not require a permanent Irrigation System;
  - 3. Plant collections, as part of botanical gardens and arboretums open to the public;
  - 4. Agricultural cultivation activities including, but not limited to, the preparation and planting of vegetation on agricultural lands for the production of food, products, or feed for either human or animal consumption;
  - 5. Construction of structures that do not include changes in existing landscape;
  - 6. Changes in use of an existing structure that do not include changes to existing landscape;
  - 7. Private edible plant gardens and/or orchards for personal and individual consumption;

- 8. Constructed wetlands or other Landscaped Areas that are not irrigated and used solely for on Site waste water treatment;
- 9. New, existing or rehabilitated storm water quality projects that are not irrigated and used solely for the purpose of improving Runoff quality and/or retaining Runoff for on Site infiltration;
- 10. Natural areas including, but not limited to: open space, native vegetative areas, and Pervious or impervious hardscapes that do not require a permanent Irrigation System;
- 11. Erosion control activities (e.g., hydroseeding) that do not require permanent Irrigation Systems;
- 12. Existing landscapes installed prior to December 1, 2015 are strongly encouraged to reduce water consumption pursuant to this Rule.
- 13. New cemeteries are exempt from the specific requirements of this Rule but are required to engage in landscape maintenance practices that foster long-term water conservation, such as performing routine repair and adjustment of Irrigation Systems, conducting audits of water use, and prescribing the amount of water applied per landscaped acre.
- D. Landscape Manual. The Board may by resolution adopt, and may from time to time amend, the "Monterey Peninsula Water Efficient Landscape Manual – Standards, Guidelines and Specified Performance Requirements for Landscape Water Use and Irrigation" ("Landscape Manual") to establish guidelines to explain and implement this Rule. The Landscape Manual shall explain the specific procedures and technical requirements of this Rule. The Landscape Manual shall include the elements of the Landscape Package for Minor and Major Landscape projects, Water Efficient Landscape Worksheet, Soils Management Report, Planting Design Plan, Irrigation Design Plan, grading information, Minor Certificate of Completion, and Certificate of Completion. If any provisions of the Landscape Manual conflict with any provisions of this Rule, the provisions of this Rule shall prevail.
- E. <u>Minor Landscapes Minor Landscape Package Submittal Requirements</u>
  - 1. Minor Landscape Projects have an aggregate Landscape Area less than or equal to two thousand five hundred (2,500) square feet.
  - 2. Any Minor Landscape Project may conform to this Rule either by complying with the full performance standards of the Major Landscape Package or by complying with reduced requirements of the Minor Landscape Package (Appendix D of the Landscape Manual). If the project is complying with the Minor Landscape Package requirements, the requirements must be documented on the Landscape Design Plan.

- 3. Minor Landscape Projects using treated or untreated Graywater or rainwater captured on Site to meet the entire landscape water requirement (Estimated Total Water Use) are subject only to Appendix D Section (5) of the Landscape Manual.
- 4. Prior to issuance of a grading permit, building permit, or design approval associated with Minor Landscape Projects subject to this Rule, the Applicant shall submit a Minor Landscape Package to the District for review and approval. The District shall approve the package once it has been verified that the proposed Minor Landscape Project complies with the provisions of this Rule. The approved Landscape Package Submittal Form as provided in the Landscape Manual must be used.
- 5. If the District denies the Minor Landscape Package application, the District shall provide information to the project Applicant regarding resubmittal with the appropriate information or right of appeal.
- 6. The Minor Landscape Package shall include:
  - a. Date prepared;
  - b. The project Applicant and contact information, name of and contact information for property owner if different than project Applicant;
  - c. Project location (and Assessor's Parcel Number);
  - d. Project type (i.e., Residential, Non-Residential, Rehabilitated Landscape);
  - e. Total square footage of Landscape Area including a breakdown of Turf, and other plant material;
  - f. Water supply type (e.g., Potable, Recycled Water, Well) and identify the local retail water purveyor if not served by a private Well.
  - g. The Minor Landscape Package shall contain the following statement that shall be signed and dated by the project Applicant:
  - h. "I agree to comply with the Monterey Peninsula Water Management District Minor Landscape requirements including, but not limited to, the use of climate appropriate, non-invasive species, and limited Turf."
- 7. Landscape Design Plans and Irrigation Design Plans submitted as part of the Minor Landscape Package are not required to be drawn by licensed architect or contractor.
- 8. <u>Minor Landscape Project Landscape Design</u>. Landscape Design Plans shall include and demonstrate how the landscaping is consistent with the following information:

- a. The landscape design shall incorporate Compost at a rate of at least four
  (4) cubic yards per one thousand (1,000) square feet to a depth of six (6) inches into the Landscape Area, unless contraindicated by a Soils Management Report.
- b. A Soils Management Report is not required if Compost is incorporated into the soil per this section of Rule 142-E.
- c. Residential projects shall include installation of climate adapted plants that require occasional, little or no summer water (average WUCOLS Plant Water Use Factor 0.3) for seventy-five percent (75%) of the plant area, excluding areas solely dedicated to edible plants and areas using Recycled Water.
- d. Non-Residential projects shall include installation of climate adapted plants that require occasional, little or no summer water (average WUCOLS Plant Water Use Factor 0.3) for one hundred percent (100%) of the plant area, excluding areas solely dedicated to edible plants and areas using Recycled Water.
- e. Turf shall be limited to twenty percent (20%) of the Landscape Area or up to one thousand five hundred (1,500) square feet, whichever is less, for Residential projects. Planting of Turf shall be prohibited in the following conditions:
  - (1) Non-Residential Minor Landscape Projects;
  - (2) Slopes exceeding ten percent (10%);
  - (3) Planting areas eight (8) feet wide or less; and
  - (4) Street Medians, traffic islands, planter strips, or bulb-outs of any size.
- f. A minimum three inch (3") layer of Mulch shall be applied on all exposed soil surfaces of planting areas except in Turf areas, creeping or rooting groundcovers, or direct seeding applications where Mulch is contraindicated.
- 9. <u>Minor Landscape Irrigation System Design</u>. Inefficient landscape irrigation resulting in Water Waste is prohibited. Therefore, Irrigation Systems shall comply with the following requirements:
  - a. Automatic Irrigation Controllers are required and must use Evapotranspiration or Soil Moisture Sensing Device data and a Rain Sensor.

- b. Irrigation Controllers shall be of a type which does not lose programming data in the event the primary power source is interrupted.
- c. Pressure regulators shall be installed on the Irrigation System to ensure the dynamic pressure of the system is within the manufacturer's recommended pressure range.
- d. Manual shut-off Valves shall be installed as close as possible to the point of connection of the water supply.
- e. All irrigation emission devices must meet the requirements set in the American National Standards Institute (ANSI) standard, American Society of Agricultural and Biological Engineers'/International Code Council's (ASABE/ICC) 802-2014 "Landscape Irrigation Sprinkler and Emitter Standard." All Sprinkler Heads installed in the landscape must document a Distribution Uniformity low quarter of 0.65 or higher using the protocol defined in ASABE/ICC 802-2014.
- f. Areas less than ten (10) feet in width in any direction shall be irrigated with subsurface irrigation or other means that produce no Runoff or Overspray.
- g. Non-Residential Minor Landscape Projects with Landscape Areas of one thousand (1,000) square-feet or greater shall require installation of a Water Meter supplied by the Water Distribution System to measure all exterior water uses.
- 10. <u>Certificate of Completion</u>. Upon completion of installation of the Minor Landscape Project, but prior to occupancy or final of associated grading or building permits, the project Applicant shall provide the property owner and the District with a Minor Landscape Certificate of Completion.
  - a. The Minor Landscape Certificate of Completion shall include all of the following: Project information, a Certificate of Installation, an irrigation schedule, and a landscape and irrigation maintenance schedule.
  - b. The approved form for the Minor Landscape Certificate of Completion as provided in the Landscape Manual must be used.
  - c. A Minor Landscape Certificate of Completion shall not be accepted by the District unless it is complete and meets all the requirements of this section.
  - d. The District shall approve or deny the Certificate of Completion. If the Certificate of Completion is denied, the District shall provide the project Applicant with the opportunity to make correction(s). Decisions to deny a Certificate of Completion are appealable decisions.

- e. Prior to the final of grading or building permits associated with a Minor Landscape Project subject to this Rule, the Minor Landscape Project shall pass a final inspection by the District.
- 11. Obligations of Property Owner, Successors and Assignees.
  - All required landscaping and the Irrigation System shall be reasonably maintained for the life of the project to ensure water use efficiency. Information about how to maintain the project shall be provided in the Landscape and Irrigation Maintenance Schedule.
  - Plants lost due to disease, destruction, or lifecycle shall be replaced and shall comply with all adopted standards for size, species, and irrigation. Replacement with different species is acceptable without amendment to the approved Minor Landscape Package provided that the water use is lower or remains the same as that which was previously approved. Modifications to landscaping that would result in higher water use than approved in the Minor Landscape Package shall require an amendment or new Water Permit as required by the District's Rules.

# F. <u>Major Landscapes – Major Landscape Package Submittal Requirements</u>

- 1. Prior to issuance of a grading permit, building permit, or design approval associated with Major Landscape Projects subject to this Rule, the Applicant shall submit a Major Landscape Package to the District for review and approval. The Major Landscape Package shall contain all information and documentation, in sufficient detail, as specified in this section of Rule 142.1 and the Landscape Manual. The General Manager shall approve the package after verifying that the proposed landscape project complies with the provisions of this Rule and the provisions of the Landscape Manual. The approved Landscape Package Application and Submittal Form provided in the Landscape Manual shall be used.
- 2. The Major Landscape Package shall include general project information such as the date prepared, project Applicant and contact information, name of the property owner if different than project Applicant, project location and Assessor's Parcel Number, project type (i.e. Residential, Non-Residential, Rehabilitated Landscape), total square footage of Landscape Area including a breakdown of Turf and other plant material, and water supply or water purveyor.
- 3. A Landscape Design Plan shall be submitted by the Applicant as part of the Major Landscape Package meeting the requirements set forth in Rule 142.1-H.
- 4. An Irrigation Design Plan shall be submitted by the Applicant as part of the Major Landscape Package meeting the requirements set forth in Rule 142.1-I.

- 5. Major Landscape Projects shall meet the Water Efficient Landscape Requirements set forth in this Rule.
- 6. A Soils Management Report containing information set forth in Rule 142.1-H-5-b shall be submitted as part of the Major Landscape Package.
- 7. Upon completion of the Major Landscape Project, a Certificate of Completion shall be submitted to the District consistent with Rule 142.1-N.
- 8. Prior to Jurisdiction final of a grading permit or building permit for a Major Landscape Project subject to this Rule, the Major Landscape Project shall pass a final inspection by the District.
- 9. The Major Landscape Package shall contain the following statement:

"I agree to submit a complete Landscape Package that complies with the Monterey Peninsula Water Management District Major Landscape Requirements including, but not limited to, the use of climate appropriate, non-invasive species, and limited Turf."

This verification shall be signed and dated by the project Applicant.

 The following statement shall be recorded on the title of the property via a "Notice and Deed Restriction Regarding Limitation on Use of Water on a Property":

"Subject Property shall comply with MPWMD Rule 142.1, Water Efficient Landscape Requirements. Any increase in the size of the Landscape Area or any change in the plant species to a higher water use species shall require a new or amended Water Permit."

- G. <u>Obligations of Property Owner, Successors and Assignees</u>.
  - 1. All required landscaping and the Irrigation System shall be reasonably maintained for the life of the project to ensure water use efficiency. Information about how to maintain the project shall be provided in the Landscape and Irrigation Maintenance Schedule.
  - 2. Plants lost due to disease, destruction, or lifecycle shall be replaced and shall comply with all adopted standards for size, species, and irrigation. Replacement with different species is acceptable without amendment to the approved Major Landscape Package provided that the Plant Water Use Factor is lower or remains the same as that which was previously approved. Modifications to landscape that would result in higher water use than approved in the Major Landscape Package shall require a new or amended Water Permit.

- H. <u>Landscape Design Plans for Major Landscapes</u>. For the efficient use of water, Landscape Design Plans for Major Landscape Projects shall meet all the requirements listed in this section and in the Landscape Manual. The Landscape Design Plan shall be signed by a licensed Landscape Architect, a licensed Landscape Contractor, or any other person authorized to design a landscape.
  - 1. The Landscape Design Plan shall include grading design that minimizes soil erosion, Runoff, and Water Waste.
  - 2. Landscape Design Plan Minimum Requirements.
    - a. Hydrozone areas shall be designated on the Landscape Design Plan by number, letter, or other designation;
    - b. Identify each Hydrozone as low, moderate, high water, or mixed water use. Temporarily irrigated areas of the landscape shall be included in the low water use Hydrozone for the Water Budget calculation;
    - c. Identify Recreational Areas;
    - d. Identify areas permanently and solely dedicated to edible plants;
    - e. Identify areas irrigated with Recycled Water;
    - f. Identify type of Mulch and application depth;
    - g. Identify soil amendments, type and quantity;
    - h. Identify type and surface area of Water Features;
    - i. Identify hardscapes (Pervious and non-Pervious);
    - J. Identify location, installation details, and 24-hour retention or infiltration capacity of any applicable storm water Best Management Practices that encourage on Site retention and infiltration of storm water. Project Applicant shall refer to the Jurisdiction, waste water processor and/or Regional Water Quality Control Board for information on any applicable storm water technical requirements. Storm water Best Management Practices are encouraged in the Landscape Design Plan;
    - k. Identify any applicable rain harvesting or catchment technologies;
    - l. Identify any applicable Graywater discharge piping, system components and area(s) of distribution;
    - m. Landscape Design Plans shall contain the following statement signed by a licensed Landscape Architect, a licensed Landscape Contractor, or any

other person authorized to design a landscape:

"I have complied with the Monterey Peninsula Water Management District Water Efficient Landscape Requirements including, but not limited to, the use of climate appropriate, non-invasive species, and limited Turf."

- 3. <u>Plant Material</u>.
  - a. Any plant may be selected for the landscape, providing the Estimated Total Water Use in the Landscape Area does not exceed the Maximum Applied Water Allowance.
  - b. Turf shall be limited to twenty percent (20%) of the Landscape Area or up to one thousand five hundred (1,500) square feet, whichever is less, unless the Turf area is designated as a Special Landscape Area and is dedicated as a Recreational Area. Planting of Turf is prohibited in the following conditions:
    - (1) Slopes exceeding ten percent (10%);
    - (2) Planting areas eight (8) feet wide or less; and
    - (3) Street Medians, traffic islands, planter strips, or bulb-outs of any size.
  - c. All non-Turf plants shall be selected, spaced, and planted appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the project site.
  - d. Invasive Plant Species are strictly prohibited and eradication of Invasive Plant Species in the Landscape Area is highly encouraged.
  - e. Selected plants shall include the use of native and/or climate appropriate species.
  - f. Landscape planting shall include the use of drought resistant species.
  - g. Where appropriate, landscape planting shall include the use of fire resistant plant species and shall be consistent with fire safe landscaping required by the designated fire district and Chapter 18.56 (Wildfire Protection Standards in State Responsibility Areas) of the Monterey County Code.
  - h. Plants with similar water use needs shall be grouped together in distinct Hydrozones. Where irrigation is required, the distinct Hydrozones shall be irrigated with separate Valves.

- i. Plants with low and high water use shall not be included in the same Hydrozone.
- j. Plants with high water use shall be prohibited in Street Medians.
- 4. <u>Water Features</u>.
  - a. Recirculating water systems shall be used for Water Features.
  - b. Where available, Recycled Water shall be used as a source for decorative Water Features.
  - c. Surface area of a Water Feature shall be included in the High Water Use (Plant Water Use Factor) Hydrozone area of the Water Budget calculation.
  - d. Pool and spa covers are highly recommended.
- 5. <u>Soil Preparation, Mulch and Amendments</u>.
  - a. Landscape Design Plans shall include soil preparation methods, Mulch, and amendments recommended in the Soils Management Report.
  - b. <u>Soils Management Report Requirements for Major Landscapes</u>. A Soils Management Report shall be obtained by the Applicant and submitted with the Major Landscape Package. In order to promote healthy plant growth and prevent excessive erosion and Runoff, the Soils Management Report shall be consistent with the required information outlined in this section and the applicable sections of the Landscape Manual.
    - (1) The Soils Management Report shall be prepared by a certified laboratory and evaluate soils relative to horticulture.
    - (2) The soil analysis shall include: soil texture, Infiltration Rate, pH, total soluble salts, sodium, and percentage of organic matter.
    - (3) Soil samples shall be from the Site and analyzed to identify quality top soil, soil limitations, and soil composition information necessary for planting.
    - Projects with multiple landscape installation (i.e. subdivisions) shall either conduct a soil sampling rate of one (1) in seven (7) lots, or approximately fifteen percent (15%) will satisfy this requirement.
    - (5) Projects with large Landscape Areas shall have a soil sample at a rate of fifteen percent (15%).

- (6) The Soils Management Report shall include recommendations for soil amendments based on the conditions of the Site and the intended planting.
- (7) The Soils Management Report shall be completed in a timely manner and made available to the professionals preparing the Landscape Design Plan and the Irrigation Design Plan.
- (8) If significant mass grading is not planned, the Soil Management Report shall be submitted to the District as part of the Landscape Package.
- (9) If significant mass grading is planned, the Soil Management Report shall be submitted to the District as part of the Certificate of Completion.
- (10) The project Applicant shall submit documentation verifying implementation of Soil Management Report recommendations to the District with the Certificate of Completion.

### c. <u>Mulch and Amendments</u>.

- (1) Prior to the planting of any materials, compacted soils shall be transformed to a Friable condition. On engineered slopes, only amended planting holes need to meet this requirement.
- (2) Soil amendments shall be incorporated according to recommendations of the Soils Management Report and what is appropriate for the plants selected.
- (3) For landscape installations, Compost at a rate of a minimum of four cubic yards per 1,000 square-feet of permeable area shall be incorporated to a depth of six inches (6") into the soil. Soils with greater than six percent (6%) organic matter in the top six inches (6") of soil are exempt from adding Compost and tilling.
- (4) A minimum three inch (3") layer of Mulch shall be applied on all exposed soil surfaces of planting areas except in Turf areas, creeping or rooting groundcovers, or direct seeding applications where Mulch is contraindicated. To provide habitat for beneficial insects and other wildlife, up to five percent (5%) of the Landscape Area may be left without Mulch. Designated insect habitat shall be included in the Landscape Design Plan.
- (5) Stabilizing Mulching products shall be used on slopes that meet current engineering standards.

- (6) The Mulching portion of the seed/Mulch slurry in hydroseeded applications shall meet the Mulching requirement.
- (7) Organic Mulch materials made from recycled or postconsumer products shall take precedence over inorganic materials or virgin forest products unless the recycled, postconsumer products are not locally available. Organic Mulches are not required where prohibited by local Fuel Modification Plan Guidelines or other applicable local ordinances.
- 6. <u>Grading Design Plan</u>.
  - a. For the efficient use of water, grading of a project Site shall be designed to minimize soil erosion, Runoff, and Water Waste. A grading plan shall be submitted to the Jurisdiction for review. A comprehensive grading plan prepared by a civil engineer for other local agency permits satisfies this requirement.
  - b. The project Applicant shall submit a landscape grading plan that indicates finished configurations and elevations of the Landscape Area including:
    - (1) Height of graded slopes;
    - (2) Drainage patterns;
    - (3) Pad elevations;
    - (4) Finish grade; and
    - (5) Storm water retention improvements, if applicable.
  - c. To prevent excessive erosion and Runoff, it is highly recommended that project Applicants:
    - (1) Grade so that all irrigation and normal rainfall remains within property lines and does not drain on to non-permeable hardscapes;
    - (2) Avoid disruption of natural drainage patterns and undisturbed soil; and
    - (3) Avoid soil compaction in Landscape Areas.
  - d. The grading design plan shall contain the following statement that shall bear the signature of a licensed professional as authorized by law:

"I have complied with the criteria of the Monterey Peninsula Water Management District Water Efficient Landscape Requirements and applied them accordingly for the efficient use of water in the grading design plan."

- I. Irrigation Design Plans for Major Landscapes.
  - 1. This section applies to Landscaped Areas requiring permanent irrigation, not areas that require temporary irrigation solely for the plant establishment period.
  - 2. The Irrigation Design Plan shall be drawn by a licensed Landscape Architect, a licensed Landscape Contractor, a Certified Irrigation Designer, or any other person authorized to design a landscape.
  - 3. Irrigation Design Plan Minimum Requirements.
    - (a) Location and size of separate Water Meters for landscape;
    - (b) Location, type and size of all components of the Irrigation System, including Controllers, main and Lateral Lines, valves, Sprinkler Heads, Soil Moisture Sensing Devices, Rain Sensors, quick couplers, pressure regulators, and Backflow Prevention Devices;
    - (c) Static water pressure at the point of Connection to the water supply;
    - (d) Flow rate (gallons per minute), application rate (inches per hour), and design operating pressure (pressure per square inch) for each station;
    - (e) Recycled Water Irrigation Systems.
      - (1) All Recycled Water Irrigation Systems shall be designated and operated in accordance with all applicable local and State laws.
      - (2) Landscapes using Recycled Water are considered Special Landscape Areas. The Evapotranspiration Adjustment Factor for new and existing (not Rehabilitated Landscape) Special Landscape Areas shall not exceed 1.0.
    - (f) Irrigation Design Plans shall contain the following statement signed by a licensed Landscape Architect, Certified Irrigation Designer, licensed Landscape Contractor, or any other person authorized to design an Irrigation System:

"I have complied with the criteria of the Monterey Peninsula Water Management District Water Efficient Landscape Requirements and applied them accordingly for the efficient use of water in the Irrigation Design Plan."

- 4. <u>Irrigation System Design</u>. For the efficient use of water, an Irrigation System shall meet all the following design requirements and the manufacturers' recommendations and shall be submitted as part of the Landscape Package:
  - (a) All Non-Residential landscapes receiving a Water Permit that include irrigated landscapes of 1,000 square-feet or greater shall utilize a separate Water Meter supplied by the local water purveyor to measure all exterior water uses.
  - (b) All Residential irrigated landscapes of 5,000 square-feet or greater shall install a separate privately owned Water Meter to measure outdoor water use.
  - (c) Automatic Irrigation Controllers utilizing either Evapotranspiration or Soil Moisture Sensing Device data utilizing non-volatile memory shall be required for irrigation scheduling in all Irrigation Systems.
  - (d) If the water pressure is below or exceeds the recommended pressure of the specified irrigation devices, the installation of a pressure regulating device is required to ensure that the dynamic pressure at each emission device is within the manufacturer's recommended pressure range for optimal performance.
  - (e) A Rain Sensor (either integral or auxiliary) that suspends irrigation operation during and for 48 hours after Measurable Precipitation shall be required on all Irrigation Systems.
  - (f) Manual shut-off valves (such as a gate valve, ball valve, or butterfly valve) shall be required, as close as possible to the point of connection to the water supply, to minimize water loss in case of an emergency (such as a main line break) or routine repair.
  - (g) Backflow Prevention Devices shall be required to protect the water supply from contamination by the Irrigation System. A project Applicant shall refer to the applicable local agency code (i.e., public health) for additional Backflow Prevention Device requirements.
  - (h) Flow Sensors that detect high flow conditions created by system damage or malfunction are required for all Non-Residential landscapes and Residential landscapes of 5,000 square-feet or greater.
  - (i) Master Shut-Off Valves are required on all projects except landscapes that make use of technologies that allow for the individual control of sprinklers that are individually pressurized in a system equipped with low pressure shut down features.
  - (j) The Irrigation System shall be designed to prevent Runoff, low head

drainage, Overspray, or other similar conditions where irrigation water flows onto non-targeted areas, such as adjacent property, non-irrigated areas, hardscapes, roadways, or structures.

- (k) Relevant information from the Soils Management Report, such as soil type and Infiltration Rate, shall be utilized when designing Irrigation Systems.
- (l) The design of the Irrigation System shall conform to the Hydrozones of the Landscape Design Plan.
- (m) The Irrigation System must be designed and installed to meet the Irrigation Efficiency criteria calculated in the Water Efficient Landscape Worksheet.
- (n) All irrigation emission devices must meet the requirements set in the American National Standards Institute (ANSI) standard, American Society of Agricultural and Biological Engineers'/International Code Council's (ASABE/ICC) 802-2014 "Landscape Irrigation Sprinkler and Emitter Standard." All Sprinkler Heads installed in the landscape must document a Distribution Uniformity low quarter of 0.65 or higher using the protocol defined in ASABE/ICC 802-2014.
- (o) In Mulched planting areas, the use of a Low Volume Irrigation System is required to maximize water infiltration into the root zone.
- (p) Sprinkler Heads and other emission devices shall have matched precipitation rates, unless otherwise directed by the manufacturer's recommendations.
- (q) Head to head coverage is recommended. However, sprinkler spacing shall be designed to achieve the highest possible Distribution Uniformity using the manufacturer's recommendations.
- (r) Swing Joints or other rise-protection components are required on all risers subject to damage that are adjacent to hardscapes or in high traffic areas of Turf grass.
- (s) Check Valves or anti-drain valves are required on all Sprinkler Heads where low point drainage could occur.
- (t) Areas less than ten (10) feet in width in any direction shall be irrigated with subsurface irrigation or other means that produces no Runoff or Overspray.
- Overhead irrigation shall not be permitted within 24 inches of any non-permeable surface. Allowable irrigation within the setback from 142.1-15 Monterey Peninsula Water Management District

non-permeable surfaces may include drip, drip line, or other low flow non-spray technology. The setback area may be planted or unplanted. The surfacing of the setback may be Mulch, gravel, or other porous material. These restrictions may be modified if:

- (1) The Landscape Area is adjacent to permeable surfacing and no Runoff occurs; or
- (2) The adjacent non-permeable surfaces are designed and constructed to drain entirely to the landscaping; or
- (v) Slopes greater than 25 percent shall not be irrigated with an Irrigation System with an application rate exceeding 0.75 inches per hour. This restriction may be modified if the landscape designer specifies an alternative design or technology, as part of the Landscape Package, and clearly demonstrates no Runoff or erosion will occur. Prevention of Runoff and erosion shall be confirmed during the Irrigation Audit.
- (w) Hydrozones.
  - (1) Each valve shall irrigate a Hydrozone with similar site, slope, sun exposure, soil conditions, and plant materials with similar water use.
  - (2) Sprinkler Heads and other emission devices shall be selected based on what is appropriate for the plant type within that Hydrozone.
  - (3) Where feasible, trees shall be placed on separate valves from shrubs, groundcovers, and Turf to facilitate the appropriate irrigation of trees. The mature size and extent of the root zone shall be considered when designing irrigation for the tree.
  - (4) Individual Hydrozones that mix moderate and Low Water Use Plants, or Moderate and High Water Use Plants, may be allowed if the Plant Water Use Factor of the higher water using plant is used for the Water Budget calculations.
  - (5) Individual Hydrozones that mix Low and High Water Use Plants are prohibited.
  - (6) On the Irrigation Design Plan, Hydrozone areas shall be designated by number, letter, or other designation. On the Irrigation Design Plan, designate areas irrigated by each valve.
- J. <u>Water Efficient Landscape Worksheet for Major Landscapes</u>.

- 1. To ensure Major Landscape Projects conserve water to the maximum extent possible, information included within the Water Efficient Landscape Worksheet shall be consistent with the requirements listed in this Rule.
- 2. <u>Water Budget</u>. Water Budget calculations shall meet the following requirements:
  - (a) The surface area of all Water Features shall be calculated as high water use and incorporated within a high water use Hydrozone.
  - (b) Temporarily irrigated areas shall be calculated as low water use and incorporated within a low water use Hydrozone.
  - (c) Water Budget calculations for the Maximum Applied Water Allowance shall be calculated using the formula found in the Landscape Manual. Special Landscape Areas, as defined in this Rule, and areas irrigated with Recycled Water, are subject to Maximum Applied Water Allowance with an Evapotranspiration Adjustment Factor not to exceed 1.0.
  - (d) The calculation of a project's Estimated Total Water Use shall be performed using the formula found in the Landscape Manual.
  - (e) For calculation of the Maximum Applied Water
    Allowance and Estimated Total Water Use, the project
    Applicant shall use the annual Evapotranspiration values
    contained in Appendix A of the Landscape Manual.
  - (f) Landscape projects subject to this Rule shall not apply water to the landscape in excess of the maximum amount of water allowed. The Estimated Total Water Use shall not exceed the Maximum Applied Water Allowance.

