NORTH MARIN
WATER DISTRICT

Water Shortage Contingency Plan
2020 Update
North Marin Water District

June 2021

NORTH MARIN WATER DISTRICT

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1. INTRODUCTION

☑ ***CWC § 10640***

(a) Every urban water supplier required to prepare a plan pursuant to this part shall prepare its plan pursuant to Article 2 (commencing with Section 10630). The supplier shall likewise periodically review the plan as required by Section 10621, and any amendments or changes required as a result of that review shall be adopted pursuant to this article.

(b) Every urban water supplier required to prepare a water shortage contingency plan shall prepare a water shortage contingency plan pursuant to Section 10632. The supplier shall likewise periodically review the water shortage contingency plan as required by paragraph (10) of subdivision (a) of Section 10632 and any amendments or changes required as a result of that review shall be adopted pursuant to this article.

North Marin Water District's (NMWD's or District's) Water Shortage Contingency Plan (WSCP) has been developed to serve as a flexible framework of planned response measures to mitigate future water supply shortages. This WSCP builds upon and supersedes the WSCP that was presented in the 2015 Urban Water Management Plan (UWMP).

The WSCP includes the stages of response to a water shortage caused by drought or by supply interruptions caused by infrastructure failure, regulatory mandate, or catastrophic human-caused or natural events. The primary objective of the WSCP is to ensure that the District has in place the necessary resources and management responses needed to protect health and human safety, minimize economic disruption, and preserve environmental and community assets during water supply shortages and interruptions. The WSCP also includes procedures to conduct an annual assessment of water supply and demand in order to determine whether water shortage conditions are likely to exist in the forthcoming year, and to proactively begin the process of implementing WSCP stages of action, as appropriate.

This WSCP has been prepared in accordance with California Water Code (CWC) CWC § 10640 and CWC § 10632 of the Urban Water Management Plan (UWMP) Act. Text from the UWMP Act has been included in grey text boxes with italicized font at beginning of relevant sections of this WSCP. The information presented in the respective WSCP sections and the associated text and tables are collectively intended to fulfill the requirements of that sub-section of the UWMP Act.

It should be noted that the WSCP is being updated at the same time the North Marin Water District is going through a water shortage emergency and that the previous WSCP (updated in 2016) has been activated to respond to the current situation. If the water shortage continues into subsequent years, this updated plan may be used to respond and guide further actions.

2. WATER SUPPLY RELIABILITY ANALYSIS

☑ ***CWC § 10632 (a) (1)*** *The analysis of water supply reliability conducted pursuant to Section 10635.*

This section provides a summary of the District's water supply reliability analysis, recognizing that the WSCP is intended to be a standalone document that can be adopted and amended independently.

The District relies and plans to rely on two main water supply sources, including surface water supplies from the Sonoma County Water Agency (SWCA) and local surface water (i.e., Stafford Lake).

The reliability analysis was performed based on, among other things, SWCA's water reliability analysis and the District's local surface water supplies. Based on the service reliability analysis, the District is expected to have adequate water supplies during normal years, single dry years, and multiple dry years to meet projected demands through 2045.

A Drought Risk Assessment (DRA) was also conducted during the water supply reliability assessment, which evaluates the effects on available water supply sources of an assumed five-year drought commencing the year after the assessment is completed (i.e., from 2021 through 2025). Based on the DRA, the District is expected to have sufficient water supply from 2021 to 2025 in this multi-year drought scenario, although as described in this WSCP, there are a number of actions that the District will implement to reduce demands and further ensure supply reliability at various levels of water shortage.

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3. PRIOR DROUGHT ACTIONS

The District has historically developed different strategies for reducing water demand during water shortages. The District's actions in response to the recent severe drought that occurred in California between 2014 and 2017 are discussed below.

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 directed the State Water Resources Control Board (SWRCB) to impose the first ever mandatory restrictions on urban water suppliers to achieve a statewide 25% reduction in potable urban water usage through February 2016. The Executive Order also required commercial, industrial, and institutional (CII) users to implement water efficiency measures, prohibited irrigation with potable water of ornamental turf in public street medians, and prohibited irrigation with potable water outside newly constructed homes and buildings that were not delivered by drip or microspray systems, along with numerous other directives.

On 5 May 2015, the SWRCB adopted Resolution 2015-0032 that mandated minimum actions by water suppliers and their customers to conserve water supplies into 2016 and assigned a mandatory water conservation savings goal to each water supplier based on a measurement of their residential water use in gallons per capita per day (R-GPCD). The Office of Administrative Law approved the regulations and modified the CWC on 18 May 2015. On 2 February 2016, the SWRCB voted to extend the emergency regulations until October 2016 with some modifications. On 9 May 2016, the Governor issued Executive Order B-37-16, which directed the SWRCB to extend the emergency regulations through the end of January 2017 as well as make certain water use restrictions permanent. On 18 May 2016, the SWRCB adopted Resolution 2016-0029 that adjusted the water conservation savings goal and replaced the February 2016 emergency regulation. The SWRCB may take separate action to make some of the requirements of the regulations permanent in response to the Executive Order.

The mandatory conservation standards included in CWC § 865(c) range from 8% for suppliers with an R-GPCD below 65 R-GPCD, up to 36% for suppliers with an R-GPCD of greater than 215 GPCD. As with previous emergency drought regulations adopted by the SWRCB in 2014, the new water conservation regulation was primarily intended to reduce outdoor urban water use. Based on their R-GPCD, the District was required to reduce water use by 24% relative to its 2013 water use.

Through enactment of its 2010 WSCP, the District surpassed these reduction targets. During the June 2015 through May 2016 compliance period, the District surpassed its water use reduction target with a cumulative savings of 31% relative to its 2013 use.

In June 2016, the District adopted its 2015 UWMP and associated WSCP update. In April 2017, the Governor Brown ended the drought State of Emergency.

In March 2021, the District activated the 2016 WSCP to respond to a water shortage emergency and approved Emergency Water Conservation Ordinance 41 for the Novato Service Area. The Ordinance was subsequently amended in April and May of 2021 to add specific water use prohibitions to go into effect 1 July 2021 aimed at a 20% reduction in water use as compared to 2020. Ordinance 41 calls for 20% voluntary reductions through 30 June 2021 and a service area wide mandatory reduction of 20% from 1 July 2021 to 1 November 2021.

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4. ANNUAL WATER SUPPLY AND DEMAND ASSESSMENT PROCEDURES

☑ ***CWC § 10632 (a) (2)***

The procedures used in conducting an annual water supply and demand assessment that include, at a minimum, both of the following:

(A) The written decision-making process that an urban water supplier will use each year to determine its water supply reliability.

(B) The key data inputs and assessment methodology used to evaluate the urban water supplier's water supply reliability for the current year and one dry year, including all of the following:

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

(ii) Current year available supply, considering hydrological and regulatory conditions in the current year and one dry year. The annual supply and demand assessment may consider more than one dry year solely at the discretion of the urban water supplier.

(iii) Existing infrastructure capabilities and plausible constraints.

(iv) A defined set of locally applicable evaluation criteria that are consistently relied upon for each annual water supply and demand assessment.

(v) A description and quantification of each source of water supply.

☑ ***CWC § 10632.1***

An urban water supplier shall conduct an annual water supply and demand assessment pursuant to subdivision (a) of Section 10632 and, on or before July 1 of each year, submit an annual water shortage assessment report to the department with information for anticipated shortage, triggered shortage response actions, compliance and enforcement actions, and communication actions consistent with the supplier's water shortage contingency plan. An urban water supplier that relies on imported water from the State Water Project or the Bureau of Reclamation shall submit its annual water supply and demand assessment within 14 days of receiving its final allocations, or by July 1 of each year, whichever is later.

☑ ***CWC § 10632.2***

An urban water supplier shall follow, where feasible and appropriate, the prescribed procedures and implement determined shortage response actions in its water shortage contingency plan, as identified in subdivision (a) of Section 10632, or reasonable alternative actions, provided that descriptions of the alternative actions are submitted with the annual water shortage assessment report pursuant to Section 10632.1. Nothing in this section prohibits an urban water supplier from taking actions not specified in its water shortage contingency plan, if needed, without having to formally amend its urban water management plan or water shortage contingency plan.

On an annual basis, the District will conduct an Annual Assessment to identify whether there is likely to be a water shortage condition in the following year. Because the District's substantial source of potable water supply is from SCWA, the evaluation of SCWA supplies for a particular year will be based on information provided by SCWA.

For purposes of this assessment, a water shortage condition is defined as an anticipated shortfall of up to 20%, corresponding to Water Shortage Level 2. Each element of the Annual Assessment is described

below, along with the key data inputs and methodologies for determining these elements, and expected timing of the decision process.

1. Evaluation Criteria

The evaluation criteria that will be used to identify whether the District is likely to experience a water shortage in the coming year include:

a. SCWA Available Supply –SCWA will develop and present the draft annual assessment to the Technical Advisory Committee (TAC) at the April meeting. The final annual assessment will be presented at the June TAC meeting. The District is a member of the TAC and the Water Advisory Committee (WAC) that represents the major cities and water districts that receive water delivered by Sonoma Water aqueduct system. The District will conduct the Annual Assessment regarding the SCWA available supply as part of a coordinated effort led by SCWA.

Further details about the evaluation criteria and procedure used by SCWA in conducting an Annual Assessment could be found in **Attachment 1** of this WSCP. As discussed in **Attachment 1**, evaluation criteria used by SCWA include:

- Unconstrained customer demand for each of SCWA's wholesale customers, considering weather, growth, and other influencing factors;
- Russian River operations, including current reservoir releases from Lake Sonoma and Mendocino and anticipated releases to meet in-stream flow requirements and water demand;
- Hydrology and watershed conditions, including Lake Sonoma and Lake Mendocino cumulative inflows and storage levels, soil moisture, and snowpack; and
- Potter Valley Project inflows, including Lake Pillsbury storage levels and observed and projected project transfers.

b. Stafford Lake Available Supply –The Stafford Lake supply availability is not the primary driver when considering a water shortage condition. It is possible that in a given year, this supply may be low or limited and yet the SCWA supply is not. In general, a normal rainfall year provides sufficient runoff to fill the lake allowing for production from this source to supplement SCWA supply.

c. State Regulatory Conditions - Evaluation of any state-mandated drought or water use restrictions known during preparation of the Annual Assessment.

These criteria will be assessed by District staff with detailed knowledge of District operations. The data used to support these assessments may include, but are not limited to: regional rainfall data, SCWA lake storage levels and Forecast Informed Reservoir Operation (FIRO) outputs, annual Marin County briefing by the Monterey Office of the National Weather Service, "Precipitation

Outlook" data (1-3 month outlooks) from the National Oceanic and Atmospheric Administration's (NOAA's) Climate Prediction Center, and system demand.

2. Water Supply

   On the basis of the evaluation criteria above and available supporting information, the District will quantify the projected available supply over the forthcoming year. This quantification will likely be a range, and subject to revision as new data are available and as conditions evolve.

3. Unconstrained Customer Demand

   Unconstrained customer demands (i.e., the expected water use in the absence of shortage-caused reductions in water use) will be evaluated and estimated for the forthcoming year based on:

   - A comparison of monthly customer demands relative to prior years (e.g., last 3 years),
   - Evaluation of current and anticipated weather conditions,
   - New demands anticipated during the coming year (e.g., new accounts coming online), and
   - Any other potentially pertinent factors identified by the District (e.g., pandemic-related stay-at-home orders).

4. Planned Water Use for Current Year Considering Dry Subsequent Year

   The District will compare the estimated unconstrained demands to the anticipated supplies for the current year, assuming that the following year will be dry (i.e., a 20% supply shortfall), using the Evaluation Criteria identified above.

5. Infrastructure Considerations

   The District will evaluate how infrastructure capabilities and constraints may affect its ability to deliver supplies to meet expected customer water demands in the coming year. The constraints and capabilities are expected to include, among other things:

   - Anticipated capital projects and upgrades, and
   - Anticipated maintenance and repairs.

6. Team Members and Decision Makers

   Key team members involved in the evaluation and decision-making process described herein include key staff of the Engineering and Operations Departments, the Auditor-Controller, and the General Manager.

7. Timeline

Table 4-1 Annual Assessment Procedures Decision-Making Timeline

Decision-Making Step	Start Date	End Date
Determining water supplies by source for the current year	December	January
Calculating the water supply reliability using spreadsheet, computer model, or other method	March	April
Determining shortages and response actions	April	May
Preparing and presenting preliminary report to District Board	February	May
Updating assessment based on final water supplies	April	May
Using WSCP to activate the appropriate protocols	April	May
Obtain Draft Annual Assessment from SCWA; Provide Comments on SCWA Draft Assessment; Incorporate the SCWA's draft Annual Assessment to the District's Annual Assessment	April	April
Preparing annual water shortage assessment report	April	May
Preparing decision-making documents for approval	April	May
Obtain Final Annual Assessment from SCWA and update the District's assessment	May	June
Implementing WSCP actions as approved	May	June
Sending final annual water shortage assessment report to the State	June	No later than July 1st of each year beginning in 2022
NOTES:		

Consistent with California Water Code (CWC) § 10632.1, the District will perform and submit an Annual Assessment to DWR by July 1st of each year beginning in 2022.

