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Central Basin Municipal Water District Drought Response Plan

Prepared for:

Central Basin Municipal Water District

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June 2015

EKI B50028.00

Consulting engineers and scientists

CENTRAL BASIN MUNICIPAL WATER DISTRICT
DROUGHT RESPONSE PLAN

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1. INTRODUCTION

The last few years have brought record high temperatures and record low precipitation and snowpack to California. 2013 was California's driest year on record. 2014 was dry too, but also the warmest on record[1]. Well into 2015, more than two-thirds of California remains in "extreme" drought, with more than 40 percent of the state in "exceptional" drought, the most extreme category according to the United States Drought Monitor (see Figure 1).

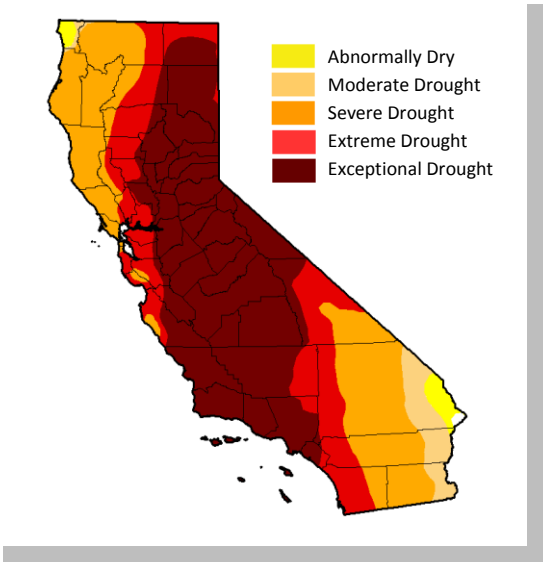

Figure 1: Most of California is in an Extreme or Exceptional Drought (http://droughtmonitor.unl.edu/)

On 1 April 2015, Governor Brown issued the fourth in a series of Executive Orders regarding actions necessary to address California's severe drought conditions. Executive Order B-29-15 (Appendix A) directed the State Water Resources Control Board (SWRCB) to impose the first ever mandatory restrictions on urban water suppliers to achieve a statewide 25 percent (%) reduction in potable urban water usage through February 2016. The Executive Order also requires commercial, industrial, and institutional (CII) users to implement water efficiency measures, prohibits irrigation with potable water of ornamental turf in public street medians, and prohibits irrigation with potable water outside newly constructed homes and buildings that is not delivered by drip or microspray systems, along with numerous other directives.

On 5 May 2015 the SWRCB adopted Resolution 2015-0032 (Resolution, Appendix B) that mandates minimum actions by water suppliers and their customers to conserve water supplies into 2016 and assigns a mandatory water conservation savings goal to each water supplier based on their residential water use (measured in gallons per capita per day , or "R-GPCD"). The Office of Administrative Law approved the regulations and modified the California Water Code (CWC) on 18 May 2015.

The mandatory conservation standards included in CWC Section 865(c) range from 8% for suppliers with an R-GPCD below 65 GPCD, up to 36% for suppliers with an R-GPCD or greater than 215 GPCD. As with previous emergency drought regulations adopted by the SWRCB in 2014, the new water conservation regulation is primarily intended to reduce outdoor urban water use.

[1] http://blogs.kqed.org/science/2015/03/31/record-low-sierra-snowpack-will-drive-home-drought-impacts/

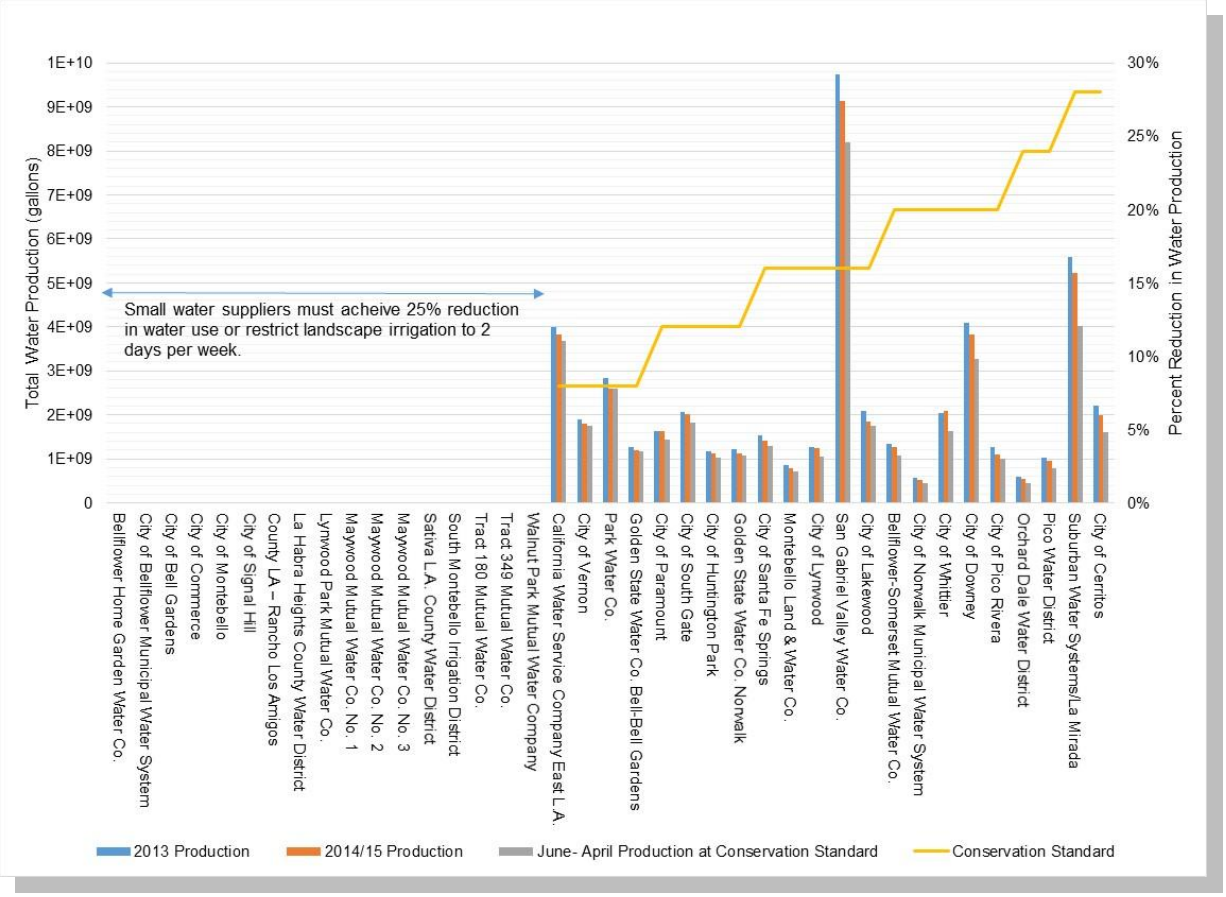

Figure 2: Central Basin Retail Agencies – Potable Water Production and Water Conservation Standards (www.waterboard.ca.gov)

The Central Basin Municipal Water District (Central Basin), as a wholesale water agency, is not directly impacted by the SWRCB regulations. However, as shown above in Figure 2, its Retail Agencies that meet the definition of urban water supplier per CWC Section 10617 are required to achieve water savings of between 8% and 28%. This equates collectively to a need to save approximately 10.06 billion gallons (30,900 acre-feet, AF) or 17% compared to 2013 water use between June 2014 and April 2015. The remaining smaller water suppliers that purchase water from Central Basin will need to either achieve a 25% savings relative to 2013 water use or restrict landscaping irrigation to no more than two (2) days per week.

In order to assist the Retail Agencies with responding to the SWRCB regulations and conservation mandates, Central Basin has developed this Drought Response Plan and an associated Drought Response Tool and provided them to its Retail Agencies.

Section 2 of this document presents an overview of Central Basin and its service area, and the actions that Central Basin has historically taken to increase water use efficiency within its service area.

Section 3 summarizes the mandatory water use restrictions that the SWRCB has adopted and that must be included as prohibited actions in an agency's drought response plan.

Section 4 presents a summary of the key actions that constitute Central Basin's Drought Response Initiative.

Section 5 presents a summary of the Drought Response Tool that has been provided in electronic format to the Retail Agencies to assist them, as applicable, in developing, implementing and tracking their individual drought response action and plans.

Section 6 presents a discussion of key issues that the Retail Agencies may choose to consider as part of developing, implementing and tracking their individual drought response plans, including a case study example.

Section 7 lists the key references that supported the development of this document and the associated Drought Response Tool.

2. BACKGROUND

This section briefly summarizes the history of Central Basin Municipal Water District and the prior drought and conservation actions that have been taken by Central Basin to the benefit of Retail Agencies and their customers. The information in this section is primarily from the Central Basin 2010 Urban Water Management Plan (UWMP) and the 2011 Water Use Efficiency Master Plan (WUEMP).

2.1 Central Basin History and Service Area

Central Basin was established by a vote of the people in 1952 to protect the Central Groundwater Basin from over pumping. Central Basin joined the Metropolitan Water District (MWD) in 1954 to purchase, on a wholesale level, potable water imported from the Colorado River for groundwater recharge and resale to 26 municipalities, investor-owned and mutual water companies and water districts, per the schematic shown in Figure 3. Central Basin also supplies recycled water to the region for municipal, commercial and industrial use. The Central Basin service area covers approximately 227 square miles and includes a population of about 2 million.

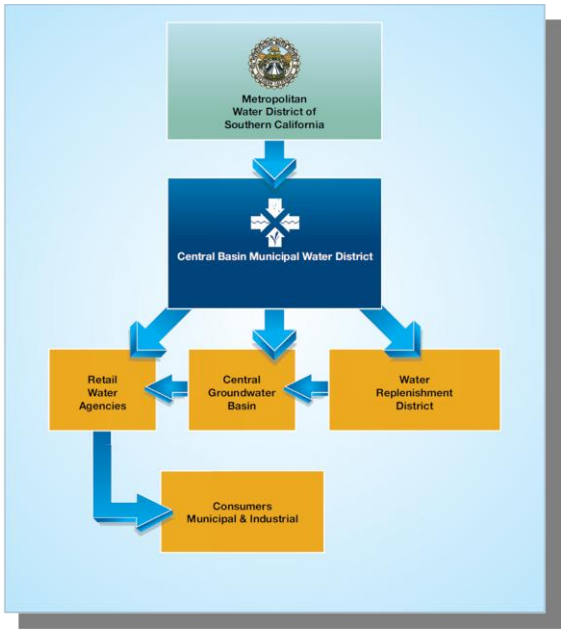

Figure 3: Central Basin Imported Water Supply Chain (2010 UWMP).

Total annual water production in the service area was approximately 225,937 AF in Fiscal Year 2012-13 and 226,180 AF in Fiscal Year 2013-14. Approximately 89% of the total consumption is ascribed to residential accounts, 11% is CII accounts, with a negligible amount falling into the "other" category (WUEMP, 2011).

2.2 Historical Drought Response and Water Conservation Actions

As described in its 2010 UWMP, Central Basin and its Retail Agencies have been implementing aggressive water conservation and water recycling programs to help limit potable water demand throughout the service area since the drought of the early 1990s. Central Basin has included a strong emphasis on water conservation education and the distribution of rebate incentives and plumbing retrofit hardware. The recycled water distribution systems now span over 50 miles and deliver over 5,000 AF of recycled water per year. The results of these programs, in conjunction with passive conservation measures

such as modifications to the plumbing and building codes, have resulted in significant reductions in per capita and total water use.

Water Conservation

In November 2011, the Central Basin Board of Directors adopted a five-year Water Use Efficiency Master Plan that presented an update to the 2006 WUEMP. Included within the scope of the five-year WUEMP is a portfolio of programs and measures that correspond with the District's regional sustainable water supply efforts. As such, even absent this drought, Central Basin has a strong record of working jointly with MWD, the Retail Agencies and their customers to encourage water conservation. Specifically, as part of its on-going water conservation program, Central Basin pursues the following actions, among other things:

- Secures funding sources such as grants to support water conservation efforts and programs;
- Offers financial rebates to customers for replacing high-water using fixtures such as toilets and washing machines with water-efficient versions;
- Offers financial rebates to customers for replacing irrigated turf with low-water use plantings and implementation of other measures that target outdoor water use;
- Supports distribution and direct installation programs for water-efficient fixtures;
- Developed and promotes a regional water conservation campaign entitled: "In a Drought - Shut Your Tap!";
- Developed and maintains an extensive and engaging water conservation website (http://www.centralbasin.org/en/conservation/); and
- Provides Retail Agency and customer training through workshops, school education programs and materials, development of outreach materials, and other support.

Figure 4: Example Central Basin Water Conservation Program Offerings (www.centralbasin.org).

As a result of these and other actions, Central Basin's 2010 UWMP estimated that water conservation savings would significantly reduce total demand within the service area through 2035.

Recycled Water

In response to historical droughts and the regulatory decisions that reduced supplies of imported water to the region, Central Basin began to increase its focus on supply diversification, with special emphasis on the development of recycled water. Central Basin's recycled water program is comprised of two distribution systems – the E. Thornton Ibbetson Century Water Recycling Project and the Esteban Torres Rio Hondo Water Recycling Project – as well as three pumping stations and a reservoir. Central Basin purchases recycled water from the Los Coyotes and San Jose Creek Water Reclamation Plants for groundwater replenishment and/or direct service for non-potable use via the Ibbeston and Torres Projects and City of Cerritos. The Ibbetson Project and Torres Project are interconnected by an intricate 50-mile distribution system and operate as one recycled water supply system. The combined projects are referred to as the "Central Basin Water Recycling Project." More than 200 sites within the Central Basin service area utilize recycled water for irrigation or industrial processes.

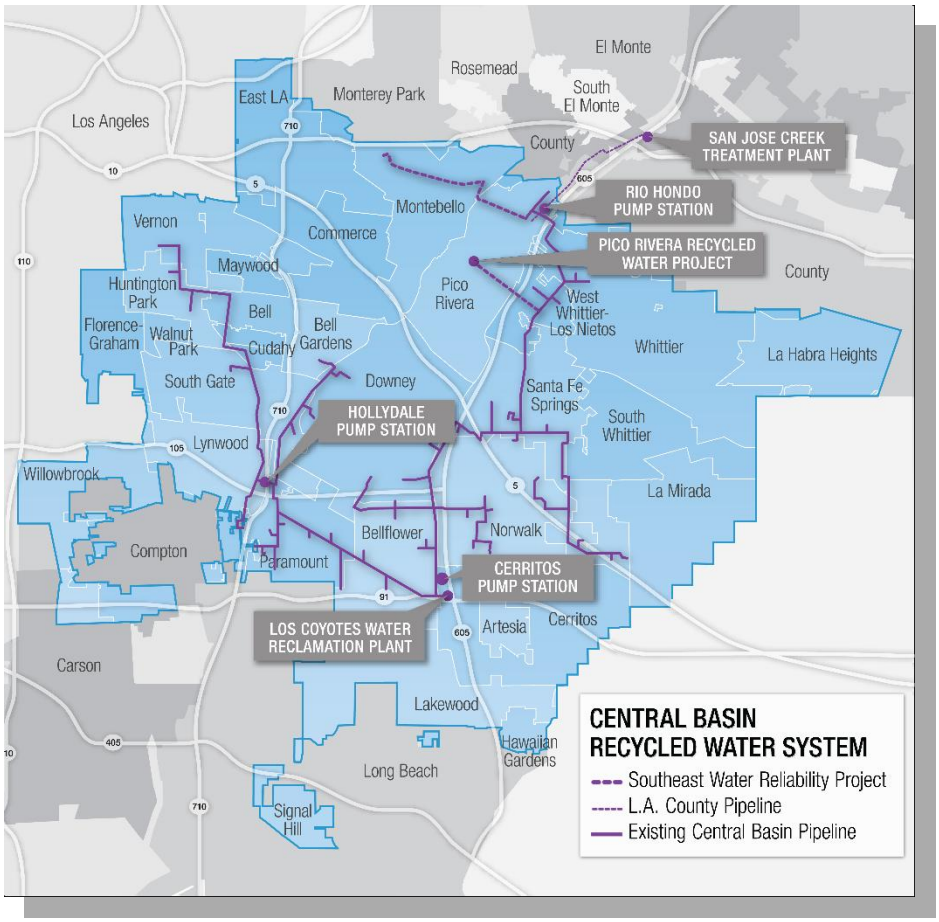

Figure 5: Central Basin Water Recycling Project (www.centralbasin.org)

3. SUMMARY OF SRWCB REGULATIONS AND REPORTING

This section summarizes key requirements of the May 2015 SWRCB regulation, including the mandatory water use prohibitions, and the new actions and reporting that are required on water suppliers through at least February 2016. A complete copy of the SWRCB Regulations is included as Appendix B and additional information can be found on the SWRCB website: www.waterboards.ca.gov. The regulations took effect on 1 June 2015.