#### K. <u>Alternative Water Sources in the Landscape</u>.

- 1. Rain gardens, Cisterns and other landscape features and practices that increase rainwater capture and create opportunities for infiltration and/or onsite storage are recommended. Rainwater catchment systems shall meet the requirements of the Monterey County Environmental Health Bureau.
- 2. To promote the efficient use of water, the use of Graywater 142.1-17 Monterey Peninsula Water Management District

systems for irrigation is recommended. Graywater systems shall meet the requirements of the California Plumbing Code, including any modifications adopted by Monterey County, and are subject to approval by the Monterey County Environmental Health Bureau.

- 3. Landscape projects in the Unincorporated County Jurisdiction using treated or untreated Graywater or rainwater captured on Site to irrigate the entire Landscape Area shall be subject to the approval of the Monterey County Environmental Health Bureau.
- 4. All Recycled Water Irrigation Systems shall be designed and operated in accordance with all State and County laws and regulations related to Recycled Water use.
- 5. Landscape projects subject to this Rule shall incorporate the use of Recycled Water for irrigation when, in the determination of the District, Recycled Water is available and connection to Recycled Water is feasible.

## L. Irrigation Schedules.

- 1. For the efficient use of water, all irrigation schedules shall be developed, managed and evaluated to utilize the minimum amount of water required to maintain plant health. The irrigation schedule shall be developed by a Landscape Architect, Landscape Contractor, or any other person authorized to install irrigation equipment.
- 2. Irrigation scheduling shall be regulated by Automatic Irrigation Controllers using current Reference Evapotranspiration data or Soil Moisture Sensing Device data.
- 3. Overhead irrigation shall be scheduled between 8:00 p.m. and 9:00 a.m.
- 4. Operation of the Irrigation System outside the normal watering window is allowed for auditing and system maintenance.
- 5. For implementation of the irrigation schedule, particular attention must be paid to irrigation run times, emission device, Flow Rate, and current Reference Evapotranspiration, so that Applied Water meets the Estimated Applied Water Use. Total annual Applied Water shall be less than or equal to Maximum Applied Water Allowance.
- 6. Parameters used to set the automatic Controller shall be developed and

submitted for each of the following:

- (a) The plant establishment period;
- (b) The established landscape; and
- (c) Temporarily irrigated areas.
- 7. The irrigation schedule shall be consistent with the requirements of this Rule and shall consider for each station all of the following that apply:
  - (a) Irrigation interval (days between irrigation);
  - (b) Irrigation run times (hours or minutes per irrigation event to avoid Runoff);
  - (c) Number of cycle starts required for each irrigation event to avoid Runoff;
  - (d) Amount of Applied Water scheduled to be applied on a monthly basis;
  - (e) Application rate setting;
  - (f) Root depth setting;
  - (g) Plant type setting;
  - (h) Soil type;
  - (i) Slope factor setting;
  - (j) Shade factor setting; and
  - (k) Irrigation uniformity or efficiency setting.
- 8. The irrigation schedule shall be submitted with the landscape Certificate of Completion pursuant to this Rule.
- M. Landscape Planting and Maintenance Schedule.
  - 1. In order to maintain plant health and functioning irrigation equipment, a landscape planting and irrigation maintenance schedule shall be developed incorporating the requirements of this section, the applicable sections of the Landscape Manual, and include the following:
    - (a) A regular maintenance schedule shall be developed by a Landscape Architect, Landscape Contractor, or any other person authorized to design and maintain landscape planting and irrigation.

- (b) A regular maintenance schedule shall include, but is not limited to, routine inspection, adjustment, and repair of the Irrigation System and its components.
- (c) A note shall be included stating that any replacement plants shall not exceed the water use for the Hydrozone.
- (d) A regular maintenance schedule shall make provisions for irrigation inspections, systems tune-up, and system tests with Distribution Uniformity preventing Overspray or Runoff that causes overland flow.
- (e) The regular maintenance schedule shall be submitted with the landscape Certificate of Completion consistent with this Rule.
- N. <u>Certificate of Completion Requirements for Major Landscapes</u>.
  - 1. Upon completion of installation of a Major Landscape Project, but prior to occupancy or final of the associated grading or building permits, the project Applicant shall provide the property owner and the District with a Certificate of Completion. The Certificate of Completion shall comply with the requirements of this Rule.
  - 2. The Certificate of Completion shall include all of the following:
    - (a) Project information;
    - (b) Certification for installation of the landscape planting and irrigation;
    - (c) The proposed irrigation schedule;
    - (d) An Irrigation Audit conducted by a Certified Landscape Irrigation Auditor. The audit shall not be conducted by the person who designed and/or installed the landscape.
    - (e) The proposed Landscape and Irrigation Maintenance Schedule; and
    - (f) Verification of implementing recommendations of the Soils Management Report.
  - 3. The Certificate of Completion shall be signed by either the person or entity who signed the Landscape Design Plan, the person or entity who signed the Irrigation Design Plan, or the licensed Landscape Contractor who installed the landscape.
  - 4. If minor changes were made during installation, Record Drawing or As-Built Plans shall be included with the certification. Record Drawing or As-Built Plans must be in conformance with this Rule.

- 5. If significant changes such as an increase in the size of the Landscape Area or any change in the plant species to a higher water use species were made during installation, the project shall require an amendment to the approved Major Landscape Package as required by this Rule.
- 6. A copy of the approved form for the Certificate of Completion can be found in the Landscape Manual.
- 7. A Certificate of Completion shall not be accepted by the District unless it is complete and meets all the requirements of this Rule.
- 8. The District shall approve or deny the Certificate of Completion. If the Certificate of Completion is denied, the District shall provide the project Applicant with the opportunity to make correction(s). Decisions to deny a Certificate of Completion are appealable decisions.
- O. <u>Inspection Requirements</u>. Prior to the final of grading or building permits associated with Major and Minor Landscape Projects subject to the provisions of this Rule, inspection by the District or its designated agent to verify compliance with the approved Landscape Package shall be required.
- P. <u>Amendments</u>.
  - 1. Proposed amendments to an approved Minor Landscape Package shall be submitted to the District for review and approval prior to submittal of the Certificate of Completion. The amendment shall be in writing, in sufficient detail to adequately address the nature of the amendment and demonstrate consistency with the requirements of this Rule. Amendments shall be processed in the same manner as the Landscape Package application.
  - 2. Proposed amendments to an approved Major Landscape Package shall be submitted to the District for review and approval prior to submittal of the Certificate of Completion. The amendment shall be in writing, in sufficient detail to adequately address the nature of the amendment and demonstrate consistency with the requirements of this Rule. Amendments shall be processed in the same manner as the Landscape Package application.
- Q. <u>Appeals</u>. Any denial by the General Manager or his/her designee of a Minor or Major Landscape Package, Minor Landscape Certificate of Completion, or Certificate of Completion pursuant to this Rule may be appealed by the Applicant to the Board of Directors pursuant to Rule 70.
- R. <u>Existing Landscapes</u>. The purpose of this section is to encourage reduction of excessive water use in landscapes through public education.
  - 1. Existing landscapes installed prior to December 1, 2015 are strongly encouraged to reduce water consumption through participation in water conservation 142.1-21

programs, including but not limited to those listed in this section.

- 2. Existing landscapes located within the Monterey Peninsula Water Management District are strongly encouraged to participate in applicable landscape Rebate programs, landscape water audit/budget analysis and/or any other available water conservation programs to the greatest extent feasible.
- 3. All model homes that are landscaped shall use signs and written information to demonstrate the principles of water efficient landscapes described in this Rule.
  - (a) Signs shall be used to identify the model as an example of a water efficient landscape featuring elements such as Hydrozones, irrigation equipment, use of native plants, Graywater systems and rainwater catchment systems to demonstrate low water use approaches and techniques in landscaping.
- S. The following definitions are used in this Rule and in the Landscape Manual:

APPLIED WATER – "Applied Water" shall mean the portion of water supplied by the Irrigation System to the landscape.

AS-BUILT DRAWINGS – "As-Built Drawings" shall mean landscape drawings prepared by the contractor that show, in red ink, on Site changes to the original landscape construction documents.

AUTOMATIC IRRIGATION CONTROLLER – "Automatic Irrigation Controller" shall mean a timing device used to remotely control valves that operate an Irrigation System. Automatic Irrigation Controllers are able to self-adjust and schedule irrigation events using either Evapotranspiration (weather-based) or soil moisture data.

BACKFLOW PREVENTION DEVICE – "Backflow Prevention Device" shall mean a safety device used to prevent pollution or contamination of the water supply due to the reverse flow of water.

CALIFORNIA INVASIVE PLANT INVENTORY – "California Invasive Plant Inventory" shall mean the California Invasive Plant Inventory maintained by the California Invasive Plant Council.

CERTIFICATE OF COMPLETION – "Certificate of Completion" shall mean a document certifying completion of a landscape in compliance with the Monterey Peninsula Water Management District Water Efficient Landscape Requirements.

CERTIFIED IRRIGATION DESIGNER – "Certified Irrigation Designer" shall mean a Person certified to design Irrigation Systems by an accredited academic institution, a professional trade organization or other program such as the United States Environmental Protection Agency's WaterSense irrigation designer certification program and Irrigation Association's Certified Irrigation Designer program. CERTIFIED LANDSCAPE IRRIGATION AUDITOR – "Certified Landscape Irrigation Auditor" shall mean a Person certified to perform landscape Irrigation Audits by an accredited academic institution, a professional trade organization or other program such as the United States Environmental Protection Agency's WaterSense irrigation auditor certification program and Irrigation Association's Certified Landscape Irrigation Auditor program.

CHECK VALVE – "Check Valve" shall mean a valve located under a sprinkler head, or other location in the Irrigation System, to hold water in the system to prevent drainage from sprinkler heads when the sprinkler is off. Check Valve is also known as an anti-drain Valve

COMMON INTEREST DEVELOPMENTS – "Common Interest Developments" shall mean community apartment projects, condominium projects, planned developments, and stock cooperatives per Civil Code Section 1351.

COMPOST – "Compost" shall mean the safe and stable product of controlled biologic decomposition of organic materials that is beneficial to plant growth.

CONTROLLER – "Controller" shall mean an automatic timing device used to remotely control valves or heads to operate an Irrigation System. A weather-based Controller is a Controller that utilizes Evapotranspiration or weather data to make adjustments to irrigation schedules. A self-adjusting irrigation Controller is a Controller that uses on Site sensor data (e.g., soil moisture) to adjust irrigation schedules.

CONVERSION FACTOR (0.62) – "Conversion Factor (0.62)" shall mean the number that converts acre-inches per acre per year to gallons per square foot per year.

DISTRIBUTION UNIFORMITY – "Distribution Uniformity" shall mean the measure of the uniformity of irrigation water over a defined area.

DRIP IRRIGATION – "Drip Irrigation" shall mean any non-spray Low Volume Irrigation System utilizing emission devices with a Flow Rate measured in gallons per hour. Low Volume Irrigation Systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants. The term "Drip Irrigation" shall have the same meaning as "Micro Irrigation" and "Trickle Irrigation."

ECOLOGICAL RESTORATION PROJECT – "Ecological Restoration Project" shall mean a project where the Site is intentionally altered to establish a defined, indigenous, historic ecosystem.

EFFECTIVE PRECIPITATION – "Effective Precipitation" ("Eppt") shall mean the portion of total precipitation which becomes available for plant growth. Effective Precipitation is also known as "useable rainfall."

EMITTER – "Emitter" shall mean a Drip Irrigation emission device that delivers water slowly from the system to the soil.
ESTABLISHED LANDSCAPE – "Established Landscape" shall mean the point at which plants in the landscape have developed significant root growth into the soil. Typically, most plants are established after one or two years of growth.

ESTABLISHMENT PERIOD OF THE PLANTS – "Establishment Period of the Plants" shall mean the first year after installing the plant in the landscape or the first two years if irrigation will be terminated after establishment. Typically, most plants are established after one or two years of growth. Native habitat mitigation areas and trees may need three to five years for establishment.

ESTIMATED TOTAL WATER USE (ETWU) – "Estimated Total Water Use" ("ETWU") shall mean the total water used for the landscape based on the plants used in the landscape design.

EVAPOTRANSPIRATION ADJUSTMENT FACTOR or ET ADJUSTMENT FACTOR – "Evapotranspiration Adjustment Factor" or "ET Adjustment Factor" ("ETAF") shall mean, except for Special Landscape Areas, a factor of 0.55 for Residential projects and 0.45 for Non-Residential projects that, when applied to Reference Evapotranspiration, adjusts for Plant Water Use Factors and Irrigation Efficiency.

EVAPOTRANSPIRATION RATE – "Evapotranspiration Rate" shall mean the quantity of water evaporated from adjacent soil and other surfaces and transpired by plants during a specified time.

FLOW RATE – "Flow Rate" shall mean the rate at which water flows through pipes, valves and emission devices, measured in gallons per minute, gallons per hour, or cubic feet per second.

FLOW SENSOR – "Flow Sensor" shall mean an inline device installed at the supply point of the Irrigation System that produces a repeatable signal proportional to Flow Rate. Flow Sensors must be connected to an Automatic Irrigation Controller, or flow monitor capable of receiving flow signals and operating Master Shut-Off Valves. The combination Flow Sensor/Controller may also function as a landscape Water Meter or sub-meter.

FRIABLE – "Friable" shall mean a soil condition that is easily crumbled or loosely compacted down to a minimum depth per planting material requirements, whereby the root structure of newly planted material will be allowed to spread unimpeded.

GRAYWATER -- "Graywater" shall mean untreated waste water which has not been contaminated by any toilet discharge, has not been affected by infectious, contaminated, or unhealthy bodily wastes, and does not present a threat from contamination by unhealthful processing, manufacturing, or operating wastes. "Graywater" includes, but is not limited to; waste water from bathtubs, showers, Bathroom Washbasins, clothes washing machines and laundry tubs. It does not include waste water from Kitchen Sinks and Dishwashers. Health and Safety Code Section 17922.12. "Graywater" shall have the same meaning as "Greywater."

HIGH WATER USE PLANT – "High Water Use Plant" shall mean any plant categorized as high water need by the Water Use Classification of Landscape Species guide ("WUCOLS").

HYDROZONE – "Hydrozone" shall mean a portion of the Landscape Area having plants with similar water needs and rooting depths served by a valve or set of valves with the same schedule. A Hydrozone may be irrigated or non-irrigated.

INFILTRATION RATE – "Infiltration Rate" shall mean the rate of water entry into the soil expressed as a depth of water per unit of time (e.g., inches per hour).

INVASIVE PLANT SPECIES – "Invasive Plant Species" shall mean a species of plants not historically found in California that spreads outside cultivated areas and can damage environmental or economic resources and is listed as an Invasive Plant Species in either the California Invasive Plant Inventory; USDA invasive, noxious weeds database, or the Landscape Manual.

IRRIGATION AUDIT – "Irrigation Audit" shall mean an in-depth evaluation of the performance of an Irrigation System conducted by a Certified Landscape Irrigation Auditor. An Irrigation Audit shall include, but is not limited to: inspection, system tune-up, system test with Distribution Uniformity or emission uniformity, reporting Overspray or Runoff that causes overland flow, and preparation of an irrigation schedule. The audit must be conducted in a manner consistent with the Irrigation Association's Landscape Irrigation Auditor certification program or other U.S. Environmental Protection Agency "WaterSense" labeled auditing program.

IRRIGATION DESIGN PLAN – "Irrigation Design Plan" "IE" shall mean an irrigation plan and drawings designed and signed by a licensed Landscape Architect, Certified Irrigation Designer, licensed Landscape Contractor, or any other Person authorized to design an Irrigation System (see Sections 5615, 5641.1, 5641.2, 5641.3, 5641.4, 5641.5, 5641.6, 6701, 7027.5 of the Business and Professions Code, Section 832.27 of Title 16 of the California Code of Regulations, and Section 6721 of the Food and Agricultural Code).

IRRIGATION EFFICIENCY – "Irrigation Efficiency" shall mean the measurement of the amount of water beneficially used divided by the amount of water applied. Irrigation Efficiency is derived from measurements and estimates of Irrigation System characteristics and management practices. The Irrigation Efficiency is 0.75 for overhead spray devices and 0.81 for drip systems.

IRRIGATION METER – "Irrigation Meter" shall mean a separate meter that measures the amount of water used for irrigation.

IRRIGATION SURVEY – "Irrigation Survey" shall mean an evaluation of an Irrigation System that is less detailed than an Irrigation Audit.

IRRIGATION WATER USE ANALYSIS – "Irrigation Water Use Analysis" shall mean an analysis of water use data based on meter readings and billing data.

LANDSCAPE ARCHITECT – "Landscape Architect" shall mean a Person who holds a license to practice landscape architecture in the State of California (California Business and Professions Code Section 5615).

LANDSCAPE AREA -- "Landscape Area" shall mean all the planting areas, Turf areas, and Water Features in a Landscape Design Plan subject to the Maximum Applied Water Allowance and the Estimated Applied Water Use calculations. The Landscape Area does not include footprints of buildings or structures, sidewalks, driveways, parking lots, decks, patios, gravel or stone walks, other Pervious or non-Pervious hardscapes, and other non-irrigated areas designated for non-development (e.g. Open Spaces and existing Native Vegetation).

LANDSCAPE CONTRACTOR – "Landscape Contractor" shall mean a Person licensed by the State of California to construct, maintain, repair, install, or subcontract the development of landscape systems.

LANDSCAPE DESIGN PLAN – "Landscape Design Plan" shall mean a plan (and drawings) that: (1) delineates and labels each Hydrozone; (2) identifies each Hydrozone as low, moderate, high water, or mixed water use; (3) identifies any Recreational Areas; (4) identifies areas permanently and solely dedicated to edible plants; (5) identifies areas irrigated with Recycled Water; (6) identifies type of Mulch and application depth; (7) identifies soil amendments, type, and quantity; (8) identifies type and surface area of any Water Features; (9) identifies hardscapes (Pervious and non-Pervious); (10) identifies applicable storm water Best Management Practices; (11) identifies any applicable rain harvesting or catchment technologies; and (12) identifies any applicable Graywater discharge piping, system components and area(s) of distribution. A Landscape Design Plan must be signed by a licensed Landscape Architect, Certified Irrigation Designer, licensed Landscape Contractor, or any other Person authorized to design an Irrigation System (see Permitted Practices in California prepared by the Landscape Architects Technical Committee (LATC), the licensing and regulatory agency for the practice of landscape architecture in California). "Landscape Design Plan" shall also be known as a "Planting Plan."

LANDSCAPE MANUAL – "Landscape Manual" shall mean the "Monterey Peninsula Water Management District Landscape Manual – Standards and Specified Performance Requirements for Water Efficient Landscape Water Use and Irrigation."

LANDSCAPE PACKAGE– "Landscape Package" shall mean the landscape Water Permit application and materials required to be submitted for review and approval by the MPWMD.

LANDSCAPE WATER METER – "Landscape Water Meter" shall mean an inline device installed at the irrigation supply point that measures the flow of water into the Irrigation System and is connected to a totalizer to record water use.

LATERAL LINE – "Lateral Line" shall mean the water delivery pipeline that supplies water to the Emitters or sprinklers from the valve.

LOCAL WATER PURVEYOR – "Local Water Purveyor" shall mean any entity, including a public agency, city, county or private water company that provides retail water service.

LOW VOLUME IRRIGATION SYSTEM - "Low Volume Irrigation System" shall mean the application of irrigation water at low pressure through a system of tubing or Lateral Lines and low-volume Emitters such as drip, drip lines, and bubblers. Low Volume Irrigation Systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.

LOW WATER USE PLANT - "Low Water Use Plant" shall mean any plant categorized as low water need by the Water Use Classification of Landscape Species ("WUCOLS") guide.

MAJOR LANDSCAPE PROJECT – "Major Landscape Project" shall mean landscape projects with an aggregate Landscape Area greater than two thousand five hundred (2,500) square feet.

MASTER SHUT-OFF VALVE – "Master Shut-Off Valve" shall mean an automatic valve installed at the irrigation supply point which controls water flow into the Irrigation System. When this valve is closed, water will not be supplied to the Irrigation System. A Master Shut-Off Valve will greatly reduce any water loss due to a leaky station valve.

MAXIMUM APPLIED WATER ALLOWANCE – "Maximum Applied Water Allowance" shall mean the upper limit of annual Applied Water for the established Landscape Area. It is based upon the area's Reference Evapotranspiration, the ET Adjustment Factor, and the size of the Landscape Area.

MICRO IRRIGATION – "Micro Irrigation" shall mean any non-spray Low Volume Irrigation System utilizing emission devices with a Flow Rate measured in gallons per hour. Low Volume Irrigation Systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants. The term "Micro Irrigation" shall have the same meaning as "Drip Irrigation" and "Trickle Irrigation."

MICROCLIMATE - "Microclimate" shall mean the climate of a small, specific area that may contrast with the climate of the overall Landscape Area due to factors such as wind, sun exposure, plant density, or proximity to reflective surfaces.

MINOR LANDSCAPE PROJECT – "Minor Landscape Project" shall mean landscape projects with an aggregate Landscape Area less than or equal to two thousand five hundred (2,500) square feet.

MODERATE WATER USE PLANT – "Moderate Water Use Plant" shall mean any plant categorized as moderate water need by the Water Use Classification of Landscape 142.1-27 Species ("WUCOLS") guide.

MULCH – "Mulch" shall mean any organic material such as leaves, bark, straw, Compost, or inorganic mineral materials such as rocks, gravel, and decomposed granite left loose and applied to the soil surface for the beneficial purposes of reducing evaporation, suppressing weeds, moderating soil temperature, and preventing soil erosion.

NON-RESIDENTIAL LANDSCAPE – "Non-Residential Landscape" shall mean landscapes in commercial, institutional, industrial and public settings that may have areas designated for recreation or public assembly. It also includes portions of common areas of Common Interest Developments with designated Recreational Areas.

OPERATING PRESSURE – "Operating Pressure" shall mean the pressure at which the parts of an Irrigation System are designed by the manufacturer to operate.

OVERHEAD SPRINKLER IRRIGATION SYSTEM – "Overhead Sprinkler Irrigation System" or "Overhead Irrigation System" shall mean systems that deliver water through the air (for example pop-ups, impulse sprinklers, spray heads, rotors, and micro-sprays).

OVERSPRAY – "Overspray" shall mean the irrigation water that is delivered beyond the Landscape Area, wetting pavements, walks, structures, or other non-Landscaped Areas.

PARKWAY – "Parkway" shall mean the area between a sidewalk and the curb or traffic lane. It may be planted or unplanted, and with or without pedestrian egress.

PERVIOUS – "Pervious" shall mean any surface or material that allows the passage of water through the material and into the underlying soil.

PLANT WATER USE FACTOR – "Plant Water Use Factor" shall mean a value, when multiplied by "Reference Evapotranspiration," that estimates the amount of water needed by plants. The Plant Water Use Factor range for very Low Water Use Plants is less than 0.1, the Plant Water Use Factor range for Low Water Use Plants is 0.1 to 0.3, the Plant Water Use Factor range for Moderate Water Use Plants is 0.4 to 0.6, and the Plant Water Use Factor range for High Water Use Plants is 0.7 to 1.0. Plant Water Use Factors are derived from the publication "Water Use Classification of Landscape Species." Plant Water Use Factors may also be obtained from horticultural researchers from academic institutions or professional associations as approved by the California Department of Water Resources.

PLANTING PLAN – "Planting Plan" shall have the same meaning as "Landscape Design Plan."

RAIN SENSING SHUTOFF DEVICE – "Rain Sensing Shutoff Device" shall mean a component of an Irrigation System which automatically suspends irrigation when it rains. The term "Rain Sensing Shutoff Device" shall have the same meaning as the term "Rain Sensor." RAIN SENSOR – "Rain Sensor" shall mean a component of an Irrigation System which automatically suspends irrigation when it rains. The term "Rain Sensor" shall have the same meaning as the term "Rain Sensing Shutoff Device."

RECORD DRAWINGS – "Record Drawings" shall mean landscape documents prepared by the Landscape Architect that reflect on Site changes the contractor noted in the As-Built Drawings. They are often compiled as a set of on Site changes made for the owner per the owner-architect contract

RECREATIONAL AREA – "Recreational Area" shall mean areas, excluding private Single Family Residential areas, designated for active play, recreation or public assembly in parks, sports fields, picnic grounds, amphitheaters or golf course tees, fairways, roughs, surrounds and greens.

RECYCLED WATER – "Recycled Water" shall mean treated or recycled waste water of a quality suitable for Sub-potable uses such as landscape irrigation and Water Features. This water is not intended for human consumption.

REFERENCE EVAPOTRANSPIRATION – "Reference Evapotranspiration" shall mean a standard measurement of environmental parameters which affects the water use of plants. Reference Evapotranspiration is expressed in inches per day, month, or year, and is an estimate of the Evapotranspiration of a large field of four to seven inches tall, cool-season grass that is well watered. Reference Evapotranspiration is used as the basis of determining the Maximum Applied Water Allowance so that regional differences in climate can be accommodated.

REHABILITATED LANDSCAPE – "Rehabilitated Landscape" shall mean any relandscaping of existing landscapes where the modified Landscape Area is equal to or greater than two thousand five hundred (2,500) square feet.

RESIDENTIAL LANDSCAPE – "Residential Landscape" shall mean landscape surrounding single or multifamily homes.

RUNOFF – "Runoff" shall mean water which is not absorbed by the soil or landscape to which it is applied and flows from the Landscape Area. For example, Runoff may result from water that is applied at too great a rate (application rate exceeds Infiltration Rate) or when there is a slope.

SOILS MANAGEMENT REPORT – "Soils Management Report" shall mean an analysis of the existing soil conditions relative to horticulture (versus agriculture or structural integrity) resulting in recommendations of appropriate soil amendments.

SOIL MOISTURE SENSING DEVICE – "Soil Moisture Sensing Device" shall mean a device that measures the amount of water in the soil. The device may also suspend or initiate an irrigation event. SOIL TEXTURE – "Soil Texture" shall mean the classification of soil based on its percentage of sand, silt, and clay.

SPECIAL LANDSCAPE AREA (SLA) – "Special Landscape Area" or "SLA" shall mean an area of the landscape irrigated with Recycled Water, Water Features using Recycled Water, and areas dedicated to active play such as parks, sports fields, golf courses, and where Turf provides a playing surface.

SPRINKLER HEAD – "Sprinkler Head" shall mean a device which delivers water through a nozzle.

STATIC WATER PRESSURE – "Static Water Pressure" shall mean the pipeline water supply pressure when water is not flowing.

STORM WATER CONTROL FACILITY – "Storm Water Control Facility" shall mean a structural feature intended to control or reduce storm water Runoff and associated pollutants, to induce or control the infiltration or Groundwater recharge of storm water, or to eliminate illicit or illegal non-storm water discharges into storm water conveyances.

STORM WATER CONTROL MEASURE – "Storm Water Control Measure" shall mean any structural or non-structural strategy, practice, technology, process, program or other method intended to control or reduce storm water Runoff and associated pollutants, or to induce or control the infiltration or Groundwater recharge of storm water, or to eliminate illicit or illegal non-storm water discharges into storm water conveyances. Storm Water Control Measures include Storm Water Control Facilities.

STREET MEDIAN – "Street Median" shall mean an area between opposing lanes of traffic that may be unplanted or planted with trees, shrubs, perennials, and ornamental grasses.

SWING JOINT – "Swing Joint" shall mean an irrigation component that provides a flexible, leak-free connection between the emission device and lateral pipeline to allow movement in any direction and to prevent equipment damage.

TRICKLE IRRIGATION - "Trickle Irrigation" shall mean shall mean any non-spray Low Volume Irrigation System utilizing emission devices with a Flow Rate measured in gallons per hour. Low Volume Irrigation Systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants. The term "Trickle Irrigation" shall have the same meaning as "Drip Irrigation" and "Micro Irrigation."