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5. WATER SHORTAGE LEVELS

☑ ***CWC § 10632 (a) (3)***

(A) Six standard water shortage levels corresponding to progressive ranges of up to 10, 20, 30, 40, and 50 percent shortages and greater than 50 percent shortage. Urban water suppliers shall define these shortage levels based on the suppliers' water supply conditions, including percentage reductions in water supply, changes in groundwater levels, changes in surface elevation or level of subsidence, or other changes in hydrological or other local conditions indicative of the water supply available for use. Shortage levels shall also apply to catastrophic interruption of water supplies, including, but not limited to, a regional power outage, an earthquake, and other potential emergency events.

(B) An urban water supplier with an existing water shortage contingency plan that uses different water shortage levels may comply with the requirement in subparagraph (A) by developing and including a cross-reference relating its existing categories to the six standard water shortage levels.

Consistent with the requirements of CWC § 10632(a)(3), this WSCP is based on the six water shortage levels (also referred to as "stages") shown in **Table 5-1**. These stages are intended to address shortage caused by any condition, including the catastrophic interruption of water supplies.

Table 5-1 Water Shortage Contingency Plan Levels (DWR Table 8-1)

Shortage Level	Percent Shortage Range	Shortage Response Actions
1	Up to 10%	• Determination based on specific Dry Conditions as determined by the District, SCWA, or SWRCB that the District must reduce water use by up to 10%.
2	Up to 20%	• Determination based on specific Dry Conditions or a Temporary Impairment of water supply as determined by the District, SCWA, or SWRCB that the District must reduce water use by up to 20%.
3	Up to 30%	• Determination based on Dry Conditions or a Temporary Impairment of water supply as determined by the District, SCWA, or SWRCB that the District must reduce water use by up to 30%.
4	Up to 40%	• Determination based on specific Critical Dry Conditions or a Temporary Impairment of water supply as determined by the District, SCWA, or SWRCB that the District must reduce water use by up to 40%.
5	Up to 50%	• Determination based on specific Critical Dry Conditions or a Temporary Impairment of water supply as determined by the District, SCWA, or SWRCB that the District must reduce water use by up to 50%.
6	>50%	• Determination based on specific Critical Dry Conditions or a Temporary Impairment of water supply as determined by the District, SCWA, or SWRCB that the District must reduce water use by more than 50%.
NOTES:		

6. SHORTAGE RESPONSE ACTIONS

☑ ***CWC § 10632 (a) (4)***

Shortage response actions that align with the defined shortage levels and include, at a minimum, all of the following:

(A) Locally appropriate supply augmentation actions.

(B) Locally appropriate demand reduction actions to adequately respond to shortages.

(C) Locally appropriate operational changes.

(D) Additional, mandatory prohibitions against specific water use practices that are in addition to state-mandated prohibitions and appropriate to the local conditions.

(E) For each action, an estimate of the extent to which the gap between supplies and demand will be reduced by implementation of the action.

☑ ***CWC § 10632 (b)***

For purposes of developing the water shortage contingency plan pursuant to subdivision (a), an urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code.

This section describes the response actions the District will take to deal with the shortages associated with each of the six stages enumerated in Section 5. The response actions consist primarily of demand reduction measures and associated penalties or charges as well as enforcement and operational changes as detailed in the tables below.

6.1. Supply Augmentation

There are currently no supply augmentation actions planned in the District's shortage response actions. However, as discussed in Section 6.7 of the UWMP, potential transfer and exchange opportunities exist with other SCWA contractors under the Restructured Agreement.

6.2. Demand Reduction Methods

Consumption reduction methods are actions that are taken by the District to reduce water demand within the Novato service area. These actions, summarized in **Table 6-1** and **Table 6-2**, include expanded customer outreach, various customer rebates, decreased line flushing, increased water waste patrols and a Drought Revenue Recovery Surcharge. The monthly and cumulative annual water savings impacts associated with each restriction, prohibition and consumption reduction method were quantitatively estimated using the Drought Response Tool (DRT) for each stage of action, as described in Section 6.5 and included in **Attachment 2**.

Table 6-1 Demand Reduction Actions (DWR Table 8-2)

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap?	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement?
1	Other	Up to 10 percent	1. Encourage the non-commercial washing of privately-owned motor vehicles, trailers and boats only from a bucket and except that a hose equipped with a shut-off nozzle may be used for a quick rinse. 2. Request restaurants, hotels, cafes, cafeterias, bars or other public places where food or drink are served/purchased to serve water only upon request. 3. Navy style showering will be promoted (e.g., turn on water to wet person or persons, turn off water, lather up, scrub, then turn on water for a quick rinse, then turn off shower with free push button showerhead control valves available to customers upon request). 4. Request hotel and motel operators to provide guests with the option of choosing not to have towels and linens laundered daily. 5. Enforce water-waste prohibitions as defined in District Regulation 15, Section B. 6. Prohibit washing of sidewalks, driveways, parking areas, tennis courts, patios or other exterior paved areas except by the Novato Fire Protection District or other public agency for the purpose of public safety.	No
2	Other	Up to 20 percent	1. Continue with action and measures from Stage 1 except where superseded by more stringent requirements. 2. Prohibit use of potable water for dust control at construction sites or other locations. 3. Prohibit any use of potable water from a fire hydrant except for fighting fire, human consumption, essential construction needs or use in connection with animals. 4. Require repair of all leaks within 48 hours. 5. Restrict irrigation to three days per week, between the hours of 7pm and 9am. 6. Prohibit refilling completely drained swimming pools and/or initial filling of any swimming pools.	Yes

Table 6-1 Demand Reduction Actions (DWR Table 8-2)

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap?	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement?
3	Other	Up to 30 percent	1. Continue with action and measures from Stage 2 except where superseded by more stringent requirements. 2. Prohibit non-commercial washing of privately-owned motor vehicles, trailers and boats except from a bucket and except that a hose equipped with a shut-off nozzle may be used for a quick rinse. 3. Prohibit watering of any lawn, garden, landscaped area, tree, shrub or other plant except from a hand-held hose or container or drip irrigation system. Sprinklers can be used if customer maintains the volume or percent reduction pursuant to the NMWD Board of Directors determination compared to a prior year's use in same billing period. 4. Prohibit potable or raw watering any portion of a golf course with potable water except the tees and greens, unless the customer maintains the specified water use reduction and mandated by the District. 5. Prohibit any non-residential use by a vehicle washing facility in excess of the volume percent or reduction pursuant to the NMWD Board of Directors determination. 6. Restrict landscape irrigation to two days per week between the hours of 7pm and 9am the following day. 7. Prohibit landscape irrigation during or within 48 hours of measurable precipitation. 8. Prohibit irrigating with potable water of lawn area on public street medians.	Yes
4	Other	Up to 40 percent	1. Continue with action and measures from Stage 3 except where superseded by more stringent requirements. 2. Limit irrigation to one day per week between the hours of 7pm and 9am the following day. 3. Planting any new landscaping, except for designated drought resistant landscaping authorized by NMWD.	Yes

Table 6-1 Demand Reduction Actions (DWR Table 8-2)

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap?	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement?
			4. Golf courses may only use private well or recycled water for general irrigation. 5. No new annual plants, vegetables, flowers or vines may be planted until the Stage 4 mandatory period is over. An exception will be considered on a case by case basis for customers who are eliminating existing thirsty landscaping and replacing same with drought resisting landscaping prescribed by NMWD. 6. Prohibit use of single-pass cooling systems.	
5	Other	Up to 50 percent	1. Continue with action and measures from Stage 4 except where superseded by more stringent requirements. 2. Watering any residential lawn, or any commercial or industrial area lawn maintained for aesthetic purposes, at any time day or night during the period of March 1, through September 30. (These designated lawns will be allowed to dry up for the summer). Affected customers will be advised on tested methods for re-greening the lawns at minimum expense beginning on October 1, during a Stage 4 mandatory period if operating conditions permit. By following the prescribed instructions, the affected customers will likely avoid the cost of replacing lawns.) 3. All day and nighttime sprinkling will be discontinued. Any and all outside watering will be done only with a hand-held nozzle. An exception will be made to permit drip irrigation for established perennial plants and trees using manual or automatic time-controlled water application sufficient only for assured plant survival. 4. Limit deliveries of water to outside service area customers to that needed for human consumption, sanitation and public safety only or as stipulated in outside service agreements.	Yes
6	Other	Greater than 50 percent	1. Continue with action and measures from Stage 5 except where superseded by more stringent requirements.	Yes

Table 6-1 Demand Reduction Actions (DWR Table 8-2)

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap?	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement?
			2. All residential and CII customers shall reach a water reduction of fifty five percent (55 percent) from previous use.	
NOTES:				

Table 6-2 Supply Augmentation and Other Actions (DWR Table 8-3)

Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier	How much is this going to reduce the shortage gap?	Additional Explanation or Reference *(optional)*
1	Other	Up to 10 percent	1. Distribute water bill inserts with information about water shortage and conservation. 2. Distribute special issue of WaterLine newsletter. 3. Encourage voluntary rationing. 4. Pursue vigorous enforcement of water wasting regulations and provisions of the District's Water Conservation Regulation 15. 5. Request customers to make conscious efforts to conserve water. 6. Request other governmental agencies to demonstrate leadership and implement restrictive water use programs. 7. Distribute water saving kits upon customer request, to assure availability to existing and new customers. 8. Encourage private sector use of alternate sources of water such as recycled water or private wells. 9. Encourage nighttime irrigation 10. Customers will be urged not to regularly flush their toilets for disposal of urine only.
2	Other	Up to 20 percent	1. Continue with actions and measures from Stage 1 except where superseded by more stringent requirements. 2. Promote District water conservation and rebate programs. 3. The District can back-feed Stafford Lake using SCWA water to offset local supply shortage in the lake.
3	Other	Up to 30 percent	1. Continue with action and measures from Stage 2 except where superseded by more stringent requirements.
4	Other	Up to 40 percent	1. Continue with action and measures from Stage 3 except where superseded by more stringent requirements.
5	Other	Up to 50 percent	1. Continue with action and measures from Stage 4 except where superseded by more stringent requirements. 2. Increase enforcement and water waste patrols.
6	Other	Greater than 50 percent	1. Continue with action and measures from Stage 5 except where superseded by more stringent requirements.
NOTES:			

6.2.1. Defining Water Features

☑ *CWC § 10632 (b)*

For purposes of developing the water shortage contingency plan pursuant to subdivision (a), an urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code.

As required by CWC §10632 (b), the District distinguishes between "decorative water features" such as ponds, lakes, and fountains that are artificially supplied with water and "recreational water features" such as swimming pools and spas.

6.3. Operational Changes

The water shortage response actions included in **Table 6-2** include operational changes that the District will implement during each stage of action, including measures to: 1) reduce system losses through a reduction in line flushing and fire training exercises, (2) increase enforcement and patrols, (3) proactive calls to customers, and (4) conduct leak surveys during droughts.

6.4. Prohibitions on End Uses

Restrictions and prohibitions associated with each stage in the District's WSCP are presented in **Table 6-1**. As discussed above, these responses focus on the reduction of non-essential water uses such as ornamental landscape irrigation, and preserve water uses that are essential to the health, safety, welfare, and economic vitality of the District's customers. In addition, mandatory prohibitions are enforced at all times (see **Table 6-1**).

6.5. Shortage Response Action Effectiveness

In order to evaluate and ensure that effective actions will be implemented with the proper level of intensity, the District employed the DRT, an Excel spreadsheet model developed by EKI Environment and Water, Inc. The DRT model calculates monthly savings anticipated by implementing each stage of action as detailed below.

6.5.1. Baseline Water Use Profile

Using the DRT, the District developed a pre-drought baseline water use profile that reflected usage patterns within the District's service area by major water use sector in fiscal year (FY) 2019 that was used to guide development of the WSCP. Key findings from this analysis are presented below.

Residential Per Capita Demand

The District's baseline residential gallons per capita per day (R-GPCD) demand during FY 2019 was approximately 81 R-GPCD. As shown in **Table 6-3** and its associated chart, this R-GPCD is lower than the statewide average of 85 R-GPCD.

Proportion of Outdoor Water Use

As shown on **Table 6-4** and associated charts, outdoor water use, which can generally be considered as a "discretionary water use", was estimated to be approximately 52% of the District's potable consumption during this pre-drought time period. Dedicated irrigation meters for potable water accounted for 9% of the total potable irrigation demand. The remaining irrigation water uses within the District's service area are supplied by recycled water.

The DRT estimates indoor water use to be equivalent to the lowest monthly water use for each sector, accounting for the number of days in each month. Outdoor water use for each sector was estimated to be the difference between the total water use and the estimated indoor water use. If District customers tend to irrigate more heavily during winter months, an underestimation of the proportion of outdoor water use would occur.