Figure 6: SWRCB Emergency Conservation Regulation Summary (www.waterboards.ca.gov)

3.1 Water Use Prohibitions

To prevent the waste and unreasonable use of water and to promote water conservation, the following water uses are prohibited with limited exception, per CWC Section 864:

- Using potable water to irrigate outdoor landscapes in a manner that causes runoff to adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots or structures;
- Using a hose that dispenses potable water to wash a motor vehicle, unless the hose is fitted with a shut-off nozzle;
- Applying potable water to any driveway or sidewalk;
- Using potable water in a fountain or decorative water feature, unless the water is recirculated;
- Applying potable water to outdoor landscapes during and within 48 hours after measurable rainfall;

- Irrigation of ornamental turf on medians with potable water; and
- Irrigation with potable water of landscapes outside of newly constructed homes and buildings in a manner inconsistent with standards published by the California Building Standards Commission and the Department of Housing and Community Development.

In addition to the above requirements CII accounts must also perform the following, as applicable:

- Serving drinking water other than upon request in eating or drinking establishments;
- Operators of hotels and motels shall provide guests with the option of choosing not to have towels and linens laundered daily; and
- Limit irrigation to two days per week or reduce water by 25% if they use a source of potable water that is not from the water supplier.

Failure of a water customer to comply with the above restrictions is an infraction, punishable by a fine of up to $500 per day for each day in which the violation occurs.

3.2 Actions Required of Water Suppliers

To prevent the waste and unreasonable use of water and to promote water conservation, the following water uses are required of water suppliers with limited exception, per CWC Section 865:

- Provide prompt notice to customers regarding leaks, if information is known;
- Submit monthly reports to the SWRCB via the Drinking Water Information Clearinghouse or "DRINC Portal"[2] that include data for monthly total potable water production, residential and CII water use, conservation compliance and enforcement efforts, the number of days that outdoor irrigation is allowed, and R-GPCD; and
- Reduce total potable water production by the assigned water conservation standard.

If a water supplier is too small to meet the definition of a water supplier per CWC Section 10671, then they are required to:

- Limit outdoor irrigation of ornamental landscapes or turf with potable water to no more than 2 days per week, OR reduce total potable water production by 25% relative to 2013; and
- Report total potable water production from June through November 2015 relative to total potable water production for June through November 2013.

[2] http://drinc.ca.gov/dnn/Applications/UrbanWaterR-GPCD.aspx

If any water supplier does not meet its water conservation standard, the SWRCB has indicated that they will attempt to work closely with that entity to address non-compliance, and, per CWC Section 866 (a)(1), may issu[e] information and conservation orders requiring additional actions by the supplier to come into compliance with its conservation standard. Violation of an information or conservation order carries a penalty for the water supplier of up to $500 per day.

3.3 Additional SWRCB-Recommended Actions

In addition to establishing mandatory water conservation standards and requirements, the SWRCB, in its Resolution, calls upon water suppliers to:

- Ensure that adequate personnel and financial resources exist to implement conservation requirements not only for 2015, but also for another year of drought should it occur. Water suppliers that face budget shortfalls due to reduced sales should take immediate steps to raise necessary revenues in a way that actively promotes continued conservation;
- Expedite implementation of new conservation programs by minimizing internal review periods and utilizing emergency authorities, as appropriate;
- Consider the relative water use and conservation practices of their customers and target those with higher water use to achieve proportionally greater reductions than those with low use;
- Minimize financial impacts to low-income customers;
- Preserve safe indoor water supplies in areas with very low R-GPCD and where necessary to protect public health and safety;
- Promote low-water use methods of preserving appropriate defensible space in fire-prone areas, consistent with local fire district requirements; educate customers on the preservation of trees; and
- Promote on-site reuse of water.

4. CENTRAL BASIN DROUGHT RESPONSE INITIATIVE

Central Basin is committed to working closely with its Retail Agencies to manage water supplies and demand through this historic drought. In addition to developing this Drought Response Plan and the Drought Response Tool presented in Section 5 and Appendix C, Central Basin is taking the following actions to support its Retail Agencies and their customers:

- **Expanding the "In A Drought: Shut Your Tap!" and Other Public Outreach Efforts**. Central Basin has augmented its regional drought campaign with the tag line "Be a Part of the Solution". In addition to the current outreach materials (e.g., fliers, bus shelter posters, social media advertisements, public service announcements, videos, highway signs, etc.) Central Basin will be developing additional outreach materials that it will make available to Retail Agency staff.

Figure 7: Central Basin's "In a Drought Shut Your Tap!" Regional Campaign (www.centralbasin.org)

- **Hosting Communication Training Workshops for Retail Agency staff**. Central Basin has developed informational materials to guide Retail Agency staff through the process of addressing customer questions about the drought and directing them to websites with relevant resources and information. Central Basin has also begun hosting multiple workshops to train Retail Agency staff in public communications and outreach regarding the drought and will continue to support them in dealing with the current inundation of customer calls.

- **Prioritizing conservation activities to assist areas of need**. Central Basin is working closely with MWD and its Retail Agencies to ensure that sufficient financial and other resources are available for high-value and high-demand water conservation activities such as turf replacement programs. The drought is providing a strong catalyst for water conservation and Central Basin is committed to assisting its Retail Agencies and their customers take action to increase their water efficiency.

- **Coordination of wholesale and retail agencies.** Central Basin is acting as a central clearinghouse for sharing of resources, messages and information. A strong, consistent message (especially in areas served by more than one water supplier) prevents customer confusion and increases conservation program effectiveness. Central Basin is working with each of its Retail Agencies to identify opportunities for coordination and streamlined messaging and outreach. As part of this effort, Central Basin is hosting a communications website (http://cap.centralbasin.org/) that sends out regional communications on drought-related issues to all entities that subscribe to the outreach list.

- **Coordination of District-wide "Drought Summit"**. During summer 2015, Central Basin will host an informational event to inform officials and other key decision makers in Southeastern Los Angeles County about the drought and associated actions and impacts to their communities. The goal of the Drought Summit is to identify the key issues facing the region and identify opportunities for collaboration and action to achieve the necessary demand reductions without impacting the economy and way of life in the region.

5. DROUGHT RESPONSE TOOL

The Drought Response Tool (DRT)[3] is an Excel spreadsheet model developed on behalf of Central Basin in order to assist its Retail Agencies with:

- Evaluating baseline water use by sector and major end use (i.e., indoor versus outdoor);
- Identifying sectors and end uses to target for water savings;
- Evaluating a menu of drought response actions and estimating their water savings potential based on an assumed implementation rate; and
- Tracking compliance with the water conservation standards mandated under the May 2015 SWRCB Emergency Water Conservation Regulation.

A brief overview of the DRT is provided below. A more detailed *Central Basin Drought Response Tool User's Guide* is provided in Appendix C, which walks the user through the model structure, and the key input parameters, assumptions and calculations that form the basis for the DRT.

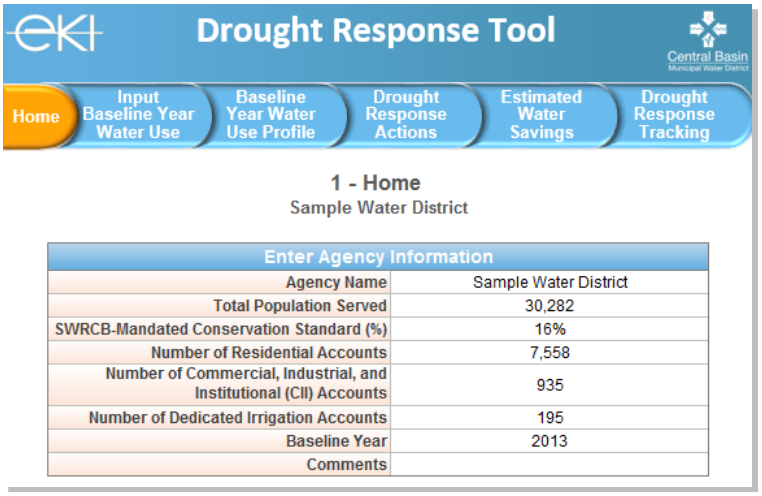

Figure 8: *Worksheet 1 – Home* of the Drought Response Tool

The DRT consists of six linked Excel worksheets, described below. Agency data inputs to the DRT are largely consistent with data that has been and will be reported by water agencies to the SWRCB. The Drought Response Actions section of the DRT is designed to be highly modifiable by the user, in order to allow the user to explore the potential water savings associated with implementing different sets of actions, based on varying levels of implementation, and the user's understanding of their own community and the water savings potential.

[3] © 2015 Erler & Kalinowski, Inc.

- **Worksheet 1 – Home:** This worksheet presents an overview of the DRT and is where the user enters agency-specific information such as agency name, population served, SWRCB-mandated Conservation Standard, number of accounts by sector, and Baseline Year. Users can also use this worksheet to navigate between other worksheets.
- **Worksheet 2 – Water Use Inputs:** This worksheet is used to enter monthly potable water production and water use data for the Baseline Year (e.g., 2013 per the SWRCB regulation). User inputs include potable water production by month, and potable water use by sector (Residential, CII, and Dedicated Irrigation).
- **Worksheet 3 – Water Use Profile:** This worksheet provides high-level, graphical and tabular summaries of an agency's Baseline Year water use by sector and by major end use (indoor versus outdoor). By generally estimating how much of an agency's water use can be attributed to indoor use versus outdoor use and by sector, an agency can begin to identify areas and opportunities for water savings, as well as evaluate opportunities to achieve savings while mitigating revenue impacts. Key assumptions used for estimating indoor versus outdoor use are described in the User's Guide provided in Appendix C.
- **Worksheet 4 – Drought Response Actions:** This worksheet provides a framework for estimating water savings associated with the implementation and enforcement of various Drought Response Actions. The DRT provides a customized menu of Drought Response Actions, including mandatory SWRCB restrictions, passive water savings, and optional actions individual agencies may choose to implement. Users are asked to input factors that act as water savings "caps", limiting an agency's maximum savings potential by various sectors and major end uses, based on the user's overall understanding of their community and areas where they expect or desire more or less savings to occur. Users may also modify the default water savings and implementation rates for each Drought Response Action based on their understanding of the communities they serve, wherever possible. The basis for the default water savings an implementation rate assumptions imbedded in the DRT are provided in Appendix D.
- **Worksheet 5 – Estimated Water Savings:** This worksheet displays the estimated monthly water production and savings for June 2015 through May 2016, compared to Baseline Year production data, based on the user-selected suite of Drought Response Actions and associated user-defined water savings estimates and implementation rates. Estimated savings are compared to the SWRCB-mandated Conservation Standards by month and on a cumulative basis from June 2015 through May 2016. *It should be noted that the DRT is only a predictive tool that generates a water savings potential based on data input by the user, including Drought Response Actions, savings estimates, and implementation rates. The DRT in no way guarantees water savings or any other performance metrics.*

- **Worksheet 6 – Drought Response Tracking:** This worksheet can be used to track an agency's water production and savings and compliance with the SWRCB-mandated Conservation Standard. Users input their actual production data for 2015/2016 and the DRT displays the monthly and cumulative savings compared to the Baseline Year data and the SWRCB-mandated Conservation Standard.

6. KEY COMPONENTS OF AGENCY-LEVEL DROUGHT RESPONSE PLANNING AND IMPLEMENTATION

The Drought Response Tool presents a suite of Drought Response Actions that agencies may choose to implement during this or future drought emergencies. This section describes additional elements that Agencies may choose to incorporate into the development and implementation of their individual agency drought response plans (ADRPs). This section is augmented with information from a Case Study of an agency that used an earlier, agency-specific version of the DRT and other resources to develop an effective ADRP.

6.1 Develop Drought Response Plan Principles

Because water allocations and restrictions in response to a drought are certain to be challenging, it is critical that an ADRP reflect both the need to reduce water use and the specific concerns and priorities of a community. While allocating water in a means that ensures that the health and safety of the customers is paramount in a drought, there may be other issues or industries that are important to an agency's customers and to the local economy that warrant special consideration as part of the development and implementation of an ADRP. We recommend that as part of an ADRP, guiding goals and principles be identified that will aid agency staff in the development of its suite of Drought Response Actions and allow them to communicate their rationale to elected officials and the public. Example principles are as follows:

1. Conserve the water supply of the agency for the greatest public benefit;
2. Mitigate the effects of a water supply shortage on public health and safety, economic activity, and customer lifestyle; and
3. Budget water use so that supply will be available for the most essential purposes for the entire duration of the water shortage.

CASE STUDY

As part of its ADRP, the City of Brisbane adopted the following Water Shortage Allocation Principles:

Eliminate water waste and prioritize reducing non-essential water uses:

- Concentrate on the reduction of non-essential water uses such as landscape irrigation and other discretionary outdoor water use.

- Give the highest priority to preserving water uses that are essential to the health, safety, welfare, and economic vitality of the City's customers.

6.2 Determine Drought Response Actions/Measures

A critical element of any ADRP is the suite of Drought Response Actions or measures that an agency adopts into its own practices and those which it requests or mandates of its water customers. Ideally, the determination of those measures and actions is clearly consistent with the ADRP guiding principles and the implementation and enforcement is something that can be accomplished with existing or reasonably-augmented agency resources. The DRT (Section 5 and Appendix C) presents a suite of commonly employed Drought Response Actions and allows an agency to estimate a commensurate water savings based on assumptions regarding Drought Response Action effectiveness and implementation rates.

CASE STUDY

Based on use of an earlier agency-specific version of the Drought Response Tool, which provided an understanding of local water use patterns and water savings opportunities, the City of Brisbane developed the following suite of drought response measures in order to achieve a 10% water demand reduction:

Agency Actions:

- *Inform customers that there is a water shortage emergency and the list of actions they can take to reduce water use (e.g., via direct mail, bill inserts, etc.) and information regarding fines or penalties for non-compliance.*
- *Expand outreach for existing water conservation programs.*
- *Enforce the water waste ordinance to the maximum extent.*
- *Convert to more frequent meter reading for high water users.*
- *Conduct in-house training so staff are prepared to respond to customer calls, reports and complaints, and to support enforcement actions.*
- *Inform local fire department of water supply status and request cooperation in reducing use of water during fire training exercises.*
- *Suspend routine flushing of water mains.*

Customer Mandates:

- *Comply with all SWRCB-mandated water use restrictions.*
- *Residential and commercial landscape irrigation with potable water is prohibited between the hours of 9:00 a.m. and 5:00 p.m., during rain events, and for more than ten (10) minutes per day.*
- *Residential and commercial landscape irrigation with potable water is limited to no more than three (3) days per week. During November through May, landscape irrigation is limited to no more than one (1) day per week.*
- *No new, non-residential water meters may be issued unless the Director determines that such issuance will not impede the City's compliance with the required water use reductions.*

6.3 Prioritize Public Outreach

Public outreach is critical to the success of any ADRP and allows an agency to create a positive message around the drought and water conservation, as opposed to a negative one inherent in fines or other penalties. Central Basin has identified that messages that convey the idea that "together we can make a difference" resonate more positively with customers. As such, they have added the tag line "Be a Part of the Solution" to their *In a Drought – Shut Your Tap!* campaign. Agencies can look to Central Basin for opportunities to leverage customer outreach and messaging. In addition to these materials, an agency may develop its own messages and materials and use the following media and methods to communicate with customers:

- Central Basin website;
- Local agency website;
- Direct mailings to customers;
- Utility bill messaging and inserts;
- Home/Mobile Water Use Reports;
- Brochure racks distributed throughout a City (e.g., the Public Library and City Hall);
- Water Conservation phone hotline; and
- Booths at community and corporate events.

6.4 Increase Conservation Staff Resources

Staff time dedicated to activities related to water conservation and enforcement will need to increase to implement an ADRP and respond to this drought emergency. Additional duties may be assigned to current City employees, or hiring of temporary staff or interns may be considered to meet staffing needs during critical time periods such as the summer months when the most savings can be realized. Duties could include staffing a hot line, conducting public outreach, conducting water waste patrols, conducting more frequent meter reading, and/or performing residential or commercial water audits.

6.5 Target Non-Revenue Water and Leaks

Non-revenue water or uncategorized water use can account for a significant percentage of an agency's total water use. In an effort to reduce overall water use and minimize economic impacts to customers, an agency can focus its efforts to reducing non-revenue water use, including minimizing system flushing operations, reducing system pressures, addressing system leaks, and otherwise improving the efficiency of its water distribution system. Leak detection and repair at customer accounts can also be prioritized to achieve significant water savings without negative economic or lifestyle impacts to customers.

6.6 Maintain Standard Enforcement and Appeals Procedures

Enforcement of an agency's water conservation regulations is typically focused on soliciting cooperation from water customers who are unaware of the restrictions or have failed to comply with the provisions of the ADRP. If discussions with the customer are unsuccessful in obtaining compliance, available enforcement mechanisms could include written warnings, on-site notifications, fines, excess usage fees, installation of flow restrictors and, as a last resort, discontinuation of service.

Furthermore, the taking of any of the prohibited actions set forth in the SWRCB's emergency regulations and detailed in Section 3, in addition to any other applicable civil or criminal penalties, is an infraction punishable by a fine of up to five hundred dollars ($500) for each day in which the violation occurs.