TURF – "Turf" shall mean a ground cover surface of mowed grass and does not include artificial Turf surfaces. For example, Annual bluegrass, Kentucky bluegrass, Perennial ryegrass, Red fescue, and Tall fescue are cool-season grasses and Bermuda grass, Kikuyu grass, Seashore Paspalum, St. Augustine grass, Zoysia grass, and Buffalo grass are warm-season grasses.

VALVE – "Valve" shall mean a device used to control the flow of water in the Irrigation System.

WATER BUDGET – "Water Budget" shall mean a maximum annual water allowance in gallons per year that takes into consideration the types of plants, Evapotranspiration Rates and Irrigation System.

WATER CONSERVING PLANT SPECIES- "Water Conserving Plant Species" shall mean a plant species identified as having a low Plant Water Use Factor.

WATER EFFICIENT LANDSCAPE WORKSHEET – "Water Efficient Landscape Worksheet" shall mean the form used in the Landscape Package to calculate the Water Budget for a landscape. The form is found in Appendix B of the Landscape Package.

WATER FEATURE – "Water Feature" shall mean a design element where open water performs an aesthetic or recreational function. Water Features include ponds, lakes, waterfalls, fountains, artificial streams, spas, and Swimming Pools where water is artificially supplied. The surface area of Water Features is included in the high water use Hydrozone of the Landscape Area. Constructed facilities used for on Site waste water treatment or Storm Water Control Measures that are not irrigated and used solely for water treatment or storm water retention are not considered Water Features.

WATERING STATION – "Watering Station" shall mean an area served by one Valve or by a set of Valves that operate simultaneously.

WATERING WINDOW – "Watering Window" shall mean the time of day irrigation is allowed.

WEATHER BASED IRRIGATION CONTROLLER -- "Weather Based Irrigation Controller" shall mean an Irrigation System component that uses local weather conditions and landscape conditions to adjust irrigation schedules automatically to actual conditions on the Site or historical weather data.

WUCOLS – "WUCOLS" shall mean the Water Use Classification of Landscape Species guide published by the University of California Cooperative Extension and the California Department of Water Resources 2014, as may be periodically updated.

Rule added by Ordinance No. 172 (8/15/2016); amended by Ordinance No. 177 (9/18/2017)

#### **RULE 143 - WATER EFFICIENCY STANDARDS FOR EXISTING NON-RESIDENTIAL USES**

- A. All Non-Residential Water Users within the District shall meet or exceed the following water efficiency standards before December 31, 2013:
  - 1. Showerheads, Rain Bars, or Body Spray Nozzles shall be designed and manufactured to emit a maximum of 2.0 gallons per minute of water;
  - 2. Public Washbasins shall emit a maximum of 0.5 gallon of water per minute;
  - 3. Public Washbasins equipped with automatic shut off devices or sensor faucets shall operate with a maximum flow of 0.25 gallons per cycle;
  - 4. Private Washbasins (e.g., Washbasins in hotel or motel guest rooms and hospital patient rooms) shall emit a maximum of 1.5 gallons of water per minute;
  - 5. All other sinks shall be restricted to flow at a maximum of 2.2 gallons per minute;
- B. All existing Visitor-Serving Facilities shall be retrofitted exclusively with Ultra-Low Flush Toilets, except as provided by Rule 146 (Discretionary Exemptions).
- C. Replacement of toilets shall be with High Efficiency or Ultra High EfficiencyToilets.
- All Visitor-Serving Facilities shall, by December 31, 2013, be retrofitted exclusively with High Efficiency Urinals, High Efficiency Clothes Washers, and Water Efficient Ice Machines. There shall be an exception to this Rule when the Clothes Washer meets Energy Star specifications and was purchased and installed between December 31, 2006 and December 31, 2012. These appliances must comply with this provision by December 31, 2019.
- E. All Non-Residential structures shall be retrofitted exclusively with High Efficiency Toilets and High Efficiency Urinals by December 31, 2013, except as provided by Rule 146 (Discretionary Exemptions).
  - 1. All Visitor-Serving Facilities that retrofit to 1.6 gallons-per-flush toilets pursuant to Rule 143-B shall be exempt from this toilet retrofit requirement.
  - 2. All Non-Residential uses with Ultra Low Flush Toilets installed prior to December 31, 2012, shall be exempt from this toilet retrofit requirement.
  - 3. On and after January 1, 2016, newly installed Urinals shall be Pint Urinals or Zero Water Consumption Urinals.
- F. All Clothes Washers installed in Non-Residential uses within the District shall meet the definition of High Efficiency Clothes Washer rated with a Water Factor of 5.0.
   Washer/extractors that do not comply with the 5.0 Water Factor shall be programmed by

a manufacturer/vendor technician to only function on the low water setting (non-user selected setting). A written statement shall be provided to MPWMD by the manufacturer/vendor's technician stating that the machines have been programmed to only use the low water setting and that there is no way to manipulate the water usage via a user setting. This statement shall be maintained by MPWMD. There shall be an exception to this Rule when the existing appliance was purchased between December 31, 2005 and December 31, 2012, and rates a Water Factor of 5.1-6.0.

- G. Non-Residential Car Washes. By December 31, 2013, all Non-Residential car wash facilities shall recycle and reuse a minimum of 50 percent of the water used in the wash and rinse cycles.
- H. Mobile Water Distribution Systems shall use water meters at the Source of Supply.
   Records of the location and quantity of water delivered shall be provided by the Owner or Operator to MPWMD upon request of the General Manager.
- I. Any or all portable Water-Measuring Device usage information, including the name of the User, the amount of water used, and the location of use shall be provided by the Water Distribution System Owner or Operator to MPWMD upon request.
- J. All pre-rinse spray valves shall meet or exceed the Rule 11 definition of Water Efficient Pre-Rinse Spray Valve by July 1, 2010.
- K. Newly installed medical or laboratory photographic and/or X-ray processing systems shall include a recirculation system for the rinse process. The use of digital systems is highly encouraged.
- L. The installation of a Rain Sensor and Soil Moisture Sensors on automatic Irrigation Systems that are not operated by a Weather-Based Irrigation System shall be encouraged.
- M. Visitor-Serving and Public and Quasi-Public Facilities shall display in visible locations in all restrooms, kitchens, and dining areas, placards or decals approved by the District promoting public awareness of the need for water conservation and/or advising the public that waste of water is prohibited.
- N. The owner and/or manager of rental property shall provide current and new tenants with information about the water conservation requirements, including the Water Waste and Non-Essential Water Use regulations of the District. This information shall be readily accessible on a tenant portal website with annual notification of its presence, or when notice is not provided electronically, the owner and/or manager shall annually provide written information to existing tenants and to new tenants as they move in.
- O. Visitor-Serving Facilities shall promote towel and linen reuse programs by providing written notice in the rooms, whereby towels and linens are changed every three days or as requested by action of the guest.

- P. Visitor-Serving Facilities shall provide written notice that drinking water is available only upon request. Notification of this requirement shall be provided on the table(s) or menu(s) of each facility. Visitor-Serving Facilities shall not provide drinking water from the Monterey Peninsula Water Resource System at the table unless specifically requested.
- Q. Facilities utilizing alternative sources of irrigation water (i.e. purified recycled water, Non-Potable Water, rainwater and Graywater, etc.) shall be encouraged to provide notice of the alternative supply, either by erecting a sign in compliance with local codes or by identifying the alternative supply in other venues such as in newsletters, websites, menus, etc.

Rule added by Ordinance No. 30 (7/13/87); amended by Ordinance No. 31 (1/11/88); Ordinance No. 89 (7/21/97); Ordinance No. 125 (9/18/2006); Ordinance No. 141 (11/16/2009); Ordinance No. 151 (11/19/2012); Ordinance No. 170 (5/16/2016); Ordinance No. 176 (1/25/2017); Ordinance No. 177 (9/18/2017)

# Attachment I

(Phase 2 Direct Testimony of Stephanie L. Locke)

#### JULY 2022 REBATE PROGRAM REPORT

| REBATE PROGRAM SUMMARY |            |                                      | June-2022            |                      |                 | 2022 YTD         |                           | 1997 - Present       |                              |   |
|------------------------|------------|--------------------------------------|----------------------|----------------------|-----------------|------------------|---------------------------|----------------------|------------------------------|---|
| ١.                     | Appl       | ication Summary                      |                      |                      |                 |                  |                           |                      |                              |   |
|                        | A.         | Applications Received                |                      | 102                  |                 |                  | 374                       |                      | 29,607                       |   |
|                        | в.         | Applications Approved                |                      | 7                    | 7               |                  | 334                       |                      | 23,173                       |   |
|                        | C.         | Single Family Applications           |                      | 75                   |                 |                  | 316                       |                      | 26,118                       |   |
|                        | D.         | Multi-Family Applications            |                      | 4                    |                 |                  | 19                        |                      | 1,583                        |   |
|                        | Ε.         | Non-Residential Applications         |                      | 0                    |                 | 1                |                           | 359                  |                              |   |
| П.                     | Туре       | of Devices Rebated                   | Number of<br>Devices | Rebate Paid          | Estimated<br>AF | Gallons<br>Saved | Year to<br>Date<br>Number | Year to Date<br>Paid | Year to Date<br>Estimated AF |   |
|                        | A.         | High Efficiency Toilet (HET)         | 14                   | \$1,050.00           | 0.070000        | 22,810           | 67                        | \$4,500.00           | 0.33500                      |   |
|                        | В.         | Ultra HET                            |                      |                      | 0.000000        | 0                | 6                         | \$750.00             | 0.06000                      |   |
|                        | C.         | Toilet Flapper                       |                      |                      | 0.000000        | 0                | 0                         | \$0.00               | 0.00000                      |   |
|                        | D.         | High Efficiency Dishwasher           | 18                   | \$4,450.00           | 0.054000        | 17,596           | 67                        | \$10,575.00          | 0.20100                      |   |
|                        | Ε.         | High Efficiency Clothes Washer - Res | 40                   | \$19,999.00          | 0.644000        | 209,848          | 169                       | \$84,295.60          | 2.72090                      |   |
|                        | F.         | High Efficiency Clothes Washer - Com |                      |                      | 0.000000        | 0                | 0                         | \$525.00             | 0.00000                      |   |
|                        | G.         | Instant-Access Hot Water System      |                      |                      | 0.000000        | 0                | 6                         | \$1,197.00           | 0.03000                      |   |
|                        | н.         | Zero Use Urinals                     |                      |                      | 0.000000        | 0                | 0                         | \$0.00               | 0.00000                      |   |
|                        | ١.         | Pint Urinals                         |                      |                      | 0.000000        | 0                | 0                         | \$0.00               | 0.00000                      |   |
|                        | J.         | Cisterns                             | 1                    | \$2,975.00           | 0.000000        | 0                | 16                        | \$28,541.00          | 0.00000                      |   |
|                        | К.         | Smart Controllers                    | 4                    | \$440.00             | 0.000000        | 0                | 10                        | \$998.99             | 0.00000                      |   |
|                        | L.         | Rotating Sprinkler Nozzles           |                      |                      | 0.000000        | 0                | 0                         | \$0.00               | 0.00000                      |   |
|                        | M.         | Moisture Sensors                     |                      |                      | 0.000000        | 0                | 0                         | \$0.00               | 0.00000                      |   |
|                        | N.         | Lawn Removal & Replacement           |                      |                      |                 |                  |                           | \$900.00             | 0.00000                      |   |
|                        | 0.         | Graywater                            |                      |                      | 0.000000        | 0                | 0                         | \$0.00               | 0.00000                      |   |
|                        | R.         | Other (Smart Flowmeters)             | 4                    | \$766.00             | 0.000000        | 0                | 7                         | \$1,263.00           | 0.00000                      |   |
| III.                   | <u>TOT</u> | ALS                                  | 81                   | \$29 <i>,</i> 680.00 | 0.768000        | 250,254          | 348                       | \$133,545.59         | 3.34690                      |   |
| IV.                    | TOT        | ALS Since 1997                       |                      |                      |                 | Paic             | d Since 1997:             | \$ 6,492,300         | 595.6                        | Acre-Feet Per<br>Year Saved Since<br>1997 (from<br>quantifiable<br>retrofits) |

# Attachment J

(Phase 2 Direct Testimony of Stephanie L. Locke)



Blog | December 21, 2021

By Cora Kammeyer, Sonali Abraham, and Heather Cooley

## Key Takeaways

- Per 2018 legislation, California State agencies are developing water use standards for all urban water suppliers in the state.
- In November, the California Department of Water Resources and State Water Resources Control Board issued recommended standards to the legislature for residential indoor water use.
- Pacific Institute analysis shows most urban water suppliers are already below the recommended 2025 residential indoor water use standard.
- It is critical that California adopt strong, forward-looking water use standards given the current drought and climate crises.

After record-breaking drought conditions in 2021, California is looking at another bleak water year in 2022. Despite the mid-December precipitation, over 90% of the state is still in <u>severe drought</u>, and the California Department of Water Resources (DWR) announced an initial <u>0%</u> State Water Project allocation for the first time ever. In October, California Governor Gavin Newsom declared a statewide drought emergency and urged a voluntary 15% reduction in water use for California cities. So far, most areas are falling short of the target, and <del>mandatory cutbacks are likely</del> for next year.

In November, amid the deepening drought, the DWR and the State Water Resources Control Board (SWRCB) issued joint <u>recommendations</u> to the California State Legislature for new indoor residential water use standards, along with a <u>study</u> supporting the recommendations (hereafter the Indoor Residential Water Use Study, or IRWUS).

# Background on Urban Water Efficiency Legislation

As background, in 2018, the California legislature passed and Governor Brown signed Assembly Bill 1668 (Friedman) and Senate Bill 606 (Hertzberg). This bill created a new framework for setting customized water use targets for urban water suppliers in California.

In AB 1668 and SB 606, the State of California made a commitment to use the best available data and information to set water efficiency standards for urban water suppliers. When the bills were passed, limited data were available on indoor water use and 55 gallons per capita daily (gpcd) was selected as a placeholder for the residential indoor standard. The legislation directed the state agencies to conduct necessary studies and jointly recommend a standard by 2021 that reflects current best practices.

## New Urban Indoor Residential Standards

Using four detailed analytical approaches, the IRWUS estimated that statewide indoor water use averaged 48 gpcd between 2017 and 2019, well below the 55 gpcd placeholder standard. Indoor water use is expected to decline because of plumbing codes, appliance and fixture turnover, and new housing – so called "passive conservation." The IRWUS projected that median and average indoor water use would decline to about 44 gpcd by 2030 without any active conservation efforts. Based on the study's findings, the agencies jointly recommend that the indoor residential standard remain at 55 gpcd through 2024 and decline to 47 gpcd in 2025 and to 42 gpcd starting in 2030.

Active conservation – like utility rebates, conservation-oriented rate structures, and education programs – can provide additional water savings, though the IRWUS did not attempt to quantify the active conservation potential.

# Indoor Residential Water Use in California

The Pacific Institute analyzed data reported by water suppliers in their Electronic Annual Reports (EARs) for 2017 through 2019 to get a sense of how water suppliers would stack up with the new standards. The EAR is an annual survey of public water systems that collects water-system information, including water use by sector. The EAR does not contain estimates of indoor water use, as this is not measured directly; however, indoor use can be inferred from these data using a methodology validated by DWR in the IRWUS. Figure 1 shows current indoor residential water use and the recommended water use standards. Current residential indoor use is shown as a box-and-whisker plot. Between 2017 and 2019, indoor residential water use averaged 48 gpcd (shown as an 'X' in the blue box), with a median value of 45 gpcd (shown as the dotted line near the middle of the blue box). For 75% of water suppliers, indoor water was 54 gpcd or less (as indicated by the top of the blue box). For 25% of water suppliers, it was 39 gpcd or less between 2017 and 2019 (as indicated by the bottom of the blue box). The upper and lower 'whiskers' point to the upper and lower extremes in the data.

These data show that 78% of water suppliers were already below the current indoor standard of 55 gpcd between 2017 and 2019. Likewise, 56% of suppliers were below the 2025 standard of 47 gpcd, and 37% were below the 2030 standard of 42 gpcd.



Figure 1: Current statewide residential indoor water use and new recommended standards for 2025 and beyond. \*

\*Note: Outliers that were "outside of the whiskers" are not shown in the figure.

# Establishing Forward-Looking Urban Water Use Standards

The indoor standard is the first in a series of urban water use standards that will be submitted in 2022 in adherence with the 2018 legislation, "<u>Making Water</u> <u>Conservation A California Way of Life</u>." Recommendations for water use standards on residential landscapes, large commercial landscapes, and water loss will follow the indoor standard during the coming months. While the indoor standard will be considered and adopted by the legislature, the remaining standards will be considered, revised as needed, and adopted by the SWRCB. Together, these standards will establish water budgets for every urban water agency in California. Regulations require that every urban water supplier meets their water budget, but there is flexibility in how to achieve it. For example, a water supplier can exceed the indoor standard as long as the total water use objective is met.

It is vital that the State adopt strong, forward-looking standards to ensure greater levels of water efficiency and conservation given the current drought and climate crises facing California. We will face more severe droughts and hotter temperatures in the years to come, putting greater pressure on water resources. Robust water efficiency standards will help ensure that the state's drinking water supplies are available for essential uses, and not wasted. This is true not just for California, but also for the Western U.S. and many other arid regions around the world. In the face of increasing drought frequency and intensity in these places, water efficiency is the most <u>cost-effective source</u> of "new" water supply, and is critical tool for building long-term water resilience.

For more information about the California drought and California cities' water use, visit <u>www.californiadrought.org</u>. To read more of the Pacific Institute's work on water efficiency, visit <u>www.pacinst.org/water-efficiency-and-reuse</u>.

#### **Related:**

Climate Resilience in the Urban Context: Sustainable Landscapes for Southern California Businesses

4 Reasons Why Urban Landscapes are a Linchpin for Climate Resilience

Managing Urban Flooding in the San Francisco Bay Area: From a Concrete Bowl to a Green Sponge

Urban Water Conservation and Efficiency - Enormous Potential, Close to Home

#### One Reply to "With Another Dry Year Looming, California Moves to Set New Urban Water Use Standards"



Bill Carpenter Jr

NOW California bureaucrats need to be sued to keep them from releasing stored water for humans into the ocean.

# Attachment K

(Phase 2 Direct Testimony of Stephanie L. Locke)

**Results of the Indoor Residential Water Use Study** 

A Report to the Legislature Prepared Pursuant to Water Code Section 10609.4(b)



California Department of Water Resources Water Use Efficiency Branch

This page is left intentionally blank

State of California Gavin Newsom, Governor

#### California Natural Resources Agency Wade Crowfoot, Secretary for Natural Resources Angela Barranco, Undersecretary Lisa Lien-Mager, Deputy Secretary for Communications

Department of Water Resources Karla Nemeth, Director Cindy Messer, Lead Deputy Director Vacant, Assistant Lead Deputy Director

#### **Deputy Directors**

Business Operations Kathie Kishaba

Flood Management and Dam Safety Gary Lippner

Statewide Emergency Management Program John Paasch Delta Conveyance Vacant

Integrated Watershed Management Kristopher A. Tjernell

Statewide Groundwater Management Paul Gosselin

State Water Project **Ted Craddock** 

Legislative Affairs Office Kasey Schimke

#### **Office Executives**

Office of the General Counsel **Thomas Gibson** 

Government and Community Liaison Anecita Agustinez

David Whitsell

Public Affairs Office Acting Assistant Director **Ryan Endean**  Office of Workforce Equality Stephanie Varrelman

Internal Audit Office

Division of Regional Assistance Office of the Division Manager Arthur Hinojosa

### Division of Regional Assistance Water Use Efficiency Branch Manager

Ryan Bailey Peter Brostrom (in memoriam)<sup>1</sup>

#### **Indoor Residential Water Use Study Project Team**

#### **Department of Water Resources**

#### Water Use Efficiency Branch

Sabrina Cook Shem Stygar Bekele Temesgen Fethi BenJemaa

#### **Division of Planning**

Manucher Alemi, Policy Advisor

#### **Integrated Watershed Management**

Teji Sandhu, Policy Advisor to the Deputy Director

#### **Special Restoration Initiatives Branch**

James Campagna

# DWR Executive

Andria Avila

<sup>&</sup>lt;sup>1</sup> Peter Brostrom served as the Branch Manager through October 29, 2020 and was instrumental in assembling the stakeholder working groups and study design

#### Water Use Studies Working Group Members

**Arcadis** Greg Immamura

Association of California Water Agencies Dave Bolland

California American Water Patrick Pilz

Camrosa Water District Charlotte Lopez

*City of Sacramento* William Granger

Coachella Valley Water District Jason Lucas

> *County of Napa* Christopher M. Silke

**Eastern Municipal Water District** Sara Quintero

> *EcoLab* Mark Muellner

Irvine Ranch Water District Amy McNulty

Kennedy Jenks Consultants Meredith Clement

Long Beach Water Department Dean Wang

Los Angeles Department of Water and Power Terrence McCarthy

Moulton Niguel Water District Justin Finch

Municipal Water District of Orange County Rachel Waite

Natural Resources Defense Council Tracy Quinn

> Pacific Institute Heather Cooley

Plumbing Manufacturers International Cambria McLeod

Rancho California Water District Jason Martin

> **Retired** Martha Davis

Sacramento Suburban Water District Greg Bundesen

San Francisco Public Utilities Commission Julie Ortiz

> San Jose Water Courtney Rubin

Santa Clarita Valley Water Agency Matthew S. Dickens

Sonoma-Marin Saving Water Partnership Chelsea Thompson

South Tahoe Public Utilities District Shelly Thomsen

> Stanford University Newsha Ajami

Valley County Water District Tara Robinson

> Valley Water Metra Richert

Walnut Valley Water District Donna DiLaura

> WateReuse CA Charles LaSalle

WaterNow Alliance Caroline Koch

West Yost Associates Elizabeth Drayer

Western Municipal Water District Tracy Quinn

#### **Plus 18 Participating Water Suppliers**

City of Folsom City of Sacramento City of Santa Cruz City of Redwood City Coachella Valley Water District Eastern Municipal Water District Irvine Ranch Water District Moulton Niguel Water District California Water Service Agencies, including: Bakersfield, Bear Gulch, Chico, East Los Angeles, Livermore, Palos Verdes, Salinas, South San Francisco, Stockton, and Visalia

#### **Technical Consultants**

*Stantec Inc.* Yung-Hsin Sun

Western Policy Research Anil Bamezai

Water Demand Management Peter Mayer

## M. Cubed

David Mitchell

#### A&N Technical Services

Tom Chesnutt David Pekelney

#### Xylem, Inc.

Christine Boyle Ahmed Rachid El-Khattabi

#### Acknowledgements

DWR would like to thank the State Water Resources Control Board for their contribution to this study and development of the joint indoor residential water use standards recommendations to the Legislature.

State Water Resources Control Board: Joaquin Esquivel, Water Board Chair; Eileen Sobeck, Water Board Executive Officer; Eric Oppenheimer, Deputy Director.

Office of Research, Planning and Performance: James Nachbaur, Max Gomberg, Charlotte Ely, Paola Gonzalez, Marielle Pinheiro, Karina Herrera.

RESULTS OF THE INDOOR RESIDENTIAL WATER USE STUDY: A Report to the Legislature Prepared Pursuant to Water Code Section 10609.4(b)

| Contents  |
|---|
| 1.0 INTRODUCTION  |
| 1.1 Background1   |
| 1.2 How Water Use Standards Are Used2                                 |
| 1.3 Statutory Indoor Residential Water Use Standard                   |
| 1.4 Development of Remaining Standards3                               |
| 1.5 Stakeholder Process4  |
| 1.6 Study Purpose and Goals5  |
| 1.7 Overall Study Approach6   |
| 1.7.1 Baseline Indoor Residential Water Use6                          |
| 1.7.2 Supplier R <sub>i</sub> -gpcd Distribution7                     |
| 1.7.3 Projected Statewide R <sub>i</sub> -gpcd in 2025 and 20307      |
| 1.7.4 Benefits and Impacts8   |
| 1.8 Best Practices8   |
| 2.0 METHODS   |
| 2.1 Indoor Residential Use Study Components11                         |
| 2.1.1 Baseline Analysis for Statewide Central Tendencies              |
| 2.1.2 Distribution Analysis16   |
| 2.1.3 Pilot End-Use16   |
| 2.2 Data  |
| 2.2.1. Data Sets and Quality Assurance17                              |
| 2.2.2 Customer-Level Data for Baseline Central Tendencies Analysis 18 |
| 2.2.3 Use of Multi-Family Billing Data19                              |
| 2.2.4 Supplier-Level Data for Distribution Analysis                   |
| 2.2.5 Landscape Area and Weather Data20                               |
| 2.2.6 Pilot End-Use Data20  |
| 2.2.7 Pandemic Effect Data20  |
| 2.2.8 Population21  |

| 2.3 Disaggregation Methods21  |
|---|
| 2.3.1 Disaggregation of Customer-level Data for Baseline Central  |
| Tendencies Analysis21   |
| 2.3.2 Disaggregation of Supplier-Level Data for Distribution Analysis 26  |
| 3.0 STUDY PARTICIPANTS' RESULTS   |
| 3.1 Monthly Data Analysis28   |
| 3.2 Hourly Data Analysis33  |
| 3.3 Methods Comparison34  |
| 3.4 Pandemic Effect Results   |
| 3.5 Multi-Family Residential38  |
| 3.5.1 Monthly Analysis MFR R-gpcd38   |
| 3.5.2 Hourly Analysis MFR R -gpcd41   |
| 4.0 BASELINE CENTRAL TENDENCIES RESULTS   |
| 4.1 Strata-Based Estimates42  |
| 4.2. Correlation-Based Estimates43  |
|   |
| 4.3 Factors Influencing Variation in R -gpcd Across Tracts  |
| 4.3 Factors Influencing Variation in R -gpcd Across Tracts  |
| 4.3 Factors Influencing Variation in R -gpcd Across Tracts  |
| <ul> <li>4.3 Factors Influencing Variation in R -gpcd Across Tracts</li></ul>   |
| <ul> <li>4.3 Factors Influencing Variation in R -gpcd Across Tracts</li></ul>   |
| <ul> <li>4.3 Factors Influencing Variation in R -gpcd Across Tracts</li></ul>   |
| <ul> <li>4.3 Factors Influencing Variation in R -gpcd Across Tracts</li></ul>   |
| <ul> <li>4.3 Factors Influencing Variation in R -gpcd Across Tracts</li></ul>   |
| <ul> <li>4.3 Factors Influencing Variation in R -gpcd Across Tracts</li></ul>   |
| 4.3 Factors Influencing Variation in R       -gpcd Across Tracts  |
| 4.3 Factors Influencing Variation in R       -gpcd Across Tracts  |
| 4.3 Factors Influencing Variation in R       -gpcd Across Tracts  |
| 4.3 Factors Influencing Variation in R -gpcd Across Tracts       45         4.4 Multi-Family versus Single Family Tract Level Estimates using SAM and RAM       46         5.0 DISTRIBUTION ANALYSIS RESULTS       50         5.1 Distribution Analysis Results Comparison to Central Tendencies       51         5.2 Current and Future Projected R -gpcd Distribution       53         5.3 Standards Effects       55         6.0 BENEFITS AND IMPACTS SUMMARY       61         7.0 KEY ANALYSIS CONSIDERATIONS AND LIMITATIONS       73         7.1 Data Limitations       73         7.1.2 Data Quality and Quantity       73         7.2 Unknown Efficiency and Efficiency Improvement Capability       74 |
| 4.3 Factors Influencing Variation in R       -gpcd Across Tracts  |

| 7.5 Benefits and Impacts on Other Water Sectors                | . 76 |
|--|------|
| 7.6 Implementation of Best Practices                           | .76  |
| 8.0 RECOMMENDATIONS  | 77   |
| 8.1 Rationale for Selecting the Proposed Joint Recommendations | . 78 |
| 2020: 55 gpcd (No Change in the Current Statute)               | .80  |
| 2025: 47 gpcd (5.5 gpcd Less than the Current Statute)         | . 80 |
| 2030: 42 gpcd (8 gpcd Less than the Current Statute)           | .80  |
| REFERENCES:  | 83   |