The proportion of outdoor water use within the residential and commercial sectors is estimated to be 50%. This indicates that there is the potential to achieve significant potable water savings across these sectors, simply by focusing on outdoor uses. If the proportion of outdoor water use is being underestimated by the DRT method, then even more substantial savings may be achieved through targeting outdoor water use. As further shown in **Table 6-4** and its associated charts, the seasonal variation in baseline potable water use reflects increased irrigation demands during the summer and fall months. Therefore, the greatest potential for reductions in non-essential water use are expected during these months.

Table 6-3 Baseline Residential Per Capita Water Demand

	Baseline Residential Per Capita Water Demand (R-GPCD)
NMWD (a)	81
Statewide Average (c)	85
NOTES: (a) District R-GPCD calculated using 2019 metered data. (b) State-wide R-GPCD for 2019 obtained from data provided at California State Water Resources Control Board Water Conservation Portal - Conservation Reporting, http://www.waterboards.ca.gov/water_issues/programs/conservation_portal/conservation_reporting.shtml, accessed March 2021.	

Chart 6-3 Baseline Residential Per Capita Water Demand

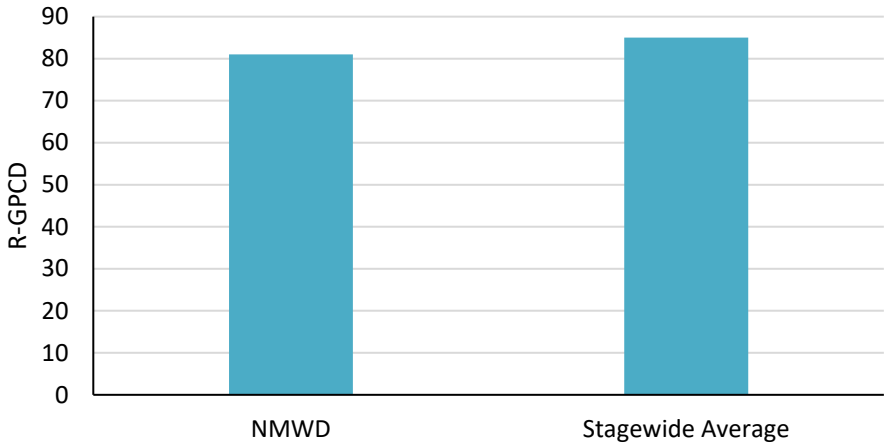


Table 6-4 Baseline Water Use Profile

Sector	End-Use	Baseline (2019) Water Use													Annual % of Total by Sector
		July	August	September	October	November	December	January	February	March	April	May	June	Annual	
Residential	Indoor	240	240	232	240	232	240	240	216	240	232	240	232	2,821	50.3%
	Outdoor	446	327	557	351	306	183	164	57	87	0	114	197	2,789	49.7%
	Subtotal Residential	686	567	789	591	538	423	403	274	326	232	354	429	5,611	
CII	Indoor	51	51	50	51	50	51	51	46	51	50	51	50	605	49.8%
	Outdoor	135	50	121	48	50	23	22	8	18	0	101	33	609	50.2%
	Subtotal CII	186	101	171	100	99	74	73	54	69	50	153	83	1,214	
Dedicated Irrigation	Outdoor	157	60	189	59	100	29	31	4	14	3	27	27	699	100%
Non-Revenue	Non-Revenue	55	34	64	40	42	25	27	16	21	13	28	27	392	100%
Total	Indoor	291	291	282	291	282	291	291	263	291	282	291	282	3,426	43.3%
	Outdoor	738	437	867	458	456	235	217	69	119	3	242	257	4,097	51.8%
	Non-Revenue	55	34	64	40	42	25	27	16	21	13	28	27	392	5.0%
	Total	1,084	762	1,213	789	780	551	535	348	431	298	561	565	7,916	

NOTES:
(a) Volumes are in units of AF.
(b) Indoor water use was estimated to be the lowest monthly water use for each sector, accounting for the number of days in each month. Outdoor water use for each sector was estimated to be the difference between the total water use and the estimated indoor water use.

Chart 6-4A Baseline Year (2019) Annual Water Use by Sector and End Use

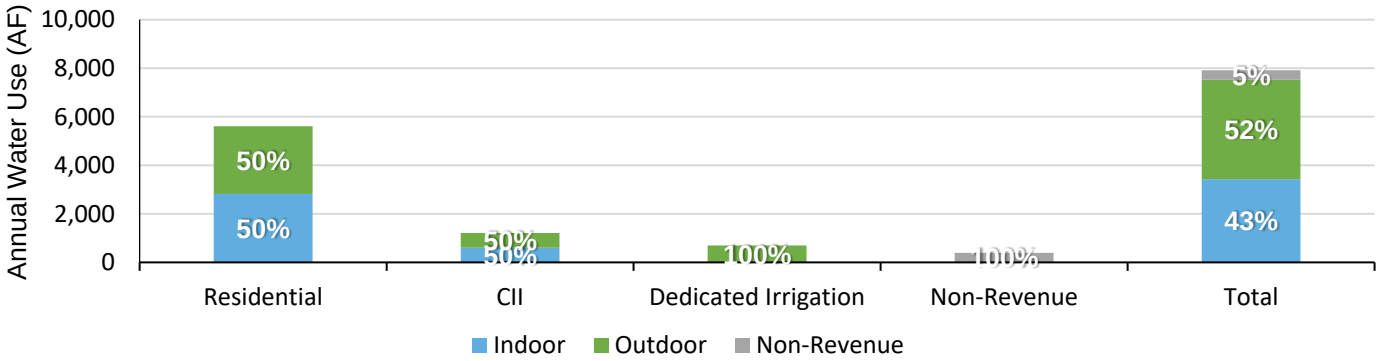
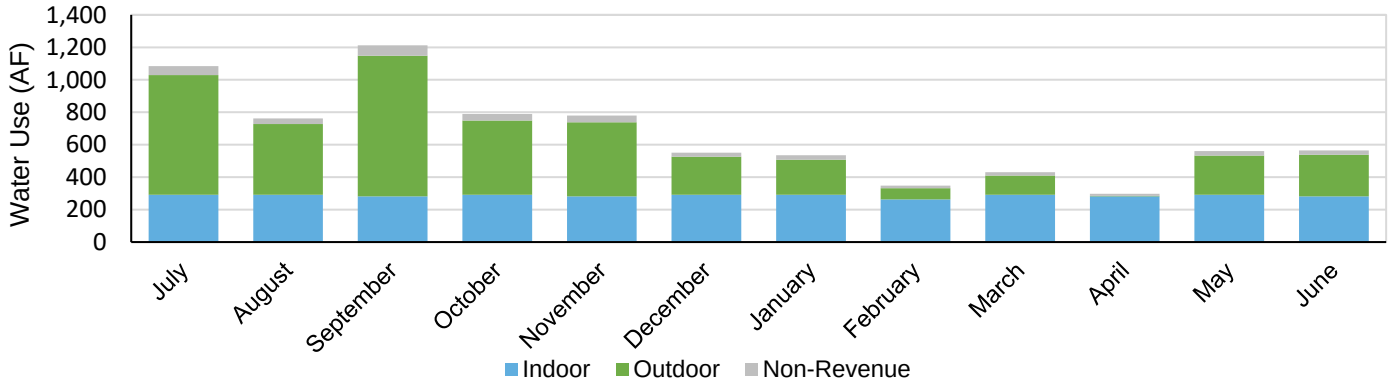


Chart 6-4B Baseline Year (2019) Monthly Indoor vs. Outdoor Water Use



6.5.2. Shortage Response Action Effectiveness

The DRT provides a quantitative framework that allows the District to systematically estimate the monthly and cumulative annual demand reductions expected to result from particular combinations of drought response actions and associated implementation rates. Data inputs to the DRT include total production, class-specific water use, population, and assumptions regarding the split between indoor and outdoor water use for each customer class.

For each drought response action, the user specifies:

- The customer class(es) and end use(s) that are affected;
- The percent savings for that end use for each account that implements the action. These are based on evaluations reported in the literature, or where such studies are not available, on best estimates based on the District's experience; and
- The percentage of accounts assumed to implement the action, which is presumed to be the result of the intensity level of the District's program implementation, including but not limited to, marketing and enforcement activities.

An additional critical DRT user input is a set of constraints on demand reductions to ensure that usage levels do not endanger health and safety or result in unacceptable economic impacts. The DRT will not permit estimated usage reductions to violate these constraints, regardless of the demand reduction actions selected. The constraints are:

- A minimum residential indoor per capita daily usage of 25 gallons,
- A maximum residential outdoor usage reduction of 100%,
- A maximum Commercial, industrial, and institutional (CII) indoor usage reduction of 30%, and
- A maximum CII outdoor usage reduction of 100%.

Based on the foregoing data, the DRT model calculates the resulting monthly savings. The District adjusted the combination of actions and implementation levels to achieve the targeted savings levels at each of the six stages of action.

For each stage of action, the modeling targeted the mid-range of the required demand reduction range, ergo:

- 5% for Stage 1,
- 15% for Stage 2,
- 25% for Stage 3,
- 35% for Stage 4,
- 45% for Stage 5, and
- 55% for Stage 6.

The key DRT inputs and outputs for each of the stages of action are reproduced in **Attachment 2**.

Table 6-1 and **Table 6-2** shows the water shortage reduction actions, savings assumptions, and implementation rates that are required for the District to achieve the required annual demand reductions for each of the six stages of action. At each stage, there are two types of demand-reduction actions identified:

- Restrictions on customer water usage; and
- Consumption reduction actions by the District to encourage decreased water usage.

Many actions are implemented across a number of stages, some at increasing implementation levels. Therefore the actions in **Table 6-1** and **Table 6-2** are listed as a row under the first stage at which they are implemented. The percentages shown in the tables represent end user savings.

6.6. Emergency Response Plan

In accordance with the Emergency Services Act, the District has developed an Emergency Operation Plan (EOP). This EOP guides response to unpredicted catastrophic events that might impact water delivery including regional power outages, earthquakes, or other disasters. The EOP outlines standard operating procedures for all levels of emergency, from minor accidents to major disasters. The EOP has been coordinated with the SCWA and neighboring water purveyors. In addition, the District is a member of the California Water/Wastewater Agency Response Network (CalWarn) which provides mutual aid assistance between neighboring water agencies in the event of an emergency.

Table 6-5 summarizes some of the actions in the event of specific catastrophic events.

Table 6-5 Preparation Actions for a Catastrophe

Possible Catastrophe	Summary of Actions
Earthquake	• Perform assessments of District facilities and provide inspection reports per the EOP • Perform corrective actions to damaged facilities • Shut-off isolation valves and above ground use of flexible piping for ruptured mains
Fire	• Monitor system performance and override controls to optimize flow to zone effected • Activate additional system pumping • Monitor tank storage levels and keep levels as high as possible • Coordinate communications to customers with Fire Department • Storage supplies for fire flows
Power outage or grid failure	• Coordinate with PG&E and Marin EOC • Note: Portable emergency generators available for most SCWA facilities and key NMWD facilities
Severe Winter Storms	• Schedule stand-by personnel • Check underground facility sump pumps • Monitor NWS weather updates • Note: Portable emergency generators available for most SCWA facilities and key NMWD facilities
Hot Weather	• Coordinate with PG&E and Marin EOC • Note: Portable emergency generators available for most SCWA facilities and key NMWD facilities
NOTES: Infrastructure Priority: 1 = sources of supply; 2 = storage reservoirs; 3 = pump stations. Communication and reporting to City of Novato EOC and/or Marin County Emergency Operations Center (Marin EOC) per EOP.	

NORTH MARIN WATER DISTRICT

7. SEISMIC RISK ASSESSMENT

☑ ***CWC § 10632.5***

(a) In addition to the requirements of paragraph (3) of subdivision (a) of Section 10632, beginning January 1, 2020, the plan shall include a seismic risk assessment and mitigation plan to assess the vulnerability of each of the various facilities of a water system and mitigate those vulnerabilities.

(b) An urban water supplier shall update the seismic risk assessment and mitigation plan when updating its urban water management plan as required by Section 10621.

(c) An urban water supplier may comply with this section by submitting, pursuant to Section 10644, a copy of the most recent adopted local hazard mitigation plan or multihazard mitigation plan under the federal Disaster Mitigation Act of 2000 (Public Law 106-390) if the local hazard mitigation plan or multihazard mitigation plan addresses seismic risk.

Impacts associated with earthquakes and liquefaction are discussed in the *2018 Marin County Multi-Jurisdictional Local Hazard Mitigation Plan* (County LHMP; Marin County, 2018*)*, which is included in **Attachment 3**. The MCM LHMP assesses Marin County's vulnerabilities to various hazards, including seismic hazards, and presents mitigation strategies that are planned over the next five years. As of 2021, Marin County is currently in the process updating its LHMP, using a multijurisdictional planning approach overseen by a steering committee made up of various stakeholders, including the District.

The County LHMP includes a discussion of the probability of a seismic event affecting Marin County, citing an ABAG projection of a 52 percent chance of an earthquake of magnitude 6.7 of greater on one of the faults affecting Marin County between now and 2036. The County LHMP notes that much of the Marin County infrastructure is located in areas of Bay Mud, as well as in current and former marshlands that have been artificially filled. These areas are vulnerable to liquefaction during seismic events. The County LHMP includes an assessment of the County's vulnerability in the event of a major seismic event, and estimates that an earthquake on the San Andreas Fault of magnitude 7.8 would result in a total building damage of approximately $1.26 trillion.