Agency employees and members of the public should be able to register water waste complaints in a standardized format through a telephone hotline, social media, website, and/or direct communication with agency staff. Agency staff should also be adequately trained to accept and provide information and respond to complaints or appeals for relief in accordance with an established and routine procedure. Staff may also seek assistance from other agency departments in responding to complaints and enforcing water use restrictions.

6.7 Increase Meter Reading Frequency to Assess Compliance with Water Use Reductions

The Retail Agencies within the Central Basin service are typically monitor water use through monthly analyses of wholesale water purchases/groundwater productions and bi-monthly meter readings. Monthly or more frequent meter reading and billing gives an agency and its customers faster feedback on meeting reduction goals and allows an agency the opportunity to notify and work with customers to meet reduction goals in a timely manner. In the event that it becomes necessary, as part of the implementation of its ADRP, an agency could consider implementing monthly or more frequent meter reading and billing cycles, especially for its highest water using customers.

6.8 Mitigate Revenue Impacts

An agency's water rates are typically designed to fully fund ongoing annual costs such as wholesale water purchases and water system operation, a base level of annual capital improvement projects, and maintain an adequate reserve. Reduced water consumption during this drought will likely cause agency operating revenues to decline. As suggested by the SWRCB (see Section 3.3 and Appendix B), an agency may want to consider options for correcting revenue shortfalls depending on the severity of the water shortage and that agency's ability to recover both operationally and financially. An agency may consider several actions, including adjusting the water rate structure, implementing a one-time

water use surcharge, reallocating staff resources, and/or reassessing capital improvement project expenditures. An agency will want to ensure that whatever changes to its rate structure are enacted have been carefully vetted against Proposition 218 requirements, particularly given the recent ruling in the City of San Juan Capistrano case[4].

6.9 Update Water Shortage Contingency Plans, Resolutions, and/or Ordinances

In lieu of, or as part of developing an ADRP, an agency may instead choose to update its Water Shortage Contingency Plan and associated Water Shortage Ordinance or Resolution to reflect new and additional information relating to these updated emergency drought conditions, triggers, water supply reliability, and water use patterns. This is work that an agency will need to do as part of its 2015 UWMP, regardless of the drought, and may therefore be able to realize some efficiencies by expediting or coordinating efforts now.

As the SWRCB Fact Sheet states: *No one knows how the future will unfold. While the state may return to "normal," or even to above average hydrologic water conditions in 2016, such an outcome is far from certain.* The agencies that take steps now to establish an ADRP that includes effective Drought Response Actions, clear lines of communication with their customers, and adequate resources for implementation and enforcement will be better able to meet their water conservation standards and be better prepared in the event that the drought continues.

[4] Capistrano Taxpayers Association, Inc. v. City of San Juan Capistrano ruling dated 20 April 2015: http://www.courts.ca.gov/opinions/documents/G048969.PDF

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APPENDIX A

Executive Order B-29-15

Executive Department

State of California

EXECUTIVE ORDER B-29-15

WHEREAS on January 17, 2014, I proclaimed a State of Emergency to exist throughout the State of California due to severe drought conditions; and

WHEREAS on April 25, 2014, I proclaimed a Continued State of Emergency to exist throughout the State of California due to the ongoing drought; and

WHEREAS California's water supplies continue to be severely depleted despite a limited amount of rain and snowfall this winter, with record low snowpack in the Sierra Nevada mountains, decreased water levels in most of California's reservoirs, reduced flows in the state's rivers and shrinking supplies in underground water basins; and

WHEREAS the severe drought conditions continue to present urgent challenges including: drinking water shortages in communities across the state, diminished water for agricultural production, degraded habitat for many fish and wildlife species, increased wildfire risk, and the threat of saltwater contamination to fresh water supplies in the Sacramento-San Joaquin Bay Delta; and

WHEREAS a distinct possibility exists that the current drought will stretch into a fifth straight year in 2016 and beyond; and

WHEREAS new expedited actions are needed to reduce the harmful impacts from water shortages and other impacts of the drought; and

WHEREAS the magnitude of the severe drought conditions continues to present threats beyond the control of the services, personnel, equipment, and facilities of any single local government and require the combined forces of a mutual aid region or regions to combat; and

WHEREAS under the provisions of section 8558(b) of the Government Code, I find that conditions of extreme peril to the safety of persons and property continue to exist in California due to water shortage and drought conditions with which local authority is unable to cope; and

WHEREAS under the provisions of section 8571 of the California Government Code, I find that strict compliance with various statutes and regulations specified in this order would prevent, hinder, or delay the mitigation of the effects of the drought.

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

IT IS HEREBY ORDERED THAT:

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

SAVE WATER

2. The State Water Resources Control Board (Water Board) shall impose restrictions to achieve a statewide 25% reduction in potable urban water usage through February 28, 2016. These restrictions will require water suppliers to California's cities and towns to reduce usage as compared to the amount used in 2013. These restrictions should consider the relative per capita water usage of each water suppliers' service area, and require that those areas with high per capita use achieve proportionally greater reductions than those with low use. The California Public Utilities Commission is requested to take similar action with respect to investor-owned utilities providing water services.

3. The Department of Water Resources (the Department) shall lead a statewide initiative, in partnership with local agencies, to collectively replace 50 million square feet of lawns and ornamental turf with drought tolerant landscapes. The Department shall provide funding to allow for lawn replacement programs in underserved communities, which will complement local programs already underway across the state.

4. The California Energy Commission, jointly with the Department and the Water Board, shall implement a time-limited statewide appliance rebate program to provide monetary incentives for the replacement of inefficient household devices.

5. The Water Board shall impose restrictions to require that commercial, industrial, and institutional properties, such as campuses, golf courses, and cemeteries, immediately implement water efficiency measures to reduce potable water usage in an amount consistent with the reduction targets mandated by Directive 2 of this Executive Order.

6. The Water Board shall prohibit irrigation with potable water of ornamental turf on public street medians.

7. The Water Board shall prohibit irrigation with potable water outside of newly constructed homes and buildings that is not delivered by drip or microspray systems.

8. The Water Board shall direct urban water suppliers to develop rate structures and other pricing mechanisms, including but not limited to surcharges, fees, and penalties, to maximize water conservation consistent with statewide water restrictions. The Water Board is directed to adopt emergency regulations, as it deems necessary, pursuant to Water Code section 1058.5 to implement this directive. The Water Board is further directed to work with state agencies and water suppliers to identify mechanisms that would encourage and facilitate the adoption of rate structures and other pricing mechanisms that promote water conservation. The California Public Utilities Commission is requested to take similar action with respect to investor-owned utilities providing water services.

INCREASE ENFORCEMENT AGAINST WATER WASTE

9. The Water Board shall require urban water suppliers to provide monthly information on water usage, conservation, and enforcement on a permanent basis.

10. The Water Board shall require frequent reporting of water diversion and use by water right holders, conduct inspections to determine whether illegal diversions or wasteful and unreasonable use of water are occurring, and bring enforcement actions against illegal diverters and those engaging in the wasteful and unreasonable use of water. Pursuant to Government Code sections 8570 and 8627, the Water Board is granted authority to inspect property or diversion facilities to ascertain compliance with water rights laws and regulations where there is cause to believe such laws and regulations have been violated. When access is not granted by a property owner, the Water Board may obtain an inspection warrant pursuant to the procedures set forth in Title 13 (commencing with section 1822.50) of Part 3 of the Code of Civil Procedure for the purposes of conducting an inspection pursuant to this directive.

11. The Department shall update the State Model Water Efficient Landscape Ordinance through expedited regulation. This updated Ordinance shall increase water efficiency standards for new and existing landscapes through more efficient irrigation systems, greywater usage, onsite storm water capture, and by limiting the portion of landscapes that can be covered in turf. It will also require reporting on the implementation and enforcement of local ordinances, with required reports due by December 31, 2015. The Department shall provide information on local compliance to the Water Board, which shall consider adopting regulations or taking appropriate enforcement actions to promote compliance. The Department shall provide technical assistance and give priority in grant funding to public agencies for actions necessary to comply with local ordinances.

12. Agricultural water suppliers that supply water to more than 25,000 acres shall include in their required 2015 Agricultural Water Management Plans a detailed drought management plan that describes the actions and measures the supplier will take to manage water demand during drought. The Department shall require those plans to include quantification of water supplies and demands for 2013, 2014, and 2015 to the extent data is available. The Department will provide technical assistance to water suppliers in preparing the plans.

13. Agricultural water suppliers that supply water to 10,000 to 25,000 acres of irrigated lands shall develop Agricultural Water Management Plans and submit the plans to the Department by July 1, 2016. These plans shall include a detailed drought management plan and quantification of water supplies and demands in 2013, 2014, and 2015, to the extent that data is available. The Department shall give priority in grant funding to agricultural water suppliers that supply water to 10,000 to 25,000 acres of land for development and implementation of Agricultural Water Management Plans.

14. The Department shall report to Water Board on the status of the Agricultural Water Management Plan submittals within one month of receipt of those reports.

15. Local water agencies in high and medium priority groundwater basins shall immediately implement all requirements of the California Statewide Groundwater Elevation Monitoring Program pursuant to Water Code section 10933. The Department shall refer noncompliant local water agencies within high and medium priority groundwater basins to the Water Board by December 31, 2015, which shall consider adopting regulations or taking appropriate enforcement to promote compliance.

16. The California Energy Commission shall adopt emergency regulations establishing standards that improve the efficiency of water appliances, including toilets, urinals, and faucets available for sale and installation in new and existing buildings.

INVEST IN NEW TECHNOLOGIES

17. The California Energy Commission, jointly with the Department and the Water Board, shall implement a Water Energy Technology (WET) program to deploy innovative water management technologies for businesses, residents, industries, and agriculture. This program will achieve water and energy savings and greenhouse gas reductions by accelerating use of cutting-edge technologies such as renewable energy-powered desalination, integrated on-site reuse systems, water-use monitoring software, irrigation system timing and precision technology, and on-farm precision technology.

STREAMLINE GOVERNMENT RESPONSE

18. The Office of Emergency Services and the Department of Housing and Community Development shall work jointly with counties to provide temporary assistance for persons moving from housing units due to a lack of potable water who are served by a private well or water utility with less than 15 connections, and where all reasonable attempts to find a potable water source have been exhausted.

19. State permitting agencies shall prioritize review and approval of water infrastructure projects and programs that increase local water supplies, including water recycling facilities, reservoir improvement projects, surface water treatment plants, desalination plants, stormwater capture, and greywater systems. Agencies shall report to the Governor's Office on applications that have been pending for longer than 90 days.

20. The Department shall take actions required to plan and, if necessary, implement Emergency Drought Salinity Barriers in coordination and consultation with the Water Board and the Department of Fish and Wildlife at locations within the Sacramento - San Joaquin delta estuary. These barriers will be designed to conserve water for use later in the year to meet state and federal Endangered Species Act requirements, preserve to the extent possible water quality in the Delta, and retain water supply for essential human health and safety uses in 2015 and in the future.

21. The Water Board and the Department of Fish and Wildlife shall immediately consider any necessary regulatory approvals for the purpose of installation of the Emergency Drought Salinity Barriers.

22. The Department shall immediately consider voluntary crop idling water transfer and water exchange proposals of one year or less in duration that are initiated by local public agencies and approved in 2015 by the Department subject to the criteria set forth in Water Code section 1810.

23. The Water Board will prioritize new and amended safe drinking water permits that enhance water supply and reliability for community water systems facing water shortages or that expand service connections to include existing residences facing water shortages. As the Department of Public Health's drinking water program was transferred to the Water Board, any reference to the Department of Public Health in any prior Proclamation or Executive Order listed in Paragraph 1 is deemed to refer to the Water Board.

24. The California Department of Forestry and Fire Protection shall launch a public information campaign to educate the public on actions they can take to help to prevent wildfires including the proper treatment of dead and dying trees. Pursuant to Government Code section 8645, $1.2 million from the State Responsibility Area Fire Prevention Fund (Fund 3063) shall be allocated to the California Department of Forestry and Fire Protection to carry out this directive.

25. The Energy Commission shall expedite the processing of all applications or petitions for amendments to power plant certifications issued by the Energy Commission for the purpose of securing alternate water supply necessary for continued power plant operation. Title 20, section 1769 of the California Code of Regulations is hereby waived for any such petition, and the Energy Commission is authorized to create and implement an alternative process to consider such petitions. This process may delegate amendment approval authority, as appropriate, to the Energy Commission Executive Director. The Energy Commission shall give timely notice to all relevant local, regional, and state agencies of any petition subject to this directive, and shall post on its website any such petition.

26. For purposes of carrying out directives 2–9, 11, 16–17, 20–23, and 25, Division 13 (commencing with section 21000) of the Public Resources Code and regulations adopted pursuant to that Division are hereby suspended. This suspension applies to any actions taken by state agencies, and for actions taken by local agencies where the state agency with primary responsibility for implementing the directive concurs that local action is required, as well as for any necessary permits or approvals required to complete these actions. This suspension, and those specified in paragraph 9 of the January 17, 2014 Proclamation, paragraph 19 of the April 25, 2014 proclamation, and paragraph 4 of Executive Order B-26-14, shall remain in effect until May 31, 2016. Drought relief actions taken pursuant to these paragraphs that are started prior to May 31, 2016, but not completed, shall not be subject to Division 13 (commencing with section 21000) of the Public Resources Code for the time required to complete them.

27. For purposes of carrying out directives 20 and 21, section 13247 and Chapter 3 of Part 3 (commencing with section 85225) of the Water Code are suspended.

28. For actions called for in this proclamation in directive 20, the Department shall exercise any authority vested in the Central Valley Flood Protection Board, as codified in Water Code section 8521, et seq., that is necessary to enable these urgent actions to be taken more quickly than otherwise possible. The Director of the Department of Water Resources is specifically authorized, on behalf of the State of California, to request that the Secretary of the Army, on the recommendation of the Chief of Engineers of the Army Corps of Engineers, grant any permission required pursuant to section 14 of the Rivers and Harbors Act of 1899 and codified in section 48 of title 33 of the United States Code.

29. The Department is directed to enter into agreements with landowners for the purposes of planning and installation of the Emergency Drought Barriers in 2015 to the extent necessary to accommodate access to barrier locations, land-side and water-side construction, and materials staging in proximity to barrier locations. Where the Department is unable to reach an agreement with landowners, the Department may exercise the full authority of Government Code section 8572.

30. For purposes of this Executive Order, chapter 3.5 (commencing with section 11340) of part 1 of division 3 of the Government Code and chapter 5 (commencing with section 25400) of division 15 of the Public Resources Code are suspended for the development and adoption of regulations or guidelines needed to carry out the provisions in this Order. Any entity issuing regulations or guidelines pursuant to this directive shall conduct a public meeting on the regulations and guidelines prior to adopting them.

31. In order to ensure that equipment and services necessary for drought response can be procured quickly, the provisions of the Government Code and the Public Contract Code applicable to state contracts, including, but not limited to, advertising and competitive bidding requirements, are hereby suspended for directives 17, 20, and 24. Approval by the Department of Finance is required prior to the execution of any contract entered into pursuant to these directives.

This Executive Order is not intended to, and does not, create any rights or benefits, substantive or procedural, enforceable at law or in equity, against the State of California, its agencies, departments, entities, officers, employees, or any other person.

I FURTHER DIRECT that as soon as hereafter possible, this Order be filed in the Office of the Secretary of State and that widespread publicity and notice be given to this Order.

IN WITNESS WHEREOF I have hereunto set my hand and caused the Great Seal of the State of California to be affixed this 1st day of April 2015.