# List of Figures

| Figure 2.1-1. Study Participants and Locations12  |
|---|
| Figure 2.3-1. Description of LAM Indoor Water Use Estimation Strategy 23  |
| Figure 2.3-2. Description of RAM Indoor Water Use Estimation Strategy 24  |
| Figure 3.1-1. Distribution of 18-Supplier Tract Average R <sub>i</sub> -gpcd32  |
| Figure 3.1-2. Study Participants' Results of All Monthly Disaggregation<br>Analysis   |
| Figure 3.3-1. Comparison of Disaggregation Method R -gpcd Using 2017-<br>2019 Tract Aggregated Customer-level Monthly Billing Data and Hourly<br>AMI Data, and 20 Customer Pilot End Use Study Data   |
| Figure 4.4-1. Single Family compared to Multi-Family: <b>SAM</b> Tract R <sub>i</sub> -gpcd<br>Estimates  |
| Figure 4.4-2. Single Family compared to Multi-Family: <b>RAM</b> Tract R <sub>i</sub> -gpcd<br>Estimates  |
| Figure 5.1 Current Conditions Distribution Analysis Results for 157 Suppliers<br>(Where Ri-gpcd values are along the horizontal axis and frequency of<br>occurrence for histogram bars is on the vertical axis. Distribution<br>statistics along the horizontal axis are included for reference.)50 |
| Figure 5.1-1. California Indoor Residential gpcd Distribution with SAM, RAM,<br>and LAM* Correlation-Based Supplier Estimates, and SAM Supplier-<br>level data using an Average of 2017-201953  |

| Figure 5.2-1. 2030 Projected Distribution Analysis Results for 157 Suppliers |
|--|
| (Where Ri-gpcd values are along the horizontal axis and frequency of         |
| occurrence for histogram bars is on the vertical axis. Distribution          |
| statistics along the horizontal axis are included for reference.)55          |

| Figure 7.6-1. | Fata for the   | Metropolitan | Water District | Incentive Program, |     |
|---------------|----------------|--------------|----------------|--------------------|-----|
| Residen       | tial Installed | Units (as of | 12/14/2020)    |                    | .77 |

#### List of Tables

| Table | 3.1-1. Study Participant's Single-Family R <sub>i</sub> -gpcd Estimates by Method for 2011-2019 Time Period30   |
|-------|---|
| Table | 3.2-1a. Hourly Data Ri-gpcd: Daily February Average and Month of February Average Approaches  |
| Table | 3.2-1b. Hourly Data R-gpcd: Threshold Approaches  |
| Table | 3.2-1c. Hourly Data R -gpcd: Profile Approaches   |
| Table | 3.3-1. Comparison of Disaggregation Method R -gpcd Using 2017-2019<br>Tract Aggregated Customer-level Monthly Billing Data and Hourly AMI<br>Data, and 20 Customer Pilot End Use Study Data |
| Table | 3.4-1. Increase in Single-Family Indoor Residential Water Use<br>Following Pandemic Shelter-in-Place Orders   |
| Table | 3.5-1. Monthly Data Analysis Average of 2017-2019 Multi-Family<br>Residential (MFR) R -gpcd Compared to Single-Family Residential<br>(SFR) for Five Suppliers                               |

Table 3.5-2. Hourly Data Analysis of 2019 Multi-Family Residential (MFR) R<sub>i</sub>gpcd\* Compared to Single-Family Residential (SFR) For Three Table 4.1-1. Strata-Based Statewide Baseline: Tract-Level R -gpcd Estimates (Average of 2017-2019)......43 Table 4.2-1. Correlation-Based Statewide Baseline: Supplier Aggregated Rgpcd Estimates (Average of 2017 to 2019)......44 Table 4.4-1. SAM and RAM Single-Family versus Multi-Family Tracts by R -Table 5.1-1a. Strata-Based Approach Summary From Tract Aggregated Rigpcd for Baseline Analysis SAM, LAM, and RAM and Aggregate Supplier-Level Estimated Ri-gpcd For Distribution Analysis SAM.......51 Table 5.1-1b. Correlation-Based Approach Summary Statistics From Table 5.3-1a Potential Estimated Effects of Standards For 2020-2025 ...... 60 Table 5.3-1b Potential Estimated Effects of Standards For 2025-2030 ...... 61 Table 5.3-1c Potential Estimated Effects of Standards For 2030+ ......61 Table 6-1 Potential Benefits for Water and Wastewater Utilities from reduced R<sub>i</sub>-gpcd ......65 Table 6-2.a Potential Adverse Impacts for Water Utilities from reduced R<sub>i</sub>-Table 6-2.b Potential Adverse Impacts for Wastewater Utilities from reduced R<sub>i</sub>-gpcd ......67 Table 6-2.c Potential Adverse Impacts for Recycled Water Projects from reduced R<sub>i</sub>-gpcd ......68 Table 6-3.a Water Utility Characteristics that can Contribute to Adverse Impacts from reduced R<sub>i</sub>-gpcd ......69 Table 6-3.b Wastewater Utility Characteristics that can Contribute to Adverse Impacts from reduced R<sub>i</sub>-gpcd ......70 Table 6-3.c Recycled Water Utility Characteristics that can Contribute to Table 8-1. Comparison of Indoor Residential Water Use Standards (gpcd).78

# Appendices

| Appendix A. | Monthly Analysis   |
|-------------|--|
| Appendix B. | Hourly (AMI) Analysis  |
| Appendix C. | Pilot End Use Analysis   |
| Appendix D. | List of Partner Agencies   |
| Appendix E. | Sampling Strategy to Estimate Central Tendencies   |
| Appendix F. | Projected Statewide and County-Level Effects of Plumbing<br>Codes and Appliance Standards on Indoor GPCD |
| Appendix G. | Statewide Baseline Estimate  |
| Appendix H. | Distribution Analysis (eAR data)   |
| Appendix I. | Benefits and Impacts of Changing Ri-gpcd   |
| Appendix J. | State Water Board - Efficient Indoor Water Use and Practices   |
| Appendix K. | DWR Response to Summary of Public Comments and IRWUS Comment Letters                                     |

### Acknowledgments:

The Department of Water Resources sincerely thanks the participation of members of the public, stakeholders, members of the Water Use Studies Working Group, technical advisor consultants, participating suppliers, and State Water Resources Control Board staff. Without their input, feedback, and dedicated effort, this report and its comprehensive evaluation of indoor residential water use would not have been possible.

### **Technical Advisor Consultants:**

Anil Bamezai (WPR), Peter Mayer (Water DM) David Mitchell (M Cubed), Tom Chesnutt (A&N), David Pekelney (A&N) Christine Boyle (Xylem), Ahmed Rachid El-Khattabi (Xylem)

Water Use Studies Working Group Members (34 Members): Arcadis, Association of California Water Agencies, California American Water, Camrosa Water District, City of Sacramento, Coachella Valley Water District, County of Napa, Eastern Municipal Water District, EcoLab, Irvine Ranch Water District, Kennedy Jenks Consultants, Long Beach Water Department, Los Angeles Department of Water and Power, Martha Davis, Moulton Niguel Water District, Municipal Water District of Orange County, Natural Resources Defense Council, Pacific Institute, Plumbing Manufacturers International, Rancho California Water District, Sacramento Suburban Water District, San Francisco Public Utilities Commission, San Jose Water, Santa Clarita Valley Water Agency, Sonoma-Marin Saving Water Partnership, South Tahoe Public Utility District, Stanford University, Valley County Water District, Valley Water, Walnut Valley Water District, WateReuse CA, WaterNow Alliance, West Yost Associates, Western Municipal Water District.

**18 Participating Suppliers:** City of Folsom, Sacramento, Santa Cruz, Redwood City, Coachella Valley Water District, Eastern Municipal Water District, Irvine Ranch Water District, Moulton Niguel Water District, and several California Water Service agencies, including: Bakersfield, Bear Gulch, Chico, East Los Angeles, Livermore, Palos Verdes, Salinas, South San Francisco, Stockton, and Visalia.

# **1.0 INTRODUCTION**

# 1.1 Background

Water planning has always been important for urban retail water suppliers (Suppliers) but is even more critical today, as development progresses and California grapples with frequent droughts and expected long-term climate impacts. Prior to the adoption of the Urban Water Management Planning (UWMP) Act in 1983, there were no specific requirements that mandated urban water suppliers to conduct long-term water resources planning. While many Suppliers did conduct long-term water planning, those that did not were more vulnerable to supply disruptions during dry periods and catastrophic events. Urban water management planning is needed at the local level because only local Suppliers have the knowledge and ability to tailor their planning to their unique conditions and involve their local community in the planning effort.

The UWMP Act has been modified over the years in response to the State's water shortages, droughts, and other factors. A significant amendment was made in 2009, after the drought of 2007- 2009, as a result of the Governor's call for a statewide 20% reduction in urban water use by the year 2020. This was the Water Conservation Act of 2009 (SB X7-7, Steinberg). SB X7-7 required agencies to establish water use targets for 2015 and 2020 in order to achieve a statewide goal of 20% reduction in urban per capita water use by 2020. This was a major shift in the approach to water management planning (www.drought.gov). This volumetric reduction approach to water use efficiency was a precursor to the current approach to water use efficiency and water resources management that is based on standards and objectives.

In 2018, two policy bills were enacted by the California Legislature, Assembly Bill 1668 (AB1668, Friedman) and Senate Bill 606 (SB606, Hertzberg), collectively referred to as the "2018 Water Conservation Legislation." The 2018 Water Conservation Legislation revised the California Water Code (Water Code) enacting measures aimed at adopting long-term standards for the efficient use of water as we move beyond 2020 and into a water future where water supplies and uses will be greatly affected by climate change, population growth, and new development. These standards are the basis of determining Suppliers' water use objectives to ensure efficient beneficial use of the State's limited water supplies. This approach to water use efficiency, based on standards and objectives, is informed by the framework for one of the four SB X7-7 methods that could be used to calculate water use targets.

From the 2018 Water Conservation Legislation, a Supplier's **water use objective is determined by the sum of the following standards**, considering local conditions and characteristics (population, landscape area, and others):

- 1. Indoor residential water use standard for efficient use.
- 2. Outdoor residential water use standard for efficient use.
- 3. Large commercial, industrial, and institutional (CII) landscape areas irrigated with dedicated meters or in-lieu technologies standard for efficient use.
- 4. Water losses.
- 5. Variances for unique uses of water that have a material effect (for example, seasonal populations that may artificially increase the calculated water use per person).
- 6. Bonus incentives for potable reuse.

# **1.2 How Water Use Standards Are Used**

All of the standards will apply to Supplier service areas on an annual aggregate basis; they will not apply to individual customers nor will they be assessed daily or monthly. The standards are applied to the Supplier's conditions and characteristics and summed to represent the Suppliers' "urban water use objective". This allows a Supplier to be above or below any individual efficient water use standard, so long as the Supplier's annual water use does not exceed the aggregate sum of all the standards plus variances and bonus incentives terms (water use objective).

The Suppliers' water use objectives are effective after June 2022, when the State Water Resources Control Board (Water Board) adopts urban water use efficiency standards, performance measures, and variances. The 2018 Water Conservation Legislation does not modify the current statewide goal of a 20-percent reduction in urban per capita use by 2020 or limit individual customers' water use.

## **1.3 Statutory Indoor Residential Water Use Standard**

The indoor residential water use standard is a service area average for indoor residential water consumption in order to accommodate inherent variability in local service area characteristics and individual customer needs and use (Water Code §10609(a)). The indoor residential water use standard was set by the Legislature, independent of the other standards, as:

Water Code Section 10609.4:

(a) (1) Until January 1, 2025, the standard for indoor residential water use shall be 55 gallons per capita daily.

(2) Beginning January 1, 2025, and until January 1, 2030, the standard for indoor residential water use shall be the greater of 52.5 gallons per capita daily or a standard recommended pursuant to subdivision (b).

(3) Beginning January 1, 2030, the standard for indoor residential water use shall be the greater of 50 gallons per capita daily or a standard recommended pursuant to subdivision (b).

## DWR's Directive

Water Code Section 10609.4

(b) (1) The department, in coordination with the board, shall conduct necessary studies and investigations and may jointly recommend to the Legislature a standard for indoor residential water use that more appropriately reflects best practices for indoor residential water use than the standard described in subdivision 10609.4 (a)(1).

# **1.4 Development of Remaining Standards**

The outdoor residential and CII large landscape irrigation efficient water use standards, along with the variances, are set through a process where the Department of Water Resources (Department) conducts studies, in coordination with the Water Board, and makes recommendations to the Water Board by October 1, 2021, for the Water Board to adopt as regulation.

# **1.5 Stakeholder Process**

In developing these studies and standards, Stakeholder collaboration is required by statute (Water Code Section  $\S10609.4(b)(2)$ )<sup>1</sup>.

The Water Use Studies Working Group was formed by the Department in July 2019 and comprised of water suppliers, non-governmental organizations, and State and local agency personnel. Three meetings were held with this 33-member Working Group to present and solicit stakeholder feedback on the study approach, study results, and the Department and Water Board proposed joint recommendations. Stakeholder meetings were open to the public with attendance typically over 180 participants.

Additional public outreach and engagement was accomplished through meetings requested by individual stakeholders, the Association of California Water Agencies (ACWA), and a presentation given at the California Water Efficiency Partnership (CalWEP) Peer to Peer Conference (December 8, 2020). The indoor residential water use study team also received feedback from the 18 Suppliers' study participants who were selected to provide data and collaborate with the Department on the study.

A Draft Report was subject to public review for 25 calendar days, beginning on May 11, 2021 and ending on June 4, 2021. A Working Group workshop and public meeting was held May 21, 2021 to present the report and solicit public and stakeholder feedback. Public comments were posted on the Department's SharePoint site and were accessible by all interested parties. The Department and Water Board reviewed the written public comments and decided to hold a second public meeting on July 19, 2021 where additional public comments were received and considered in finalizing the Report.

<sup>&</sup>lt;sup>1</sup> Water Code Section 10609.4 (b) (2) The studies, investigations, and report described in paragraph (1) shall include collaboration with, and input from, a broad group of stakeholders, including, but not limited to, environmental groups, experts in indoor plumbing, and water, wastewater, and recycled water agencies.
Beginning October 2019, monthly coordination meetings were held with the Water Board. Shortly thereafter, beginning July 2020, weekly and bi-weekly coordination meetings were held to collaborate on the study and development of the joint recommendations.

## 1.6 Study Purpose and Goals

Following the legislative directive of Water Code §10609.4(b), the Department, in coordination with the Water Board, conducted a study on indoor residential water use and prepared this report. In accordance with the legislative directive, this study was to include the information necessary to determine if a recommendation was needed and if so, support any joint recommendation made with the Water Board on a different indoor residential water use standard that more appropriately reflects best practices (Water Code §10609.4(b)(1)). The goals of this study and report were to:

- Identify what the current or baseline, statewide average indoor residential water use is in gallons per capita (person) per day (R<sub>i</sub>-gpcd) for California. This information can be used to determine how different the baseline is from any standard.
- Identify whether demographic or geographic factors associated with Suppliers may relate to high (or low) R-gpcd.
- Identify the current and future projected statewide Supplier Ri-gpcd distribution to:
  - Inform how many suppliers and total population would be affected and how much water savings may be achieved with any standard.
  - Ensure that lower income service areas are not disproportionately affected by any standard.
  - Inform if statewide climate zones/hydrologic regions are disproportionately affected by any standard.
- Qualitatively identify benefits and impacts on water supply, recycled water, and wastewater systems of a changing indoor residential water use standard.

• Inform the joint recommendation for an indoor residential water use standard that more appropriately reflects best practices.

## 1.7 Overall Study Approach

With the technical assistance of acknowledged water use experts and in consultation with Suppliers, the Department developed a robust study plan to estimate the current statewide average per-capita indoor residential water use (R<sub>i</sub>-gpcd) and the current distribution of Supplier service area average (R<sub>i</sub>-gpcd). The current distribution of Supplier R<sub>i</sub>-gpcd was also projected for 2025 and 2030 in order to capture the effects of a stepped-down standard.

The difficulty in analyzing indoor residential water use is that residential water meters measure total residential water use and as such, do not distinguish between indoor and outdoor water use; indoor use must therefore be inferred from the total residential water use through calculations or models in a process referred to as 'disaggregation'.

The Department used total residential water use data from three main sources to characterize the current statewide average indoor residential water use and both the current and future projected distribution of indoor residential water use across all Suppliers.

#### 1.7.1 Baseline Indoor Residential Water Use

The current statewide average indoor residential water use (Baseline) analysis was determined to allow for a direct comparison with the SB X7-7 2020 statewide average total water use target of 158 gpcd <sup>2</sup> because the legislative directive for efficient water use standards includes ensuring that the overall per-capita water use remains below the SB X7-7 water use target for 2020. This analysis used customer-level data from the entire service areas of 18 Suppliers, which provides for a robust statistical analysis at the Census tract-, Supplier service arear-, and state-level. This approach stands in contrast to previous disaggregation studies of residential water use that typically relied on simple methods applied to monthly water use data that

<sup>&</sup>lt;sup>2</sup> State of CA, CNRA, Department of Water Resources, August 2017, Status of 2015 Urban Water Management Plans, A report to the Legislature pursuant to Section 10644 and 10608.42 of the California Water Code

had been rolled-up to the Supplier-level or very short duration, highfrequency data from a few carefully selected customers<sup>3</sup>. Although the few high-frequency water use studies can provide accurate results, the short duration and limited number of metered sites do not allow for a robust statistical analysis or an accurate characterization of Supplier service area or statewide indoor residential water use.

The baseline analysis was conducted using primarily customer-level monthly billing data from 18 Suppliers and United States Census (Census) tract characteristics that represent the diversity of all Census tracts in California. Hourly meter read data from Advance Meter Infrastructure (AMI or Smart Meters) was also explored to see if hourly data could provide a more precise analysis.

## 1.7.2 Supplier R<sub>i</sub>-gpcd Distribution

Because the baseline analysis was performed using only 18-Suppliers' customer-level monthly data, a simple disaggregation analysis of rolled-up, Supplier service area (Supplier-level) water use data, reported annually to the Water Board (electronic Annual Report [eAR] data), was used to characterize the distribution and range of Supplier Ri-gpcd. This distribution analysis estimated Supplier level Ri-gpcd from the eAR data using one of the simplest methods that was also used in the baseline analysis. The resulting Supplier-level Ri-gpcd distribution analysis allows for an estimate of the magnitude of any standard's effect (i.e., how many suppliers and population could be affected by any standard). A comparison of the Supplier-level Ri-gpcd analysis to the baseline study results, described in Section 4.1, and using the more robust methods and data, confirmed the applicability of using the monthly Supplier-level data to inform the Ri-gpcd distribution.

#### 1.7.3 Projected Statewide R<sub>i</sub>-gpcd in 2025 and 2030

The current Water Code indoor residential water use standard steps down in 2025 and again in 2030. To assess the suitability of long-term standards, it

<sup>&</sup>lt;sup>3</sup> Mayer, P.W., W.B. DeOreo, et. al. 1999. Residential End Uses of Water. American Water Works Association Research Foundation, Denver, CO.; DeOreo, W.B., P. Mayer, J. Kiefer, and B. Dziegielewski. 2016. Residential End Uses of Water, Version 2. Water Research Foundation. Denver, CO

was important to estimate what the Supplier-level R<sub>1</sub>-gpcd will be in the future. Future Supplier-level R<sub>1</sub>-gpcd was projected to 2025 and 2030 by applying estimates of 'natural' water use reductions due to plumbing codes and 'natural' appliance turnover rates, by county.<sup>4</sup> These 'natural' reductions (passive conservation) are based on estimates of new housing built to current water efficient codes, turnover of existing housing stock subject to efficient toilet and fixture requirements, as well as replacement of old appliances with newer water-efficient appliances. This projection did not include any adjustments in indoor residential water use for potential pandemic effects, changes in population, or accelerated reductions from conservation programs (active conservation).

#### 1.7.4 Benefits and Impacts

To address Water Code Section §10609.4(b)(2), a qualitative analysis was performed on water supply, wastewater, and recycled water systems' benefits and impacts that may result from a changing Ri-gpcd standard. Benefits and impacts to these inter-related sectors are highly variable and depend on local systems' conditions, as well as the magnitude of the effect of a changing standard within the local agencies service area. As such, a quantitative analysis is beyond the scope of this study.

## **1.8 Best Practices**

This study is required to include the information necessary to support a different indoor residential water use standard that more appropriately reflects best practices (Water Code §10609.4(b)(1)). These "best practices" can include practices that Suppliers can implement (e.g., fixture and appliance rebate programs, conservation education, leak detection programs) and those that individual customers can implement (e.g., actual fixing of leaks, replacing appliances and fixtures, and changes in behavioral water use patterns). In considering best practices, it is important to note that while water use efficiency improvements depend on both Suppliers and

<sup>&</sup>lt;sup>4</sup> M Cubed, August 2016, TM - Projected Statewide and County-Level Effects of Plumbing Codes and Appliance Standards on Indoor gpcd, (see Appendix F)

their customers implementing best practices, the indoor residential water use standard applies only to Suppliers and not to individual customers.

California's urban water supplier best management practices and potentialbest management practices were developed in the late 1990s and 2000s and administered through the California Urban Water Conservation Council (CUWCC) and now maintained by the California Water Efficiency Partnership (CalWEP). Cost-effectiveness has always been a key consideration for selecting best practices in California.<sup>5</sup>

There is guidance on ongoing best practices available through partnerships including: the Alliance for Water Efficiency<sup>6</sup>, California Water Efficiency Partnership (CalWEP) (formerly the California Urban Water Conservation Council (CUWCC) established in 1991), SoCal Water\$mart (established in 1990), Regional Water Authority Water Efficiency Program (formed in 2001)<sup>7</sup>, Santa Ana Watershed Project Authority (established in 1968)<sup>8</sup>,and Bay Area Water Supply & Conservation Agency (established in 2002)<sup>9</sup> to name a few.

How effective or appropriate a best practice is will depend on a number of factors including: cost, saturation (e.g., how many customers have already replaced high water use fixtures and appliances with efficient ones), customer behavior and culture (e.g., how long people shower or how many times they flush their toilets), water conservation programs currently being

<sup>&</sup>lt;sup>5</sup> California Water Efficiency Partnership. Utility Operations BMP Implementation Guidebook, https://calwep.org/wp-

content/uploads/2020/04/UtilityOperationsGuidebook.pdf

<sup>&</sup>lt;sup>6</sup> Alliance for Water Efficiency Water Conservation Programs, Planning, and Evaluation, https://www.allinaceforwaterefficiency.org/rsources/programs. Accessed April 1, 2021.

<sup>&</sup>lt;sup>7</sup> Regional Water Authority Water Efficiency Program Available at: https://rwah2o.org/programs/wep/. Accessed April 1, 2021.

<sup>&</sup>lt;sup>8</sup> Santa Ana Watershed Project Authority. Water Use Efficiency Info and Tools to Assist Retail Water Agencies. Available at: https://sawpa.org/water-use-efficiency/. Accessed April 1, 2021.

<sup>&</sup>lt;sup>9</sup> Bay Area Water Supply & Conservation Agency. Available at:

<sup>(</sup>http://bayareaconservation.org). Accessed April 1, 2021.

implemented, demand hardening,<sup>10</sup> as well as local conditions such as climate, water scarcity, pricing, and other factors.

A good way to understand why a service area demonstrates high (or low) Rigpcd, is through a comprehensive End Use study 11 A comprehensive End Use study can identify the household factors that influence indoor and outdoor residential water use and their specific effects on service area Rigpcd. End Use studies can identify the efficiency of a residence's fixtures and appliances, presence of leaks, and customer water use patterns, all of which affect indoor residential water use. End Use studies also allow for an estimation of what appropriate best practices might be and what effect those could have on the service area Ri-gpcd. A comprehensive End Use analysis was not conducted for this study because of time and resource constraints.

## 2.0 METHODS

Included in this section are the methods used to estimate and evaluate the statewide indoor residential water use for the Baseline and the Supplier Distribution. This section presents the different types of data that were available and used in the analyses, the methods of disaggregating total residential water use into its indoor and outdoor components from monthly billing data, hourly meter reads, end-use (pilot study) components, and aggregate water use reported by Suppliers to the State Water Board. Also discussed, is a comparison of indoor residential water use estimates for single-family and multi-family dwelling units. Details on methods are included in Appendices A - G.

<sup>&</sup>lt;sup>10</sup> Alliance for Water Efficiency. Available at:

https://www.allianceforwaterefficiency.org/impact/our-work/researchreport-water-use-efficiency-and-demand-hardening. Accessed April 1, 2021. <sup>11</sup> Unique local conditions are recognized in Water Code and may be subject to variances (CWC §10609.14) such as high seasonal populations where service area RI-gpcd does not reflect service area indoor residential water use because the population count does not capture all of the water users.

#### 2.1 Indoor Residential Use Study Components

The statewide baseline R<sub>i</sub>-gpcd and R<sub>i</sub>-gpcd distribution among Suppliers was estimated based on disaggregating single-family total residential water use data<sup>12</sup> to separate out the indoor fraction.

Customer-level data is the most appropriate data for determining indoor residential water use. Collecting and analyzing customer-level data from all 400-plus Suppliers in California was not feasible within the timeframe<sup>13</sup> Therefore, a subset of 18 Suppliers was selected to conduct the analyses for the baseline statewide central tendency (e.g., average). The 18 Suppliers were selected to provide a good geographic mix of tracts and sufficient variation in household and tract characteristics to build models for estimating the baseline Ri-gpcd. Refer to Appendix D – Sample Selection Tool Description and Appendix E – Sampling Strategy to Estimate Central Tendencies for details on Supplier selection and suitability for analysis. The baseline analysis was then augmented with analysis of a larger set of Supplier-level aggregated values in order to better inform the distribution and range of Suppliers' Ri-gpcd. Figure 2.1-1 shows the location of Suppliers contributing to this study:

<sup>&</sup>lt;sup>12</sup> Multi-family residential water use data was disaggregated for a few of the 18-Suppliers and the estimated RI-gpcd were found to be not very different, on average, than single-family RI-gpcd. However, inherent difficulties in disaggregating total residential water use into indoor and outdoor components from multi-family account data resulted in extreme variability between census tract averages of Single- and Multi-family RI-gpcd estimates within a Supplier's service area.

<sup>&</sup>lt;sup>13</sup> For the Department to acquire the customer-level data used in the disaggregation analyses, a Non-Disclosure Agreement (NDA) with Suppliers was needed to protect private information pursuant to the California Consumer Privacy Act of 2018. Obtaining signed NDA's with and data from each supplier can be a lengthy process, is not always guaranteed, constitutes hundreds of thousands to millions of monthly records, and is subject to the Suppliers' agreement and resources constraints.



Figure 2.1-1. Study Participants and Locations <sup>14</sup>

## 2.1.1 Baseline Analysis for Statewide Central Tendencies

The statewide baseline central tendencies provides a measure of the statewide current average Ri-gpcd for comparison with the SB X7-7, 20-percent reduction in statewide average per capita water use by 2020 target. Customer-level monthly billing data from 18 Suppliers distributed throughout California allowed for use of four different disaggregation methods and two statistical methods for extrapolating results to Supplier service areas and for statewide Baseline. Suppliers used for the baseline analysis were selected

<sup>&</sup>lt;sup>14</sup> In addition to the monthly disaggregation participants shown, the following suppliers also participated in the hourly disaggregation: Eastern MWD, Folsom, Redwood City, and Sacramento

based on service area characteristics that represent demographic characteristics known or suspected to affect indoor residential water use based on the results of previous studies as summarized in described in Section 2.2.1 and described in Appendix C – Pilot End-Use Analysis.

The statewide estimates of indoor residential water use is the average of 2017, 2018, and 2019 data to represent baseline conditions (2020 will not be available until summer 2021). This three-year average was used because high variability in water use from year to year precludes use of a single-year, where possible. Additionally, water use during the 5-year California drought from 2011-2016<sup>15</sup> that preceded 2017 does not represent 'normal' conditions because of the associated voluntary and regulatory required reductions and overall water use has changed considerably in the past two decades.

Although 2017 may retain some lingering effects associated with the 5-year drought, 2018 was a below normal water year<sup>16</sup> that may have encouraged extra water use. Based on the expertise of the technical advisory team, the average of all three years provides a reasonable 'current' indoor residential water use estimate in the absence of detailed information about individual Supplier and customer practices during that time frame.