Further discussion of seismic risks specific to the SCWA water system is provided in the *Sonoma County Water Agency Local Hazard Mitigation Plan,* dated 16 October 2018 (SCWA LHMP; SCWA, 2018), which is included in **Attachment 4**. The SCWA LHMP specifically assesses SCWA's natural hazard risks and vulnerabilities facing the SCWA infrastructure and provides a plan of action to address these vulnerabilities. The SCWA LHMP identifies a series of mitigation measures to address seismic risk, including seismic retrofits of distribution system components to protect against damage due to liquefaction and lateral spread hazard and installation of automated throttling valves at aqueducts and interties to minimize uncontrolled releases out of SCWA facilities. For more detail regarding planned mitigation measures to address seismic risks, please refer to **Attachment 4**.

As part of any capital project design for key infrastructure such as pump stations, major pipelines, and storage tanks, the District employs the expertise of a geotechnical engineer to evaluate seismic risks for the project. These projects subsequently include design elements that minimize that risk such flexible expansion joints, anchoring systems, and others. The District performed a comprehensive seismic risk assessment of all Novato Service Area water storage tanks in 1997, including a long-term capital improvement plan to retrofit existing tanks to better withstand an earthquake (NMWD, 2019).

The District's Stafford Lake Dam (No. 88.000) is inspected and monitored regularly in accordance with the State's Division of Safety of Dams (DSOD) protocols. The dam inspection and monitoring program includes a comprehensive instrumentation system consisting of piezometers, seepage monitoring, and survey monumentation (elevation and lateral movement), with annual reporting to the state. In addition, the District updated the Emergency Action Plan for the Stafford Dam in 2020 in coordination with the DSOD and the California Office of Emergency Services (CalOES).

NORTH MARIN WATER DISTRICT

8. COMMUNICATION PROTOCOLS

☑ ***CWC § 10632 (a) (5)***

Communication protocols and procedures to inform customers, the public, interested parties, and local, regional, and state governments, regarding, at a minimum, all of the following:

(A) Any current or predicted shortages as determined by the annual water supply and demand assessment described pursuant to Section 10632.1.

(B) Any shortage response actions triggered or anticipated to be triggered by the annual water supply and demand assessment described pursuant to Section 10632.1.

(C) Any other relevant communications.

Each stage of the WSCP is implemented with a formal declaration by the District Board of Directors upon the determination that SCWA or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use due to a water supply shortage or emergency.

Even before formal declaration of a water shortage, a public information program will be activated to provide customers with as much advance notice as possible. Following declaration of a shortage, District customers would need to be provided notice of water shortage rules and regulations via a variety of media and communications methods.

Coordination between the District and with other public agencies can begin prior to formal declaration of a water shortage and can be accomplished through regular meetings, e-mail group updates, and presentations. In a regional water shortage scenario, the District would use public outreach resources and materials provided by SCWA. In addition to these materials, the District may develop its own materials to communicate with customers, such as a dedicated customer service hotline, and expand its normal public outreach to support its water conservation efforts (see Chapter 9 of the 2020 UWMP).

As discussed in Chapter 9 of the 2020 UWMP, the several District staff members jointly share the responsibility for water conservation. Staff time dedicated to water conservation and enforcement action will increase with the severity of a supply shortage. Additional duties may be assigned to current employees or hiring of temporary staff may be considered to meet staffing needs during extreme water shortages.

In the event of a current or predicted water shortage, the District will communicate all pertinent water shortage information, including but not limited to shortage response actions triggered, to customers, the public, and government agencies through the following methods, as determined by the District at the time of the water shortage to be most effective and appropriate for communicating said information:

- Direct mail newsletter to customers;
- Email blast to customers;
- Social media posts;
- Newspaper advertisements and public notices;
- Website updates; and

- Bill inserts and bill text announcements.

9. COMPLIANCE AND ENFORCEMENT

☑ ***CWC § 10632 (a) (6)*** *For an urban retail water supplier, customer compliance, enforcement, appeal, and exemption procedures for triggered shortage response actions as determined pursuant to Section 10632.2.*

Table 9-1 summarizes the penalties, charges and other enforcement actions for any customer violating the District's rules and regulations related to water use prohibitions and the District's WSCP. Customers in violation will receive a written or verbal warning and order that the violation be corrected immediately or within a specified time determined to be reasonable. Water service may be disconnected due to non-compliance with the warning. If water service is disconnected, a reconnection fee of $35 shall be paid. If that violation reoccurs, water service may be disconnected again with a reconnection fee of $35. Any water service that is disconnected twice shall be reconnected with a flow-restricting device. The District may also impose additional administrative charges, penalties, and water shortage surcharges in an amount approved by the Board of Directors from time to time.

Table 9-1 Water Shortage Contingency Plan — Penalties and Charges

Penalty or Charge	Stage When Penalty Takes Effect
Written Notice with time frame for correction	Any Stage
Personal contact with follow up written notice	Any Stage
Installation of flow restricting device	Any Stage
Imposition of water waste fees	Any Stage
Disconnection of service	Any Stage
NOTES:	

10. LEGAL AUTHORITIES

☑ ***CWC § 10632 (a) (7)***

(A) A description of the legal authorities that empower the urban water supplier to implement and enforce its shortage response actions specified in paragraph (4) that may include, but are not limited to, statutory authorities, ordinances, resolutions, and contract provisions.

(B) A statement that an urban water supplier shall declare a water shortage emergency in accordance with Chapter 3 (commencing with Section 350) of Division 1.

(C) A statement that an urban water supplier shall coordinate with any city or county within which it provides water supply services for the possible proclamation of a local emergency, as defined in Section 8558 of the Government Code.

The District has authority under Water Code Section 350 through 358, Section 375 through 378, and Section 31026 through 31029 and District Ordinance 41 to require water rationing, conservation, and/or water use prohibitions, and to enforce penalties. Relevant code sections and an adopted water shortage contingency resolution are included as **Attachment 5** of this WSCP.

In the event that a water shortage is triggered, the District shall declare a water shortage emergency and shall coordinate with the City and County for the possible proclamation of a local emergency.

The District's WSCP update was adopted on 15 June 2021. The adoption ordinance is included as **Attachment 5** of this WSCP.

The District shall declare a water shortage emergency in accordance with Water Code Chapter 3 (commencing with Section 350) of Division 1 general provision regarding water shortage emergencies. The District shall coordinate with any city of county within which it provides water supply services for the possible proclamation of a local emergency. The District will also coordinate with SCWA as appropriate.

11. FINANCIAL CONSEQUENCES OF WSCP

☑ ***CWC § 10632 (a) (8)***

A description of the financial consequences of, and responses for, drought conditions, including, but not limited to, all of the following:

(A) A description of potential revenue reductions and expense increases associated with activated shortage response actions described in paragraph (4).

(B) A description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions described in paragraph (4).

(C) A description of the cost of compliance with Chapter 3.3 (commencing with Section 365) of Division 1.

Since the District bills its customers per unit volume of water consumed, the District would experience a reduction in revenue upon implementation of the WSCP. To compensate for the expected revenue reduction caused by water conservation, the District reserves the authority to implement temporary water rate increases, as adopted by resolution of the District's Board of Directors (see discussion on the Temporary Drought Revenue Recovery Surcharge below). Additionally, the District's Board of Directors may adopt a resolution to establish a water rate structure, including excess water use surcharges, that provides incentives to conserve water. Individual customers may seek a waiver of excess water use surcharges through a variance process. The District also reserves the authority to reduce expenses during implementation of the WSCP, using the following potential mitigation actions:

- Reducing or deferring operation and maintenance expenses; and
- Deferring capital improvement projects.

Other potential actions to mitigate revenue impacts of the WSCP include:

- Increasing any fixed readiness-to-serve charges; and
- Using financial reserves.

In the event that mandatory water use restrictions or mandatory reduction in water use is triggered (Stage 2 or higher), a Temporary Drought Revenue Recovery Surcharge may be implemented. The Temporary Drought Revenue Recovery Surcharge will serve to mitigate the revenue loss resulting from a reduction in water use, as well as the liquidated damages assessed by the Sonoma County Water Agency pursuant to the water shortage and apportionment provisions of the Restructured Agreement for Water Supply. The Temporary Drought Revenue Recovery Surcharge shall be a quantity charge for each 1,000 gallons as specified in District Regulation 54.

12. MONITORING AND REPORTING

☑ ***CWC § 10632 (a) (9)*** *For an urban retail water supplier, monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance and to meet state reporting requirements.*

The District's local surface water supply and SCWA supply turnouts are all equipped with water meters. In addition, each potable water customer is metered. Non-residential landscape irrigation is metered separately from indoor use at most non-residential sites. In addition, the District has fully implemented Automatic Meter Infrastructure (AMI) system for all meters that provides hourly and daily water use consumption data, and the District is able to document leaks, high water use and also customer demand reductions along with other water use analytics. The District contacts individual customers via email, phone call or text to resolve issues related leaks and high water use episodes.

The SCWA is in the process of converting billing (turnout) meters to automatic read technology that will result in 24-hour daily flow measurement.

The District will use an appropriate method for monitoring and reporting on the implementation of the WSCP. Monitoring metrics could include, but are not limited to water production, water consumption, gallons per capita per day, residential gallons per capita per day, water budget performance, and other metrics as determined by the District or the State at such time of the enactment of the WSCP.

13. WSCP REFINEMENT PROCEDURES

☑ ***CWC § 10632 (a) (10)*** *Reevaluation and improvement procedures for systematically monitoring and evaluating the functionality of the water shortage contingency plan in order to ensure shortage risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented as needed.*

As part of the Annual Assessment, the District's team members will review the results of prior monitoring and reporting to determine the effectiveness of the WSCP. In addition, the District will consult with other SCWA contractors and SCWA directly. If modifications to shortage response actions are needed, the District team will present the proposed modifications to the Board of Directors and request changes to the WSCP by resolution.

The WSCP is implemented as an adaptive management plan. The District will evaluate the need for revise its WSCP every year after performing its Annual Assessment. The evaluation will consider effective of WSCP actions and any anticipated water supply shortages assessed by the Annual Assessment. If the WSCP is revised, the District Board of Directors will adopt a new resolution adopting the revised WSCP, and if necessary, declare a water shortage level to implement.

14. PLAN ADOPTION, SUBMITTAL, AND AVAILABILITY

☑ ***CWC § 10632 (c)*** *The urban water supplier shall make available the water shortage contingency plan prepared pursuant to this article to its customers and any city or county within which it provides water supplies no later than 30 days after adoption of the water shortage contingency plan.*

As described in Chapter 9 the District informed the public and the appropriate agencies of: (1) its intent to prepare a WSCP, (2) where the WSCP was available for public review, and (3) when the public hearing regarding the WSCP would be held. All notifications were completed in compliance with the stipulations of Section 6066 of the Government Code.

A copy of the adopted 2020 WSCP including any amendments will be provided to the Department of Water Resources (DWR), the California State Library, and Sonoma and Marin Counties within 30 days of the adoption (**Attachment 5**). An electronic copy of the adopted 2020 WSCP will be submitted to the DWR using the DWR online submittal tool.

A copy of the adopted 2020 WSCP will be available for public review on the District's website within 30 days after filing the plan with DWR.

15. REFERENCES

DWR, 2021. Urban Water Management Plan Guidebook 2020, Draft Final, California Department of Water Resources, March 2021.

Marin County, 2018. 2018 Marin County Multi-Jurisdictional Local Hazard Mitigation Plan, 2018.

NMWD, 2019. 2018 Novato Water System Master Plan Update, September 2019. North Marin Water District.

SCWA, 2018. Sonoma County Water Agency Local Hazard Mitigation Plan, dated 16 October 2018.

NORTH MARIN WATER DISTRICT

ATTACHMENT 1

SONOMA COUNTY WATER AGENCY ANNUAL WATER SUPPLY AND DEMAND ASSESSMENT PROCEDURES

Annual Water Supply and Demand Assessment Procedures

This section presents the procedures that will be used by Sonoma Water to conduct an annual water supply and demand assessment (annual assessment). The annual assessment is required to be submitted annually to DWR beginning on July 1, 2022. The assessment forecasts near-term water supply conditions (12 months) to ensure shortage response actions are triggered in a timely manner. The annual assessment will provide a description and quantification of each source of Sonoma Water's water supply compared to water demands for the current year and one subsequent dry year. The following subsections describe the decision-making process and data and methodologies. Sonoma Water may modify this procedure based on its experiences that it will gain from the development of the annual assessment.

Decision-Making Process

This section presents the decision-making process and timeline (see Table 1) that Sonoma Water will use each year to determine its water supply reliability. The assessment will be conducted annually and completed by July 1. Sonoma Water will conduct an annual assessment that follows the steps described below.