EDMUND G. BROWN JR.
Governor of California

ATTEST:

ALEX PADILLA
Secretary of State

APPENDIX B

SWRCB Resolution No. 2015-0032 to Adopt an Emergency Regulation for Statewide Urban Water Conservation

STATE WATER RESOURCES CONTROL BOARD
RESOLUTION NO. 2015-0032

TO ADOPT AN EMERGENCY REGULATION FOR
STATEWIDE URBAN WATER CONSERVATION

WHEREAS:

1. On April 25, 2014, Governor Edmund G. Brown Jr. issued an executive order (April 2014 Proclamation) to strengthen the State's ability to manage water and habitat effectively in drought conditions, and called on all Californians to redouble their efforts to conserve water. The April 2014 Proclamation finds that the continuous severe drought conditions present urgent challenges across the State, including water shortages in communities and for agricultural production, increased wildfires, degraded habitat for fish and wildlife, threat of saltwater contamination, and additional water scarcity, if drought conditions continue into 2015. The April 2014 Proclamation also suspends the environmental review required by the California Environmental Quality Act to allow the emergency regulation and other actions to take place as quickly as possible;

2. The April 2014 Proclamation refers to the Governor's Proclamation No. 1-17-2014, issued on January 17, 2014, declaring a drought State of Emergency to exist in California due to severe drought conditions (January 2014 Proclamation). The January 2014 Proclamation finds that dry conditions and lack of precipitation present urgent problems to drinking water supplies and cultivation of crops, which put farmers' long-term investments at risk. The conditions also threaten the survival of animals and plants that rely on California's rivers, including many species in danger of extinction. The January 2014 Proclamation also calls on all Californians to reduce their water usage by 20 percent;

3. On December 22, 2014, in light of the continued lack of rain, Governor Brown issued Executive Order B-28-14, which extends the California Environmental Quality Act suspension through May 31, 2016 for Water Code section 13247 and certain activities identified in the January 2014 and April 2014 proclamations;

4. On April 1, 2015, Governor Brown issued a new Executive Order that directs the State Water Board to impose restrictions on urban water suppliers to achieve a statewide 25 percent reduction in potable urban usage through February 2016; require commercial, industrial, and institutional users to implement water efficiency measures; prohibit irrigation with potable water of ornamental turf in public street medians; and prohibit irrigation with potable water outside newly constructed homes and buildings that is not delivered by drip or microspray systems; along with other directives;

5. Water Code section 1058.5 grants the State Water Board the authority to adopt emergency regulations in certain drought years in order to: "prevent the waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion, of water, to promote water recycling or water conservation, to require curtailment of diversions when water is not available under the diverter's priority of right, or in furtherance of any of the foregoing, to require reporting of diversion or use or the preparation of monitoring reports";

6. On July 15, 2014, the State Water Board adopted an emergency regulation to support water conservation (Resolution No. 2014-0038), and that regulation became effective July 28, 2014 upon approval by the Office of Administrative Law (OAL);

7. On March 17, 2015, the State Water Board amended and readopted the emergency regulation to support water conservation (Resolution No. 2015-0013), which became effective March 27, 2015 upon approval by OAL;

8. The current emergency regulation has supported Californians' water conservation efforts, with over 125 billion gallons saved from August 2014 through March 2015; however, statewide water use is only nine percent less than the same months in 2013. Achieving a 25 percent reduction in use will require even greater conservation efforts across the state. In particular, many communities must dramatically reduce their outdoor water use;

9. In many areas, 50 percent or more of daily water use is for lawns and outdoor landscaping. Outdoor water use is generally discretionary, and many irrigated landscapes will survive while receiving a decreased amount of water;

10. Although urban water suppliers have placed restrictions on outdoor watering, the State Water Board continues to receive reports of excessive outdoor water use;

11. Water conservation is the easiest, most efficient and most cost-effective way to quickly reduce water demand and extend supplies into the next year, providing flexibility for all California communities. Water saved this summer is water available later in the season or next year, reducing the likelihood of even more severe water shortages should the drought continue;

12. Education and enforcement against water waste is a key tool in conservation programs. When conservation becomes a social norm in a community, the need for enforcement is reduced or eliminated;

13. Public information and awareness is critical to achieving conservation goals, and the Save Our Water campaign, run jointly by the Department of Water Resources (DWR) and the Association of California Water Agencies, is an excellent resource for conservation information and messaging that is integral to effective drought response (http://saveourwater.com);

14. Many California communities are facing social and economic hardship due to this drought. The rest of us can make adjustments to our water use, including landscape choices that conserve even more water;

15. The California Constitution declares, at article X, section 2, that the water resources of the state must be put to beneficial use in a manner that is reasonable and not wasteful. Relevant to the current drought conditions, the California Supreme Court has clarified that "what may be a reasonable beneficial use, where water is present in excess of all needs, would not be a reasonable beneficial use in an area of great scarcity and great need. What is a beneficial use at one time may, because of changed conditions, become a waste of water at a later time." (*Tulare Dist. v. Lindsay Strathmore Dist*. (1935) 3 Cal.2d 489, 567.) In support of water conservation, the legislature has, through Water Code section 1011, deemed reductions in water use due to conservation as equivalent

to reasonable beneficial use of that water. Accordingly, this regulation is in furtherance of article X, section 2 during this drought emergency. This temporary emergency regulation is not to be used in any future administrative or judicial proceedings as evidence or finding of waste and unreasonable use of any individual water user or water supplier subject to this regulation, and are not to affect or otherwise limit any rights to water conserved under applicable law, including without limitation, water conserved consistent with Water Code section 1011;

16. Directive two of the Governor's April 1, 2015 Executive Order directs the State Water Board to consider the relative per capita usage of each urban water supplier's service area and require that areas with high per capita use achieve proportionally greater reductions than areas with low per capita use;

17. On April 7, 2015, the State Water Board issued a draft framework proposing increasing levels of required water reduction based upon residential per capita per day use (R-GPCD) for the proposed regulation, and solicited public comments. The Board received over 300 comments on the framework, primarily relating to the levels of required water reduction;

18. On April 18, the State Water Board issued draft regulatory language for public comment based on the April 7 framework and the comments received. The draft regulatory language reflected careful consideration of all comments including those directed at the levels of required reduction. Again, the Board received close to 300 comments;

19. On April 28, 2015, the State Water Board issued a final version of draft regulatory language for comment, followed on April 29 by a formal public notice that it would consider the adoption of the emergency regulation at the Board's regularly-scheduled May 5 and 6, 2015 public meeting, in accordance with applicable State laws and regulations. The State Water Board also distributed for public review and comment a Finding of Emergency that complies with State laws and regulations;

20. As discussed above, the State Water Board is adopting the emergency regulation because of the continuing emergency drought conditions, the need for prompt action to prevent the waste and unreasonable use of water and to promote conservation, and the specific actions called for in the Governor's April 1, 2015 Executive Order; and

21. Nothing in the regulation or in the enforcement provisions of the regulation precludes a local agency from exercising its authority to adopt more stringent conservation measures. Moreover, the Water Code does not impose a mandatory penalty for violations of the regulation adopted by this resolution, and local agencies retain the enforcement discretion in enforcing the regulation to the extent authorized. Local agencies are encouraged to develop their own progressive enforcement practices to promote conservation.

THEREFORE BE IT RESOLVED THAT:

1. The State Water Board adopts California Code of Regulations, title 23, section 866 and re-adopts sections 863, 864,and 865, as appended to this resolution as an emergency regulation;

2. State Water Board staff will submit the regulation to OAL for final approval;

3. If, during the approval process, State Water Board staff, the State Water Board, or OAL determines that minor corrections to the language of the regulation or supporting documentation are needed for clarity or consistency, the State Water Board Executive Director or the Executive Director's designee may make such changes;

4. This regulation shall remain in effect for 270 days after filing with the Secretary of State unless the State Water Board determines that it is no longer necessary due to changed conditions, or unless the State Water Board renews the regulation due to continued drought conditions as described in Water Code section 1058.5;

5. The State Water Board directs staff to provide the Board with monthly updates on the implementation of the emergency regulation and its effect. These updates shall include information regarding the progress of the Building Standards Commission, Department of Housing and Community Development, and other state agencies in the adoption and implementation of emergency regulations or other requirements that implement increased outdoor irrigation efficiency for new construction. These regulations and other requirements will extend existing efficiency standards for new construction to the outdoor environment and ensure that California's new homes are constructed to meet the growing demand with the most efficient standards;

6. The State Water Board directs staff to condition funding upon compliance with the emergency regulation, to the extent feasible;

7. The State Water Board directs staff to work with DWR and the Save Our Water campaign to disseminate information regarding the emergency regulation; and

8. The State Water Board directs staff to update the electronic reporting portal to include data fields for the new reporting required by the emergency regulation.

THEREFORE BE IT FURTHER RESOLVED THAT:

9. The State Water Board shall work with DWR, the Public Utilities Commission, and other agencies to support urban water suppliers' actions to implement rates and pricing structures to incent additional conservation, as required by directive eight in the Governor's April 1, 2015 Executive Order. The Fourth District Court of Appeal's recent Decision in *Capistrano Taxpayer Association Inc. v. City of San Juan Capistrano* (G048969) does not foreclose the use of conservation-oriented rate structures;

10. The State Water Board calls upon water suppliers to:

    a. ensure that adequate personnel and financial resources exist to implement conservation requirements not only for 2015, but also for another year of drought should it occur. Water suppliers that face budget shortfalls due to reduced sales should take immediate steps to raise necessary revenues in a way that actively promotes continued conservation;

    b. expedite implementation of new conservation programs by minimizing internal review periods and utilizing emergency authorities, as appropriate;

c. consider the relative water use and conservation practices of their customers and target those with higher water use to achieve proportionally greater reductions than those with low use;

d. minimize financial impacts to low-income customers;

e. preserve safe indoor water supplies in areas with very low R-GPCD and where necessary to protect public health and safety;

f. promote low-water use methods of preserving appropriate defensible space in fire-prone areas, consistent with local fire district requirements;

g. educate customers on the preservation of trees;

h. promote on-site reuse of water; and

i. promptly notify staff of the supplier's need for an alternate method of compliance pursuant to resolved paragraph 16.

11. The State Water Board calls upon all businesses within California's travel and tourism sectors to inform visitors of California's dire drought situation and actions visitors should take to conserve water;

12. The State Water Board commends wholesale water agencies that have set aggressive conservation targets for their retail water suppliers;

13. The State Water Board commends water suppliers that have made investments to boost drought-resistant supplies, such as advanced treated recycled water and desalination. Those investments help to make communities more resilient in the face of drought;

14. The State Water Board commends the many water suppliers that have already surpassed their 20x2020 conservation targets. Long-term conservation efforts are critical to maintaining economic and social well-being, especially in light of the impacts of climate change on California's hydrology;

15. During this drought emergency, heightened conservation that extends urban resilience is necessary. The State Water Board's focus is primarily on immediate reductions in outdoor water use. Some short-term conservation efforts, such as landscape conversions and installation of efficient appliances, will also support long-term conservation objectives, and are encouraged wherever possible;

16. The State Water Board recognizes that some commercial and industrial customers, while accounting for a significant portion of total use in a service area, have already taken steps to significantly reduce their water consumption and cannot further reduce their use without substantial impacts. However, the Board also recognizes that in many areas there are significant opportunities for reductions in water use by industries and commercial enterprises that have yet to take action, especially those with large areas of non-functional turf. The Board directs staff to respond promptly upon receipt of any request for alternate enforceable methods of compliance. If the supplier believes the conservation standard is unachievable due to firm commercial and industrial water use

and residential use reductions that would affect public health and safety, it should provide any supporting information or documentation for an alternate method of compliance; and

17. Some water suppliers have called for further refinement of the tiers to reflect a range of factors that contribute to water use, including but not limited to temperature, lot size, and income. Others have called for an approach that provides greater recognition for early investments in conservation, the development of local, drought resistant water supplies, and health and safety needs. These suggestions and many others are important considerations in the development of a more comprehensive, and long term, conservation framework. The State Water Board directs staff to work with stakeholders on a thoughtful process to devise options for extended and expanded emergency regulations should the drought continue into 2016.

CERTIFICATION

The undersigned Clerk to the Board does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on May 5, 2015.

AYE:	Chair Felicia Marcus Vice Chair Frances Spivy-Weber Board Member Tam M. Doduc Board Member Steven Moore Board Member Dorene D'Adamo
NAY:	None
ABSENT:	None
ABSTAIN:	None

Jeanine Townsend

Jeanine Townsend
Clerk to the Board

ADOPTED TEXT OF EMERGENCY REGULATION

Article 22.5. Drought Emergency Water Conservation.

Sec. 863. Findings of Drought Emergency.

(a) The State Water Resources Control Board finds as follows:

(1) On January 17, 2014, the Governor issued a proclamation of a state of emergency under the California Emergency Services Act based on drought conditions;

(2) On April 25, 2014, the Governor issued a proclamation of a continued state of emergency under the California Emergency Services Act based on continued drought conditions;

(3) On April 1, 2015, the Governor issued an Executive Order that, in part, directs the State Board to impose restrictions on water suppliers to achieve a statewide 25 percent reduction in potable urban usage through February, 2016; require commercial, industrial, and institutional users to implement water efficiency measures; prohibit irrigation with potable water of ornamental turf in public street medians; and prohibit irrigation with potable water outside newly constructed homes and buildings that is not delivered by drip or microspray systems;

(4) The drought conditions that formed the basis of the Governor's emergency proclamations continue to exist;

(5) The present year is critically dry and has been immediately preceded by two or more consecutive below normal, dry, or critically dry years; and

(6) The drought conditions will likely continue for the foreseeable future and additional action by both the State Water Resources Control Board and local water suppliers will likely be necessary to prevent waste and unreasonable use of water and to further promote conservation.

Authority: Section 1058.5, Water Code.
References: Cal. Const., Art., X § 2; Sections 102, 104, 105, and 275, Water Code; *Light v. State Water Resources Control Board* (2014) 226 Cal.App.4th 1463.

Sec. 864. End-User Requirements in Promotion of Water Conservation.

(a) To prevent the waste and unreasonable use of water and to promote water conservation, each of the following actions is prohibited, except where necessary to address an immediate health and safety need or to comply with a term or condition in a permit issued by a state or federal agency:

(1) The application of potable water to outdoor landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures;

(2) The use of a hose that dispenses potable water to wash a motor vehicle, except where the hose is fitted with a shut-off nozzle or device attached to it that causes it to cease dispensing water immediately when not in use;

(3) The application of potable water to driveways and sidewalks; and

(4) The use of potable water in a fountain or other decorative water feature, except where the water is part of a recirculating system;

(5) The application of potable water to outdoor landscapes during and within 48 hours after measurable rainfall;

(6) The serving of drinking water other than upon request in eating or drinking establishments, including but not limited to restaurants, hotels, cafes, cafeterias, bars, or other public places where food or drink are served and/or purchased;

(7) The irrigation with potable water of ornamental turf on public street medians; and

(8) The irrigation with potable water of landscapes outside of newly constructed homes and buildings in a manner inconsistent with regulations or other requirements established by the California Building Standards Commission and the Department of Housing and Community Development.

(b) To promote water conservation, operators of hotels and motels shall provide guests with the option of choosing not to have towels and linens laundered daily. The hotel or motel shall prominently display notice of this option in each guestroom using clear and easily understood language.

(c) Immediately upon this subdivision taking effect, all commercial, industrial and institutional properties that use a water supply, any portion of which is from a source other than a water supplier subject to section 865, shall either:

(1) Limit outdoor irrigation of ornamental landscapes or turf with potable water to no more than two days per week; or

(2) Reduce potable water usage supplied by sources other than a water supplier by 25 percent for the months of June 2015 through February 2016 as compared to the amount used from those sources for the same months in 2013.

(d) The taking of any action prohibited in subdivision (a) or the failure to take any action required in subdivisions (b) or (c), is an infraction, punishable by a fine of up to five hundred dollars ($500) for each day in which the violation occurs. The fine for the infraction is in addition to, and does not supersede or limit, any other remedies, civil or criminal.

Authority: Section 1058.5, Water Code.
References: Cal. Const., Art., X § 2; Sections 102, 104, 105, 275, 350, and 10617, Water Code; *Light v. State Water Resources Control Board* (2014) 226 Cal.App.4th 1463.

Sec. 865. Mandatory Actions by Water Suppliers.

(a) As used in this section:

(1) "Distributor of a public water supply" has the same meaning as under section 350 of the Water Code, except it does not refer to such distributors when they are functioning solely in a wholesale capacity, but does apply to distributors when they are functioning in a retail capacity.

(2) "R-GPCD" means residential gallons per capita per day.

(3) "Total potable water production" means all potable water that enters into a water supplier's distribution system, excluding water placed into storage and not withdrawn for use during the reporting period, or water exported outsider the supplier's service area.

(4) "Urban water supplier" means a supplier that meets the definition set forth in Water Code section 10617, except it does not refer to suppliers when they are functioning solely in a wholesale capacity, but does apply to suppliers when they are functioning in a retail capacity.

(b) In furtherance of the promotion of water conservation each urban water supplier shall:

(1) Provide prompt notice to a customer whenever the supplier obtains information that indicates that a leak may exist within the end-user's exclusive control.

(2) Prepare and submit to the State Water Resources Control Board by the 15th of each month a monitoring report on forms provided by the Board. The monitoring report shall include the amount of potable water the urban water supplier produced, including water provided by a wholesaler, in the preceding calendar month and shall compare that amount to the amount produced in the same calendar month in 2013. The monitoring report shall specify the population served by the urban water supplier, the percentage of water produced that is used for the residential sector, descriptive statistics on water conservation compliance and enforcement efforts, and the number of days that outdoor irrigation is allowed, and monthly commercial, industrial and institutional sector use. The monitoring report shall also estimate the gallons of water per person per day used by the residential customers it serves.

(c)(1) To prevent the waste and unreasonable use of water and to meet the requirements of the Governor's April 1, 2015 Executive Order, each urban water supplier shall reduce its total potable water production by the percentage identified as its conservation standard in this subdivision. Each urban water supplier's conservation standard considers its service area's relative per capita water usage.

(2) Each urban water supplier whose source of supply does not include groundwater or water imported from outside the hydrologic region in which the water supplier is located, and that has a minimum of four years' reserved supply available may, submit to the Executive Director for approval a request that, in lieu of the reduction that would otherwise be required under paragraphs (3) through (10), the urban water supplier shall reduce its total potable water production by 4 percent for each month as compared to the amount used in the same month in 2013. Any such request shall be accompanied by information showing that the supplier's sources of supply do not include groundwater or water imported from outside the hydrologic region and that the supplier has a minimum of four years' reserved supply available.