Disaggregated customer-level data from the 18-Suppliers' were rolled up to the tract level and combined with American Community Survey (ACS) tractlevel data and characteristics. A key assumption is that the tract estimates from the 18-Suppliers are representative of similar tracts statewide. Using this assumption, two different approaches were then used to extrapolate the tract estimates of R<sub>i</sub>-gpcd used for estimating the statewide Baseline:

- 1. Strata-Based Approach
- 2. Correlation-Based Approach

Two types of analyses were run on the tract-level averages of R<sub>i</sub>-gpcd from the 18-Supplier customer-level data. Because the tract-level averages are

<sup>&</sup>lt;sup>15</sup> https://www.drought.gov/states/california#historical-conditions

<sup>&</sup>lt;sup>16</sup> http://cdec.water.ca.gov/reportapp/javareports?name=WSIHIST

based on customer-level data, confidence intervals for the averages (margins of error) could also be determined.

#### Strata-Based Approach

The Strata-Based Approach divided up all 8,057 tracts within California and classified them into 'strata' or 'bins' with similar demographic characteristics as derived from the ACS data. Tracts were grouped into 54 different strata based on similarities in their ACS characteristics including the representation of population over 65, age of housing stock, and median household income (refer to Appendix E for more details):

- Age of housing stock. Age of housing is well-documented as affecting indoor residential water use because of housing codes in effect at the time of construction, as well as wear and tear on household water infrastructure fixtures and appliances. This study did not look at what effects retrofit and replacement programs may have had on baseline water use.
- Median Household Income and Disadvantaged Community Status. Higher economic status can indicate a greater likelihood of home improvements that could reduce indoor residential water use. Additionally, in high income areas, there may be fewer people in larger residences.
- **Population over 65.** The population over 65 is expected to capture situations where customers are home during the day and may show higher residential water use.

For example, a 'bin' may be created for all tracts with median plus or minus 25 percent: population over 65, median household income, and housing built after 2000. Some of the tracts in this bin would have estimated Ri-gcpd, some would not.

Rolled-up customer-level R<sub>i</sub>-gpcd estimates were derived for each sampled Census tract (tract estimates). The population-weighted average of these tract estimates were then used as the best estimate of R<sub>i</sub>-gpcd for entire strata the tracts fell within (e.g., population-weighted average of all sampled tracts that fell within the bin for 25-percent less than to 25-percent more than median population over 65, median household income, and housing built after 2000). Next, the strata-level estimates were aggregated to the statewide-level with strata population serving as the weight. Because the tract estimates also have an associated standard error based on the customer-level data analysis, these error terms could be carried through to the strata estimates and statewide aggregate Baseline (assuming independence of standard errors across tracts) to generate a confidence interval for the estimated Baseline for each disaggregation method.

The advantage of the Strata-Based approach is that minimal assumptions are made about what household characteristics cause variations in tract estimates of Ri-gpcd. As long as the Suppliers selected for producing the tract estimates have sufficient tract diversity to be representative of statewide diversity, this Strata-Based roll-up can lead to robust statewide estimates. A more detailed description of how strata are defined, the total number of tracts within each strata, and the number of sampled tracts from the 18-Suppliers within each strata statewide is included in Appendix D -Sample Selection Tool Description.

#### Correlation-Based Approach

Using the same 18-Supplier tract estimates, correlations using regression models were developed based on ACS tract characteristics as opposed to strata classifications. For example, instead of using a 'bin' average for all tracts within the strata, the tract estimates were correlated with each tract's actual percent population over 65, median household income, and housing built after 2000. A regression equation was developed to model this relationship between factor percentages and tract estimate of R<sub>i</sub>-gpcd. This analysis allowed for exploration of tract characteristics that can explain variation in R<sub>i</sub>-gpcd across tracts, which may provide meaningful policy insights.

The model included factors for:

- Proportion of housing in a tract built pre-1979
- Proportion of housing in a tract built between 1980-1999
- Proportion of housing in a tract built after 2000
- Tract median household income
- Proportion of tract population over 65
- Total residential per-capita water use (R-gpcd)

The resulting R<sub>i</sub>-gpcd equations were then applied to all other census tracts where customer-level data was not obtained and tract R<sub>i</sub>-gpcd were not directly estimated. The predicted tract-level R<sub>i</sub>-gpcd could then be rolled up into a statewide average with tract population serving as the weight. Similar to the Strata-Based approach, error terms from the analyzed tract-level data could be carried through to provide confidence intervals for the statewide Baseline. A weakness of the Correlation-Based approach is that there are more assumptions in the equations used to estimate R<sub>i</sub>-gpcd. The Correlation-Based approach was also used to produce Supplier-level estimates because mapping of tracts to agency boundaries is known.

#### 2.1.2 Distribution Analysis

Although the customer-level data allowed for use of more robust equations in the Baseline Analysis, the limited sample size of 18 Suppliers meant that the range of statewide tract Ri-gpcd was not well-captured. To better capture the distribution of Supplier Ri-gpcd throughout the State, a simpler disaggregation method and the less robust monthly, aggregated Supplierlevel data, reported annually to the Water Board (electronic Annual Report [eAR] data), were used. This allowed the Department to infer Ri-gpcd for 157 Suppliers who had sufficient information for the Distribution Analysis. To predict the 2025 and 2030 distributions, the expected 'natural' declines by county were applied to each Supplier's Ri-gpcd (see Appendix F). This larger set of Supplier Ri-gpcd could then be used to better inform the effect of any standard. Neither the baseline nor the future year projected Ri-gpcd includes any adjustments for effects of potential pandemic, active conservation, or changes in population.

#### 2.1.3 Pilot End-Use

A pilot End-Use study was also conducted within the service area of one study participant to test deployment of a non-invasive, high read-frequency metering device. The pilot study provides a limited verification of the monthly and hourly data disaggregation results that have limited applicability. Only 20 households could be metered and readings did not occur during the same timeframe as the Baseline or Distribution Analysis study data. However, this allowed the Department to compare household water use with tract-level estimates and assess efficacy of expanding the End-Use study to a larger sample. A larger sample from multiple Suppliers would assist in understanding the causes for different household  $R_i$ -gpcd and inform how Supplier service area  $R_i$ -gpcd efficiencies could be achieved.

Homes were fitted with a Flume Smart Home Water Monitor device capable of continuously measuring flow at 5-second increments for at least 30 days during July and August 2020. Similar to previous studies using high frequency read meters (see Appendix C), these data were disaggregated into indoor and outdoor residential water use, as well as characterization of specific indoor water uses including the type of water use, flow rate, and duration (e.g., length of showers, flow rates of faucets, etc.). Details of this analysis are described in Appendix C.

## 2.2 Data

#### 2.2.1. Data Sets and Quality Assurance

Four datasets were used in this study:

- Five to ten years (2011 2020) of total single-family residential monthly/ bi-monthly customer-level water use billing data from 18 Suppliers using the methods described in Appendix A - Monthly Analysis. Results from this analysis are used to estimate the baseline statewide R<sub>i</sub>-gpcd central tendencies.
- One year (2019) of total single-family residential customer-level hourly water use data from four water Suppliers. Methods for this analysis are described in Appendix B – Hourly (AMI) Analysis. Results from this analysis inform and validate monthly R<sub>1</sub>-gpcd single-family and multi-family residential water use disaggregation.
- Three years (2017, 2018, and 2019) of Supplier-level single-family residential monthly total residential water use data, reported annually to the Water Board (**eAR data**). 157 Suppliers had sufficient data to use for this analysis. Details on the methods are described in Appendix H - Distribution Analysis (eAR Data).
- 30 days (July/August 2020) of 5-second interval water use data from the pilot **End-Use study** for 20 homes also with AMI water meters. Details are described in Appendix C – Pilot End Use Analysis

All customer-level data was screened for consistency and errors then crosscompared with the different data sets before conducting the disaggregation analysis. This step is important because water use data can be noisy due to the presence of estimated meter reads, erroneous meter reads, extreme meter reads caused by leaks, and missed meter reads. Additionally, billing corrections may result in negative meter reads and input errors can occur when reporting data in the eAR.

Rules to detect and remove suspect customer-level monthly/bi-monthly billing data and hourly data are described in Appendix A and B, respectively. The rules to detect and remove or correct suspect Supplier-level eAR data are described in Appendix H. In some cases, the screening resulted in elimination of a customer or Supplier from the study analysis.

Disaggregation methods were validated by results from the four data sets (customer-level monthly/bi-monthly billing data, hourly AMI data, Supplier-level eAR data, and pilot End-Use study 10-second interval meter read data).

#### **2.2.2 Customer-Level Data for Baseline Central Tendencies Analysis**

Monthly billing data from the 18-Suppliers contained 896,000 residential accounts distributed across 699 census tracts (256 tracts were split between one or more Suppliers). The data set included customer-level billing data from January 2011 to June 2020, although not every study participant provided data for the full time period. Four Suppliers also provided hourly AMI data for 2019 from 290,000 residential accounts distributed across 336 census tracts. Additional hourly data from March 2020 was collected from two Suppliers to estimate the COVID-19 shelter-in-place orders' effect on indoor residential water use. Customer-level meter service points were geocoded if this had not already been provided by the Supplier in order to match the billing data to census tracts.

The disaggregation analysis was conducted primarily on single-family residential accounts to avoid inherent difficulties with multifamily accounts. Ideally, billing data would be paired with household occupancy data to allow direct estimation of residential water use rates (R<sub>i</sub>-gpcd)<sup>17</sup><sup>666</sup> Therefore, it

<sup>&</sup>lt;sup>17</sup> In addition to incomplete coverage, the occupancy data provided by the few utilities that had it included default estimates for most households which limited its usefulness.

was necessary to estimate water use rates by dividing average water use per dwelling by estimates of average household occupancy derived from the Census data. This approach produces a biased estimate of water use rates. A bias correction was therefore applied to the final water use rate estimates. The magnitude of the correction varied by Census tract but was typically less than 1.0 gpcd. Details of the water use rates calculation and bias correction are provided in Appendix A - Monthly Analysis.

#### 2.2.3 Use of Multi-Family Billing Data

Unlike single-family residential, multi-family data provided by the study participants was of poor quality because Suppliers' classification of multi-family accounts does not always align with Census definitions of multi-family housing and Suppliers do not often record the number of dwelling units in a multi-family complex. With single-family accounts, average water use per meter is equivalent to average water use per dwelling, which is used to estimate water use rates per person. Only about one-third of the study participants had sufficient information for estimating multi-family water use rates. However, if single- and multi-family R<sub>i</sub>-gpcd are similar, the single-family R<sub>i</sub>-gpcd.

#### 2.2.4 Supplier-Level Data for Distribution Analysis

Data reported to the Water Board by Suppliers for 2017, 2018, and 2019 through the eAR were used for the Supplier-level R<sub>i</sub>-gpcd distribution analysis. This included monthly reported total amount of potable water delivered to single-family residential customers, single-family residential service connections, and dedicated irrigation meter monthly water use (see Section 2.3.1, which explains the need for this data). Supplier single-family residential population was reported by Supplier's through the eAR.

The eAR Supplier-level data could only be checked for missing data and obvious reporting errors; but any errors associated with rolling up the data, classification of accounts as residential or non-residential, or small typographical errors in entering data could not be identified. Where data could be fixed (e.g., misreported gallons instead of millions of gallons), adjustments were made. Where data could not be fixed or explained, the Supplier was eliminated from the data set used in the analysis. Over onehalf of the Suppliers did not have complete information to conduct the analysis.

#### 2.2.5 Landscape Area and Weather Data

Two of the study's indoor residential water use estimation methods (see Section 2.3.1), Landscape Adjustment Method (LAM) and Rainfall Adjustment Method (RAM), require data on landscape area, rainfall, and air temperature. Landscape area data came from either the study participants or the Department's Residential Landscape Area Measurement Study. Weather data were collected from National Oceanic and Atmospheric Administration (NOAA) weather stations proximate to each service area. Further details on the landscape area and weather data sources are provided in Appendix A – Monthly Analysis.

## 2.2.6 Pilot End-Use Data

The Department, in collaboration with a Supplier in Northern California, performed a pilot End-Use study with 20 individual customers to verify the hourly and monthly indoor disaggregation methods. Customers' meters were fitted with a non-invasive Flume Smart Home Water Monitor device, which measured flow at 5-second increments for 30 continuous days during July and August 2020. Data collected by the Flume unit was disaggregated into individual end-uses by customer, including toilet flushes, faucet draws, shower, clothes washer cycle, leaks, and others.

The analyses and results from the 20-home sample do not represent the diversity of residential water use within California. The pilot end-use study was performed to prove the usefulness of End-Use analysis in combination with more readily available data sets for future indoor and outdoor water use studies.

## 2.2.7 Pandemic Effect Data

Before COVID-19, many people worked away from their residences and their work-hours water use are not included in the measured residential water use or in the Baseline Analysis. Additional customer-level data was collected to examine the pandemic Shelter-In-Place orders effect on indoor residential water use.

• Monthly billing data was collected from four of the Suppliers through June 2020 in three cases and through April 2020 in one.

• Hourly data was collected from two Suppliers from January 2020 through March 2020.

#### 2.2.8 Population

Population is one of the most important numbers used in determining water use rates because water use is divided by population to determine the gallons per capita per day (gpcd); a population value that is too high will artificially lower the gpcd and a population value too low, will artificially increase the gpcd. The most defensible population estimates would be from the 2020 U.S. Census, which will not be available at the tract-level until later in 2021.

- Study Participants and Baseline Central Tendencies Analysis. The Department's tract estimate R<sub>i</sub>-gpcd were calculated for each measured census tract fully within the 18-Suppliers' service areas using tract-level 5-year population estimates from the 2018 ACS. Tract-level 5-year population estimates from the ACS were also used for population-weighted strata, Supplier, and statewide averages.
- Distribution Analysis. The Ri-gpcd for informing the distribution was calculated by pairing the number of single-family accounts provided by Suppliers with the average persons per household (pph) from the Suppliers associated City or County 2019 California Department of Finance<sup>18</sup> data or from the U.S. Census' ACS if Department of Finance data was not available.

## 2.3 Disaggregation Methods

# 2.3.1 Disaggregation of Customer-level Data for Baseline Central Tendencies Analysis

Indoor residential water use is not directly metered and therefore must be inferred. The monthly data analysis used four different methods to disaggregate indoor from outdoor residential water use by adjusting winter water use for outdoor consumption. However, one was used just for

<sup>&</sup>lt;sup>18</sup> State of California, Department of Finance, 2011-2020 with 2010 Census Benchmark. Available at:

https://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5/

informational purposes. The details of each method described below are provided in Appendix A – Monthly Analysis. The analysis also included the simple Minimum-Month method for comparison purposes.

For all methods used, there are strengths and weakness, and situations or local conditions, where one or another will perform better, or where none are quite suitable. Nonetheless, as will be shown in the Results (Section 4.0 and 5.0), all methods provide a similar value for the central tendency indicating that any individual errors are averaged out when applied across a broad scale.

#### Minimum Winter Month Water Use Method (Minimum-Month or MMM)

Traditionally, the standard approach has been to assume that water use in the minimum winter consumption month is entirely indoor water use (Billings and Jones 2008). However, in California, winter irrigation is common, especially in non-coastal regions of California. Estimates of indoor residential water use based on the winter minimum consumption month will therefore be biased upward unless adjustments are made to remove outdoor water use. This method is not used in the Baseline Analysis and is provided for comparison purposes only.

#### Seasonal Adjustment Method

The Seasonal Adjustment Method (SAM) uses billing data from dedicated irrigation meters to infer residential winter irrigation water use. The key assumption used in this method is that, for a given location, the seasonality of residential and non-residential irrigation is broadly similar. This identifying assumption is used to infer winter residential irrigation, which is not directly observable, from non-residential irrigation served by dedicated irrigation meters, which is directly observable. Removing the inferred amount of winter irrigation from winter minimum-month consumption provides an estimate of indoor water use. For this analysis, the minimum winter water use month was assumed to be February and the maximum summer water use month was assumed to be August. This is a reasonable approach because monthly billing water use data is not necessarily confined to water used only during a particular month; it depends on when the meters are read. Use of February and August standardizes the dataset and analysis.

#### Landscape Adjustment Method

The Landscape Adjustment Method (LAM) uses household-level data on irrigated landscape area to infer residential winter irrigation water use. This method relies on the fact that winter irrigation, where it occurs, is directly related to landscape area: more landscape area requires increased winter irrigation and vice versa. A statistical model is used to estimate this relationship while controlling for other factors affecting winter water use. Once this relationship is determined, the statistical model is used to construct a counterfactual<sup>19</sup> prediction of winter water use assuming each household in the sample has zero irrigated landscape area. This counterfactual prediction provides an estimate of indoor water use.







#### Rainfall Adjustment Method

The Rainfall Adjustment Method (RAM) uses data on rainfall to infer residential winter irrigation water use. This method relies on the fact that winter irrigation is negatively related to rainfall; increases in rainfall reduce or eliminate the need for winter irrigation. A statistical model is used to estimate this relationship while controlling for other factors affecting winter water use. Once the relationship is determined, the statistical model is used to construct a counterfactual prediction of winter water use assuming rainfall

<sup>&</sup>lt;sup>19</sup> A method of understanding the cause associated with observed result to what you would expect if the effect had not been implemented is known as the "counterfactual." Estimation is performed with use of a statistical model, such as regression analysis, to answer the question; "If I didn't have any landscape to irrigate, my total residential water use would be X."

is at the upper end of its historical range when outdoor water use would be expected to be zero or very close to it. This counterfactual prediction provides an estimate of indoor water use.





#### Hourly Data Disaggregation

Four different approaches were used to calculate R -gpcd from hourly water consumption data for each single-family residence.

- 1. Low Water Use Month: February Averages. These approaches simulate the situation where higher resolution data is unavailable as is the case for Suppliers with only monthly or bi-monthly billing data. However, unlike monthly billing data, the hourly data set allows for exact determination of water use from the beginning of a month to the end of a month and for each day in the month. This method assumes February usage is entirely indoors.
- Entire Month of February Average (Month).<sup>20</sup> The overall average daily usage for February is used as a benchmark for indoor use for all other months in the year after adjusting for the different number of days in each month. Total monthly usage above the adjusted February amount is treated as outdoor water use.

<sup>&</sup>lt;sup>20</sup> February is typically the lowest water-use month in California.

- 3. **Daily February Average (Daily).** Each total daily usage throughout the year is compared to the average daily usage during February. On days where use exceeds the average February daily usage, the portion of use above the threshold is considered outdoor use. This approach will treat some of water use in February as outdoor use (on days where total daily usage exceeds the average).
- 3. **Numerical Approach:** This approach is based on previous findings that even under congested household water use conditions (multiple appliances or water fixtures running within the same hour of the day), indoor residential water use seldom exceeds 100 gallons per hour (gph) (DeOreo et al 2011). More recent end-use evaluation of 20 efficient homes in the Sacramento Valley from July 2020 revealed a threshold of approximately 45 gph (see Section 3.2). Therefore, this analysis disaggregated indoor from outdoor usage by using a set of thresholds between 45 gph and 100 gph for the maximum indoor water use rate; all hourly water usage above the cutoff is considered outdoor use.
- 4. **Profile Approach:** In this approach, information at both hourly and daily levels are used, assuming customers will have sets of days where they use water in similar ways. An algorithm groups together each customer's daily usage patterns based on how much water is used at each hour of the day producing a "usage profile." Each usage profile is then assigned one of three labels: Indoor only, Indoor + Outdoor, or Outdoor only. The amount of water used during Indoor only days is then used to disaggregate indoor from outdoor on all other days.

#### Pilot End-Use Disaggregation

A pilot End-Use study on 20 Sacramento Valley households was conducted to assess the feasibility of deploying an End-Use study and to provide more detailed information to compare disaggregation results via other methods. Data was collected through a non-invasive strap-on meter in combination with machine-learning data analysis to determine specific indoor end uses (e.g., toilet flushing) by household. These high-resolution (5 to 10 second) meter reads are used to separate out water use from individual indoor appliances and fixtures, even with multiple indoor appliances concurrently running, from the total water use<sup>21</sup>. These data can help inform where household efficiency improvements could occur within a Supplier's service area. A discussion on the pilot study and its uses is included in Appendix C – Pilot End Use Analysis.

#### 2.3.2 Disaggregation of Supplier-Level Data for Distribution Analysis

The Seasonal Adjustment Method (as described above in Section 2.3.1) was used to disaggregate total single-family residential water use and obtain the current R-gpcd estimate for each Supplier with sufficient data to run the analysis (see Appendix H for details on the analysis). The eAR Supplier-level data does not contain sufficient information to use either the LAM or RAM disaggregation approaches because those require customer-level data. However, for Suppliers that include dedicated irrigation meter account data in their eAR, the SAM method can be used.

Suppliers with data reported for dedicated irrigation meters and with values for 2017, 2018, and 2019 were included in the distribution analysis. Three variations of SAM were applied to the eAR data to estimate R<sub>i</sub>-gpcd:

- Variation 1 uses the Single-Family minimum winter and maximum summer month total residential water use.
- Variation 2 uses the dedicated irrigation meters minimum winter month and maximum summer month water use.
- Variation 3 uses February and August as the fixed minimum winter and maximum summer water use months.

Because there is no preponderance of evidence to suggest that one variation is better than the other, the average of all the three variations, for each year (nine total values) was used to estimate baseline Ri-gpcd for each Supplier in the distribution analysis. For some Suppliers, one or more variations did not work and those Suppliers were excluded from the analysis. See Appendix H for more detail.

<sup>&</sup>lt;sup>21</sup>Water Research Foundation. 2016. Residential End Uses of Water, Version 2; Aquacraft. 2011. California Single Family Water Use Efficiency Study Final Report. Sponsored by DWR; Mayer, P, et al. 1999. Residential End Uses of Water. Sponsored by AWWA Research Foundation.

The distribution analysis also considered characteristics known to affect Rigpcd as identified in the baseline analysis (median household income, population over 65, and age of housing stock), along with hydrologic region and climate region that may affect Ri-gpcd but were not included in the baseline analysis factors.

#### 2025 and 2030 Projected Ri-gpcd

Indoor residential water use was also estimated for 2025 and 2030, by Supplier, to provide a basis for evaluating longer-term indoor residential water use standards. An analysis prepared for the Department and Water Board (Mitchell, 2016) provided county-level estimates of the percent reduction in indoor residential water use based on implementation of current building and plumbing code requirements, housing stock sales, and new development (refer to the analysis report in Appendix F).

Current plumbing code requires use of water efficient shower heads, faucets, and toilets for all new development and for re-sale of existing housing stock. Additionally, all new fixtures and appliances must meet certain water efficient metrics in order to be sold in California.<sup>22,23</sup> As fixtures and appliances wear down and are replaced, they can be expected to be replaced with more water efficient ones.<sup>24</sup>

<sup>&</sup>lt;sup>22</sup> AB 715, enacted in 2007, requires that any toilet or urinal sold or installed in California on or after January 1, 2014 cannot have a flush rating exceeding 1.28 and 0.5 gallons per flush, respectively. On April 8, 2015, in response to the Governor's Emergency Drought Response Executive Order (EO B-29-15), the California Energy Commission approved new standards for urinals requiring that they not consume more than 0.125 gallons per flush, 75% less than the standard set by AB 715.

<sup>&</sup>lt;sup>23</sup> Water use standards for residential and commercial clothes washers and dishwashers are established by the U.S. Department of Energy through its authority under the federal Energy Policy and Conservation Act.

<sup>&</sup>lt;sup>24</sup> SB 407, enacted in 2009, mandates that all buildings in California come up to current State plumbing fixture standards within this decade. For single-family residential property, the compliance date is January 1, 2017. For multi-family and commercial property, it is January 1, 2019. This law establishes

# 3.0 STUDY PARTICIPANTS' RESULTS

The basis for the statewide central tendencies analyses is the results from the 18-Supplier customer-level data summarized in this section. Individual customer-level R-gpcd were averaged for each tract completely within the 18-Suppliers service areas. The determination of R<sub>i</sub>-gpcd estimates assumed a set number of people per household (customer account) based on ACS 5-year population estimates; the best available population estimates are at the tract level. Household water use estimates are not shown because of the Non Disclosure Agreement (NDA) and the extreme variability in household population which directly affect qpcd estimates. Because of the extreme variability in individual household population over time, there is over- and under-counting of individual household population and consequently, over- and under-estimates of individual household water use. When water use of all the households are averaged at the tract level, the variability associated with household population is reduced. Based on this observation, the smallest representative unit of household water use that can be confidently reported is at the tract level and therefore tract level estimates are used to determine the baseline.

## **3.1 Monthly Data Analysis**

 $R_{\rm e}$ -gpcd results from the 18-Suppliers span the years 2011-2019. For comparison purposes, the results were binned into four water use condition periods<sup>25</sup>:

• Pre-Drought (2011-2013)

requirements that residential and commercial property built and available for use on or before January 1, 1994 replace plumbing fixtures that are not water conserving, defined as "noncompliant plumbing fixtures" as follows:

- Any toilet manufactured to use more than 1.6 gallons of water per flush;
- Any urinal manufactured to use more than 1.0 gallon of water per flush;
- Any showerhead manufactured to have a flow capacity of more than 2.5 gallons of water per minute; and
- $_{\odot}~$  Any interior faucet that emits more than 2.2 gallons of water per minute.

<sup>25</sup> There is a lag-time between when the drought began and Suppliers' customer water-use response to the drought. Therefore, the pre-drought water use conditions extended into the first couple of drought years.

- Voluntary 20% Conservation Executive Order (2014)
- State Conservation Reduction (2015-2016)
- Post-Drought (2017-2019)

Table 3.1-1 provides summary statistics of the single-family results for each period. The Minimum-Month Method (MMM) results are included only for comparison because this method is often used to estimate indoor residential water use. The MMM results are not further used in the study analysis or discussion.

Three important points to note are:

- 1. These results are not the statewide estimates of indoor residential gpcd, which are presented in Section 4.0, but are presented as a comparison of the R-gpcd summary estimates for the sampled census tracts.
- Not every one of the 18 Suppliers was able to provide billing data for the 2011-2016 period. The estimates for the earlier periods cover fewer census tracts and thus provide less geographic coverage than the estimates for the Post-Drought period.

The Post-Drought period (2017-2019) data was used for estimating current indoor residential water use because it is most proximate to the present day and it has the broadest geographic coverage without being confounded by the water use restrictions in place during the drought. Data from other periods informed the LAM and RAM analysis, which control for potential external factors. Table 3.1-1. Study Participant's Single-Family  $R_i$ -gpcd Estimates by Method for 2011-2019 Time Period <sup>†</sup>MMM results are presented for comparison only.

| Time Period                       | No. of<br>Tracts<br>** | MMM†<br>Mean*<br>gpcd | MMM†<br>Median<br>gpcd | SAM<br>Mean*<br>gpcd | SAM<br>Median<br>gpcd | LAM<br>Mean*<br>gpcd | LAM<br>Median<br>gpcd | RAM<br>Mean*<br>gpcd | RAM<br>Median<br>gpcd |
|-----------------------------------|------------------------|-----------------------|------------------------|----------------------|-----------------------|----------------------|-----------------------|----------------------|-----------------------|
| Pre-Drought (2011-<br>2013)       | 340                    | 79.0<br>(4.0)         | 73.9                   | 54.0<br>(3.4)        | 49.0                  | 64.9<br>(2.9)        | 62.1                  | 63.2<br>(2.9)        | 57.9                  |
| Voluntary 20%<br>Reduction (2014) | 401                    | 83.3<br>(4.6)         | 74.8                   | 56.5<br>(4.3)        | 52.1                  | 63.2<br>(2.6)        | 57.6                  | 61.0<br>(2.6)        | 55.2                  |
| Required Reduction (2015-2016)    | 508                    | 58.4<br>(4.8)         | 51.0                   | 47.4<br>(5.2)        | 44.3                  | 54.6<br>(3.3)        | 46.4                  | 52.4<br>(3.1)        | 46.0                  |
| Post-Drought<br>(2017-2019)       | 699                    | 63.9<br>(4.5)         | 58.7                   | 52.4<br>(3.8)        | 50.2                  | 52.2<br>(3.2)        | 48.0                  | 52.4<br>(3.1)        | 48.4                  |
| All Years Average<br>(2011-2019)  |                        | 71.8<br>(4.5)         | 66.3                   | 52.7<br>(4.1)        | 49.9                  | 55.7<br>(3.1)        | 50.5                  | 55.1<br>(3.0)        | 49.9                  |

\*Value in parenthesis is the standard error associated with R-gpcd estimate average (mean)

Where MMM = Minimum-Month Method, SAM = Seasonal Adjustment Method, LAM = Landscape Adjustment Method, RAM = Rainfall Adjustment Method.