1. **Develop draft annual assessment.** Sonoma Water staff will compile the draft annual assessment. The draft annual assessment will document the evaluation of water supply conditions, considering projections of the demand for Sonoma Water provided by the customers by February 1. Sonoma Water staff will start conducting the assessment prior to the January Decision 1610 trigger point and then thereafter at the middle of each month prior to the trigger point at the beginning of each month through June. Decision 1610 is described later in this assessment procedure description.
2. **Submit draft annual assessment report to the customers.** The draft annual assessment will be submitted and presented to the TAC ad-hoc committee at the April meeting. An initial determination will be made regarding the potential for a water shortage condition to occur.
3. **Receive review comments.** The customers will present their review comments including their updated demands and local supply projections at the May TAC meeting.
4. **Submit final annual assessment to the TAC.** The final annual assessment will be submitted and presented at the June TAC meeting. The annual assessment may be presented to the WAC. Sonoma Water will coordinate with the customers to identify if any water supply gaps exist for each customer when considering both Sonoma Water supplies and local supplies.
5. **Optional presentation of the annual assessment to the Board of Directors.** The annual assessment may be included in the agenda for Sonoma Water's Board of Directors regular meeting, particularly if a shortage is anticipated or if an existing shortage condition is to be ended.
6. **Submit annual assessment to DWR.** Sonoma Water will submit the annual assessment report to DWR by July 1 of each year.

Table 1. Annual Assessment Timeline												
Task	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Develop draft assessment												
Submit draft annual assessment to the customers												
Receive review comments												
Submit final annual assessment to the TAC and WAC												
Present annual assessment to the Board of Directors												
Submit annual assessment to DWR												

Data and Methodologies

This section presents the key data inputs and assessment methodology that will be used to evaluate Sonoma Water's water supply. The evaluation criteria, water supply, unconstrained demand, water supply, planned water use, infrastructure considerations, and other factors are described.

Evaluation Criteria. Evaluation criteria are determined by the supply source conditions and factors that impact the condition of each supply source. The criteria include the key data inputs and the constraints that are imposed on the water supplies.

The key data inputs that are used by Sonoma Water staff to forecast water supply for the remainder of the current year and a subsequent dry year include the items described below.

- **Unconstrained customer demand.** Current and subsequent year unconstrained demand for each of Sonoma Water's wholesale customers considering weather, growth, and other influencing factors.
- **Russian River operations.** Current reservoir releases from Lake Sonoma and Lake Mendocino, including anticipated releases to meet in-stream flow requirements and water demands and based on reservoir curves and forecast informed reservoir operations (FIRO) decision support tools.
- **Hydrology and watershed conditions.** Lake Sonoma and Lake Mendocino cumulative inflows and storage levels, and soil moisture and snowpack.
- **Potter Valley Project inflows.** Lake Pillsbury storage levels and observed and projected project transfers. Decision 1610 contains trigger points at the first of each month from January to June to establish a hydrologic index based on cumulative inflows into Lake Pillsbury on the Eel River.

Sonoma Water's Russian River water supply is controlled and influenced by a variety of agreements and decisions. There are several constraints, requirements, and restrictions on water supply that will be considered as part of the assessment of the available water supplies, as follows.

- **Lake Sonoma storage level.** Minimum 100,000 ac-ft Lake Sonoma storage level and 30 percent delivery deficiency. This key constraint is described later in this section.

- **Lake Mendocino storage level.** Having a sufficient supply of water in Lake Mendocino in the fall is of critical importance to the salmonid species in the Russian River.
- **Minimum instream flow requirements.** The minimum instream flow schedule varies based on the hydrologic classifications of *Normal*, *Dry*, and *Critical* water supply conditions as defined in Decision 1610. Minimum instream flow requirements for the Russian River and Dry Creek are met by releases from Coyote Valley Dam and Warm Springs Dam.
- **Maximum flow releases from Warm Springs and Coyote Valley Dams.**
- **US Army Corps of Engineers' flood control operations criteria.**
- **The Russian River Biological Opinion.** The Russian River Biological Opinion places certain terms and conditions on the Sonoma Water with respect to its water supply operations.

Sonoma Water's water rights permits include a provision that requires Sonoma Water to impose a 30 percent deficiency in deliveries from the Russian River to its service area when Lake Sonoma storage levels drop below 100,000 ac-ft before July 15 of any year. This deficiency must remain in effect until "(1) storage in Lake Sonoma rises to greater than 70,000 ac-ft subsequent to December 31 after having fallen below that level, or (2) permittee has projected, to the satisfaction of the Chief, Division of Water Rights, that storage at Lake Sonoma will not fall below 70,000 ac-ft, or (3) hydrologic conditions result in sufficient flow to satisfy permittee's demands at Wohler and Mirabel Park and minimum flow requirements in the Russian River at Guerneville."

Water Supply. This subsection provides a brief overview of Sonoma Water's supply sources. These water supply sources will be described, and estimates made of the availability of supplies in the annual assessment. Sonoma Water's most recent Urban Water Management Plan provides a more detailed description of the water supplies.

The Russian River provides most of Sonoma Water's water supply with groundwater supply from the Santa Rosa Plain as a secondary source. Sonoma Water diverts water from the Russian River near Forestville and conveys the water via its transmission system to its customers. The surface water is subject to varying quantities of available supply based on hydrologic conditions and sometimes regulatory restrictions.

Almost all of Sonoma Water's customers have other water supplies, in addition to those provided by Sonoma Water, which include local surface water, local groundwater, and recycled water. These local supplies will not be included in the assessment. Each customer will develop its own assessment of their available supplies.

Two federal projects impound water in the Russian River watershed: the Coyote Valley Dam on the Russian River east of the City of Ukiah in Mendocino County (forming Lake Mendocino), and the Warm Springs Dam on Dry Creek (a tributary of the Russian River). The Potter Valley Project diverts water from the Eel River into the Russian River watershed.

Unconstrained Customer Demand. The assessment will present the current year unconstrained demands from Sonoma Water's customers, considering weather, growth, and other influencing factors. The unconstrained water demands will be provided by the customers.

Planned Water Use for Current Year Considering Dry Subsequent Year. The assessment will present an evaluation of the amount of anticipated water supplies for the current year as well as how the supplies will be used, while anticipating that the following year will be dry.

The annual assessment will be based on evaluating the key data inputs to determine the water supply reliability. The methodology to develop the annual assessment will follow the general approach described below.

1. **Quantify current year water supply.** The available water supply from all water supply sources will be estimated for the current year based on the data inputs, evaluation criteria, and hydrological and regulatory conditions in the current year. Sonoma Water staff will evaluate water supply conditions beginning at least mid-month prior to each of the January to June Decision 1610 trigger dates to determine whether anticipated conditions at the trigger dates warrant any actions by Sonoma Water. The projections of the water supply will be expressed as a range and based on the results of operations modeling of the Russian River system consisting of the statistical evaluation of multiple scenarios. The model is described later in this subsection. Figure 1 presents the key considerations for the assessment of Russian River supply conditions.
2. **Quantify subsequent year supply.** The subsequent year water supplies will be estimated by assuming a dry year. Sonoma Water may base the estimate of dry year water supplies on the historical hydrologic record or some other approach.
3. **Identify infrastructure constraints.** The existing infrastructure capabilities and plausible constraints as they impact Sonoma Water's ability to deliver supplies to meet expected customer water use needs in the coming year will be considered.
4. **Quantify unconstrained water demand.** The unconstrained water demands for all the customers will be provided by the customers.
5. **Compare projected water supplies to demands.** The water supplies identified in the annual assessment will represent the water demand that can be met while maintaining adequate storage in Lakes Mendocino and Sonoma.
6. **Identify and quantify anticipated water supply shortages, if any.** The forecast of water supplies in comparison to water demands will identify and quantify any anticipated water shortages. The forecast will be coordinated with the customers. Depending on the extent of the forecast shortage, the appropriate shortage stage will be selected. If the forecast is for a wet season, there would be no concerns. If the season was dry in the early wet season, there would be a potential concern and river flows and reservoir levels would be monitored more closely. Depending on the extent of precipitation in the latter portion of the wet season, the forecast could be changed to no concern or to an anticipated shortage.
7. **Extent of water shortage.** The water shortage may be caused by the requirement to reduce supplies by 30 percent based on the Lake Sonoma level. Sonoma Water may request voluntary reductions and perhaps mandatory reductions before Lake Sonoma levels reached 100,000 ac-ft by July 15in accordance with the applicable provisions of the Restructured Agreement and consistent with the defined shortage stages . If a shortage is identified, the water shortage allocation methodology will be used to allocate the reduced supply to each customer. Each of Sonoma Water's customers will develop their own annual assessments that will include estimates of their projected quantity of local water supplies.

The forecast of the amount of available water supplies will be developed by Sonoma Water using the Russian River System Model (RR ResSim). The model is used as a planning tool to simulate the effects of various climatic conditions, levels of demand, and operational criteria on the water supply available for use by Sonoma Water and others.

Infrastructure Considerations. The annual assessment will include an evaluation of how infrastructure capabilities and constraints may affect Sonoma Water's ability to deliver supplies to meet expected customer water use needs in the current year.

Other Factors. The annual assessment will describe any other locally applicable factors that could influence the amount of available water supplies.

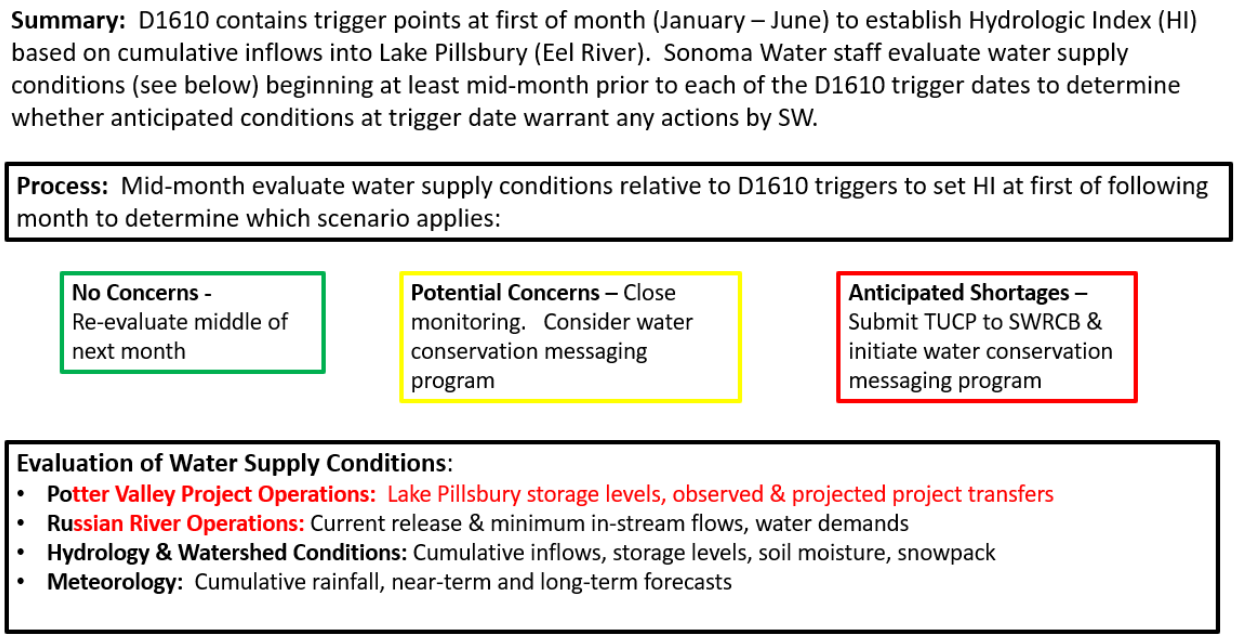


Figure 1. Assessment of Russian River Water Supply Conditions

NORTH MARIN WATER DISTRICT

ATTACHMENT 2

DROUGHT RESPONSE TOOL QUANTITATIVE ASSESSMENT

Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

1 - Home

North Marin Water District

Enter Agency Information		
Agency Name	North Marin Water District	
Total Population Served	61,658	
Conservation Goal (%)	5%	
Drought Stage	Stage 1	
Number of Residential Accounts	18,699	
Number of Commercial, Industrial, and Institutional (CII) Accounts	909	
Number of Dedicated Irrigation Accounts	356	
Baseline Year(s)	2019	FY
Percentage of Residential Indoor Use During Minimum Month (%)	100%	
Percentage of CII Indoor Use During Minimum Month (%)	100%	
Comments		

Navigation	
USER'S GUIDE	Download and read the guide before using this Tool
1 - HOME	Enter agency information
2 - INPUT BASELINE YEAR WATER USE	Enter Baseline Year production and use
3 - BASELINE YEAR WATER USE	Review and confirm entered information
4 - DROUGHT RESPONSE ACTIONS	Select Drought Response Actions and input estimated water savings and implementation rates.
5 - ESTIMATED WATER SAVINGS	Review estimated water production and compare estimated savings to conservation target.

Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

1 - Home

North Marin Water District

6 - DROUGHT RESPONSE TRACKING	**Track production and water savings against the conservation target.**

Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

1 - Home

North Marin Water District

For questions about this tool or for additional information, contact:

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2 - Input Baseline Year (2019) Water Use

North Marin Water District

Input Baseline Year (2019) Production and Water Use

Units: (af)

Select the units to input monthly production and use data. Enter the total monthly potable water production for the Baseline Year. Next, enter monthly water use data by sector for the Baseline Year. If you bill on a bi-monthly basis, divide your billing data between the months that the billing cycle includes. If your single-family and multi-family accounts are tracked separately, enter the combined water use for both sectors in the Residential Water Use column. If your commercial, industrial, and institutional (CII) accounts are tracked separately, enter the combined water use for each sector in the CII Water Use column. Your non-revenue water use is calculated by subtracting your monthly residential, CII, and dedicated irrigation water uses from your monthly production. Your monthly residential gallons per capita per day (R-GPCD) is calculated by dividing your monthly residential water use by your population entered in Worksheet 1 - Home.

Date	Total Production (af)	Residential Water Use (af)	CII Water Use (af)	Dedicated Irrigation Water Use (af)	Non-Revenue Water Use (af)	Total R-GPCD	Comments
July	1,084	686	186	157	55	117	NRW is assumed to be 4%.
August	762	567	101	60	34	97	Water use is reported on a fiscal-year basis.
September	1,213	789	171	189	64	139	
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March	431	326	69	14	21	56	
April	298	232	50	3	13	41	
May	561	354	153	27	28	60	
June	565	429	83	27	27	76	

3 - Baseline Year (2019) Water Use Profile

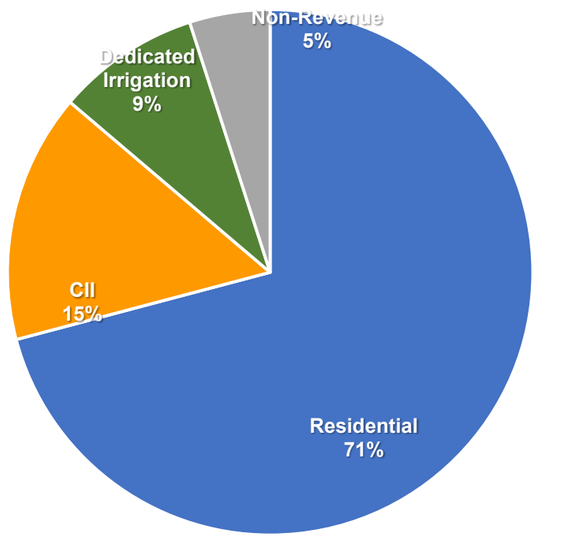
North Marin Water District

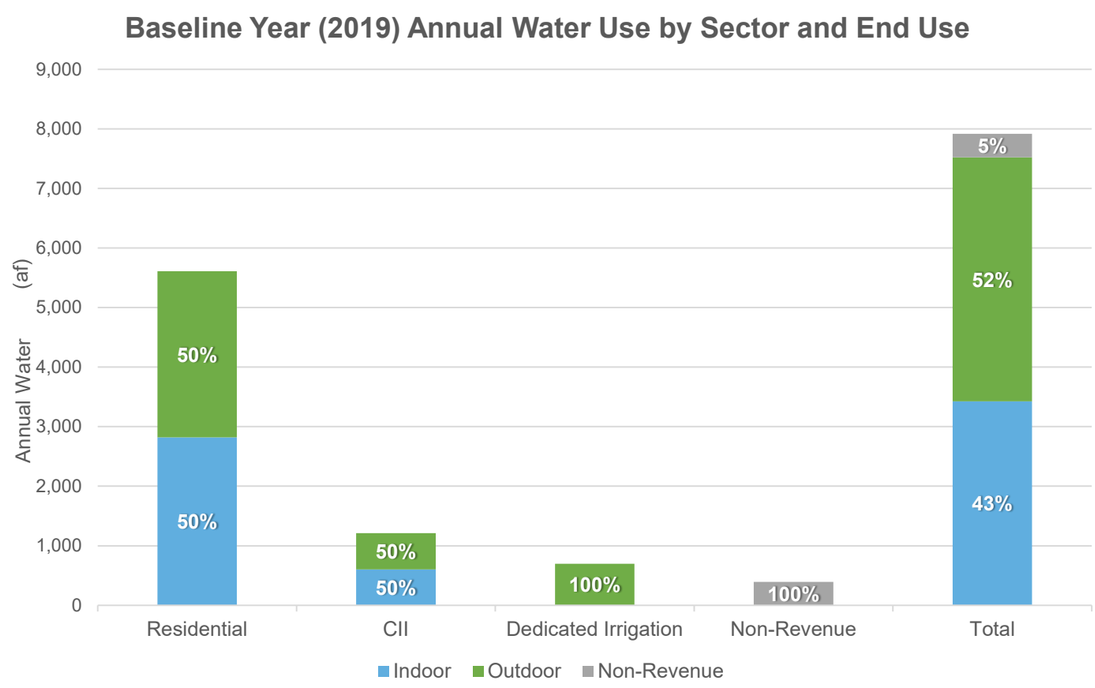
Baseline Year (2019) Annual Water Use Summary

Units: (af)

A summary of your Baseline Year water use by sector and major end use category is shown below. Select the units in which your production and use data are displayed.

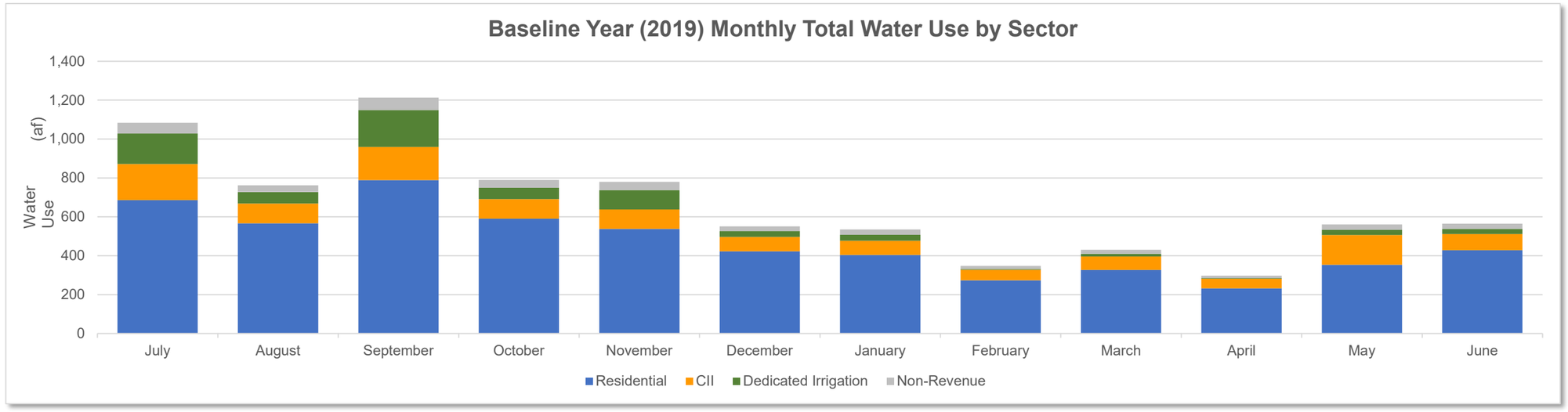
Water Use	Total Production (af)	Water Use (af)				Comments
		Residential	CII	Dedicated Irrigation	Non-Revenue	
Total	7,916	5,611	1,214	699	392	
Total Indoor	3,426	2,821	605	--	--	
Total Outdoor	4,097	2,789	609	699	--	
Total Non-Revenue	392	--	--	--	392	
Total Indoor %	43%	50%	50%	0%	--	
Total Outdoor %	52%	50%	50%	100%	--	
Total Non-Revenue %	5%	--	--	--	100%	

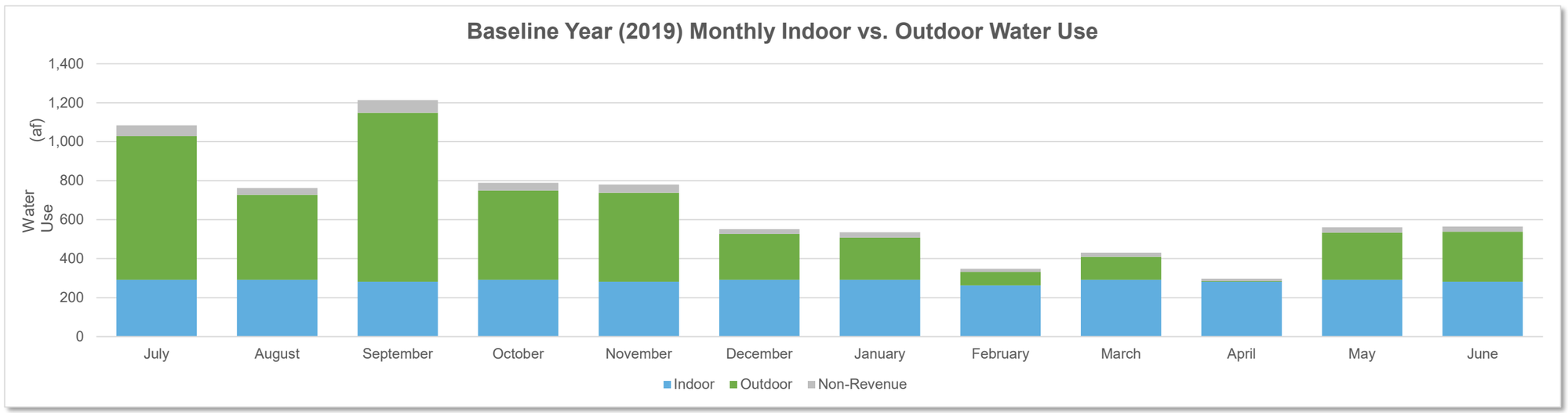




3 - Baseline Year (2019) Water Use Profile

North Marin Water District



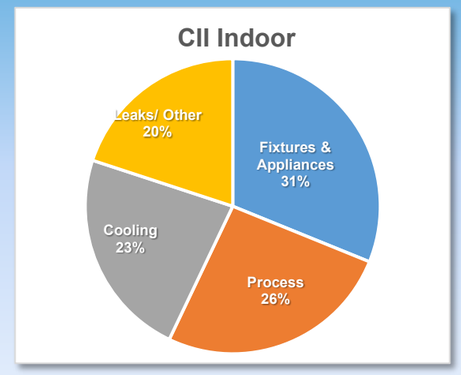


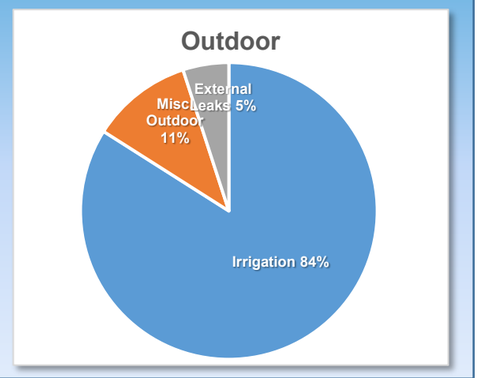
4 - Drought Response Actions - Stage 1

North Marin Water District

Maximum Savings Potential		
Use the default values or enter your own criteria for the maximum savings potential. Estimated water savings within each sector will not exceed the maximum savings criteria.		
Minimum Residential Indoor GPCD	40	R-GPCD
Maximum Residential Outdoor Savings	75%	of Baseline Residential Outdoor Water Use
Maximum CII Indoor Savings	10%	of Baseline CII Indoor Water Use
Maximum CII Outdoor Savings	75%	of Baseline CII Outdoor Water Use
Maximum Dedicated Irrigation Account Savings	75%	of Baseline Dedicated Irrigation Water Use
Maximum Non-Revenue Water Savings	50%	of Baseline Non-Revenue Water Use
Resulting Total Maximum Annual Savings Potential	43%	of Total Baseline Production

Assumed Proportion of Water Use by End Uses and Sector





4 - Drought Response Actions - Stage 1

North Marin Water District

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 Information Program; additional basis for the default values are included in the User Manual.

Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Possible Mandatory Prohibitions**	All Outdoor	☑	14%	**75%**	--	--
Prohibit Irrigation with Potable Water Outside of Newly Constructed 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%	See Appendix D of the DRP	--
Prohibit Use of Potable Water to Wash Sidewalks and Driveways	Misc. Outdoor	☑	17%	50%		--
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	--

4 - Drought Response Actions - Stage 1

North Marin Water District

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **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	--
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%	See Appendix D of the DRP	--
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	--
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%	--	--
Customer Water Budgets						
Establish Water Budget - 25% Reduction	Irrigation	☐	25%	50%	--	--
Establish Water Budget - 50% Reduction	Irrigation	☐	50%	50%	--	--
Establish Water Budget - 75% Reduction	Irrigation	☐	75%	50%	--	--

4 - Drought Response Actions - Stage 1

North Marin Water District

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Agency Drought Actions / Restrictions**						
► **Residential**						
Conduct Water Use Surveys Targeting High Water Users	All Residential Uses	☐	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	38%	**75%**	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%		
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☐	50%	50%	EBMUD, 2008	--
Require Repair of all Leaks within 24 hours	Leaks	☐	100%	**35%**	--	--
Require Pool Covers	Misc. Outdoor	☐	28%	25%	Maddaus & Mayer, 2001	--
Prohibit Filling of Pools	Misc. Outdoor	☐	55%	25%	DeOreo et al., 2011	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All Residential Uses	☐	10%	50%	--	--
Establish Water Budget - 20% Reduction	All Residential Uses	☐	20%	50%	--	--
► **CII**						
Conduct CII Surveys Targeting High Water Users	All CII uses	☐	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	38%	**75%**	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 Construction and Dust Control	Misc. Outdoor	☐		100%	--	--
Prohibit Single-Pass Cooling Systems	Cooling	☐	80%	1%	Vickers, 2001	--
Require Repair of all Leaks within 24 hours	Leaks	☐	100%	5%	--	--
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☐	50%	50%	EBMUD, 2008	--
Require Water-Efficient Pre-Rinse Spray Valves	Fixtures & Appliances	☐	0.8%	50%	EPA, 2015; Pacific Institute, 2003	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All CII uses	☐	10%	50%	--	--
Establish Water Budget - 20% Reduction	All CII uses	☐	20%	50%	--	--
Establish Water Budget - 30% Reduction	All CII uses	☐	30%	50%	--	--

4 - Drought Response Actions - Stage 1

North Marin Water District

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ **Residential Customer Actions to Encourage**						
Install Bathroom Faucet Aerators	Faucets and Dishwashers	☐			--	--
Install a Water-Efficient Showerhead	Showers/Baths	☐			--	--
Turn Off Water when Brushing Teeth, Shaving, Washing Dishes, or Cooking	Faucets and Dishwashers	☐			--	--
Fill the Bathtub Halfway	Showers/Baths	☐			--	--
Wash Only Full Loads of Clothes	Clothes Washers	☐			--	--
Install a High-Efficiency Toilet	Toilets	☐			--	--
Take Shorter Showers	Showers/Baths	☐			--	--
Run Dishwasher Only When Full	Faucets and Dishwashers	☐			--	--
Reduce Outdoor Irrigation	Irrigation	☐			--	--
Install Drip-Irrigation	Irrigation	☐			--	--
Use Mulch	Irrigation	☐			--	--
Plant Drought Resistant Trees and Plants	Irrigation	☐			--	--
Use a Broom to Clean Outdoor Areas	Misc. Outdoor	☐			--	--
Flush Less Frequently	Toilets	☐			--	--
Re-Use Shower or Bath Water for Irrigation	Irrigation	☐			--	--
Wash Car at Facility that Recycles the Water	Misc. Outdoor	☐			--	--

5 - Estimated Water Savings - Stage 1

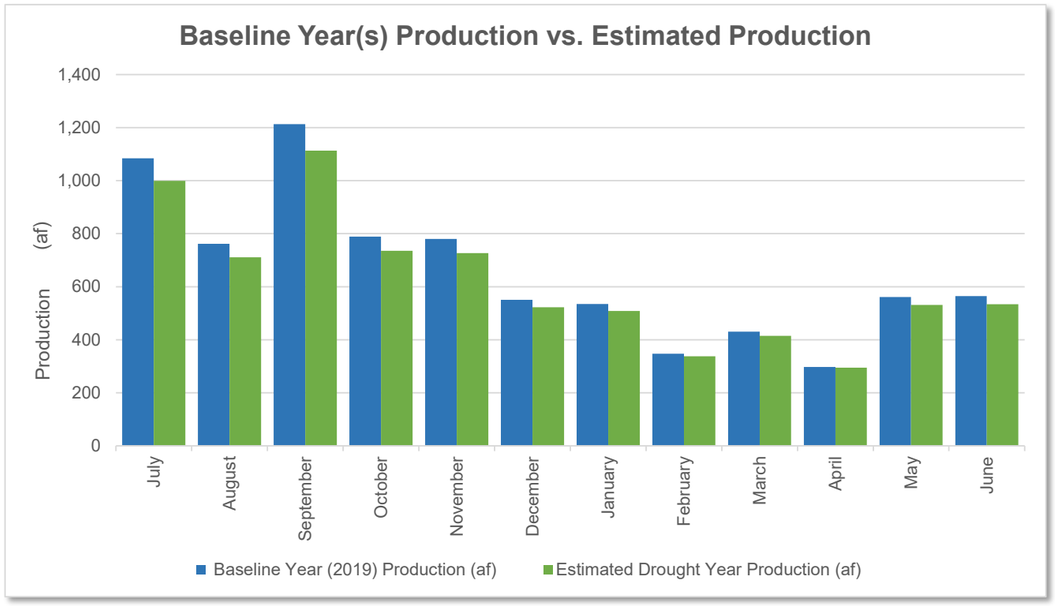
North Marin Water District

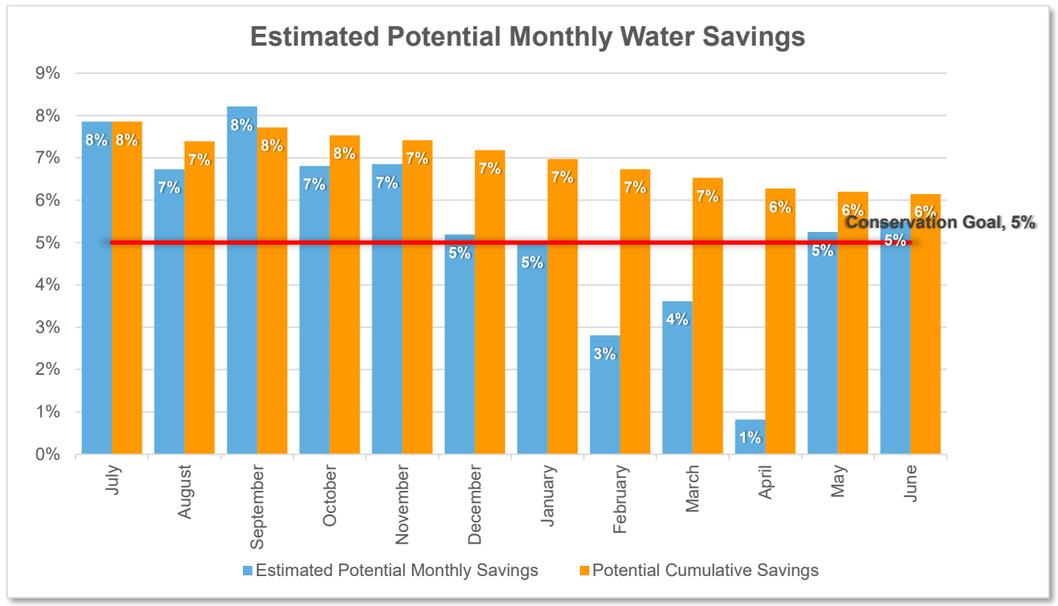
Estimated Monthly Water Use and Savings Summary

Units: (af)

This provides a summary of the estimated production relative to Baseline Year production and potential water savings, assuming implementation of selected actions at the water savings and implementation rates indicated in the Drought Response Actions worksheet. Select the units that your production data are displayed in.

Month	Baseline Year (2019) Production (af)	Estimated Drought Year Production (af)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
July	1,084	999	8%	8%	5%	
August	762	711	7%	7%	5%	
September	1,213	1,113	8%	8%	5%	
October	789	736	7%	8%	5%	
November	780	726	7%	7%	5%	
December	551	522	5%	7%	5%	
January	535	508	5%	7%	5%	
February	348	338	3%	7%	5%	
March	431	415	4%	7%	5%	
April	298	295	1%	6%	5%	
May	561	532	5%	6%	5%	
June	565	534	5%	6%	5%	





Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

1 - Home

North Marin Water District

Enter Agency Information		
Agency Name	North Marin Water District	
Total Population Served	61,658	
Conservation Goal (%)	15%	
Drought Stage	Stage 2	
Number of Residential Accounts	18,699	
Number of Commercial, Industrial, and Institutional (CII) Accounts	909	
Number of Dedicated Irrigation Accounts	356	
Baseline Year(s)	2019	FY
Percentage of Residential Indoor Use During Minimum Month (%)	100%	
Percentage of CII Indoor Use During Minimum Month (%)	100%	
Comments		

Navigation	
USER'S GUIDE	Download and read the guide before using this Tool
1 - HOME	Enter agency information
2 - INPUT BASELINE YEAR WATER USE	Enter Baseline Year production and use
3 - BASELINE YEAR WATER USE	Review and confirm entered information
4 - DROUGHT RESPONSE ACTIONS	Select Drought Response Actions and input estimated water savings and implementation rates.
5 - ESTIMATED WATER SAVINGS	Review estimated water production and compare estimated savings to conservation target.

Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

1 - Home

North Marin Water District

6 - DROUGHT RESPONSE TRACKING	**Track production and water savings against the conservation target.**

Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

1 - Home

North Marin Water District

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2 - Input Baseline Year (2019) Water Use

North Marin Water District

Input Baseline Year (2019) Production and Water Use

Units: (af)

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North Marin Water District

Baseline Year (2019) Annual Water Use Summary

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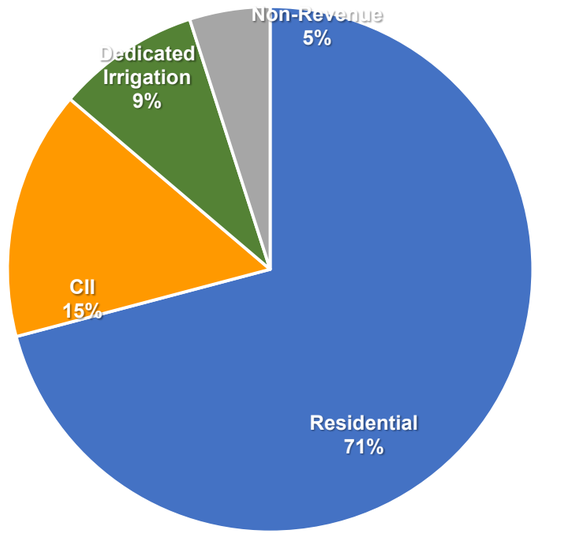
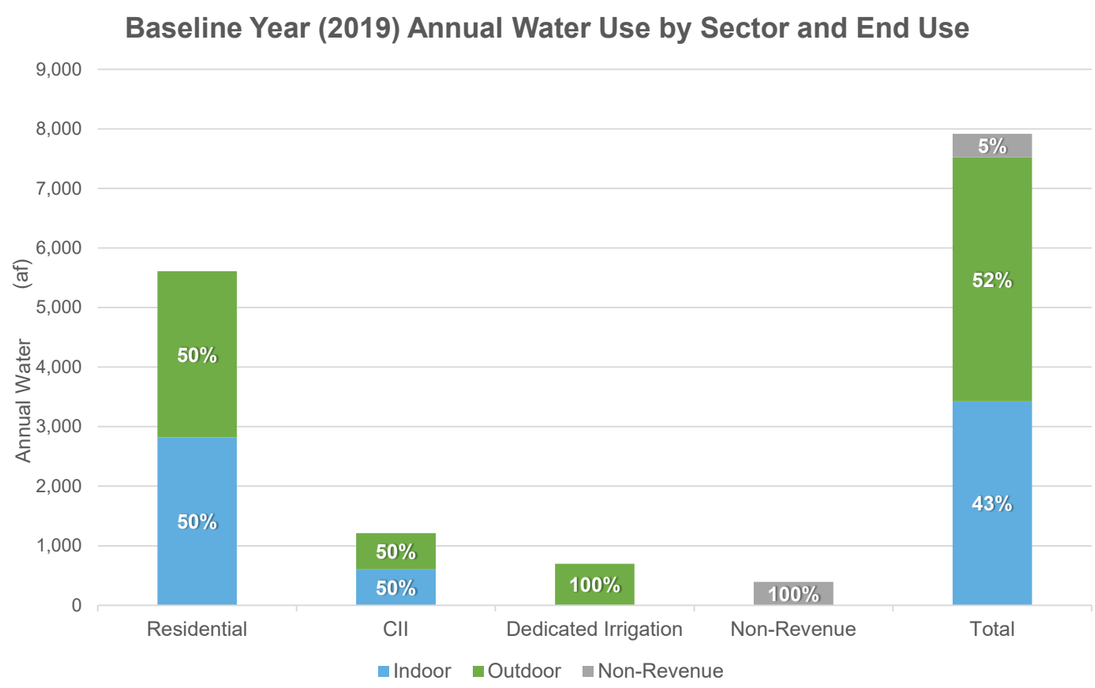
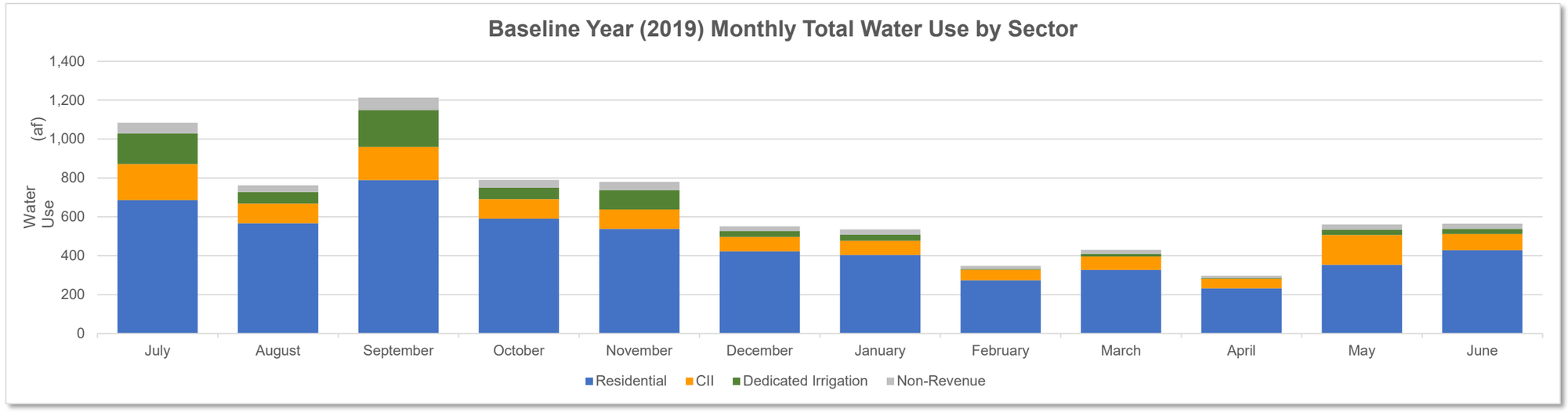
Total Non-Revenue	392	--	--	--	392	
Total Indoor %	43%	50%	50%	0%	--	
Total Outdoor %	52%	50%	50%	100%	--	
Total Non-Revenue %	5%	--	--	--	100%	