(3) Each urban water supplier whose average July-September 2014 R-GPCD was less than 65 shall reduce its total potable water production by 8 percent for each month as compared to the amount used in the same month in 2013.

(4) Each urban water supplier whose average July-September 2014 R-GPCD was 65 or more but less than 80 shall reduce its total potable water production by 12 percent for each month as compared to the amount used in the same month in 2013.

(5) Each urban water supplier whose average July-September 2014 R-GPCD was 80 or more but less than 95 shall reduce its total potable water production by 16 percent for each month as compared to the amount used in the same month in 2013.

(6) Each urban water supplier whose average July-September 2014 R-GPCD was 95 or more but less than 110 shall reduce its total potable water production by 20 percent for each month as compared to the amount used in the same month in 2013.

(7) Each urban water supplier whose average July-September 2014 R-GPCD was 110 or more but less than 130 shall reduce its total potable water production by 24 percent for each month as compared to the amount used in the same month in 2013.

(8) Each urban water supplier whose average July-September 2014 R-GPCD was 130 or more but less than 170 shall reduce its total potable water production by 28 percent for each month as compared to the amount used in the same month in 2013.

(9) Each urban water supplier whose average July-September 2014 R-GPCD was 170 or more but less than 215 shall reduce its total potable water production by 32 percent for each month as compared to the amount used in the same month in 2013.

(10) Each urban water supplier whose average July-September 2014 R-GPCD was 215 or more shall reduce its total potable water production by 36 percent for each month as compared to the amount used in the same month in 2013.

(d)(1) Beginning June 1, 2015, each urban water supplier shall comply with the conservation standard specified in subdivision (c).

(2) Compliance with the requirements of this subdivision shall be measured monthly and assessed on a cumulative basis.

(e)(1) Each urban water supplier that provides potable water for commercial agricultural use meeting the definition of Government Code section 51201, subdivision (b), may subtract the amount of water provided for commercial agricultural use from its potable water production total, provided that any urban water supplier that subtracts any water provided for commercial agricultural use from its total potable water production shall:

(A) Impose reductions determined locally appropriate by the urban water supplier, after considering the applicable urban water supplier conservation standard specified in subdivision (c), for commercial agricultural users meeting the definition of Government Code section 51201, subdivision (b) served by the supplier;

(B) Report its total potable water production pursuant to subdivision (b)(2) of this section, the total amount of water supplied for commercial agricultural use, and shall identify the reduction imposed on its commercial agricultural users and each recipient of potable water for commercial agricultural use;

(C) Certify that the agricultural uses it serves meet the definition of Government Code section 51201, subdivision (b); and

(D) Comply with the Agricultural Water Management Plan requirement of paragraph 12 of the April 1, 2015 Executive Order for all commercial agricultural water served by the supplier that is subtracted from its total potable water production.

(2) Submitting any information pursuant to subdivision (e)(1)(B) or (C) of this section that is found to be materially false by the board is a violation of this regulation, punishable by civil liability of up to five hundred dollars ($500) for each day in which the violation occurs. Every day that the error goes uncorrected constitutes a separate violation. Civil liability for the violation is in addition to, and does not supersede or limit, any other remedies, civil or criminal.

(f)(1) To prevent waste and unreasonable use of water and to promote water conservation, each distributor of a public water supply that is not an urban water supplier shall take one or more of the following actions:

(A) Limit outdoor irrigation of ornamental landscapes or turf with potable water by the persons it serves to no more than two days per week; or

(B) Reduce by 25 percent reduction its total potable water production relative to the amount produced in 2013.

(2) Each distributor of a public water supply that is not an urban water supplier shall submit a report by December 15, 2015, on a form provided by the Board, that either confirms compliance with subdivision (f)(1)(A) or identifies total potable water production, by month, from June through November, 2015, and total potable water production, by month, for June through November 2013.

Authority: Section 1058.5, Water Code.
References: Cal. Const., Art., X § 2; Sections 102, 104, 105, 275, 350, 1846, 10617 and 10632, Water Code; *Light v. State Water Resources Control Board* (2014) 226 Cal.App.4th 1463.

Sec. 866. Additional Conservation Tools.

(a)(1) To prevent the waste and unreasonable use of water and to promote conservation, when a water supplier does not meet its conservation standard required by section 865 the Executive Director, or the Executive Director's designee, may issue conservation orders requiring additional actions by the supplier to come into compliance with its conservation standard.

(2) A decision or order issued under this article by the board or an officer or employee of the board is subject to reconsideration under article 2 (commencing with section 1122) of chapter 4 of part 1 of division 2 of the California Water Code.

(b) The Executive Director, or his designee, may issue an informational order requiring water suppliers, or commercial, industrial or institutional properties that receive any portion of their supply from a source other than a water supplier subject to section 865, to submit additional information relating to water production, water use or water conservation. The failure to provide the information requested within 30 days or any additional time extension granted is a violation subject to civil liability of up to $500 per day for each day the violation continues pursuant to Water Code section 1846.

Authority: Section 1058.5, Water Code.
References: Cal. Const., Art., X § 2; Sections 100, 102, 104, 105, 174, 186, 187, 275, 350, 1051, 1122, 1123, 1825, 1846, 10617 and 10632, Water Code; *Light v. State Water Resources Control Board* (2014) 226 Cal.App.4th 1463.

APPENDIX C

Drought Response Tool
Central Basin User's Guide

Drought Response Tool
Central Basin User's Guide

TABLE OF CONTENTS

1. INTRODUCTION

The Drought Response Tool (DRT) is an Excel spreadsheet model that has been developed to assist Central Basin and its Retail Agencies with:

- Evaluating baseline water use by sector and by indoor/outdoor use;
- Identifying customer sectors (e.g., Residential; Commercial, Industrial and Institutional [CII]; and Dedicated Irrigation) and major end uses to target for water savings;
- Evaluating a menu of drought response actions and associated water savings potential; and
- Tracking progress against the water conservation standards mandated under the May 2015 State Water Resources Control Board (SWRCB) Emergency Water Conservation Regulation.

The following sections guide the user through the model structure and the key input parameters, assumptions, and calculations that form the basis of the DRT. The DRT data inputs are largely consistent with data that the Retail Agencies must report to the SWRCB as part of the Emergency Drought Regulations.

It should be noted that the DRT is only a predictive tool that generates a water savings potential based on an assumed set of water use and savings inputs by the user, including Drought Response Actions, savings estimates, and implementation rates. The DRT in no way guarantees water savings or other performance metrics.

2. DROUGHT RESPONSE TOOL STRUCTURE AND OVERVIEW

- **Structure:** The DRT consists of six, linked Excel worksheets:

  (1) Home
  (2) Water Use Inputs
  (3) Water Use Profile
  (4) Drought Response Actions
  (5) Estimated Water Savings
  (6) Drought Response Tracking

  A detailed guide to each worksheet is provided in Section 3.

- **Navigation:** Users can navigate between worksheets using buttons at the top of each sheet or the tabs at the bottom of the Excel window.

- **Color Coding:** On each worksheet, the cells highlighted in white indicate locations where supplier inputs are required or the user can adjust default values. The model will automatically populate all charts and cells highlighted in light blue based on the input data and associated model calculations. Certain cells will be highlighted in gray to indicate that the value is overridden and will not factor into calculations (cells highlighted in gray are discussed in more detail in Section 3.4).

- **Default Values:** In some cases, the white cells are populated with default values. If a user modifies the default values, the revisions will be displayed as **bold font** so the user can clearly track where they have made modifications within the DRT.

- **Instructions and Tips:** Instructions and tips are provided in cells marked with the symbol ⓘ and also appear in "pop ups" when certain cells are selected.

- **Data Validation.** Throughout the DRT there are a series of data validation checks to provide support to the user.

- **Functionality:** The DRT is designed to run on systems with Microsoft Office 2007 or later versions. For full functionality of the model, the user must enable the use of macros.[1]

[1] To enable the use of macros, click the Microsoft Office Button at the top left hand corner and then click Excel Options. Choose Trust Center from the menu at the left and then Trust Center Settings at the right. Under Macro Settings, select "Enable all macros." Alternatively you can follow instructions from Microsoft Help.

3. DROUGHT RESPONSE TOOL WORKSHEETS

This section provides a brief summary of the key DRT inputs, outputs and assumptions.

3.1 Worksheet 1 – Home

Input the following agency-specific information:

- **Agency Name:** Select from a drop down menu of Retail Agency names.
- **Total Population Served:** Population is assumed to be constant for the purpose of the DRT modeling. The population value entered should be consistent with what is being reported to the SWRCB.
- **Required Conservation Standard**: Select the Conservation Standard mandated by the SWRCB Emergency Conservation Regulations.
- **Number of Accounts by Sector:** The number of accounts for each sector (Residential, CII, and Dedicated Irrigation) is assumed to be constant for the purpose of the DRT modeling. If single-family and multi-family accounts are tracked separately, enter the combined number of both types of accounts under Residential accounts. If CII accounts are tracked separately, enter the combined number of all CII accounts.
- **Baseline Year:** The Baseline Year defines the year that corresponds with potable water production and use data that will be entered in *Worksheet 2 – Water Use Inputs*. The default Baseline Year is 2013, as required by the SWRCB Emergency

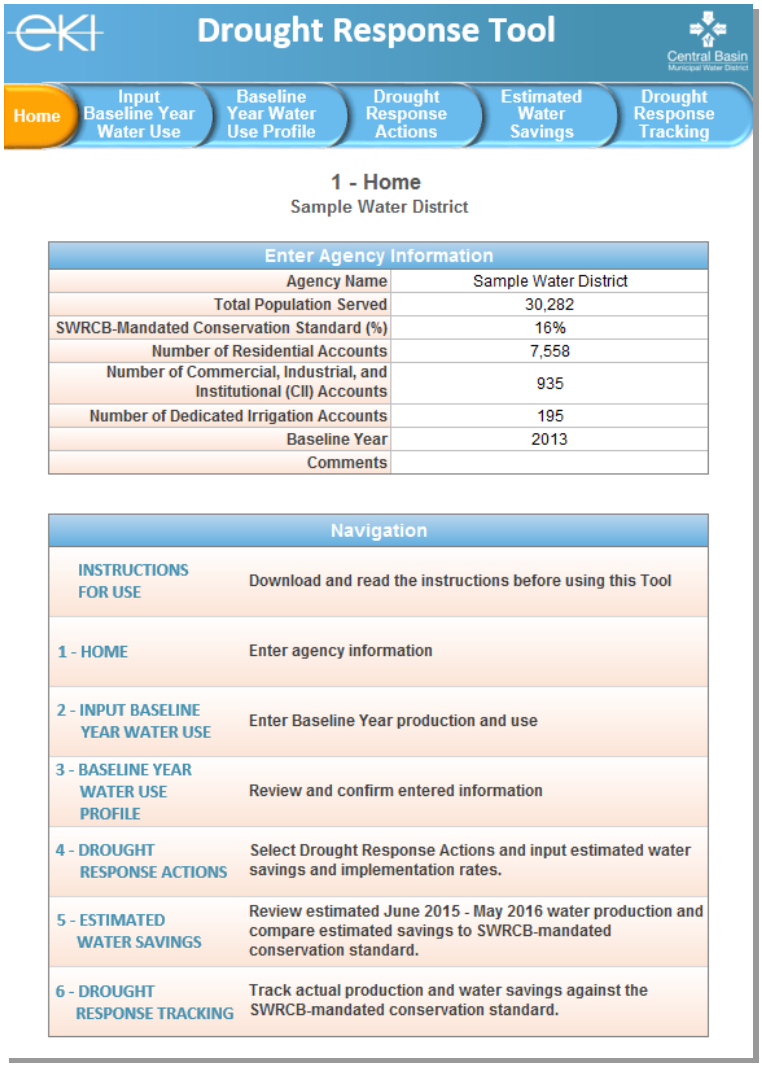


Figure 1: *Worksheet 1 – Home* of the DRT © 2015 Erler & Kalinowski, Inc.

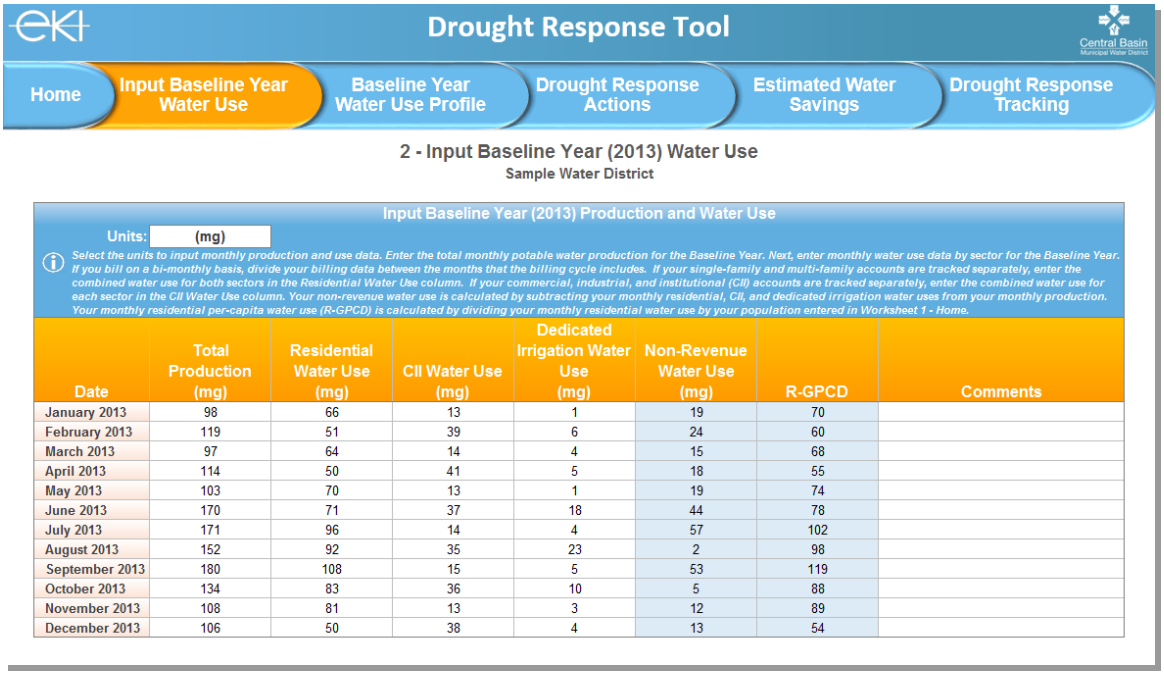
Conservation Regulations. However, the user may enter in a different Baseline Year, if desired.

Worksheet 1 – Home also provides users an overview for navigating the DRT and provides a live link to the *Central Basin Drought Response Tool User's Guide*, which is hosted on the Erler & Kalinowski, Inc. website.

3.2 Worksheet 2 – Water Use Inputs

Enter monthly potable water production and water use data for the Baseline Year (e.g., 2013). As before, these data should be consistent with what has been reported to the SWRCB. A drop down menu is provided in the table header to select the units for the input data (e.g., in million gallons, acre-feet, etc.). Baseline water use inputs include:

- **Monthly Production Data:** Enter the monthly potable water production for the Baseline Year, in the units selected in the table header.



Date	Total Production (mg)	Residential Water Use (mg)	CII Water Use (mg)	Dedicated Irrigation Water Use (mg)	Non-Revenue Water Use (mg)	R-GPCD	Comments
January 2013	98	66	13	1	19	70	
February 2013	119	51	39	6	24	60	
March 2013	97	64	14	4	15	68	
April 2013	114	50	41	5	18	55	
May 2013	103	70	13	1	19	74	
June 2013	170	71	37	18	44	78	
July 2013	171	96	14	4	57	102	
August 2013	152	92	35	23	2	98	
September 2013	180	108	15	5	53	119	
October 2013	134	83	36	10	5	88	
November 2013	108	81	13	3	12	89	
December 2013	106	50	38	4	13	54	

Figure 2: *Worksheet 2 – Water Use Data* of the DRT © 2015 Erler & Kalinowski, Inc.

- **Monthly Water Use Data by Sector:** Enter monthly water use by sector (Residential, CII, and Dedicated Irrigation) for the Baseline Year, in the units selected in the table header. Water use data will come from an agency's billing data for the Baseline Year and should be consistent with the values reported to the SWRCB. If water use data are collected on a bi-monthly basis, the water use data should be divided between the months that the billing cycle includes. If an agency's single-family and multi-family accounts are tracked separately, enter the combined water use in the Residential column. The same applies for the consolidation of water uses at CII and

Dedicated Irrigation accounts, if applicable. If the total water use by sector exceeds the amount entered for total production for a given month, the row will be highlighted in red.