\*\*Not all suppliers had data for all years

Because customer-level data was used, margins of error could be calculated for the tract-level averages and applied to the statewide averages. The details of the margin of error calculation (Table 3.1-1) are summarized in Appendix G. The margin of error indicates how much the estimate may differ from the true value. The magnitude of the margin of error varies by census tract, but typically is on the order of +/- 8 percent.<sup>26</sup>

There is substantial variation in tract-level R<sub>i</sub>-gpcd, regardless of estimation method used. This variation is illustrated in Figure 3.1-1, which shows box and whisker plots of the estimated R<sub>i</sub>-gpcd for the Post-Drought period (current conditions). The width of each box shows the range between the  $25^{th}$  and  $75^{th}$  percentile estimates, while the belt through the interior of each box shows the median ( $50^{th}$ -percentile) estimate for sampled census tracts (also shown in Table 3.1-1)<sup>27</sup>. The whiskers on either side of each box show the full range of the results, excluding outliers. Roughly, this range is from 20 to 80 gpcd with approximately two-thirds of the estimates falling between 40 and 60 R<sub>i</sub>-gpcd. The 18-Supplier estimate of R<sub>i</sub>-gpcd centers on 52 gpcd.

<sup>&</sup>lt;sup>26</sup> The margin of error is based on a 90% level of statistical confidence, meaning that, under repeated sampling, the interval defined by the margin of error would be expected to contain the true population value 90% of the time. This is the same level of statistical confidence used by the Census Bureau for margins of error attached to published American Community Survey estimates.

 $<sup>^{27}</sup>$  The 25<sup>th</sup> percentile means that 25% of the tract average  $R_i$  -gpcd fell below that value; the 50<sup>th</sup> percentile means that 50% of tract average  $R_i$  -gpcd are above that value and 50% are below that value; the 75<sup>th</sup> percentile means that 25% of tract average  $R_i$  -gpcd values are above that value.



Figure 3.1-1. Distribution of 18-Supplier Tract Average R<sub>i</sub>-gpcd



Figure 3.1-2. Study Participants' Results of All Monthly Disaggregation Analysis.

#### **3.2 Hourly Data Analysis**

A summary of hourly single-family R<sub>i</sub>-gpcd estimates from 2019 is shown in Table 3.2-1. Suppliers participating in the hourly analysis were from geographically and demographically diverse locations. Results from singlefamily customers also indicate variation in indoor water usage between summer and winter in two of the communities studied, with more water being used during summer months. Potential explanations include unobserved increases in occupancy (e.g., children home from school) or behavioral factors (e.g., use of swamp coolers).

Table 3.2-1a. Hourly Data R-gpcd: Daily February Average and Month of February Average Approaches

| Supplier | Daily February<br>Average* gpcd | Month of February<br>Average* gpcd |
|----------|---------------------------------|------------------------------------|
| 1        | 41.6 (5.5)                      | 44.3 (6.4)                         |
| 2        | 56.2 (5.0)                      | 56.0 (5.5)                         |
| 3        | 36.4 (6.1)                      | 38.5 (6.3)                         |
| 4        | 48.0 (8.4)                      | 52.6 (9.6)                         |

\*Where value in parenthesis is the standard error

Table 3.2-1b. Hourly Data R-gpcd: Threshold Approaches

| Supplier | 45 gph* gpcd | 75 gph* gpcd | 100 gph* gpcd |
|----------|--------------|--------------|---------------|
| 1        | 34.8 (4.8)   | 43.8 (5.8)   | 47.5 (6.2)    |
| 2        | 44.9 (4.8)   | 56.5 (5.5)   | 62.1 (6.4)    |
| 3        | 35.7 (5.5)   | 41.7 (6.5)   | 44.3 (7.0)    |
| 4        | 43.8 (7.3)   | 54.5 (9.0)   | 59.0 (10.0)   |

\*Where value in parenthesis is the standard error

| Supplier | No Leak Filter*<br>gpcd | Leak Filter* gpcd |
|----------|-------------------------|-------------------|
| 1        | 45.6 (5.9)              | 44.5 (5.6)        |
| 2        | 57.8 (5.8)              | 51.9 (5.3)        |
| 3        | 41.5 (6.4)              | 40.6 (6.0)        |
| 4        | 55.7 (9.2)              | 49.7 (7.2)        |

Table 3.2-1c. Hourly Data R-gpcd: Profile Approaches

\*Where value in parenthesis is the standard error

Except for Supplier 2, the Daily February Average method resulted in a lower estimate of Ri-gpcd compared to the Month of February Average method.

For all four Suppliers, the Month of February Average, 75 gph Threshold, and Profile (no leak filter) Approaches produced similar Ri-gpcd estimates. In principle, the 100 gph approach approximates an estimated upper-bound indoor residential water use (based on the sum of all indoor appliances and fixtures being in use at the same time) and the 45 gph estimate provides a lower bound estimate (based on our small sample observation of efficient homes from the Pilot End Use Study). The 75 gph reflects a more middle ground hourly cutoff. The estimate from the 75 gph lines up the best with the Threshold approaches that looks for structural breaks in the hourly data, indicating these service areas are likely an even mix of high and low Ri-gpcd households or that most households gpcd are "middle of the road".

#### **3.3 Methods Comparison**

Figure 3.3-1 and Table 3.3-1 show results from all customer-level data analyses. Monthly results are an average of 2017, 2018, and 2019; hourly results are from 2019; and the Pilot End-Use Study results are from 20 customers for the month of July and August 2020.



Figure 3.3-1. Comparison of Disaggregation Method R<sub>i</sub>-gpcd Using 2017-2019 Tract Aggregated Customer-level Monthly Billing Data and Hourly AMI Data, and 20 Customer Pilot End Use Study Data.

| Table 3.3-1. Comparison of Disaggregation Method Ri-gpcd Using 2017-2019  | Э |
|---|---|
| Tract Aggregated Customer-level Monthly Billing Data and Hourly AMI Data, |   |
| and 20 Customer Pilot End Use Study Data.                                 |   |

| Type of<br>Data             | Disaggregation<br>Method                     | Supplier<br>1 | Supplier<br>2 | Supplier<br>3 | Supplier<br>4 |
|-----------------------------|--|---------------|---------------|---------------|---------------|
| Monthly /<br>Bi-<br>Monthly | SAMª   | 51<br>(2.1)   | 39<br>(2.1)   | 48<br>(2.2)   | 60<br>(3.0)   |
| Monthly/<br>Bi-<br>Monthly  | LAM <sup>a</sup>                             | 47<br>(1.6)   | 42<br>(2.2)   | 43<br>(2.1)   | 64<br>(2.3)   |
| Monthly /<br>Bi-<br>Monthly | RAMª   | 52<br>(1.8)   | 38<br>(2.0)   | 43<br>(2.2)   | 63<br>(2.4)   |
| Hourly                      | Daily February<br>Average <sup>b</sup>       | 41.6<br>(5.5) | 56.2<br>(5.0) | 36.4<br>(6.1) | 48<br>(8.4)   |
| Hourly                      | Month of<br>February<br>Average <sup>b</sup> | 44.3<br>(6.4) | 56<br>(5.5)   | 38.5<br>(6.3) | 52.6<br>(9.6) |
| Hourly                      | Threshold - 45<br>gph <sup>b</sup>           | 34.8<br>(4.8) | 44.9<br>(4.8) | 35.7<br>(5.5) | 43.8<br>(7.3) |
| Hourly                      | Threshold - 75<br>gph <sup>b</sup>           | 43.8<br>(5.5) | 56.5<br>(5.5) | 41.7<br>(6.5) | 54.5<br>(9.0) |
| Hourly                      | Threshold - 100<br>gph <sup>b</sup>          | 47.5<br>(6.4) | 62.1<br>(6.2) | 44.3<br>(7.0) | 59<br>(10.0)  |
| Hourly                      | No Leak Filter <sup>b</sup>                  | 45.6<br>(5.8) | 57.8<br>(5.9) | 41.5<br>(6.4) | 55.7<br>(9.2) |
| Hourly                      | Leak Filter <sup>b</sup>                     | 44.5<br>(5.3) | 51.9<br>(5.6) | 40.6<br>(6.0) | 49.7<br>(7.2) |
| End Use                     | End Use<br>Algorithms <sup>c</sup>           | NA            | 50.8          | NA            | NA            |

a – average of 2017 to 2019, b – 2019 data only, c – July/August 2020,

n=20 accounts; Value in parenthesis is Standard Error

Based on these limited results, the hourly disaggregation analyses may provide more reasonable values for Suppliers with high (Supplier 4) or low (Supplier 2) Ri-gpcd compared to using the monthly methods. However, the sample size is too limited and other factors such as geographic location or demographic characteristics may account for the differences.

## **3.4 Pandemic Effect Results**

Table 3.4-1 shows the pandemic shelter-in-place order effects on indoor residential water use for six Suppliers. This approximately 3-5 gpcd increase in R-gpcd is roughly equivalent to about two to three extra toilet flushes per person. Extra toilet flushing may explain most of the observed increase in indoor residential water use. This is consistent with the pilot End-Use Study conducted during July and August 2020 that measured an average toilet flush rate of three more flushes per person per day than has been recorded in previous End-Use studies.<sup>28</sup>

<sup>&</sup>lt;sup>28</sup> See Mayer et al. (1998), Mayer et al. (2011), and Mayer et al. (2016).

| Supplier             | Analysis<br>Monthly or<br>Hourly | Per<br>Household<br>gpd* | Per<br>Person<br><i>R<sub>i</sub>-gpcd</i> |  |
|----------------------|----------------------------------|--------------------------|--|--|
| Coachella Valley WD  | Monthly                          | 7.2 (1.1)                | 3.0  |  |
| Eastern MWD          | Monthly                          | 11.1 (0.3)               | 2.9  |  |
| CWS S. San Francisco | Monthly                          | 12.6 (1.4)               | 3.7  |  |
| CWS Livermore        | Monthly                          | 35.9 (2.9)               | 12.2                                       |  |
| Redwood City         | Hourly                           | 8.8 (0.9)                | 3.1  |  |
| City of Folsom       | Hourly                           | 13.3 (1.3)               | 4.5  |  |
| Mean Effect          | All                              | NA                       | 4.9  |  |
| Excluding Livermore  | All                              | NA                       | 3.4  |  |

Table 3.4-1. Increase in Single-Family Indoor Residential Water Use Following Pandemic Shelter-in-Place Orders

\*Standard error of estimate in parentheses

## 3.5 Multi-Family Residential

To inform whether the statewide R<sub>i</sub>-gpcd could be represented by singlefamily residential (SFR) water use, the disaggregation analysis was performed for several Suppliers with sufficient multi-family residential (MFR) monthly and hourly customer-level data.

## 3.5.1 Monthly Analysis MFR Ri-gpcd

Table 3.5-1 demonstrates the variability and similarity between multi-family and single-family residential R<sub>i</sub>-gpcd for all four disaggregation methods. In some cases multi-family residential R<sub>i</sub>-gpcd is higher than single-family residential and in some cases it is lower, depending on the Supplier and on the method used. In general, though, the R<sub>i</sub>-gpcd standard errors for the MFR were greater than those for SFR, which is to be expected because of the potential for greater variability in the MFR sector (e.g., with or without onsite laundry) and the difficulty in obtaining good data to disaggregate (e.g., number of occupied units).

In addition to incomplete MFR account information and data, the occupancy data provided by the few Suppliers that had MFR information included default estimates for most households which limited its usefulness. A

comparative analysis of five Suppliers with sufficient data indicated an approximate equivalency in four of the five Suppliers for which both MFR and SFR estimates of Ri-gcpd could be developed.

For the overall multi-family sample, the mean estimate of indoor residential water use is 49 gpcd with the SAM and RAM methods and 50 gpcd with the LAM method. The median estimate is 48 gpcd with the SAM and LAM method and 46 gpcd with the RAM method.

- Multi-family SAM analysis showed weaker correlations than the SFR analysis but tell a story similar to SFR R<sub>i</sub>-gpcd in terms of which factors are stronger predictors and which factors are weaker predictors of variation in R<sub>i</sub>-gpcd (refer to section 2.1.1 for SFR R<sub>i</sub>-gpcd factors). This indicates the reasonableness of using SFR as a proxy to describe all residential R<sub>i</sub>-gpcd.
- The **RAM** analysis did not work well with MFR data because of the extreme variability in types of multi-family account: e.g., multifamily accounts can include small 2-4-unit master-metered properties as well as much larger master-metered properties.
- A sensitivity analysis confirmed the ability to use SFR R<sub>i</sub>-gpcd as a surrogate for all residential R<sub>i</sub>-gpcd. Assuming that multi-family R<sub>i</sub>-gpcd is 10% higher than corresponding SFR R<sub>i</sub>-gpcd in each tract, the statewide average would increase by 1.2 R<sub>i</sub>-gpcd compared to assuming single-family and multifamily have the same R<sub>i</sub>-gpcd. If MFR R<sub>i</sub>-gpcd is 10% lower, the statewide average drops by 1.2 gpcd (Statewide baseline estimates are discussed in Section 4.0). This increase or decrease is close to the margins of errors associated with each estimation method.

| Supplier  | MMM<br>MFR<br>gpcd | MMM<br>SFR<br>gpcd | SAM<br>MFR<br>gpcd | SAM<br>SFR<br>gpcd | LAM<br>MFR<br>gpcd | LAM<br>SFR<br>gpcd | RAM<br>MFR<br>gpcd | RAM<br>SFR<br>gpcd |
|-----------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Sac River | 63 (5.9)           | 61 (3.3)           | 60 (5.6)           | 54 (3.0)           | 64 (5.0)           | 47 (2.3)           | 63 (4.9)           | 49 (2.4)           |
| C. Coast  | 42 (3.9)           | 40 (2.5)           | 41 (3.7)           | 39 (1.0)           | 39 (3.1)           | 36 (0.9)           | 38 (3.1)           | 35 (1.0)           |
| S. Coast  | 45 (5.8)           | 54 (2.4)           | 39 (6.1)           | 48 (2.1)           | 42 (2.1)           | 50 (2.2)           | 38 (2.0)           | 44 (2.0)           |
| S. Coast  | 50 (3.4)           | 60 (2.7)           | 50 (3.5)           | 61 (2.5)           | 49 (2.9)           | 40 (1.8)           | 48 (2.9)           | 52 (2.4)           |
| SF Bay    | 49 (6.7)           | 44 (2.4)           | 48 (6.8)           | 39 (2.2)           | 43 (3.3)           | 39 (2.1)           | 43 (3.3)           | 40 (2.2)           |
| All       | 54 (5.2)           | 56 (2.7)           | 50 (5.2)           | 48 (2.5)           | 53 (3.6)           | 45(2.1)            | 52 (3.6)           | 47 (2.2)           |

Table 3.5-1. Monthly Data Analysis Average of 2017-2019 Multi-Family Residential (MFR) R<sub>i</sub>-gpcd Compared to Single-Family Residential (SFR) for Five Suppliers

\* Value in parenthesis = standard error
#### 3.5.2 Hourly Analysis MFR Ri-gpcd

The Month of February (Low Water Use Month) and Profile methods, described in Section 3.2, were used to disaggregate Ri-gpcd for multi-family residential. A summary of multi-family Ri-gpcd estimates are shown in Table 3.5-2 below.

| Ri-grea compared to single-raining Residential (SFR) for three Suppliers. |                                |                                |                                   |                                   |  |  |
|---|--------------------------------|--------------------------------|-----------------------------------|-----------------------------------|--|--|
| Supplier  | Average<br>Day<br>MFR,<br>gpcd | Average<br>Day<br>SFR,<br>gpcd | Calendar<br>Month<br>MFR,<br>gpcd | Calendar<br>Month<br>SFR,<br>gpcd | Profile No<br>Leak Filter<br>MFR, gpcd | Profile No<br>Leak Filter<br>SFR, gpcd |
| S. Coast  | 50.3<br>(30.5)                 | 41.6<br>(5.5)                  | 51.9<br>(32.5)                    | 44.3<br>(6.4)                     | 42.3<br>(35.4)                         | 45.6<br>(5.9)                          |
| SF Bay  | 42.8<br>(10.2)                 | 36.4<br>(6.1)                  | 43.4<br>(11.9)                    | 38.5<br>(6.3)                     | 40.5<br>(18.0)                         | 41.5<br>(6.4)                          |
| Sac River   | 60.3                           | 48.0                           | 62.4                              | 52.6                              | 43.6                                   | 55.7                                   |

(29.8)

(9.6)

Table 3.5-2. Hourly Data Analysis of 2019 Multi-Family Residential (MFR) R<sub>i</sub>-gpcd\* Compared to Single-Family Residential (SFR) For Three Suppliers.

\*Values in parentheses are standard error

(28.6)

Each of these methods makes different assumptions to estimate indoor residential water use. All of the different hourly disaggregation methods for estimating indoor residential water use produces consistent, reasonable estimates for both MFR and SFR. This independently confirms the monthly disaggregation conclusion of inferring MFR R<sub>i</sub>-gpcd with SFR R<sub>i</sub>-gpcd.

### 4.0 BASELINE CENTRAL TENDENCIES RESULTS

(8.4)

The two analyses using the tract level estimates of R<sub>i</sub>-gpcd were the Strata-Based and Correlation-Based analyses (refer to Section 2.1 for an explanation of these methods).

These analyses were conducted using only single-family residential customers data; as noted above, single-family and multi-family R-gpcd are comparable (see Section 3.5) and population estimates and water use data

(9.2)

(31.1)

associated with single-family residential are more complete allowing for a better disaggregation and determination of Ri-gpcd.

Both the Strata-Based and Correlation-Based estimates produce good statewide averages and comparable results. The Strata-Based estimates may be more reliable because fewer assumptions are used. The Correlation-Based estimate is much more data-intensive and the results are limited by the constraints of the study scope. However, the Correlation-Based estimates confirm use of the factors classifying each strata.

Comparison between the Strata-Based and Correlation-Based Baseline central tendencies indicate agreement by all five analysis that are within the margins of error of each. The Correlation-Based confidence intervals are tighter than the Strata-Based statewide aggregation because more information is used to develop the Correlation-Based tract level predictions. The differences across approaches and methods are small, suggesting that current R<sub>i</sub>-gpcd statewide average is within the range of 49-52 gpcd.

#### 4.1 Strata-Based Estimates

Tract-level estimates were developed from SFR customer-level billing histories using the four monthly disaggregation methods. Statewide Baseline results in the Strata-Based Approach are presented in Table 4.1-1. These averages were developed from 453 census tracts wholly within the service areas of 18 Suppliers that were selected to represent the statewide diversity. Section 2.1.1 describes the methodology used for aggregating tract-level estimates up to the state level.

Strata-Based Analysis provides Tract-Level R<sub>i</sub>-gpcd that can be rolled up to a statewide average. Strata-Based results and analysis presented in this report are for the tract-level aggregated R<sub>i</sub>-gpcd that are further summarized on a statewide basis.

| Method | Average<br>R <sub>i</sub> -gpcd | 95% Confidence<br>Interval |
|--------|---------------------------------|----------------------------|
| MMM    | 62.5                            | ± 1.9                      |
| SAM    | 49.5                            | ± 1.0                      |
| LAM    | 52.2                            | ± 1.6                      |
| RAM    | 51.5                            | ± 1.4                      |

Table 4.1-1. Strata-Based Statewide Baseline: Tract-Level R<sub>i</sub>-gpcd Estimates (Average of 2017-2019).

As noted in Section 3.1, the 2017-2019 years appear to be least affected by the 2012-2016 drought and are the most representative of California's current  $R_i$ -gpcd.

The MMM results are included for informational purposes only and will not be discussed further. It is included because the MMM is often used to estimate indoor residential water use, however the MMM analysis does not remove winter irrigation and can overestimate indoor water use, especially where winter irrigation is quite significant, such as in Southern California.

#### 4.2. Correlation-Based Estimates

Correlation-Based estimates provide Tract-Level R-gpcd that can be aggregated at the Supplier or statewide levels. Correlation-Based results and analysis presented in this report are for the Supplier aggregated R-gpcd that are further summarized on a statewide basis.

Table 4.2-1 shows the Baseline statewide R<sub>i</sub>-gpcd estimated using the Correlation-Based Approach. The SAM and RAM Correlation-Based R<sub>i</sub>-gpcd estimates for 384 Suppliers does well predicting the central tendency of statewide average R<sub>i</sub>-gpcd. The median R<sub>i</sub>-gpcd using SAM disaggregation process is 50.1 gpcd and the median for the RAM disaggregation process is 49.8 gpcd. However, the distribution is tightly clustered for both with a standard deviation of 2.6 and 5.6 gpcd, respectively.

| Method | Average<br>R <sub>i</sub> -gpcd | 95%<br>Confidence<br>Interval |
|--------|---------------------------------|-------------------------------|
| SAM    | 50.5                            | ± 0.26                        |
| LAM    | 50.9                            | -                             |
| RAM    | 50.7                            | ± 0.23                        |

Table 4.2-1. Correlation-Based Statewide Baseline: Supplier Aggregated Ri-gpcd Estimates (Average of 2017 to 2019).

Table 4.2-1 does not show results for the Minimum Month Method as described before.

Correlation-Based Analysis comparison of disaggregation methods are:

- **SAM.** The SAM estimate has limited ability to explain the characteristics of indoor residential water use because SAM R-gpcd tract estimates tightly cluster near the mean. This means that SAM poorly represents the tails of the R-gpcd distribution. However, the Correlation-Based SAM estimate detected both a post-2000 housing effect and population over 65 years old effect. The tight R-gpcd clustering and the ability to detect only the post-2000 housing effect and population over 65 effect indicates that the Correlation-Based SAM estimate can explain some factors associated with indoor residential water use but has limitations.
- LAM. The LAM estimate produces the least desirable result because it does not detect a post-2000 housing effect or income effect. Additionally, the LAM estimate has the largest effect from total residential water use, compared to the other methods, which indicates LAM did not separate out the outdoor water use from total water use as well as the other methods.
- **RAM.** The RAM estimate performed the best (highest R-square, coefficients are reasonable and significant) of the three Correlation-

Based estimates. The RAM estimate detected significant effects for all three factors: population over 65, housing built after 2000, and median household income. Only under the RAM estimate does the impact of income appear statistically significant. The coefficient associated with the RAM estimate for household income suggests that for every \$10,000 increase in tract household income, R<sub>i</sub>-gpcd rises by 0.3 gpcd, a relatively weak but significant effect.

The SAM estimate produces reasonable and significant model/equation coefficients, but the model's explanatory power is lower when compared with the RAM estimate. Overall, the Correlation-Based SAM estimate is good for estimating a statewide average and the RAM estimate does a better job capturing the tails of the R<sub>i</sub>-gpcd distribution.

However, none of the three Correlation-based estimates are able to robustly characterize the tails (high and low R-gpcd values) of the distribution and all demonstrated a low R-squared value. Only the SAM disaggregation could be used for the Distribution Analysis because of dataset limitations. Refer to Appendix G.

#### **4.3 Factors Influencing Variation in Ri-gpcd Across Tracts**

Regression models were used to explore which factors influence variation in R-gpcd across the 453 census tracts selected to represent California. Effects of tract characteristics, obtained from the Census (housing stock age, median household income, and tract population over-65 years in age), on tract-level R-gpcd was determined for the SAM and RAM disaggregated data from single-family residential accounts.

- **Population Over 65 Correlated With <u>Higher</u> R<sub>1</sub>-gpcd.** The models detect a strong, significant effect of the percentage of over-65 population on R<sub>1</sub>-gpcd. For every 10% increase in the over-65 population proportion, R<sub>1</sub>-gpcd increases by approximately 3-5 gpcd. For example, tracts with 60% of the population over 65 can be expected to have 15-25 gpcd higher indoor per-capita use than tracts where only 10 percent of the population is over-65 years of age, with all other factors being equal.
- Housing Built After 2000 Correlated With Lower Ri-gpcd. Post-2000 households are expected to be associated with more efficient

indoor use. Both the Correlation-Based SAM and RAM estimates confirm that hypotheses, while the LAM estimate does not, which reduced confidence in using the LAM estimate for current statewide R-gpcd.

The proportion of post-2000 housing in a tract is a statistically significant predictor of lower Ri-gpcd. However, no water use efficiency gradient is detectable within housing stock constructed prior to 2000.

- Tracts with all housing built after 2000 have an Ri-gpcd that is 5-6 gpcd below tracts, where all housing was constructed prior to year 2000, with all other constraints being equal.
- There is no statistically significant difference between homes built between 1980-1999 and those built prior to 1980. Older housing stock is subject to similar influences due to updates in plumbing codes, appliance efficiency standards, and agencysponsored incentive programs starting from the early 1990s causing water use efficiency levels for households to increase at roughly the same rate.
- Median Household Income Weak Correlation With <u>Higher</u> R<sub>i</sub>gpcd. Median household income has a weak, but positive effect on R<sub>i</sub>gpcd. For every \$10,000 increase in median household income, percapita indoor water use increases by roughly 0.3 gpcd.

# 4.4 Multi-Family versus Single Family Tract Level Estimates using SAM and RAM

Multi-family estimates could only be generated from a smaller subset of tracts than the number of tracts used in the Single Family indoor residential estimates. Multi-family data was not used from the eAR data. Because of the limitations of multi-family data described in Section 3.5, there is limited utility in including multi-family R<sub>i</sub>-gpcd estimates in the statewide indoor residential estimates. The limited multi-family data R<sub>i</sub>-gpcd tract level estimates are approximately similar to single-family indoor residential tract level estimates with the SAM and RAM approaches as shown in Figure 4.4-1 and Figure 4.4-2.



Figure 4.4-1. Single Family compared to Multi-Family: **SAM** Tract  $R_i$ -gpcd Estimates



Figure 4.4-2. Single Family compared to Multi-Family: **RAM** Tract R<sub>i</sub>-gpcd Estimates

| Hydrologic<br>Region  | MMM<br>MFR*<br>(R <sub>i</sub> -gpcd) | MMM<br>SFR*<br>(Ri-gpcd) | SAM<br>MFR *<br>(Ri-gpcd) | SAM<br>SFR*<br>(Ri-gpcd) | LAM<br>MFR*<br>(R <sub>i</sub> -gpcd) | LAM<br>SFR*<br>(Ri-gpcd) | RAM<br>MFR*<br>(Ri-gpcd) | RAM<br>SFR*<br>(Ri-gpcd) |
|---|---------------------------------------|--------------------------|---------------------------|--------------------------|---------------------------------------|--------------------------|--------------------------|--------------------------|
| Sac River   | 63 (5.9)                              | 61 (3.3)                 | 60 (5.6)                  | 54 (3.0)                 | 64 (5.0)                              | 47 (2.3)                 | 63 (4.9)                 | 49 (2.4)                 |
| C. Coast  | 42 (3.9)                              | 40 (2.5)                 | 41 (3.7)                  | 39 (1.0)                 | 39 (3.1)                              | 36 (0.9)                 | 38 (3.1)                 | 35 (1.0)                 |
| S. Coast  | 45 (5.8)                              | 54 (2.4)                 | 39 (6.1)                  | 48 (2.1)                 | 42 (2.1)                              | 50 (2.2)                 | 38 (2.0)                 | 44 (2.0)                 |
| S. Coast  | 50 (3.4)                              | 60 (2.7)                 | 50 (3.5)                  | 61 (2.5)                 | 49 (2.9)                              | 40 (1.8)                 | 48 (2.9)                 | 52 (2.4)                 |
| SF Bay  | 49 (6.7)                              | 44 (2.4)                 | 48 (6.8)                  | 39 (2.2)                 | 43 (3.3)                              | 39 (2.1)                 | 43 (3.3)                 | 40 (2.2)                 |
| Average   | 54 (5.2)                              | 56 (2.7)                 | 50 (5.2)                  | 48 (2.5)                 | 53 (3.6)                              | 45(2.1)                  | 52 (3.6)                 | 47 (2.2)                 |
| *Standard Error in parenthesis, values are average of 2017 to 2019 data |                                       |                          |                           |                          |                                       |                          |                          |                          |

Table 4.4-1. SAM and RAM Single-Family versus Multi-Family Tracts by Ri-gpcd

## 5.0 DISTRIBUTION ANALYSIS RESULTS

The current condition distribution of Supplier R-gpcd in California is represented by the 157 Suppliers in this study and shown in Figure 5-1. These values represent an average of 2017, 2018, and 2019 SAM analysis of Supplier-level (eAR) data. The distribution is slightly skewed to the lower end with some Suppliers showing extreme values. Extreme values may be artifacts of the analysis, data, or indicate unique water use that may be subject to variance<sup>29</sup> conditions.



Figure 5.1 Current Conditions Distribution Analysis Results for 157 Suppliers (Where Ri-gpcd values are along the horizontal axis and frequency of occurrence for histogram bars is on the vertical axis. Distribution statistics along the horizontal axis are included for reference.)

<sup>&</sup>lt;sup>29</sup> Variances are additions to the water use objective that can be claimed for Suppliers with unique uses of water in their service area that has a material effect on their water use objective. The variances are currently under study and development but include uses such as large population of horses and other livestock, seasonal populations, use of evaporative coolers, large areas of commercial and non-commercial agriculture, to name a few.

From the analysis in Appendix J, a non-wasteful household without efficient fixtures and appliances can expect an R<sub>i</sub>-gpcd of about 55 gpcd. Based on this study's analysis, the lower R<sub>i</sub>-gpcd does appear to suggest that residential customers in California, on average, are currently achieving some measure of efficient indoor residential water use that demonstrates efforts Suppliers and customers have already put towards water conservation.

# **5.1 Distribution Analysis Results Comparison to Central Tendencies**

R-gpcd estimates from the monthly and hourly customer-level Baseline Analysis validates the Supplier-level dataset (eAR) SAM analysis to represent the Statewide R-gpcd distribution (variability) of Suppliers. Table 5.1-1a and 5.1-1b show how closely the average between all the analyses agree.

Table 5.1-1a. Strata-Based Approach Summary From Tract Aggregated Ri-gpcd for Baseline Analysis SAM, LAM, and RAM and Aggregate Supplier-Level Estimated Ri-gpcd For Distribution Analysis SAM.

| Statistic         | Distribution<br>Supplier-Level<br>Data (eAR)<br>SAM (Ri-gpcd) | <b>Baseline SAM</b><br>( <i>R<sub>i</sub>-gpcd</i> ) | Baseline<br>LAM<br>(R <sub>i</sub> -gpcd) | Baseline<br>RAM<br>(R <sub>i</sub> -gpcd) |
|-------------------|---|--|---|---|
| Average           | 51.1  | 49.5   | 52.2                                      | 51.5                                      |
| 95%<br>Confidence | NA  | ±1.0   | ±1.6                                      | ±1.4                                      |

Table 5.1-1b. Correlation-Based Approach Summary Statistics From Supplier-Aggregated  $R_i$ -gpcd.

| Statistic                   | Supplier-<br>Level Data<br>(eAR) SAM<br>( <i>R<sub>i</sub>-gpcd</i> ) | Correlation-<br>Based<br>Baseline SAM<br>( <i>R<sub>i</sub>-gpcd</i> ) | Correlation-<br>Based<br>Baseline LAM<br>( <i>R<sub>i</sub>-gpcd</i> ) | Correlation-<br>Based<br>Baseline RAM<br>( <i>R<sub>i</sub>-gpcd</i> ) |
|-----------------------------|---|--|--|--|
| Number of<br>Suppliers      | 157   | 384  | 384  | 384  |
| Average                     | 51.1  | 50.5   | 50.9   | 50.7   |
| 95% Confidence              | NA  | ±0.3   | NA   | ±0.2   |
| Minimum                     | 27.8  | 44.2   | 39.3   | 39.3   |
| Maximum                     | 128.7   | 63.4   | 84.8   | 82.2   |
| Median                      | 48.3  | 50.1   | 50.0   | 49.8   |
| Std. Dev.                   | 12.7  | 2.6  | 5.9  | 5.6  |
| Standard Error              | -   | 0.141*   | 0.166*   | 0.138*   |
| 10 <sup>th</sup> Percentile | 39.3  | 47.8   | 44.6   | 44.7   |
| 25 <sup>th</sup> Percentile | 43.7  | 48.8   | 46.9   | 47.0   |
| 75 <sup>th</sup> Percentile | 56.1  | 51.5   | 53.7   | 53.4   |
| 90 <sup>th</sup> Percentile | 63.5  | 53.6   | 58.3   | 57.6   |

\*Standard Error (of the mean) is calculated by Supplier based on tract-level estimates. Standard error cannot be calculated using Supplier-Level eAR data. Standard error estimates how well the sample data represents the whole population; with aggregated Supplier data, not enough information is available to estimate how good R<sub>i</sub>-gpcd SAM eAR data estimates represent tracts or individual households within that Supplier.

However, as Table 5.1-1 shows, the range of R<sub>i</sub>-gpcd distribution is greater for the Distribution Analysis because the Baseline Analysis, by nature, will tend to produce less variable results. Agreement on the averages indicates that use of the Supplier-level data disaggregated using the SAM method can be useful for informing the statewide variability in R<sub>i</sub>-gpcd at the Supplierlevel and effects of changing the R<sub>i</sub>-gpcd standard.

Figure 5.1-1 shows the range and spread of the various analysis. LAM relative and cumulative frequency distributions are shown only for

comparison because this analysis was generally found to produce less defensible results.



Figure 5.1-1. California Indoor Residential gpcd Distribution with SAM, RAM, and LAM\*

Correlation-Based Supplier Estimates, and SAM Supplier-level data using an Average of 2017-2019.

#### 5.2 Current and Future Projected Ri-gpcd Distribution

The indoor residential water use standard in statute reduces from 55 to 52.5 gpcd in 2025 and reduces from 52.5 to 50 gpcd in 2030. Therefore, it was important to understand what the projected  $R_i$ -gpcd distribution would be.

R-gpcd can be expected to decline 'naturally' because of plumbing code effects, appliance and fixture turnover, and new housing (passive conservation). It can also decline because of conservation programs and efforts (active conservation), which will be locally variable and depend upon the individual programs, customer response to programs, and the level of 'saturation' (e.g., how close the service area is to having all toilets replaced with efficient toilets). Because the Department has no ability to assess the likely effect of active conservation, the Department estimated projected  $R_i$ -gpcd for 2025 and 2030 based on current  $R_i$ -gpcd for the 157 Suppliers, along with county estimates for passive conservation from Mitchell (2016) (refer to Appendix F).

Figure 5.2-1 and 5.2-2 show the projected distributions for 2025 and 2030, respectively. This analysis indicates that the average and median R<sub>i</sub>-gpcd is projected to decline, due to passive conservation, by about four gpcd by 2030 without any active conservation efforts or any standard in effect.



Figure 5.2-1. 2025 Projected Distribution Analysis Results for 157 Suppliers (Where Ri-gpcd values are along the horizontal axis and frequency of occurrence for histogram bars is on the vertical axis. Distribution statistics along the horizontal axis are included for reference.)



Figure 5.2-1. 2030 Projected Distribution Analysis Results for 157 Suppliers (Where Ri-gpcd values are along the horizontal axis and frequency of occurrence for histogram bars is on the vertical axis. Distribution statistics along the horizontal axis are included for reference.)

#### 5.3 Standards Effects

In order to provide a study that informs any recommendations, potential effects of any standard were estimated using a Decision Support System (DSS) tool to examine how many Suppliers and the population that would be affected by a recommended standard and what the magnitude of effect would be. This tool incorporated information from the Distribution Analysis Supplier R-gpcd, Supplier population, and high poverty status based on Census tract data.

There are three main assumptions that need to be considered when looking at the analysis:

- 1. Suppliers with estimated service area R<sub>i</sub>-gpcd above the standard are assumed to drop down to the standard. This assumption means that estimated effects may be high because:
  - Suppliers do not have to meet individual standards; they may accommodate an exceedance of any standard by being sufficiently

under one of the other standards so long as their overall water use does not exceed the water use objective.

- $_{\odot}$  It is very possible that a variance is applicable for Suppliers with high  $R_{i}$ -gpcd. If a variance is granted, water use may not decrease.
- High R<sub>i</sub>-gpcd in the dataset may have occurred because of incomplete separation of indoor from outdoor residential water use.
- 2. Urban retail Suppliers with estimated service area R-gpcd below the standard remain the same. This assumption means that estimated effects may be high because:
  - Similar to the above situation, a Supplier may use their lower R<sub>i</sub>gpcd to accommodate exceedance of one of the other standards, so long as their overall water use does not exceed the water use objective.
  - Low R-gpcd in the dataset may have occurred because the model underestimated the amount of outdoor water use.
- 3. Population remained the same in 2025 and 2030. This assumption means that estimated 2025 and 2030 effects may be low because averages and quantities were population-weighted.

Figures 5.3-1a to 5.3-1c show examples of the DSS tool using 157 Supplier R<sub>i</sub>-gpcd values for each assessment year (2020, 2025, or 2030), derived from the Distribution Analysis, along with the current Water Code standard for that year. Red bars highlight Suppliers that are predicted to be above the standard, with blue highlighting those below the standard. Darker shaded bars denote Suppliers with high poverty levels compared to the rest of the Suppliers (75 percent of Suppliers have lower levels of poverty compared to the Suppliers with shaded bars). The reasonably even distribution indicates any standard will not be biased towards Suppliers with high poverty levels, however, it also indicates that any standard will affect some Suppliers with high poverty levels. The DSS tool allowed for selection of any standard and computed summary information, some of which is presented in the following tables.



Figure 5.3-1a. Estimated 2020 Supplier R-gpcd (eAR Data) With Water Code 2020 Indoor Standard



Figure 5.3-1b. Projected 2025 Supplier Ri-gpcd (eAR Data) With Water Code 2025 Indoor Standard



Figure 5.3-1c. Projected 2030 Supplier R-gpcd (eAR Data) With Water Code 2030 Indoor Standard

Tables 5.3-1a to 5.3-1c summarize potential effects of the statutory standard and standards that could affect approximately 25-percent, 50-percent, and 75-percent of Suppliers on estimated Statewide average R-gpcd, water savings, and associated populations. The SAM analysis of Supplier-Level data (eAR), Values for one gpcd increments are included in Appendix H - Distribution Analysis (eAR Data) and values for two gpcd increments are included in the April 22, 2021 Working Group meeting PowerPoint presentation slides.

Compared to the expected Statewide R -gpcd averages, implementation of the Water Code standard could reduce the expected Statewide 2020-2025 average R -gpcd (50.8 gpcd) by 2.2 gpcd resulting in a potential water savings of 89,883 acre-feet per year (AFY) compared to no-standard. For 2025-2030, the Water Code standard could reduce the expected Statewide average R -gpcd (48.2 gpcd) by 2.2 gpcd, with a potential water savings of 89,522 AFY compared to no-standard. For 2030 and onward, the Water Code standard could reduce the expected Statewide R -gpcd average (46.6 gpcd) by 2.3 gpcd, with a potential water savings of 97,166 AFY compared to nostandard.

| Standard<br>Tested,<br>gpcd | New<br>Average<br>R <sub>i</sub> -gpcd | Water<br>Savings,<br>acre-feet/<br>year | Suppliers<br>Above<br>Standard,<br>% | Suppliers ><br>5 gpcd<br>Above<br>Standard,<br>% | Population<br>Above the<br>Standard,<br>% |
|-----------------------------|--|---|--------------------------------------|--|---|
| 56                          | 48.8                                   | 81,231                                  | 25                                   | 16   | 21  |
| 55                          | 48.6                                   | 89,883                                  | 27                                   | 17   | 23  |
| 48.5                        | 46.2                                   | 189,005                                 | 49                                   | 29   | 58  |
| 43                          | 42.3                                   | 352,435                                 | 76                                   | 52   | 81  |

Table 5.3-1a Potential Estimated Effects of Standards For 2020-2025

| Standard<br>Tested,<br>gpcd | New<br>Average<br>R <sub>i</sub> -gpcd | Water<br>Savings,<br>acre-feet/<br>year | Suppliers<br>Above<br>Standard,<br>% | Suppliers ><br>5 gpcd<br>Above<br>Standard,<br>% | Population<br>Above the<br>Standard,<br>% |
|-----------------------------|--|---|--------------------------------------|--|---|
| 53.5                        | 46.2                                   | 80,634                                  | 25                                   | 16   | 20  |
| 52.5                        | 46.0                                   | 89,522                                  | 27                                   | 17   | 23  |
| 46                          | 43.7                                   | 186,134                                 | 50                                   | 29   | 58  |
| 41                          | 40.2                                   | 331,227                                 | 75                                   | 50   | 78  |

Table 5.3-1b Potential Estimated Effects of Standards For 2025-2030

Table 5.3-1c Potential Estimated Effects of Standards For 2030+

| Standard<br>Tested,<br>gpcd | New<br>Average<br>R <sub>i</sub> -gpcd | Water<br>Savings,<br>acre-feet/<br>year | Suppliers<br>Above<br>Standard,<br>% | Suppliers ><br>5 gpcd<br>Above<br>Standard,<br>% | Population<br>Above the<br>Standard,<br>% |
|-----------------------------|--|---|--------------------------------------|--|---|
| 51.5                        | 44.6                                   | 83,078                                  | 25                                   | 16   | 21  |
| 50                          | 44.3                                   | 97,166                                  | 28                                   | 18   | 23  |
| 44.5                        | 42.2                                   | 181,299                                 | 50                                   | 29   | 57  |
| 39                          | 38.4                                   | 340,515                                 | 76                                   | 52   | 80  |

### 6.0 BENEFITS AND IMPACTS SUMMARY

A qualitative analysis of the benefits and impacts on water supply, wastewater, and recycled water systems was conducted through case study interviews with four utilities and prior assessments by the California Urban Water Agencies (CUWA) in 2017 (Adapting to Change; Utility Systems and Declining Flows). These utilities represent a diverse set of experiences and reflect variations in geography, source supplies, service area size, and topography, all of which may affect benefits and impacts from changing  $R_i$ -gpcd. [Refer to Appendix I - Benefits and Impacts of Changing R -gpcd, for

details on this study. Benefits are further discussed in Appendix I Section 2 and adverse impacts are presented in Section 3.]

Water and wastewater systems are interconnected; any standard's effect on R-gpcd may alter hydraulics in these systems: total volumes and velocities may be affected along with water and wastewater quality, energy use, operation and maintenance requirements, and planning and design.

Whether or not a benefit or impact will occur depends on local conditions and how much a changing standard may affect a Supplier's water use. If a Supplier service area  $R_i$ -gpcd is at or below the standard, the standard will have little to no effect on the related systems. If the Supplier service area  $R_i$ -gpcd is higher than the standard, effects will depend on the magnitude of exceedance, along with locally-specific characteristics of the system.

For an area where the existing R<sub>i</sub>-gpcd is higher than the standard, the benefits of reduced R<sub>i</sub>-gpcd are similar for water and wastewater systems because reduction in total volumes allows for reduced treatment costs and energy use, and for excess capacity to support growth or defer capital investment for expansion. However, adverse impacts vary greatly, reflecting the differences in water and wastewater system infrastructure needs and expectations.

The acknowledgment of adverse impacts under this situation is not to imply that emphasis on conservation and water use efficiency should be relaxed, or that potable water use remains the same or should increase to avoid impacts. Rather, it is to acknowledge the interconnections between water use, wastewater generation, and recycled water production, and how changes within the cycle will have implications.

Though indoor residential water use is a factor in water and wastewater flows and recycled water systems, impacts on utilities are also a function of the following factors:

• **Diverse utility characteristics and conditions**. Multiple characteristics influence a utility's vulnerability to adverse impacts, such as population served, age and condition of existing infrastructure, materials of construction, and utility rate structures.

- Magnitude of effect. If indoor residential water use is already low, overall effects of a changing standard may be minimal. Alternatively, a significant decrease in indoor residential water use to meet a changing standard may have more substantial adverse impacts.
- Other water use sectors. The COVID-19 pandemic has driven measurable increases in residential water use, along with a concurrent decrease in commercial, industrial, and institutional (CII) water use. The overall net effect for many utilities has been reduced system flows, even with increasing residential water use. During drought conditions, water use reductions are experienced in most water use sectors, which can further compound effects.

Because this study was a qualitative assessment and not intended to arrive at quantifiable thresholds for the R<sub>i</sub>-gpcd, future studies to inform a new standard will need to take site-specific factors and unique characteristics into consideration. Summaries of this qualitative assessment on benefits and adverse impacts on water and wastewater utilities and impacts on recycled water projects from reduced R<sub>i</sub>-gpcd are listed below in Tables 6-1, 6-2 a-c, and 6-3 a-c.

Public utilities across California have demonstrated their ability to adapt to adverse impacts of a changing R<sub>i</sub>-gpcd through a variety of mitigation strategies. However, these adaptations require time and money, the extent of which will depend on utility-specific characteristics.

Existing literature and utility experience demonstrate real benefits from reduced per capita indoor residential water use, as well as significant adverse impacts to water, wastewater, and recycled water systems. These benefits and adverse impacts are summarized in Appendix I Tables 5.0a and ES-2 through ES-4, respectively.

Based on the research and case study interviews, specific utility characteristics can either increase a utility's resiliency or exacerbate adverse impacts from reduced Ri-gpcd. This is summarized in Appendix I Table ES-5 and discussed further in Section 5 of Appendix I. The utility characteristics described do not represent an exhaustive list, but rather a starting point for

future research and quantifiable data collection.

The findings of this qualitative assessment are consistent with the quantitative analysis of impacts to wastewater and recycled water systems provided in the Nature Sustainability article, "Unintended consequences of water conservation on the use of treated municipal wastewater" (Shwabe et al., 2020). This Nature study found significant effects of conservation policies in 2015, 2016, and 2017 on wastewater flow and salinity, even when wastewater treatment plant characteristics, seasonal, monthly, or year-specific impacts are factored out. As expected, the magnitude of impact to the 34 southern California wastewater treatment plants analyzed was highly variable.

| Effect  | Description   | Benefit to Utility   |
|---|---|--|
| Adaptations to the effects of climate change      | Enables existing supplies to support potential<br>population growth without an immediate need for<br>water treatment plant expansion or investments in<br>supplemental supplies | Improved regional self-<br>reliance, water service<br>reliability, and cost<br>savings       |
| Decreased water<br>treatment and<br>pumping costs | Lower water demand decreases treatment chemical<br>uses and associated costs to produce drinking water,<br>and lowers energy required to pump water in<br>distribution systems  | Cost savings for water<br>utilities through reduced<br>chemical purchase and<br>energy usage |
| Deferred capital investment                       | Remaining capacity can allow for deferral of capital investment costs to expand existing water or wastewater treatment plant  | Deferred capital spent<br>for water or wastewater<br>utilities                               |
| Reduced energy<br>usage for<br>wastewater systems | Reduced water demand and wastewater production results in lower energy usage associated with reduced pumping and treatment process needs  | Cost savings from<br>reduced energy usage<br>for pumping                                     |

#### Table 6-1 Potential Benefits for Water and Wastewater Utilities from reduced $R_i\mbox{-}gpcd$

| Effect   | Description  | Potential Adaptation<br>Strategies & Impact on<br>Utility  |
|--|--|--|
| Deterioration of<br>water quality                          | Increased retention time in the water<br>distribution system creates treatment and<br>potential public health and safety implications<br>from increases in disinfectant by-product (DBP)<br>formation, microbial activity, and change in<br>aesthetic characteristics such as taste and odor | Increased operational costs from<br>flushing, additional chemical<br>usage or O&M, or possible<br>increased risk to health and<br>safety <sup>1</sup>                    |
| Stranded assets and<br>stagnation in<br>storage facilities | Reduced water demand may result in stranded<br>assets such as underused water treatment<br>plants or unused capacity in distribution<br>systems and storage facilities   | Economic impact from unused<br>assets as well as operations and<br>maintenance (O&M) labor and<br>costs to continue maintaining<br>underused infrastructure <sup>1</sup> |
| Reductions in<br>revenue from<br>reduced water sales       | Reduced water demand can result in lower total water sales, which makes it challenging for utilities to cover baseline O&M costs   | Economic impact from reduced revenue and need to increase customer rates to compensate   |

Table 6-2.a Potential Adverse Impacts for Water Utilities from reduced R<sub>i</sub>-gpcd

<sup>1</sup>Increased retention time results from systems oversized for current conditions. Utilities are updating demand projections, but there are considerations in water system sizing (e.g., peak hour, maximum day, and fire flows) that may limit a utility's ability to adapt through downsizing to match reduced water demand.

| Effect  | Description   | Potential Adaptation Strategies<br>& Impact on Utility   |
|---|---|--|
| Increased sewer gas production                            | Increasing sewer gas production such as<br>hydrogen sulfide (H <sub>2</sub> S) concentrations<br>can create public health and safety<br>impacts from increase in odor production<br>and build-up of noxious gasses  | Increased costs from increased<br>purchase of odor mitigation<br>materials and associated O&M  |
| Accelerated rate of corrosion in sewer pipes and manholes | Higher H <sub>2</sub> S concentrations accelerate the rate of corrosion in sewer pipes, especially concrete, leading to faster rate of failure  | Increased costs from additional<br>O&M and accelerated need for<br>capital improvement program (CIP)<br>projects for infrastructure<br>rehabilitation or replacement |
| Increased occurrence of sewer blockages and overflows     | Increased solids concentrations<br>exacerbate blockages in sewers, resulting<br>in clogged pipes, loss of sewer<br>serviceability, sanitary sewer overflows   | Increased costs for additional O&M<br>and public health & safety impacts<br>if unaddressed   |
| Degradation of<br>wastewater influent<br>quality          | Increasing contaminant concentrations in<br>wastewater influent such as higher<br>ammonia, biological oxygen demand<br>(BOD), and total suspended solids (TSS)<br>can stress loading-based treatment<br>processes and increase concentrations in<br>wastewater effluent | Reduced treatment capacity and<br>increased treatment costs to<br>continue meeting discharge<br>requirements   |

#### Table 6-2.b Potential Adverse Impacts for Wastewater Utilities from reduced R<sub>i</sub>-gpcd

| Effect                                     | Description  | Potential Adaptation<br>Strategies & Impact on<br>Utility   |
|--|--|---|
| Reductions in recycled<br>water quantity   | Reductions in wastewater influent<br>subsequently reduce the volumes of<br>recycled water that can be produced,<br>limiting a utility's ability to offset potable<br>reuse with recycled water | Increased reliance on potable<br>water instead of recycled water,<br>reducing regional self-reliance  |
| Deterioration of recycled<br>water quality | Changes in wastewater effluent quality<br>adversely affect recycled water quality,<br>which has downstream impacts on<br>recycled water users with specific water<br>quality criteria          | Increased costs of recycled<br>water, particularly if supply<br>needs to be supplemented with<br>potable water or if additional<br>pretreatment is needed |

### Table 6-2.c Potential Adverse Impacts for Recycled Water Projects from reduced R<sub>i</sub>-gpcd

| Adverse Impact  | Utility Characteristics   |  |
|---|---|--|
| Deterioration of water quality<br>due to increased retention                | <ul> <li>Age of infrastructure. Systems appropriately designed for higher<br/>historical flow rates can become oversized, resulting in longer<br/>retention times and higher water age. Design criteria that support<br/>higher flow rates (e.g., flat slopes, turns and pumping) may not work<br/>well for lower flow conditions and can exacerbate water quality.<br/>Older systems may also experience more corrosion and deterioration.<br/>In such systems, any changes in flow conditions may lead to water<br/>quality deterioration, including contaminant leaching.</li> </ul> |  |
| time in distribution system   | <ul> <li>Topography, size, and density of service area. Systems that serve large, flat, and low-density areas require water to travel longer, increasing the potential for longer distribution system retention times.</li> <li>Infrastructure material. Systems with pipes made of iron, lead, copper and other metals may be more susceptible to problematic metal release from increased retention time.</li> </ul>  |  |
| Stranded assets and<br>stagnation challenges from<br>reduced water quantity | <ul> <li>Magnitude of change from initial design parameters. Similar to<br/>the above, water treatment plants and storage facilities sized for<br/>historically greater water demands may become oversized, resulting<br/>in water stagnation or excess infrastructure that could exist as<br/>stranded assets.</li> </ul>  |  |

Table 6-3.a Water Utility Characteristics that can Contribute to Adverse Impacts from reduced R<sub>i</sub>-gpcd

Reductions in revenue from reduced water sales

 Rate structure. Utilities with rate structures tied to volumetric use may experience more financial volatility as customers reduce water use.

Table 6-3.b Wastewater Utility Characteristics that can Contribute to Adverse Impacts from reduced  $R_i\mathchar{-}gpcd$ 

| Adverse Impact  | Utility Characteristics   |
|---|---|
| <ul> <li>Age of infrastructure. Utilities with older infrastructure may more susceptible to odor, leakage, and accelerated corrosion pipelines have deteriorated and corroded over time.</li> <li>Increase in odors and accelerated corrosion from higher sewer gas concentrations</li> <li>Infrastructure material. Sewer systems constructed of ma sensitive to corrosion, such as concrete, will experience adverted adverted and concrete.</li> </ul> |   |
| Increase occurrence of sewer blockages and overflows  | <ul> <li>Pipeline diameters. Pipelines with smaller diameters are more easily clogged and thus more susceptible to sanitary sewer blockages and associated overflows.</li> <li>Conveyance system design parameters. Pipelines with more flow constraint conditions (turns, material roughness, use of lift stations, and other features) may be more susceptible to blockages.</li> </ul> |

Impacts on wastewater effluent quality and increased chemical use from degradation of wastewater influent quality

- Customer demographic. Utilities with large percentages of residential customers will experience larger changes in both wastewater quality and quantity.
- Wastewater Treatment Plant (WWTP) treatment process.
   WWTPs that use treatment processes that have loading limitations, such as activated sludge, nutrient removal, and biosolids handling, will be more sensitive to increasing loads in influent wastewater.
  - National Pollutant Discharge Elimination System (NPDES) permit requirements and discharge point. WWTPs that discharge into sensitive water bodies with strict NPDES discharge limits may require more operational adjustments and may struggle to maintain margins of safety that enable consistent compliance with effluent requirements.

| Adverse Impact   | Utility Characteristics  |
|--|--|
| Deterioration in recycled<br>water quality from worsened<br>wastewater effluent quality          | <ul> <li>Customer demographic and end-uses. Systems that serve customers that require high water quality (e.g., industrial processes, golf courses, or potable reuse) could be more susceptible to the impacts of increasing concentrations in wastewater effluent.</li> <li>Existing or planned investments. Changes in wastewater quality will more greatly impact projects that are actively in design or construction phases.</li> </ul> |
| Limiting the offset of potable<br>use from reductions in<br>recycled water production<br>volumes | <ul> <li>Water supply source. Utilities that use recycled water to supplement a sensitive or scarce source supply will be more impacted by reductions in recycled water production.</li> <li>Discharge requirements. Production of recycled water could be limited where WWTP's must continue to discharge a minimum flow to the receiving water body.</li> </ul>  |

Table 6-3.c Recycled Water Utility Characteristics that can Contribute to Adverse Impacts

## 7.0 KEY ANALYSIS CONSIDERATIONS AND LIMITATIONS

The scope of the study and analysis was limited by data availability and provides a best estimate of  $R_{i-}$ gpcd. In calculating  $R_{i}$ -gpcd, disaggregating indoor water use from total residential water use has many challenges, some of which are discussed below.

#### 7.1 Data Limitations

#### 7.1.1 Population Data

The indoor residential water use standard is developed on a per-person basis, meaning accurate population counts are essential for determining a more accurate R<sub>i</sub>-gpcd. The most defensible population estimates would have come from the 2020 census; however, that data was not available until March 31, 2021 and is not included in the scope of this study.