- **Monthly Non-Revenue Water Use:** The DRT calculates non-revenue water use by subtracting the monthly Residential, CII, and Dedicated Irrigation water use volumes from the total monthly production.
- **R-GPCD:** The DRT calculates the monthly residential gallons per capita per day (R-GPCD) for the Baseline Year by dividing the residential water use by the total population specified in Worksheet 1.

Inputs from Worksheets 1 and 2 are used in the remaining worksheets to estimate water savings potential.

3.3 Worksheet 3 – Water Use Profile

This worksheet provides high-level, graphical summaries of an agency's Baseline Year water use by sector and by major end use (indoor versus outdoor). Users may select the units the data is displayed in from a drop down menu in the table header. By generally estimating how much of an agency's water use can be attributed to indoor use versus outdoor use and by sector, an agency can begin to identify areas and opportunities for water savings, see

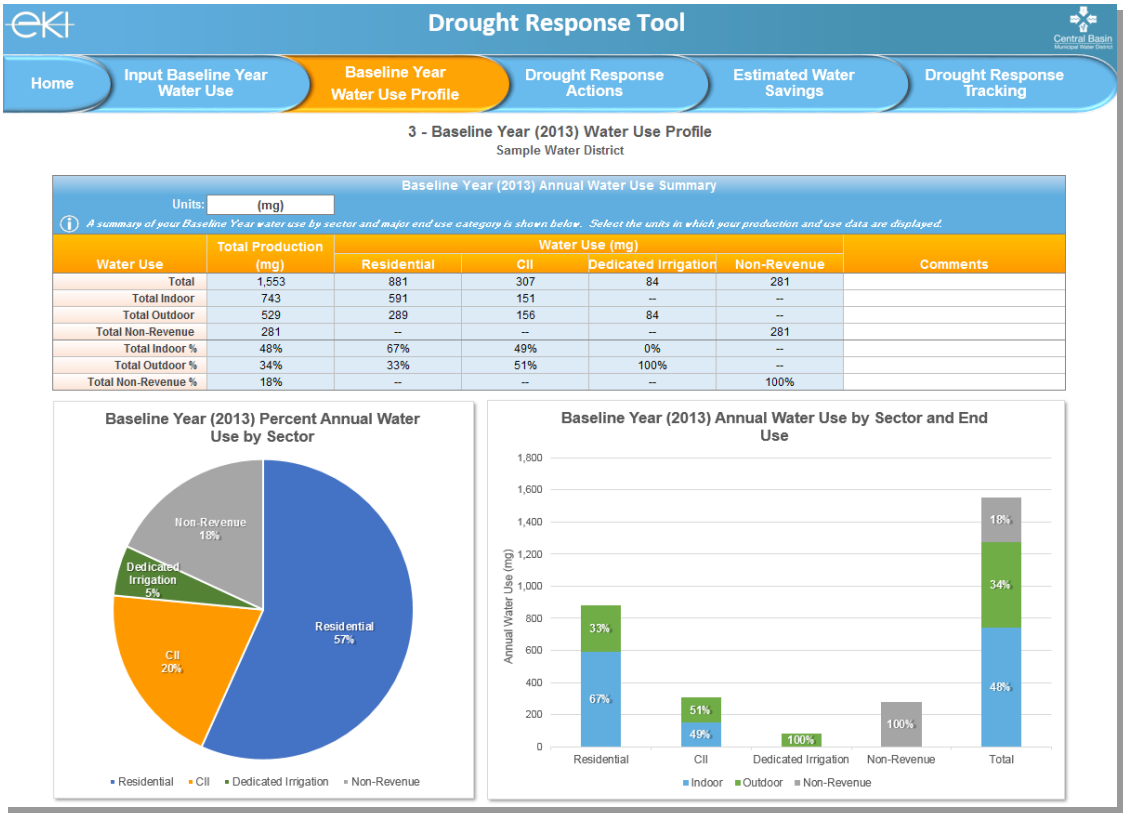


Figure 3: *Worksheet 3 – Water Use Profile* of the DRT © 2015 Erler & Kalinowski, Inc.

Figures 3 and 4. These data can also assist an agency is assessing where they can achieve water savings potential with minimal revenue impacts.

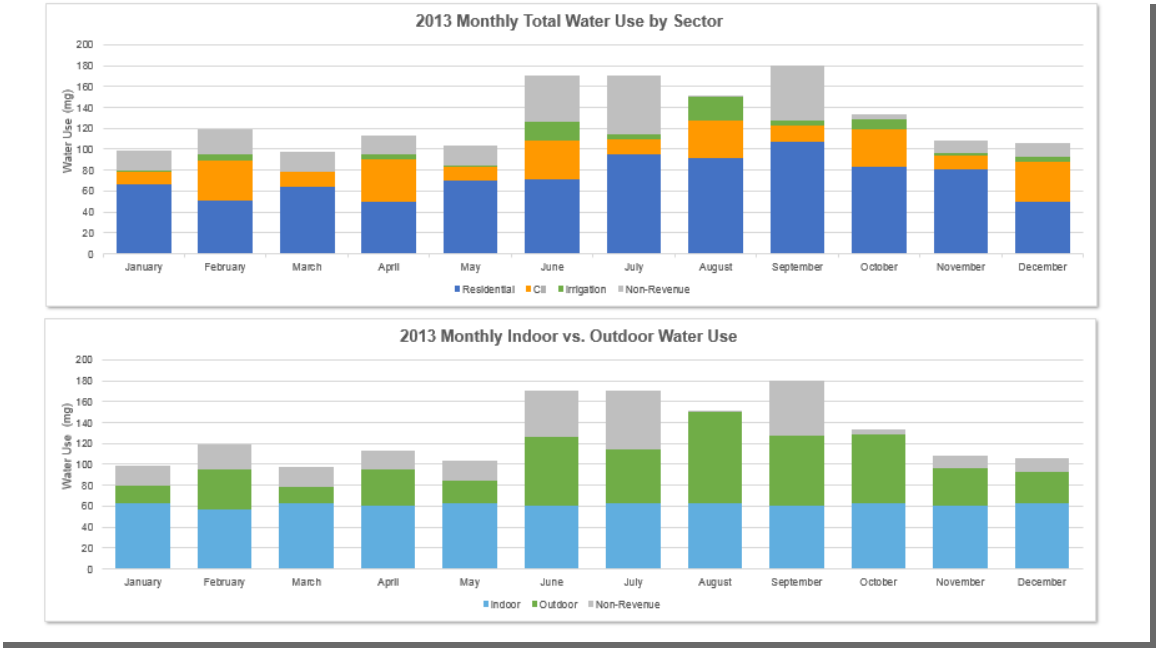


Figure 4: *Worksheet 3 – Water Use Profile* of the DRT © 2015 Erler & Kalinowski, Inc.

The following key assumptions were made in the DRT to support evaluation of supplier water use profiles:

(1) Monthly indoor use for each sector is assumed to be the amount of water used during the lowest water use month, normalized by the number of days in the month, based on the data entered by the user in *Worksheet 2 – Water Use Data*.

(2) Monthly outdoor use for each sector is calculated by subtracting the assumed monthly indoor water use [from (1)] from the total water use data entered by the user in *Worksheet 2 – Water Use Data.*

3.4 Worksheet 4 – Drought Response Actions

This worksheet provides a framework for estimating water savings associated with the implementation and enforcement of various Drought Response Actions. Key inputs include:

- **Maximum Savings Potential**: The DRT allows the Retail Agencies to establish sector-specific "caps" on the water savings potential that the DRT will estimate. Specifically, these caps limit the potential savings estimated by the DRT based on certain agency-defined criteria. For example, to protect the economic vitality of a City, an agency may want to limit CII indoor reductions to 10%. Therefore, the water savings for indoor water use for the CII sector shown in *Worksheet 5 – Estimated*

Water Savings will not exceed 10%, even if the water savings based on the selected indoor CII Drought Response Measures may exceed 10%.

The savings caps in the DRT include:

- Minimum allowable indoor residential use (R-GPCD);
- The maximum percent (%) reductions in residential outdoor use;
- The maximum % reduction in CII indoor use;
- The maximum % reduction in CII outdoor uses; and
- The maximum % reduction in dedicated irrigation use.

Based on the specified sector-specific caps, the DRT calculates the resulting % total maximum annual savings potential.

- **End Use Savings Potential**: Three pie chart graphs are shown towards the top of the worksheet that represent the assumed proportions of major end uses by sector based on published data (see Section 4). These end use proportions are used in the DRT water savings calculations in two ways:
  - The end use proportions are used in combination with the End-Use Savings Estimates and Implementation Rates to estimate the Drought Response Action-specific water savings; and
  - The end use proportions serve as a "cap" on the potential water savings estimates because the DRT does not allow a Drought Response Action or suite of Actions to "save" more water than the targeted end use uses. For example, no matter how many Actions are implemented that target toilets,

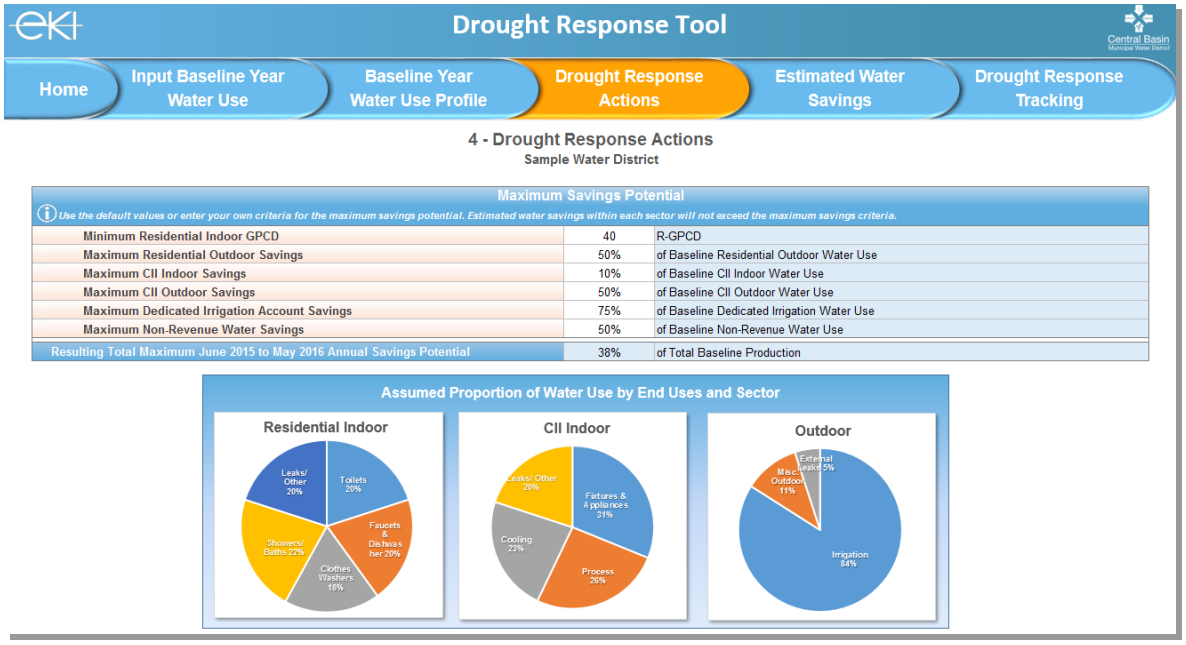
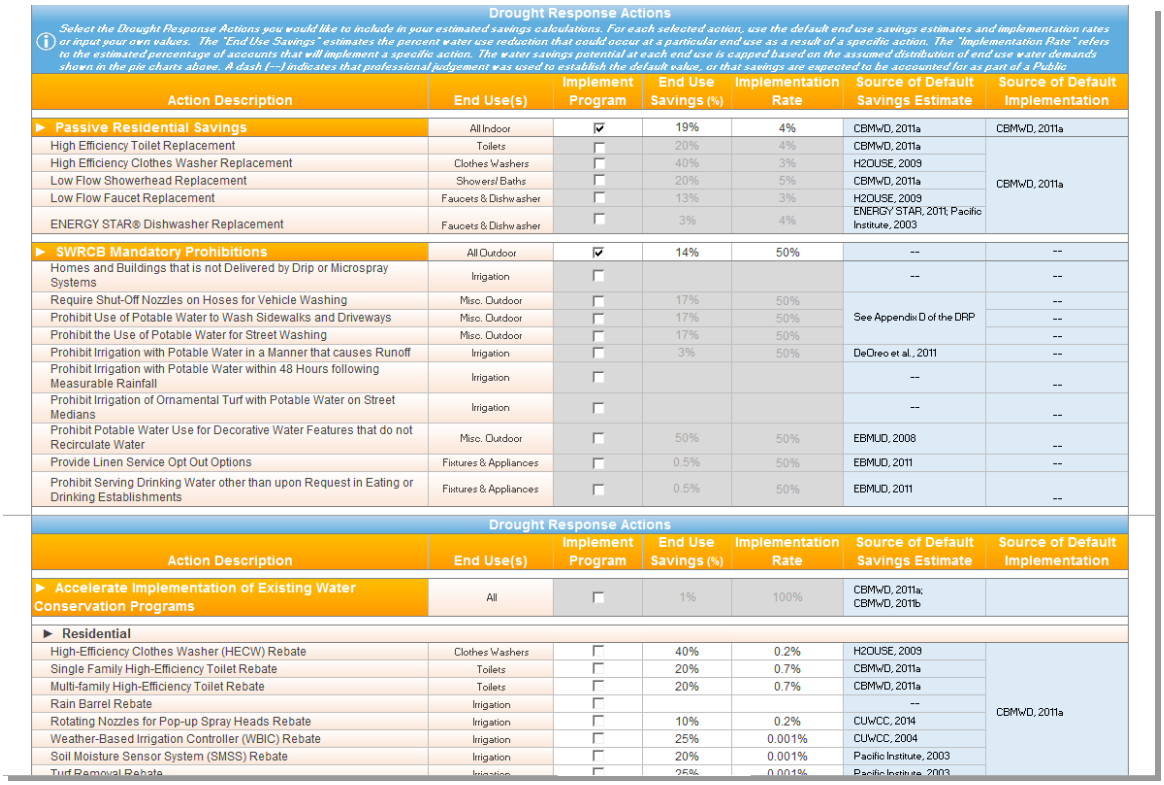


Figure 5: "Maximum Savings Potential" and "End Use Savings Potential" from *Worksheet 4 – Drought Response Actions* of the DRT © 2015 Erler & Kalinowski, Inc.

the DRT will not attribute a water savings greater than total amount of water assumed to be used by toilets.



Drought Response Actions

Select the Drought Response Actions you would like to include in your estimated savings calculations. For each selected action, use the default end use savings estimates and implementation rates or input your own values. The "End Use Savings" estimates the percent water use reduction that could occur at a particular end use as a result of a specific action. The "Implementation Rate" refers to the estimated percentage of accounts that will implement a specific action. The water savings potential at each end use is capped based on the assumed distribution of end use water demands shown in the pie charts above. A dash (---) indicates that professional judgement was used to establish the default value, or that savings are expected to be accounted for as part of a Public

Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation
► Passive Residential Savings	All Indoor	☑	19%	4%	CBMWD, 2011a	CBMWD, 2011a
High Efficiency Toilet Replacement	Toilets	☐	20%	4%	CBMWD, 2011a	
High Efficiency Clothes Washer Replacement	Clothes Washers	☐	40%	3%	H2OUSE, 2009	
Low Flow Showerhead Replacement	Showers/ Baths	☐	20%	5%	CBMWD, 2011a	CBMWD, 2011a
Low Flow Faucet Replacement	Faucets & Dishwasher	☐	13%	3%	H2OUSE, 2009	
ENERGY STAR® Dishwasher Replacement	Faucets & Dishwasher	☐	3%	4%	ENERGY STAR, 2011; Pacific Institute, 2003	
► SWRCB Mandatory Prohibitions	All Outdoor	☑	14%	50%	--	--
Homes and Buildings that is not Delivered by Drip or Microspray Systems	Irrigation	☐			--	--
Require Shut-Off Nozzles on Hoses for Vehicle Washing	Misc. Outdoor	☐	17%	50%		--
Prohibit Use of Potable Water to Wash Sidewalks and Driveways	Misc. Outdoor	☐	17%	50%	See Appendix D of the DRP	--
Prohibit the Use of Potable Water for Street Washing	Misc. Outdoor	☐	17%	50%		--
Prohibit Irrigation with Potable Water in a Manner that causes Runoff	Irrigation	☐	3%	50%	DeOreo et al., 2011	--
Prohibit Irrigation with Potable Water within 48 Hours following Measurable Rainfall	Irrigation	☐			--	--
Prohibit Irrigation of Ornamental Turf with Potable Water on Street Medians	Irrigation	☐			--	--
Prohibit Potable Water Use for Decorative Water Features that do not Recirculate Water	Misc. Outdoor	☐	50%	50%	EBMUD, 2008	--
Provide Linen Service Opt Out Options	Fixtures & Appliances	☐	0.5%	50%	EBMUD, 2011	--
Prohibit Serving Drinking Water other than upon Request in Eating or Drinking Establishments	Fixtures & Appliances	☐	0.5%	50%	EBMUD, 2011	--

Drought Response Actions

Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation
► Accelerate Implementation of Existing Water Conservation Programs	All	☐	1%	100%	CBMWD, 2011a; CBMWD, 2011b	
► Residential						
High-Efficiency Clothes Washer (HECW) Rebate	Clothes Washers	☐	40%	0.2%	H2OUSE, 2009	
Single Family High-Efficiency Toilet Rebate	Toilets	☐	20%	0.7%	CBMWD, 2011a	
Multi-family High-Efficiency Toilet Rebate	Toilets	☐	20%	0.7%	CBMWD, 2011a	
Rain Barrel Rebate	Irrigation	☐			--	
Rotating Nozzles for Pop-up Spray Heads Rebate	Irrigation	☐	10%	0.2%	CUWCC, 2014	CBMWD, 2011a
Weather-Based Irrigation Controller (WBIC) Rebate	Irrigation	☐	25%	0.001%	CUWCC, 2004	
Soil Moisture Sensor System (SMSS) Rebate	Irrigation	☐	20%	0.001%	Pacific Institute, 2003	
Turf Removal Rebate	Irrigation	☐	25%	0.001%	Pacific Institute, 2003	

Figure 6: "Passive Residential Savings," "SWRCB Mandatory Prohibitions," and "Accelerate Implementation of Existing Water Conservation Program" actions from Worksheet 4 – Drought Response Actions of the DRT © 2015 Erler & Kalinowski, Inc.