#### 7.1.2 Data Quality and Quantity

R<sub>i</sub>-gpcd is inferred based on models which include: monthly customer-level data used to develop the Central Tendencies Analysis results and aggregate monthly data used to develop the Distribution Analysis results. Aggregate monthly data was gathered from 157 of the 408 Suppliers from the annual eAR data submitted to the State Water Board.

- Monthly data disaggregation methods used to infer indoor residential water use from monthly billing data work best where winter outdoor water use is minimal; that is not the case for many Suppliers.
- Estimated R -gpcd using monthly aggregated data for an entire service area does not produce as accurate an estimate as does using customer-level data.
- A prerequisite to using the LAM and RAM methods are acquiring customer-level billing data and parcel-level measurements of landscape areas. These methods also require the ability to work with large, customer-level datasets. Only the least robust disaggregation

method, SAM, can be used with eAR Supplier-level monthly data; while the results are informative, they are imprecise.

- There are known input errors with the eAR data. While obvious errors can be resolved, unobvious errors cannot. After careful screening, 157 of the 408 Suppliers (38% of all Suppliers) reporting eAR data could be used in the Distribution Analysis.
- R-gpcd error and confidence intervals can <u>only</u> be developed from customer-level data. These intervals are unknown for the Distribution Analysis estimates.
- Projected 2030 Ri-gpcd estimates are based on assumptions of turnover and development at the county-level and may not reflect individual service area conditions.
- The analysis of multi-family R<sub>i</sub>-gpcd estimates are limited because of the unknown number of dwelling units associated with each connection. Multi-family R<sub>i</sub>-gpcd cannot be inferred from the eAR data because of populations in group quarters, residences served by commercial meters, and because meter misclassification may result in inaccurate residential water use volumes.
- Additional service areas for the customer-level analysis is warranted to characterize the diversity of Supplier service areas within California.

#### 7.2 Unknown Efficiency and Efficiency Improvement Capability

Low or high estimates of R<sub>i</sub>-gpcd derived from hourly, monthly, or aggregate Supplier data cannot be associated with efficient or inefficient household water use without a comprehensive End-Use study. Without knowing why a household's water use is low or high, it cannot be conclusively stated that indoor residential water use is efficient or inefficient. Reasoning for this can range from issues with the data provided, the analysis method not being suitable to the Supplier's situation, or other factors that may warrant a variance.

#### 7.3 Potential Sector Water Use Shift

The majority of this study was conducted using pre-pandemic data but some water use data were collected during 2020. It is recognized that the increase in population at home due to stay-at-home orders may affect indoor residential water use. Several studies from across the globe have reported changes in residential water use that have resulted from increased work-at-home.<sup>30</sup>

During the statewide shelter-in-place orders in March 2020, indoor residential water use increased by approximately 3.0 to 12.2 gpcd from the limited analysis of six Suppliers in the Department's study. An analysis presented by Flume in early 2021 showed the dramatic impact of COVID-19 on water use by comparing indoor gpcd for every day of the year in 2019 to 2020. While not a representative sample of all California, this analysis shows how much indoor residential water use veered from a typical year versus 2020.<sup>31</sup> Significantly, the lingering impacts of COVID-19 are not known.

This increase in indoor residential water use due to COVID-19 is important because there is no CII indoor water use standard. When water use shifts from a sector for which there is no standard (CII) to a sector where there is a standard (indoor residential), this could affect a Supplier's ability to meet their water use objective even if their overall water use declines. The persistence of this increase and associated effects on CII and overall water use objectives is currently unknown.

<sup>&</sup>lt;sup>30</sup> "The average US home used nearly 729 additional gallons of water in April than it did in February, according to a new study from water-monitoring company Phyn".<u>https://www.techrepublic.com/article/us-home-water-use-up-21-daily-during-covid-19-</u>

<sup>&</sup>lt;u>crisis/?mc\_cid=203b67e30d&mc\_eid=c3757b1ab4</u>; Abu-Bakar, H. et. Al. 2021. Quantifying the impact of the COVID-19 lockdown on household water consumption patterns in England. npj Clean Water (2021) 4:13; https://doi.org/10.1038/s41545-021-00103-8

<sup>&</sup>lt;sup>31</sup> Flume. 2021. Diving Deep Into Water Use Trends in 2020. Webcast - https://youtu.be/GqJrfP45w5Q

# 7.4 Unknown Effect on Affordability of Water and Human Right to Water

The studies did not analyze potential economic impacts. Implementation of programs to accelerate water conservation will cost money, which comes from the State (taxpayers) or customers (rate-payers). Some Suppliers are already struggling with lost revenue because of unrecoverable customer bills exacerbated by economic conditions arising from the pandemic. However, water use efficiency is often less expensive than developing new water supplies and may help to ensure equitable and affordable access to water.

#### 7.5 Benefits and Impacts on Other Water Sectors

Water supply, wastewater, and recycled water systems could all be affected by changes to indoor residential water use standards. Public utilities can and will adapt to changing standards. However, planning and investments for changes in infrastructure and facilities take time and money. Quantification of specific benefits and impacts will depend on magnitude of change, utility of specific conditions and characteristics, and how the COVID-19 pandemic shifts where and how water is used. Quantitative benefit and impact analyses were not conducted for this study.

#### 7.6 Implementation of Best Practices

Locally cost-effective programs still require initial investment for implementation which takes time. Suppliers may be limited in what more they can do or achieve and how quickly they can implement programs (see Section 6.2, above). For example, leaks cannot be completely eliminated, and appliances and fixtures can be efficient, but over time they may lose efficiency. Furthermore, many conservation practices are implemented by customers and there may be behavioral, cultural, or financial barriers to implementation.

For example, Metropolitan Water District of Southern California has continued to promote indoor incentives for its member agencies' residential customers through rebate programs. Since the drought ended in 2016, the uptake of rebates by residential customers has dramatically declined (Figure 7.6-1). It is unknown whether this reduction is because of reduced interest, saturation of the area with efficient appliances, economic conditions that
limit the ability of customers to contribute their cost-share, reduction in education and outreach programs by member agencies, or other factors. It is also unknown whether or not uptake can be increased to accommodate a changing standard.



Figure 7.6-1. Data for the Metropolitan Water District Incentive Program, Residential Installed Units (as of 12/14/2020)

## 8.0 RECOMMENDATIONS

The proposed joint recommendations for the indoor residential water use standards were presented at the April 22, 2021 Water Use Studies Working Group meeting for consideration and feedback from stakeholders. Table 8-1 lists the current standards in statute, the proposed standards in Assembly Bill 1434 (AB 1434, Freidman, as of April 26, 2021) for context, and the Department and State Water Board proposed joint recommendations.

| Starting<br>Year | Current<br>Statute | AB<br>1434 | Joint DWR and Water Board<br>Proposed Recommendation |
|------------------|--------------------|------------|--|
| 2020             | 55                 | 48         | 55   |
| 2025             | 52.5               | 45         | 47   |
| 2030             | 50                 | 40         | 42   |

Table 8-1. Comparison of Indoor Residential Water Use Standards (gpcd)

#### **Rationale for Selecting the Proposed Joint Recommendations**

Based on available information, the Department and State Water Board jointly believe the proposed recommendations reflect:

- That Californians have become more efficient over time. The current median water use of 48 gpcd is well below the 2020 standard in statute.<sup>32</sup>
- Efficient use.<sup>33</sup>
- Best practices.<sup>34</sup>
- That water use efficiency is often less expensive than developing new water supplies and may help to ensure equitable and affordable access to water.<sup>35</sup>

<sup>&</sup>lt;sup>32</sup> The Department and the State Water Board's joint recommendations draw from the most robust analysis of indoor residential water use in California to date. See Appendix H.

 <sup>&</sup>lt;sup>33</sup> See the discussion of efficient indoor residential water use in Appendix J.
 <sup>34</sup> See the discussion of best practices Section 1.8 and Appendix J.

<sup>&</sup>lt;sup>35</sup> Water conservation programs have been shown to mitigate rate increases (Lee et al., 2011; Feinglas et al., 2013; Chesnutt et al., 2018). In some cases rate increases have disproportionately impacted lower income households (Mini et al., 2014 a,b).

- That water use efficiency reduces greenhouse gas emissions<sup>36</sup> and improves the resilience of urban areas to future water supply challenges.
- The need for a reasonable path to a feasible and impactful 2030 standard.
  - This standard recognizes the efforts, investments, and conservation achievements already made by California suppliers and their customers.
  - The overall water use objective is calculated by combining the indoor residential standard, the outdoor residential standard, the large landscape areas (CII) standard, the water loss standard, variances,<sup>37</sup> and a bonus incentive.<sup>38</sup> Suppliers retain discretion for how they will meet their overall water use objective.
  - Half of suppliers are on track to be at or below 44 gpcd by 2030 with passive conservation only. Estimates of Supplier water use are expected to be even lower when including active conservation.
  - Suppliers have time to plan, develop partnerships and programs, and support conservation as a way of life.

The Department and State Water Board recognize there are many factors affecting residents, suppliers, and related water utilities (wastewater and recycled water).

<sup>&</sup>lt;sup>36</sup> During the last drought, water conservation saved as much energy as all the energy efficiency initiatives offered by the state's major investor-owned utilities (Spang et al., 2018)

<sup>&</sup>lt;sup>37</sup> Those suppliers that struggle to meet their objective specifically because of a unique circumstance that materially affects indoor residential water use rates (e.g., extensive use of evaporative coolers) may request a variance.
<sup>38</sup> For the amount of potable recycled water used the previous year.

### 2020: 55 gpcd (No Change in the Current Statute)

Our agencies do not recommend changing the 2020 standard. This is because a 2020 standard would be in effect for only one year (2024). In addition, this reflects our recognition of the financial strain the pandemic has created for many suppliers.

## 2025: 47 gpcd (5.5 gpcd Less than the Current Statute)

To assess the suitability of standards, it is important to estimate what water use will be in the future. When estimating future water use, it is informative to consider trends in water use over time. The main trend has been declining indoor residential water use at a rate of approximately 0.4 to 0.9 percent per year<sup>39</sup>. The lower end of this range reflects passive conservation and the higher end of this range reflect both active and passive conservation, where:

- "Active" conservation measures such as education and outreach, residential and commercial water audits, and rebates.
- "Passive" water use reductions such as those driven by plumbing codes, SB 407, and turnover given the expected lifetime of fixtures and appliances.

By 2025, 54 percent of Suppliers would be below the recommended standard of 47 gpcd considering only passive conservation. If indoor residential water use continues dropping with active conservation efforts, the number of suppliers below the 2025 recommended standard of 47 gpcd could be even higher. As noted above, suppliers retain discretion for how they will meet their overall water use objective. They may also be eligible for the bonus incentive or to pursue variances.

## 2030: 42 gpcd (8 gpcd Less than the Current Statute)

From 2030 onward, the Department and the State Water Board recommend an indoor residential standard of 42 gpcd. As with the recommendation for

<sup>&</sup>lt;sup>39</sup>Refer to Appendix F and the Residential End Use in United States, Version 2, which shows that indoor residential use decreased 15% between 1999 and 2016, suggesting a 0.9% per year decline (De Oreo et al., 2016).

the 2025 standard, the 2030 recommendation takes into consideration future use.

By 2030, 39 percent of Suppliers would be below the recommended standard of 42 gpcd considering only passive conservation. If indoor residential water use continues dropping with active conservation efforts, the number of suppliers below the 2030 recommended standard of 42 gpcd could be even higher. As noted above, suppliers retain discretion for how they will meet their overall water use objective. They may also be eligible for the bonus incentive or to pursue variances.

## Stakeholder Suggestions for More Successful Local Implementation

During public engagement, stakeholders suggested State policies, assistance, and investments that could facilitate improved local implementation of indoor residential water use efficiency programs and support the State's achievement of its water conservation goals. In general, the Department supports these suggestions – summarized below – and urges the Legislature to consider them when adopting new indoor water use efficiency standards.

#### **Financial Assistance**

Some suppliers indicated that reducing indoor residential water use beyond current levels will require investment in incentive programs, leak repairs, and other strategies beyond their financial capacity. Employing these strategies to improve indoor efficiency in disadvantage or underserved populations or smaller urban retail water suppliers with limited capacity may be especially challenging. State financial incentives intended to leverage local – and in some cases Federal – funds would help achieve water efficiency objectives.

#### Enforcement of Plumbing Code Indoor Residential Efficiency Requirements (SB 407)

State mechanisms to encourage enforcement of indoor residential water use efficiency requirements such as providing funding to support local programs that incentivizes the plumbing fixture replacements or requiring local agencies to inspect the properties at the time of property transfer, in the plumbing code (SB 407) would help water suppliers achieve more efficient water use. SB 407 requires all residences and commercial properties to have efficient showerheads, faucets, and toilets, but enforcement is variable at best.

#### **Statewide Messaging**

Consistent public messaging on the importance of and, in many cases, ease of water use efficiency practices is critical to broad adoption. Strong public messaging is also an essential element in local water rate decision-making (e.g. Proposition 218 elections). Consistent and robust statewide messaging on the importance and value of water use efficiency would help augment the impact of local informational campaigns.

#### **End Use Studies**

Customer-level end-use studies would provide valuable information to local suppliers and wastewater and recycled water managers. Such studies would build upon the information gathered and assessed by the Department and would provide further insights into where investments would result in the biggest efficiency gains (new appliances vs leak detection, for example). Such studies would also help wastewater and recycled water managers make more informed long-term planning decisions in subsequent phases of facility improvements and distribution infrastructure.

## **REFERENCES:**

"California Drought". <u>www.drought.gov</u>. Retrieved 2020-04-22.

Chesnutt, T., Pekelney, D., Spacht, J.M. (2018). *Lower Water Bills: The City* of Los Angeles Shows How Water Conservation and Efficient Water Rates *Produce Affordable and Sustainable Use*. Accessed through <u>https://www.allianceforwaterefficiency.org/sites/www.allianceforwaterefficie</u> <u>ncy.org/files/highlight\_documents/LADWP\_Rates\_Conservation\_August\_201</u> <u>8.pdf</u>

DeOreo, W. B., Mayer, P. W., Martien, L., Hayden, M., Funk, A., Kramer-Duffield, M., & Davis, R. 2011. (Rep.). *California Single Family Water Use Efficiency Study* Prepared April 20, 2011. 20. Retrieved June & July, 2020, from CA Department of Water Resources website:

https://cawaterlibrary.net/document/california-single-family-water-useefficiency-study/

DeOreo, W., & Hodgins, M. 2016. *Residential End Uses of Water, v2* (Rep. No. 4309). Water Research Foundation. Denver, Colorado.

DeOreo, W.B., P. Mayer, J. Kiefer, and B. Dziegielewski. 2016. *Residential End Uses of Water (REUWS)*, Version 2. Water Research Foundation. Denver, CO.

Feinglas, S., Gray, C., Mayer, P. (2013). *Conservation Limits Rate Increases for a Colorado Utility: Demand Reductions Over 30 Years Have Dramatically Reduced Capital Costs*. Accessed through

https://www.allianceforwaterefficiency.org/sites/www.allianceforwaterefficiency.org/files/highlight\_documents/AWE-Colorado-Article-FINAL-%28Ver7%29.pdf

Flume. 2021. *Diving Deep Into Water Use Trends in 2020*. 2021. Wecast. Available at: <u>https://youtu.be/GqJrfP45w5Q</u>. Accessed April 9, 2021.

Mayer, P. W., & DeOreo, W. B. (n.d.). *Residential End Uses of Water* (Rep.). Retrieved June & July, 2020, from AWWA Research Foundation website: <u>https://www.waterdm.com/sites/default/files/WRF</u> (1999) Residential End Uses of Water.pdf Mayer, P.W., W.B. DeOreo, et. al. 1999. *Residential End Uses of Water*. American Water Works Association Research Foundation, Denver, CO.

Mayer, P.W., Martien, L., Hayden, M., Funk, A., Kramer-Duffield, M., Davis, R., Henderson, J., et al. *California Single Family Water Use Efficiency Study*. (2011).

Mini C., Hogue T. S., and Pincetl, S. (2014). Patterns and controlling factors of residential water use in Los Angeles, California. *Water Policy*, 16: 1054–1069.

Mini C., Hogue T. S., and Pincetl, S. (2014). The effectiveness of water conservation measures on summer residential water use in Los Angeles, California. *Resources, Conservation and Recycling*, 94: 136-145

Mitchell, David M. 2016. M.Cubed Technical Memo to Peter Brostrom, DWR *Re: Projected Statewide and County-Level Effects of Plumbing Codes and Appliance Standards on Indoor gpcd*. Prepared for DWR and SWB, August 30, 2016.

Schwabe, K., M. Nemati, R. Amin, Q. Tran, and D. Jassby. 2020. Unintended consequences of water conservation on the use of treated municipal wastewater. *Nature Sustainability*: Articles <u>https://doi.or/10.1038/s41893-020-0529-2</u>, May 11, 2020. Available at: <u>www.nature.com/natsustain</u>

Spang, E. S., Holguin, A. J., & Loge, F. J. (2018). The estimated impact of California's urban water conservation mandate on electricity consumption and greenhouse gas emissions. *Environmental Research Letters*, 13(1), 014016

State of CA, CNRA, Department of Water Resources. 2017. *Status of 2015 Urban Water Management Plans*, A report to the Legislature pursuant to Section 10644 and 10608.42 of the California Water Code. Prepared August 2017.

# Attachment L

(Phase 2 Direct Testimony of Stephanie L. Locke)

#### Cal-Am Residential Per Capita Water Use (Gallons per Capita per Day - GPCD) As Reported Monthly to State Water Board

|   |           |            | REPORTED           |             | CALCULATED       |            |             |
|---|-----------|------------|--------------------|-------------|------------------|------------|-------------|
|   |           |            | <b>FINAL</b> Total | FINAL       | Total Potable    |            |             |
|   |           | Total      | Potable            | Percent     | Water Production | MPWMD      | CAL-AM      |
|   | Reporting | Population | Water              | Residential | Gallons (Ag      | CALCULATED | REPORTED R- |
| Supplier Name                                       | Month     | Served     | Production         | Use         | Excluded)        | R-GPCD     | GPCD        |
| California-American Water Company Monterey District | Apr-22    | 91,884     | 736.62             | 66          | 240,028,363.62   | 57.4705    | 57.5003     |
| California-American Water Company Monterey District | Mar-22    | 91,884     | 753.96             | 67.74       | 245,678,619.96   | 58.4266    | 58.4298     |
| California-American Water Company Monterey District | Feb-22    | 91,884     | 679.34             | 69          | 221,363,618.34   | 59.3687    | 59.3390     |
| California-American Water Company Monterey District | Jan-22    | 91,884     | 616.00             | 70          | 200,724,216.00   | 49.3283    | 49.3284     |
| California-American Water Company Monterey District | Dec-21    | 91,884     | 594.11             | 69          | 193,591,337.61   | 46.8957    | 46.8871     |
| California-American Water Company Monterey District | Nov-21    | 91,884     | 646.57             | 68          | 210,685,481.07   | 51.9735    | 52.0082     |
| California-American Water Company Monterey District | Oct-21    | 91,884     | 765.07             | 67          | 249,298,824.57   | 58.6399    | 58.6346     |
| California-American Water Company Monterey District | Sep-21    | 91,884     | 842.90             | 67          | 274,659,807.90   | 66.7588    | 66.7668     |
| California-American Water Company Monterey District | Aug-21    | 91,884     | 898.17             | 65          | 292,669,592.67   | 66.7866    | 66.7741     |
| California-American Water Company Monterey District | Jul-21    | 91,884     | 868.22             | 65          | 282,910,355.22   | 64.5596    | 64.5433     |
| California-American Water Company Monterey District | Jun-21    | 91,884     | 866.82             | 66          | 282,454,163.82   | 67.6287    | 67.6428     |
| California-American Water Company Monterey District | May-21    | 91,884     | 838.20             | 69          | 273,128,308.20   | 66.1629    | 66.1472     |
| California-American Water Company Monterey District | Apr-21    | 91,884     | 777.86             | 70          | 253,466,458.86   | 64.3661    | 64.3778     |
| California-American Water Company Monterey District | Mar-21    | 91,884     | 670.93             | 73          | 218,623,211.43   | 56.0296    | 56.0355     |
| California-American Water Company Monterey District | Feb-21    | 91,884     | 586.85             | 75          | 191,225,659.35   | 55.7455    | 55.7598     |
| California-American Water Company Monterey District | Jan-21    | 91,884     | 610.68             | 79          | 198,990,688.68   | 55.1897    | 55.2187     |
| California-American Water Company Monterey District | Dec-20    | 91,884     | 673.54             | 72          | 219,473,682.54   | 55.4771    | 55.5150     |
| California-American Water Company Monterey District | Nov-20    | 91,884     | 744.36             | 68          | 242,550,450.36   | 59.8342    | 59.8054     |
| California-American Water Company Monterey District | Oct-20    | 91,884     | 858.74             | 68          | 279,821,287.74   | 66.8018    | 66.8221     |
| California-American Water Company Monterey District | Sep-20    | 91,884     | 843.07             | 69.5        | 274,715,202.57   | 69.2638    | 69.2581     |
| California-American Water Company Monterey District | Aug-20    | 91,884     | 920.05             | 70          | 299,799,212.55   | 73.6762    | 73.6722     |
| California-American Water Company Monterey District | Jul-20    | 91,884     | 922.99             | 71          | 300,757,214.49   | 74.9675    | 74.9684     |
| California-American Water Company Monterey District | Jun-20    | 91,884     | 839.39             | 76          | 273,516,070.89   | 75.4111    | 75.3762     |

California-American Water Company Monterey District California-American Water Company Monterey District

| May-20 | 91,884 | 811.35 | 78    | 264,379,208.85 | 72.3970 | 72.3658 |
|--------|--------|--------|-------|----------------|---------|---------|
| Apr-20 | 91,884 | 601.73 | 79    | 196,074,322.23 | 56.1936 | 56.2189 |
| Mar-20 | 91,884 | 666.94 | 65    | 217,323,065.94 | 49.5927 | 49.5972 |
| Feb-20 | 91,884 | 649.99 | 64    | 211,799,891.49 | 50.8707 | 50.8716 |
| Jan-20 | 91,884 | 628.16 | 79    | 204,686,564.16 | 56.7695 | 56.7551 |
| Dec-19 | 91,884 | 594.22 | 67    | 193,627,181.22 | 45.5449 | 45.5281 |
| Nov-19 | 91,884 | 784.47 | 62    | 255,620,333.97 | 57.4945 | 57.4601 |
| Oct-19 | 91,884 | 881.06 | 65    | 287,094,282.06 | 65.5143 | 65.5100 |
| Sep-19 | 91,884 | 869.91 | 65    | 283,461,043.41 | 66.8414 | 66.8484 |
| Aug-19 | 91,884 | 950.63 | 64    | 309,763,736.13 | 69.6000 | 69.6271 |
| Jul-19 | 91,884 | 954.57 | 59    | 311,047,589.07 | 64.4284 | 64.4575 |
| Jun-19 | 91,884 | 861.31 | 65.4  | 280,658,724.81 | 66.5879 | 66.5640 |
| May-19 | 91,884 | 800.72 | 48    | 260,915,412.72 | 43.9683 | 43.9837 |
| Apr-19 | 91,884 | 709.60 | 66    | 231,223,869.60 | 55.3625 | 55.3938 |
| Mar-19 | 91,884 | 635.55 | 67    | 207,094,603.05 | 48.7127 | 48.7472 |
| Feb-19 | 91,884 | 571.71 | 67    | 186,292,275.21 | 48.5145 | 48.5392 |
| Jan-19 | 91,884 | 620.22 | 67    | 202,099,307.22 | 47.5377 | 47.5209 |
| Dec-18 | 91,884 | 633.41 | 68    | 206,397,281.91 | 49.2733 | 49.2414 |
| Nov-18 | 91,884 | 755.53 | 65.52 | 246,190,206.03 | 58.5172 | 58.5537 |
| Oct-18 | 91,884 | 841.15 | 62.88 | 274,089,568.65 | 60.5067 | 60.4960 |
| Sep-18 | 91,884 | 889.23 | 68.53 | 289,756,484.73 | 72.0365 | 72.0180 |
| Aug-18 | 91,884 | 941.25 | 60.97 | 306,707,253.75 | 65.6506 | 65.6332 |
| Jul-18 | 91,884 | 943.38 | 62.35 | 307,401,316.38 | 67.2885 | 67.2614 |
| Jun-18 | 91,884 | 874.12 | 66    | 284,832,876.12 | 68.1982 | 68.1889 |
| May-18 | 91,884 | 828.41 | 63    | 269,938,226.91 | 59.7040 | 59.6745 |
| Apr-18 | 91,884 | 682.37 | 64    | 222,350,946.87 | 51.6247 | 51.5968 |
| Mar-18 | 91,884 | 652.06 | 66    | 212,474,403.06 | 49.2322 | 49.2277 |
| Feb-18 | 91,884 | 672.81 | 67    | 219,235,811.31 | 57.0937 | 57.1099 |
| Jan-18 | 91,884 | 680.01 | 68    | 221,581,938.51 | 52.8983 | 52.8976 |
| Dec-17 | 91,884 | 740.15 | 72    | 241,178,617.65 | 60.9635 | 60.9512 |
| Nov-17 | 91,884 | 717.12 | 66    | 233,674,269.12 | 55.9492 | 55.9399 |
| Oct-17 | 91,884 | 901.05 | 64    | 293,608,043.55 | 65.9700 | 65.9664 |
| Sep-17 | 91,884 | 902.26 | 63    | 294,002,323.26 | 67.1939 | 67.1747 |
| Aug-17 | 91,884 | 955.99 | 60    | 311,510,297.49 | 65.6179 | 65.6186 |
|        |        |        |       |                |         |         |

| California-American Water Company Monterey District | Jul-17 | 91,884 | 962.45 | 63 | 313,615,294.95 | 69.3643 | 69.3320 |
|---|--------|--------|--------|----|----------------|---------|---------|
| California-American Water Company Monterey District | Jun-17 | 91,884 | 877.98 | 64 | 286,090,660.98 | 66.4236 | 66.4252 |
| California-American Water Company Monterey District | May-17 | 91,884 | 860.53 | 65 | 280,404,561.03 | 63.9878 | 64.0228 |
| California-American Water Company Monterey District | Apr-17 | 91,884 | 645.32 | 66 | 210,278,167.32 | 50.3474 | 50.3225 |
| California-American Water Company Monterey District | Mar-17 | 91,884 | 652.62 | 67 | 212,656,879.62 | 50.0210 | 50.0502 |
| California-American Water Company Monterey District | Feb-17 | 91,884 | 580.70 | 66 | 189,221,675.70 | 48.5419 | 48.5671 |
| California-American Water Company Monterey District | Jan-17 | 91,884 | 623.95 | 68 | 203,314,731.45 | 48.5374 | 48.5413 |
| California-American Water Company Monterey District | Dec-16 | 91,884 | 646.27 | 68 | 210,587,725.77 | 50.2736 | 50.2527 |
| California-American Water Company Monterey District | Nov-16 | 91,884 | 669.59 | 68 | 218,186,571.09 | 53.8240 | 53.8570 |
| California-American Water Company Monterey District | Oct-16 | 91,884 | 825.95 | 68 | 269,136,633.45 | 64.2510 | 64.2550 |
| California-American Water Company Monterey District | Sep-16 | 91,884 | 909.08 | 65 | 296,224,627.08 | 69.8511 | 69.8451 |
| California-American Water Company Monterey District | Aug-16 | 91,884 | 944.37 | 63 | 307,723,908.87 | 68.0613 | 68.0347 |
| California-American Water Company Monterey District | Jul-16 | 91,884 | 945.61 | 64 | 308,127,964.11 | 69.2324 | 69.2611 |
| California-American Water Company Monterey District | Jun-16 | 91,884 | 911.78 | 62 | 297,104,424.78 | 66.8251 | 66.8413 |
|   |        |        |        |    | Average GPCD:  | 59.9148 | 59.9149 |

#### Notes:

Includes only the following Public Water Systems: CA2710004, CA2701466, CA2701882, CA2710022 which are the Cal-Am Main, Ryan Ranch, Bishop, and Hidden Hills systems