- **Potential Drought Response Actions**: A customized menu of potential Drought Response Actions or "Actions" is provided for Retail Agency consideration. For each Action the Worksheet lists:
    - The associated end use(s) targeted by that Action;
    - The default estimated savings as a percentage of those end uses compared to baseline uses;
    - The default implementation rate (percentage of accounts that will take advantage of or comply with that Action); and
    - The basis of the default savings and implementation rates.

  Users can select the Drought Response Actions they wish to implement and include in the estimated savings calculations. The Drought Response Actions with cells highlighted in gray indicate that the action is overridden by another selected Action and will not factor into water savings calculations, even if selected.

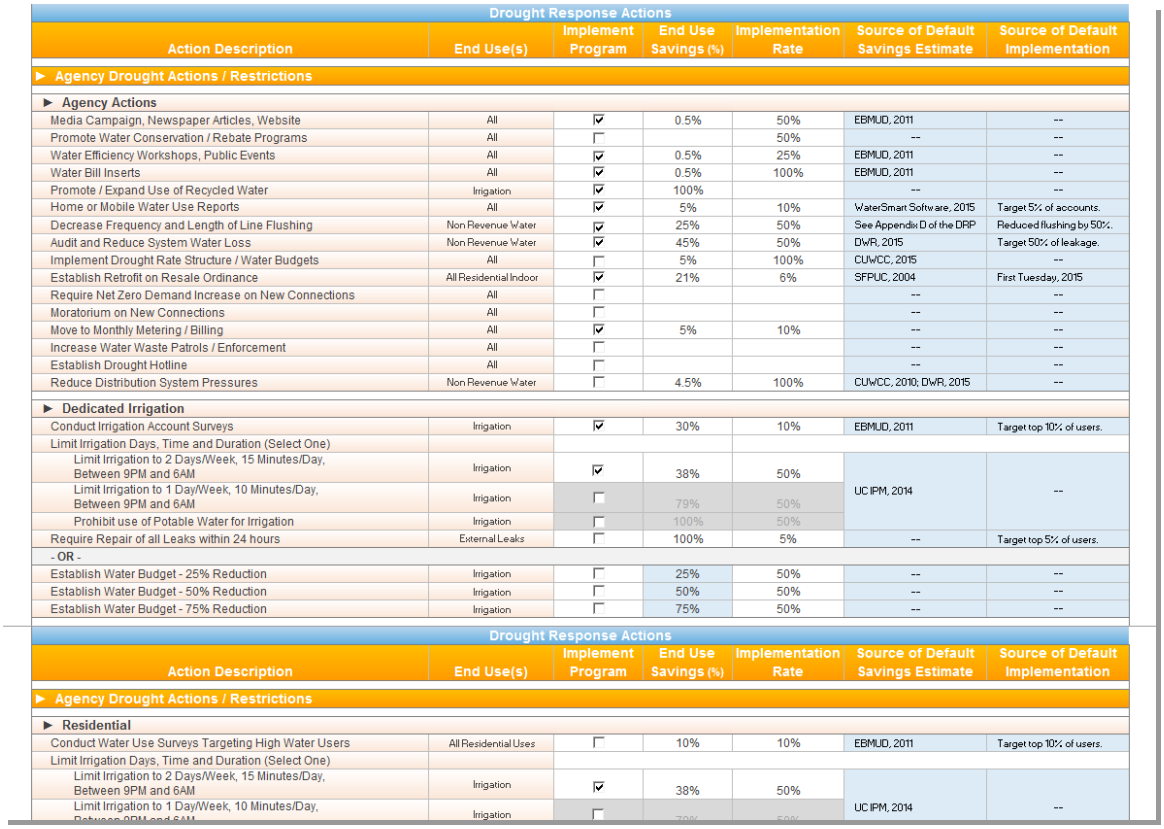
  Default values for end use savings and implementation rates are provided based on a variety of local and regional water use studies and generalizations. However,

all of these values may be adjusted by users based on their understanding of the communities they serve and their intended implementation and enforcement actions, wherever possible.

The suites of Actions and associated default water savings and implementation rates are presented in the following groupings and are based on the sources indicated in the Worksheet.

- **Passive Residential Savings**: Passive water savings are the savings that results from the natural replacement of toilets, showerheads, and other fixtures and appliances whose minimum use efficiency is dictated by national, state, or local code requirements, and are more water-efficient than the fixtures they replace (see Figure 6).
- **SWRCB Mandatory Prohibitions:** The May 2015 SWRCB regulation prohibits certain water uses by water customers (see Figure 6). The failure of water customers to comply with these restrictions can result in the water customer being fined up to $500 per day for each day in which the violation occurs.
- **Accelerate Implementation of Existing Water Conservation Programs:** The Retail Agencies already implement and take advantage of a number of water conservation programs or measures. However, in response to the drought conditions, an agency may choose to promote and encourage these measures more aggressively than in normal years. Users can adjust the assumed water savings and implementation rates to reflect the amount of additional savings anticipated by aggressively promoting these measures. Modifications to the default values will automatically display in **bold font**.
- **Agency Drought Actions / Restrictions:** Potential Drought Response Actions and prohibitions that and agency may choose to implement are provided here and shown in Figure 7. These actions and prohibitions are grouped by (1) actions that can be taken by the supplier, (2) actions/prohibitions specific to dedicated irrigation accounts, (3) actions/prohibitions that target residential water use, and (4) actions/prohibitions that target CII water use.

- **Customer Actions to Encourage:** These are Actions that the Retail Agencies may encourage its customers to perform as part of a general education campaign targeting behavioral modifications. These actions are provided for informational purposes; the default savings values assume that the water savings associated with them are captured by an agency's overall public information campaign. Users can, however, adjust the assumed water savings and implementation rates to estimate the amount of additional savings anticipated by aggressively promoting these actions.



Drought Response Actions

Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation
► Agency Drought Actions / Restrictions						
► Agency Actions						
Media Campaign, Newspaper Articles, Website	All	☑	0.5%	50%	EBMUD, 2011	--
Promote Water Conservation / Rebate Programs	All	☐		50%	--	--
Water Efficiency Workshops, Public Events	All	☑	0.5%	25%	EBMUD, 2011	--
Water Bill Inserts	All	☑	0.5%	100%	EBMUD, 2011	--
Promote / Expand Use of Recycled Water	Irrigation	☑	100%		--	--
Home or Mobile Water Use Reports	All	☑	5%	10%	WaterSmart Software, 2015	Target 5% of accounts.
Decrease Frequency and Length of Line Flushing	Non Revenue Water	☑	25%	50%	See Appendix D of the DRP	Reduced flushing by 50%.
Audit and Reduce System Water Loss	Non Revenue Water	☑	45%	50%	DWR, 2015	Target 50% of leakage.
Implement Drought Rate Structure / Water Budgets	All	☐	5%	100%	CUWCC, 2015	--
Establish Retrofit on Resale Ordinance	All Residential Indoor	☑	21%	6%	SFPUC, 2004	First Tuesday, 2015
Require Net Zero Demand Increase on New Connections	All	☐			--	--
Moratorium on New Connections	All	☐			--	--
Move to Monthly Metering / Billing	All	☑	5%	10%	--	--
Increase Water Waste Patrols / Enforcement	All	☐			--	--
Establish Drought Hotline	All	☐			--	--
Reduce Distribution System Pressures	Non Revenue Water	☐	4.5%	100%	CUWCC, 2010; DWR, 2015	--
► Dedicated Irrigation						
Conduct Irrigation Account Surveys	Irrigation	☑	30%	10%	EBMUD, 2011	Target top 10% of users.
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	Irrigation	☑	38%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	79%	50%		
Prohibit use of Potable Water for Irrigation	Irrigation	☐	100%	50%		
Require Repair of all Leaks within 24 hours	External Leaks	☐	100%	5%	--	Target top 5% of users.
- OR -						
Establish Water Budget - 25% Reduction	Irrigation	☐	25%	50%	--	--
Establish Water Budget - 50% Reduction	Irrigation	☐	50%	50%	--	--
Establish Water Budget - 75% Reduction	Irrigation	☐	75%	50%	--	--

Drought Response Actions

Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation
► Agency Drought Actions / Restrictions						
► Residential						
Conduct Water Use Surveys Targeting High Water Users	All Residential Uses	☐	10%	10%	EBMUD, 2011	Target top 10% of users.
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	Irrigation	☑	38%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day,	Irrigation	☐				

Figure 7: "Agency Drought Actions / Restrictions" from *Worksheet 4 – Drought Response Actions* of the DRT © 2015 Erler & Kalinowski, Inc.

3.5 Worksheet 5 – Estimated Water Savings

Worksheet 5 displays the estimated potential monthly water production and savings for June 2015 through May 2016, compared to the Baseline Year production data, and based on the selected suite of Drought Response Actions (and assumed end use savings estimates and implementation rates). As shown on Figure 8, tables and charts display how the estimated savings compare to the SWRCB-mandated Conservation Standards by month and cumulatively from June 2015 through May 2016. Users may select the units that the data are displayed in from a drop down menu in the table header. If it appears that an agency

will not meet its target, cells in the Potential Cumulative Savings column will be highlighted in red.

It should be noted that the DRT is only a predictive tool that generates a water savings potential based on an assumed set of water use and savings inputs by the user, including Drought Response Actions, savings estimates, and implementation rates. The DRT in no way guarantees water savings or other performance metrics.

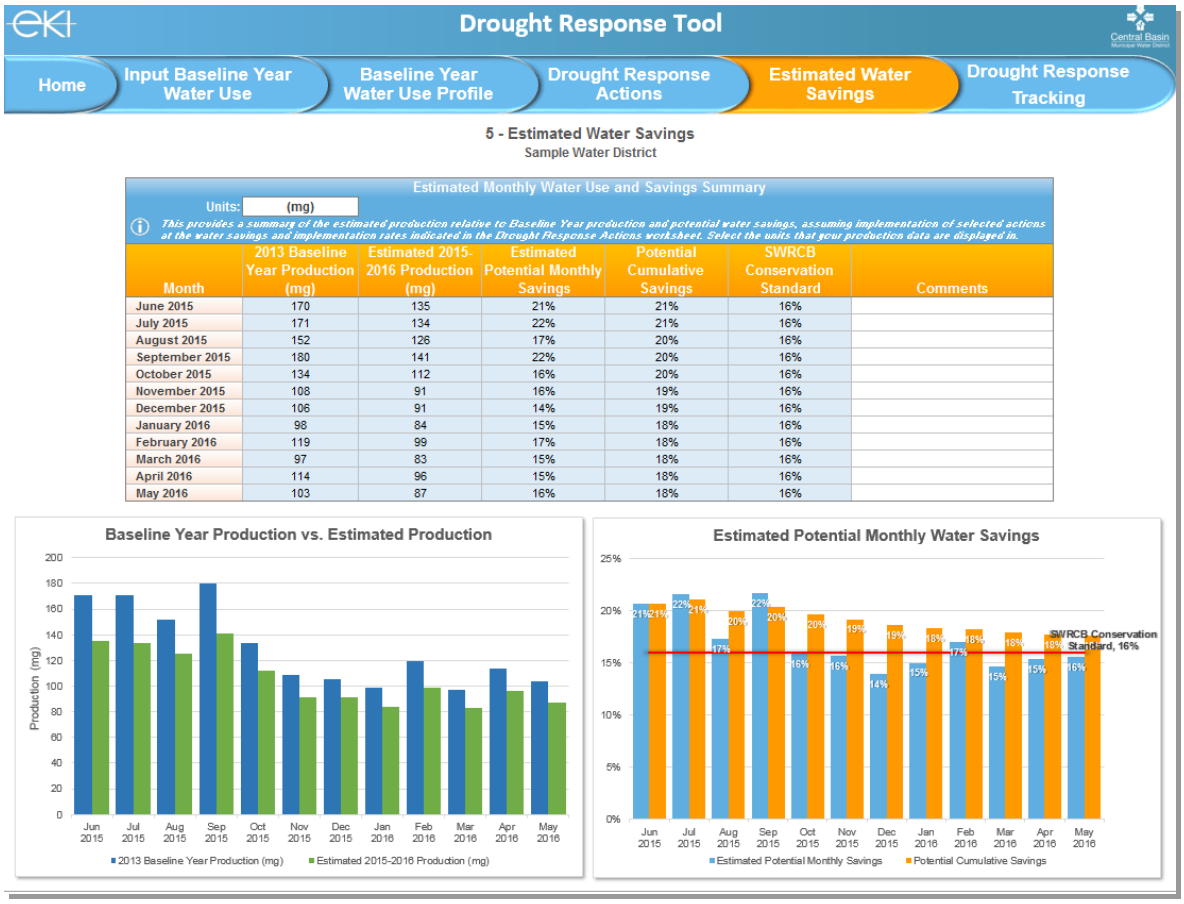


Figure 8: *Worksheet 5 – Estimated Water Savings* of DRT © 2015 Erler & Kalinowski, Inc.

3.6 Worksheet 6 – Drought Response Tracking

Worksheet 6 can be used to track an agency's water production/savings and progress towards meeting the SWRCB-mandated Conservation Standard. Users can input their production data for 2015/2016. The monthly and cumulative savings compared to the Baseline Year data are then calculated. As shown on Figure 9, tables and charts display these savings compared to the SWRCB-mandated Conservation Standard. Users may select the units the data are displayed in from a drop down menu in the table header. If an agency

did not meet its target, cells in the 2015-2016 Cumulative Savings column will be highlighted in red.

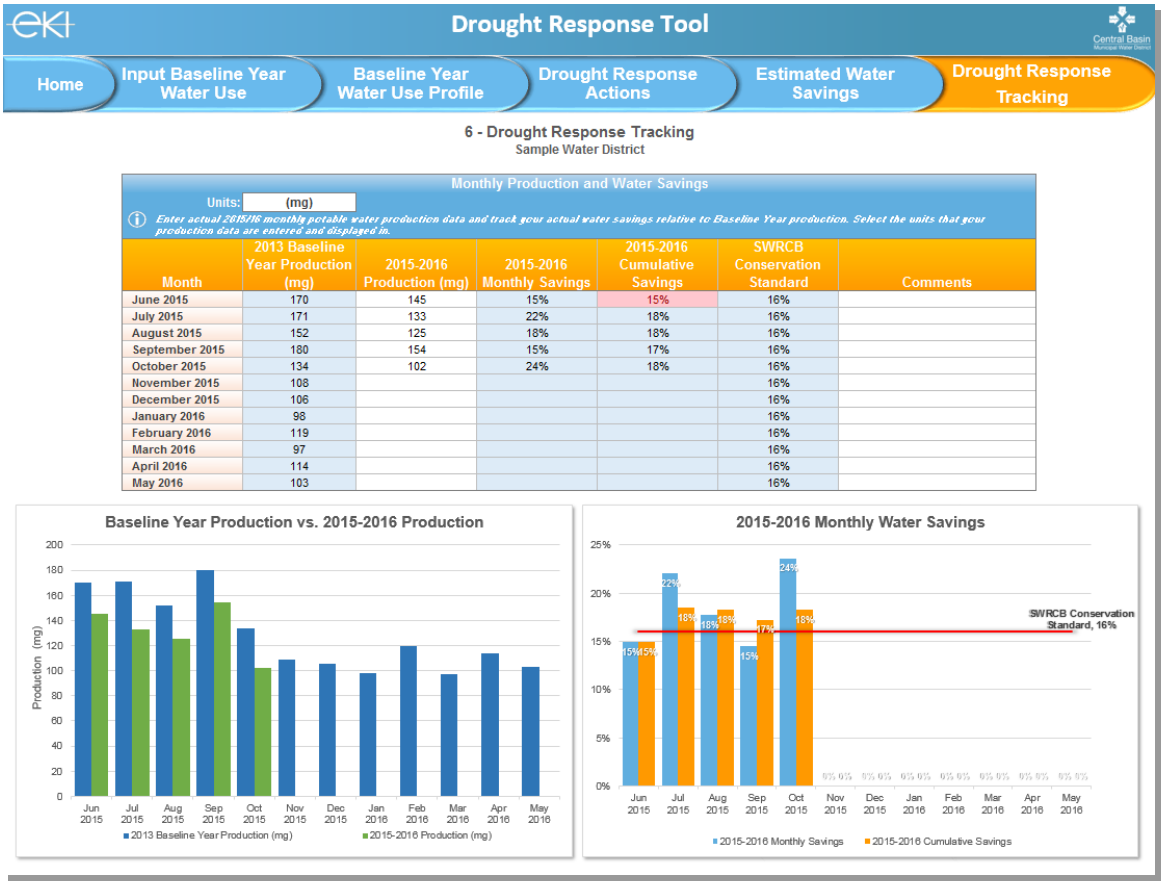


Figure 9: *Worksheet 6 – Drought Response Tracking* of DRT © 2015 Erler & Kalinowski, Inc.

For additional information and guidance, please contact Anona Dutton at adutton@ekiconsult.com or (650) 292-9100.

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APPENDIX D

Drought Response Tool
Drought Response Action Default Values, References, and Assumptions

ID	Action Description	Default Value		References and/or Assumptions for Default Value	
		End Use Savings	Implementation Rate	End Use Savings	Implementation Rate
Passive Residential Savings		19%	4%	Estimated cumulative savings from passive conservation.	Default replacement rates are consistent with those assumed in CBMWD (2011a).
1	High Efficiency Toilet (HET) Replacement	20%	4%	A 1.28 gallon/flush HET replacing a 1.6 gallon/flush toilet reduces toilet water use by 20% (CBMWD, 2011a).	
2	High Efficiency Clothes Washer Replacement	40%	3%	High-efficiency clothes washers reduce the average water use per load by 40% (H2OUSE, 2009).	
3	Low Flow Showerhead Replacement	20%	5%	A 2.0 gpm showerhead replacing a 2.5 gpm showerhead reduces shower water use by 20% (CBMWD, 2011a).	
4	Low Flow Faucet Replacement	13%	3%	New faucet aerators can create a 13% reduction in daily per capita faucet water use (H2OUSE, 2009).	
5	ENERGY STAR® Dishwasher Replacement	3%	4%	ENERGY STAR (2011) estimated an average qualified dishwasher uses 63% less water compared to models purchased before 1994; this reduction is equivalent to 3% of indoor faucets and dishwasher use (Pacific Institute, 2003).	
SWRCB Mandatory Prohibitions		14%	50%	Estimated cumulative savings from enforcement of SWRCB mandatory prohibitions.	Default assumes 50% of accounts comply.
6	Prohibit Irrigation with Potable Water Outside of Newly Constructed Homes and Building that is not Delivered by Drip or Microspray Systems	--	--	No savings are assumed because this measure only impacts new accounts.	
7	Require Shut-Off Nozzles on Hoses for Vehicle Washing	17%	50%	Assumes cumulative reduction in miscellaneous outdoor water use of 50%.	
8	Prohibit Use of Potable Water to Wash Sidewalks and Driveways	17%	50%		
9	Prohibit the Use of Potable Water for Street Washing	17%	50%		
10	Prohibit Irrigation with Potable Water in a Manner that causes Runoff	3%	50%	DeOreo et al. (2011) estimated that 3% of residential single family outdoor use is due to overwatering.	
11	Prohibit Irrigation with Potable Water within 48 Hours following Measurable Rainfall	--	--	Savings assumed to be captured in other restrictions on outdoor irrigation.	
12	Prohibit Irrigation of Ornamental Turf with Potable Water on Street Medians	--	--	No default assumption because savings will vary widely with agency.	
13	Prohibit Potable Water Use for Decorative Water Features that do not Recirculate Water	50%	50%	EBMUD (2008) estimates recirculating water in water features can reduce water use by 50%.	
14	Provide Linen Service Opt Out Options	0.50%	50%	Savings consistent with EBMUD (2011) estimated savings for public information campaigns.	
15	Prohibit Serving Drinking Water other than upon Request in Eating or Drinking Establishments	0.50%	50%		

ID	Action Description	Default Value		References and/or Assumptions for Default Value	
		End Use Savings	Implementation Rate	End Use Savings	Implementation Rate
Accelerate Implementation of Existing Water Conservation Programs		1%	100%	Total water savings estimate from CBMWD (2011a) is 2,023 AFY, which is 1% of the estimated 2015 demand of 266,825 AFY (CBMWD, 2011b).	Assumes 100% implementation of the 2011 CBMWD Water-Use Efficiency Master Plan (CBMWD, 2011a).
► Residential					
16	High-Efficiency Clothes Washer (HECW) Rebate	40%	0.20%	See (2)	Default is consistent with the number of planned rebate activities for 2015 (CBMWD, 2011a) relative to an estimated total number of residential accounts (CBMWD, 2011b).
17	Single Family High-Efficiency Toilet Rebate	20%	0.70%	See (1)	
18	Multi-family High-Efficiency Toilet Rebate	20%	0.70%	See (1)	
19	Rain Barrel Rebate	--	--	No default assumption because savings will vary widely.	
20	Rotating Nozzles for Pop-up Spray Heads Rebate	10%	0.20%	CUWCC (2014) reports savings between 9 and 12% from rotating nozzles.	
21	Weather-Based Irrigation Controller (WBIC) Rebate	25%	0.001%	CUWCC (2004) reports savings between 21 and 28% from WBICs.	
22	Soil Moisture Sensor System (SMSS) Rebate	20%	0.001%	Pacific Institute (2003) estimates savings between 10 and 29% from soil moisture sensors.	
23	Turf Removal Rebate	25%	0.001%	Pacific Institute (2003) estimates savings between 19 and 33% from turf removal.	
► CII					
24	Weather-Based Irrigation Controller (WBIC) Rebate	25%	1.1%	See (21)	1.1% is the average annual implement rate required to achieve the CUWCC coverage requirement of 9% reduction in CII water use over ten years (CUWCC, 2008) by implementing these existing conservation programs. Assumes similar water use between CII indoor uses and outdoor uses..
25	Central Computer Irrigation Controller (CCIC) Rebate	25%	1.1%	Pacific Institute (2003) estimates 25% savings from irrigation controllers.	
26	Large Rotary Nozzles Rebate	10%	1.1%	See (20)	
27	Rotating Nozzles for Pop-up Spray Heads Rebate	10%	1.1%		
28	High-Efficiency Toilet Tank Rebate	20%	1.1%	See (1)	
29	High-Efficiency Toilet Flush Meter Rebate	20%	1.1%	See (1)	
30	Zero Water Urinal Rebate	13%	1.1%	Pacific Institute (2003) estimates 13% of fixtures and appliances use in CII is urinal use.	
31	pH-Cooling Tower Controller (pH-CTC) Rebate	40%	1.1%	Cooling tower controllers can save up to 40% of CII customer water costs (SoCal WaterSmart).	
32	Cooling Tower Conductivity Controller (CTCC) Rebate				

ID	Action Description	Default Value		References and/or Assumptions for Default Value	
		End Use Savings	Implementation Rate	End Use Savings	Implementation Rate
33	Dry Vacuum Pump Rebate	0.14%	1.1%	Dry vacuum pumps eliminate water use for vacuum systems, which typically account for 7% of hospital water use (Vickers, 2001), equivalent of 0.14% of CII indoor use (Pacific Institute, 2003).	
34	Connectionless Food Steamer Rebate	0.80%	1.1%	ENERGY STAR (2011) estimates qualified steamers save 90% or more water when compared with standard steam cooker models, while food preparation accounts for 9% of process water use (Pacific Institute, 2003).	
35	Ice-Making Machine Rebate	1.30%	1.1%	ENERGY STAR (2011) estimates qualified ice-makers are 23% more water-efficient when compared with standard models, while ice-making accounts for 5.7% of process water use (Pacific Institute, 2003).	
36	Laminar Flow Restrictor Rebate	2%	1.1%	A qualifying flow restrictor reduces faucet water use from 2.2 gpm to 1.5 gpm in medical facilities (SoCal WaterSmart; Conservation Warehouse); medical facilities accounts for 2% of CII indoor use (Pacific Institute 2003).	
37	In-stem Flow Regulator Rebate	25%	1.1%	Rebate-qualifying regulators can regulate up to 25% of sprinkler flow (SoCal WaterSmart; Valvette Systems, 2015).	
38	Plumbing Flow Control Rebate	6%	1.1%	SoCal WaterSmart estimates flow control valves can reduces water flow in faucets and showers by up to 60%, which is equivalent to 6% of indoor fixtures and appliances use (Pacific Institute, 2003).	
39	Soil Moisture Sensor System (SMSS) Rebate	20%	1.1%	See (22)	
40	Turf Removal Rebate / Public Agency Landscape Rebate	25%	1.1%	See (23)	
► Public Outreach					
41	Gardening Workshops	10%	5%	SFPUC, 2004	Default assumes 5% of water users implement savings.
42	School Education Program	1%	5.5%	BAWSCA, 2014	CBMWD (2015) estimates a program participation of 21,587 students during the 2014-2015 school year. This is equivalent to 5.5% of the population under 18 years in the CBMWD service area, given the estimated service population of 1,689,064 in 2015 (CBMWD, 2011b) of which approximately 23% are persons under 18 years (USCB, 2015).

ID	Action Description	Default Value		References and/or Assumptions for Default Value	
		End Use Savings	Implementation Rate	End Use Savings	Implementation Rate
Agency Drought Actions / Restrictions					
► Agency Actions					
43	Media Campaign, Newspaper Articles, Website	0.50%	50%	Savings estimates for public education (EBMUD, 2011).	Target 50% of water users
44	Promote Water Conservation / Rebate Programs	--	50%	No unique savings - assumes savings have been accounted for in active conservation program savings estimates.	
45	Water Efficiency Workshops, Public Events	0.50%	25%	See (43)	Target 25% of water users
46	Water Bill Inserts	0.50%	100%	See (43)	Include bill inserts for 100% of customers.
47	Promote / Expand Use of Recycled Water	100%	--	Assumes 100% of demand will be met with recycled water.	No default assumption because implementation will vary widely.
48	Home or Mobile Water Use Reports	5%	10%	WaterSmart Software (2015) estimates that on average utilities achieve 5% water savings within 12 months of using the software.	Target 10% of accounts.
49	Decrease Frequency and Length of Line Flushing	25%	50%	Assume 25% of non-revenue water is line flushing use.	Reduce flushing by 50%.
50	Audit and Reduce System Water Loss	45%	50%	DWR, 2015	Target 50% of leakage.
52	Implement Drought Rate Structure / Water Budgets	5%	100%	Water rates can be increased to incentivize conservation (CUWCC, 2015).	--
53	Establish Retrofit on Resale Ordinance	21%	6%	SFPUC, 2004	Home turnover rate was 6.1% during 2013 in Los Angeles County (First Tuesday, 2015).
54	Require Net Zero Demand Increase on New Connections	--	--	No savings are assumed because this measure only impacts new accounts.	--
55	Moratorium on New Connections	--	--		
56	Move to Monthly Metering / Billing	5%	10%	Assume similar savings as Home or Mobile Water Use Reports.	Target at least top 10% of water using accounts.
51	Increase Water Waste Patrols / Enforcement	--	--	No unique savings - needed for implementation and effectiveness of other measures.	--
57	Establish Drought Hotline	--	--	No unique savings - needed for implementation and effectiveness of other measures.	--
58	Reduce Distribution System Pressures	4.5%	100%	A 10% reduction in pressure would yield a 10% reduction in leakage (CUWCC, 2010), which is 4.5% of non-revenue water (DWR, 2015).	Assumes implementation is system-wide.
► Dedicated Irrigation					
59	Conduct Irrigation Account Surveys	30%	10%	EBMUD WCMP (2011) estimated savings of 5 to 30% for dedicated irrigation water use.	Target top 10% of water users.

ID	Action Description	Default Value		References and/or Assumptions for Default Value	
		End Use Savings	Implementation Rate	End Use Savings	Implementation Rate
61	Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	38%	50%	Percentage reduction from an assumed irrigation duration of 48 minute, which is what is required for healthy lawns in Southern California (UC IPM, 2014).	Default assumes 50% of accounts comply.
62	Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	79%	50%		
63	Prohibit use of Potable Water for Irrigation	100%	50%		
64	Require Repair of all Leaks within 24 hours	100%	5%	Assumes 100% of external leaks are fixed.	Target top 5% of water users.
65	Establish Water Budget - 25% Reduction	25%	50%	Savings assumed to be commensurate with water budget targets.	Default assumes 50% of accounts comply.
66	Establish Water Budget - 50% Reduction	50%	50%		
67	Establish Water Budget - 75% Reduction	75%	50%		
► Residential					
68	Conduct Water Use Surveys Targeting High Water Users	10%	10%	EBMUD WCMP (2011) estimated savings of 10% for residential indoor uses and 5% to 10% for residential outdoor uses.	Target top 10% of water users.
69	Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	38%	50%	See (61)	Default assumes 50% of accounts comply.
70	Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	79%	50%		
71	Prohibit use of Potable Water for Irrigation	100%	50%		
72	Prohibit Vehicle Washing Except Recycled Water	50%	50%	See (13)	Default assumes 50% of accounts comply.
73	Require Repair of all Leaks within 24 hours	100%	5%	See (64)	Target 5% of residential accounts.
74	Require Pool Covers	28%	25%	Maddaus & Mayer (2001) estimated 28% reduction in swimming pool water use in pools with cover.	Default assumes 25% of accounts comply.
75	Prohibit Filling of Pools	55%	25%	Pool water use at Single Family Residential accounts is 6% of outdoor use, which is equivalent to 55% of miscellaneous outdoor use (DeOreo et al., 2011).	Default assumes 25% of accounts comply.
76	Establish Water Budget - 10% Reduction	10%	50%	Savings assumed to be commensurate with water budget targets.	Default assumes 50% of accounts comply.
77	Establish Water Budget - 20% Reduction	20%	50%		
► CII					
78	Conduct CII Surveys Targeting High Water Users	10%	10%	EBMUD WCMP (2011) estimated savings of 10% for CII indoor uses and 5% to 10% for CII outdoor uses.	Target top 10% of water users.

ID	Action Description	Default Value		References and/or Assumptions for Default Value	
		End Use Savings	Implementation Rate	End Use Savings	Implementation Rate
79	Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	38%	50%	See (61)	Default assumes 50% of accounts comply.
80	Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	79%	50%		
81	Prohibit Use of Potable Water for Construction and Dust Control	--	100%	--	Assumes full compliance.
82	Prohibit Single-Pass Cooling Systems	80%	1%	Retrofitting a single-pass cooling system can reduce up to 80% of water use (Vickers, 2001).	Assumes 1% of CII accounts applicable.
83	Require Repair of all Leaks within 24 hours	100%	5%	See (64)	Target 5% of CII accounts.
84	Prohibit Vehicle Washing Except Recycled Water	50%	50%	See (13)	Default assumes 50% of accounts comply.
85	Require Water-Efficient Pre-Rinse Spray Valves	0.80%	50%	An EPA WaterSense labeled pre-rinse spray valve uses 20% less water than standard models (EPA, 2015), which is equivalent of 0.8% of CII fixtures and appliance use (Pacific Institute, 2003).	Default assumes 50% of accounts comply.
86	Establish Water Budget - 10% Reduction	10%	50%	Savings assumed to be commensurate with water budget targets.	Default assumes 50% of accounts comply.
87	Establish Water Budget - 20% Reduction	20%	50%		
88	Establish Water Budget - 30% Reduction	30%	50%		
Customer Actions to Encourage					
89	Install Bathroom Faucet Aerators	--	--	No unique savings - savings assumed to be accounted for in public information campaign savings estimates.	--
90	Install a Water-Efficient Showerhead	--	--		
91	Turn Off Water when Brushing Teeth, Shaving, Washing Dishes, or Cooking	--	--		
92	Fill the Bathtub Halfway	--	--		
93	Wash Only Full Loads of Clothes	--	--		
94	Install a High-Efficiency Toilet	--	--		
95	Take Shorter Showers	--	--		
96	Run Dishwasher Only When Full	--	--		
97	Reduce Outdoor Irrigation	--	--		

ID	Action Description	Default Value		References and/or Assumptions for Default Value	
		End Use Savings	Implementation Rate	End Use Savings	Implementation Rate
98	Install Drip-Irrigation	--	--	No unique savings - savings assumed to be accounted for in public information campaign savings estimates.	--
99	Use Mulch	--	--		
100	Plant Drought Resistant Trees and Plants	--	--		
101	Use a Broom to Clean Outdoor Areas	--	--		
102	Flush Less Frequently	--	--		
103	Re-Use Shower or Bath Water for Irrigation	--	--		
104	Wash Car at Facility that Recycles the Water	--	--		