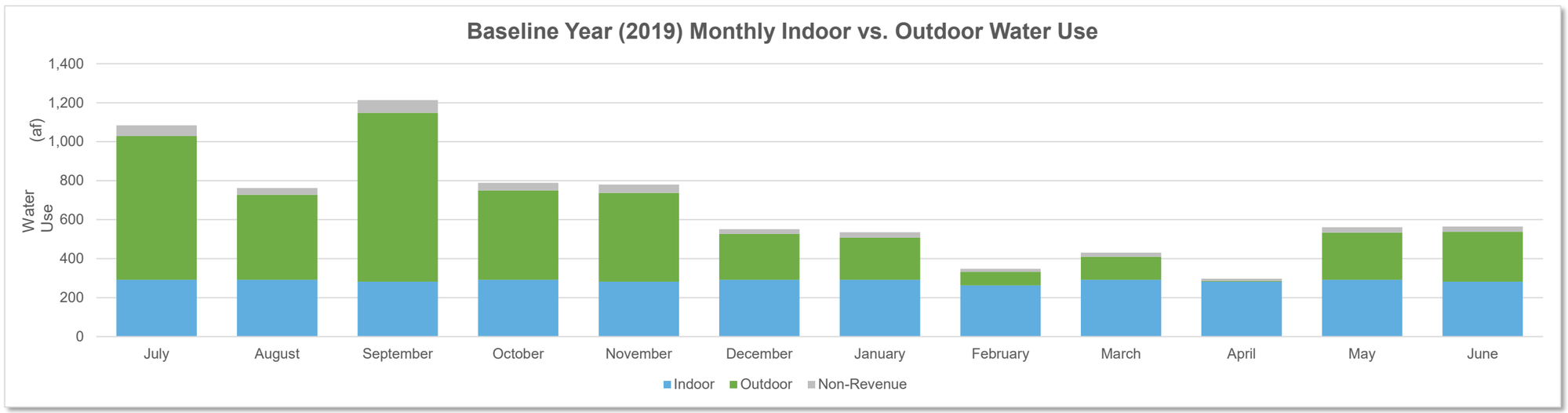




3 - Baseline Year (2019) Water Use Profile

North Marin Water District



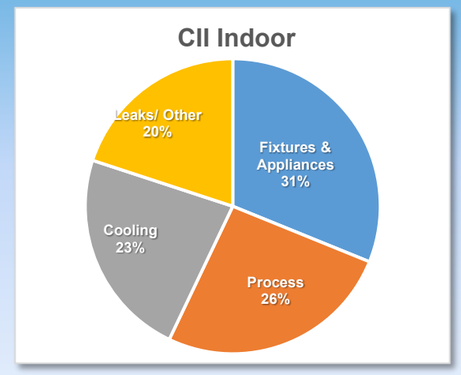


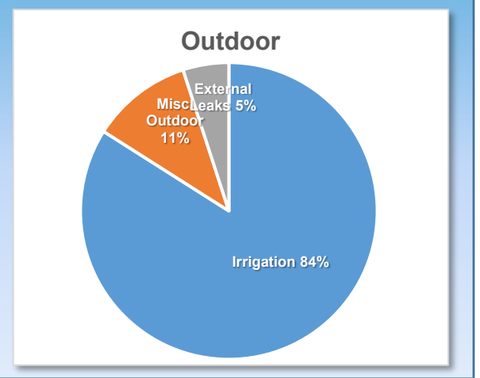
4 - Drought Response Actions - Stage 2

North Marin Water District

Maximum Savings Potential		
Use the default values or enter your own criteria for the maximum savings potential. Estimated water savings within each sector will not exceed the maximum savings criteria.		
Minimum Residential Indoor GPCD	40	R-GPCD
Maximum Residential Outdoor Savings	75%	of Baseline Residential Outdoor Water Use
Maximum CII Indoor Savings	10%	of Baseline CII Indoor Water Use
Maximum CII Outdoor Savings	75%	of Baseline CII Outdoor Water Use
Maximum Dedicated Irrigation Account Savings	75%	of Baseline Dedicated Irrigation Water Use
Maximum Non-Revenue Water Savings	50%	of Baseline Non-Revenue Water Use
Resulting Total Maximum Annual Savings Potential	43%	of Total Baseline Production

Assumed Proportion of Water Use by End Uses and Sector





4 - Drought Response Actions - Stage 2

North Marin Water District

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 Information Program; additional basis for the default values are included in the User Manual.

Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Possible Mandatory Prohibitions**	All Outdoor	☑	14%	**75%**	--	--
Prohibit Irrigation with Potable Water Outside of Newly Constructed 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%	See Appendix D of the DRP	--
Prohibit Use of Potable Water to Wash Sidewalks and Driveways	Misc. Outdoor	☑	17%	50%		--
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	--

4 - Drought Response Actions - Stage 2

North Marin Water District

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Agency Drought Actions / Restrictions**						
► **Agency Actions**						
Media Campaign, Newspaper Articles, Website	All	☑	**1.0%**	**75%**	EBMUD, 2011	--
Promote Water Conservation / Rebate Programs	All	☑		50%	--	--
Water Efficiency Workshops, Public Events	All	☑	**1.0%**	**75%**	EBMUD, 2011	--
Water Bill Inserts	All	☑	**1.0%**	100%	EBMUD, 2011	--
Promote / Expand Use of Recycled Water	Irrigation	☑	100%		--	--
Home or Mobile Water Use Reports	All	☐	5%	10%	WaterSmart Software, 2015	--
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%	See Appendix D of the DRP	--
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	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 3 Days/Week, 15 Minutes/Day, Between 7PM and 9AM	Irrigation	☑	**17%**	**85%**	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 7PM and 9AM	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%	--	--
Customer Water Budgets						
Establish Water Budget - 25% Reduction	Irrigation	☐	25%	50%	--	--
Establish Water Budget - 50% Reduction	Irrigation	☐	50%	50%	--	--
Establish Water Budget - 75% Reduction	Irrigation	☐	75%	50%	--	--

4 - Drought Response Actions - Stage 2

North Marin Water District

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ **Agency Drought Actions / Restrictions**						
▶ **Residential**						
Conduct Water Use Surveys Targeting High Water Users	All Residential Uses	☐	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 3 Days/Week, 15 Minutes/Day, Between 7PM and 9AM	Irrigation	☑	**17%**	**85%**	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 7PM and 9AM	Irrigation	☐	79%	50%		
Prohibit use of Potable Water for Irrigation	Irrigation	☐	100%	50%		
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☐	50%	50%	EBMUD, 2008	--
Require Repair of all Leaks within 24 hours	Leaks	☑	100%	**35%**	--	--
Require Pool Covers	Misc. Outdoor	☐	28%	25%	Maddaus & Mayer, 2001	--
Prohibit Filling of Pools	Misc. Outdoor	☐	55%	25%	DeOreo et al., 2011	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All Residential Uses	☐	10%	50%	--	--
Establish Water Budget - 20% Reduction	All Residential Uses	☐	20%	50%	--	--
▶ **CII**						
Conduct CII Surveys Targeting High Water Users	All CII uses	☐	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 3 Days/Week, 15 Minutes/Day, Between 7PM and 9AM	Irrigation	☑	**17%**	**80%**	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 7PM and 9AM	Irrigation	☐	79%	50%		
Prohibit Use of Potable Water for Construction and Dust Control	Misc. Outdoor	☑		100%	--	--
Prohibit Single-Pass Cooling Systems	Cooling	☐	80%	1%	Vickers, 2001	--
Require Repair of all Leaks within 24 hours	Leaks	☑	100%	5%	--	--
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☐	50%	50%	EBMUD, 2008	--
Require Water-Efficient Pre-Rinse Spray Valves	Fixtures & Appliances	☐	0.8%	50%	EPA, 2015; Pacific Institute, 2003	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All CII uses	☐	10%	50%	--	--
Establish Water Budget - 20% Reduction	All CII uses	☐	20%	50%	--	--
Establish Water Budget - 30% Reduction	All CII uses	☐	30%	50%	--	--

4 - Drought Response Actions - Stage 2

North Marin Water District

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ **Residential Customer Actions to Encourage**						
Install Bathroom Faucet Aerators	Faucets and Dishwashers	☐			--	--
Install a Water-Efficient Showerhead	Showers/Baths	☐			--	--
Turn Off Water when Brushing Teeth, Shaving, Washing Dishes, or Cooking	Faucets and Dishwashers	☐			--	--
Fill the Bathtub Halfway	Showers/Baths	☐			--	--
Wash Only Full Loads of Clothes	Clothes Washers	☐			--	--
Install a High-Efficiency Toilet	Toilets	☐			--	--
Take Shorter Showers	Showers/Baths	☐			--	--
Run Dishwasher Only When Full	Faucets and Dishwashers	☐			--	--
Reduce Outdoor Irrigation	Irrigation	☐			--	--
Install Drip-Irrigation	Irrigation	☐			--	--
Use Mulch	Irrigation	☐			--	--
Plant Drought Resistant Trees and Plants	Irrigation	☐			--	--
Use a Broom to Clean Outdoor Areas	Misc. Outdoor	☐			--	--
Flush Less Frequently	Toilets	☐			--	--
Re-Use Shower or Bath Water for Irrigation	Irrigation	☐			--	--
Wash Car at Facility that Recycles the Water	Misc. Outdoor	☐			--	--

5 - Estimated Water Savings - Stage 2

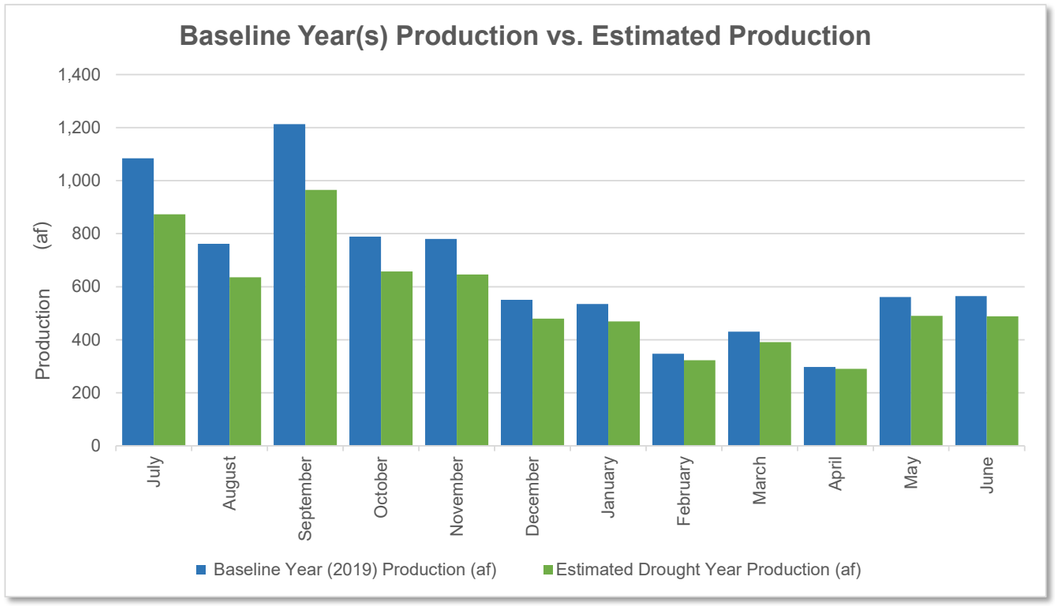
North Marin Water District

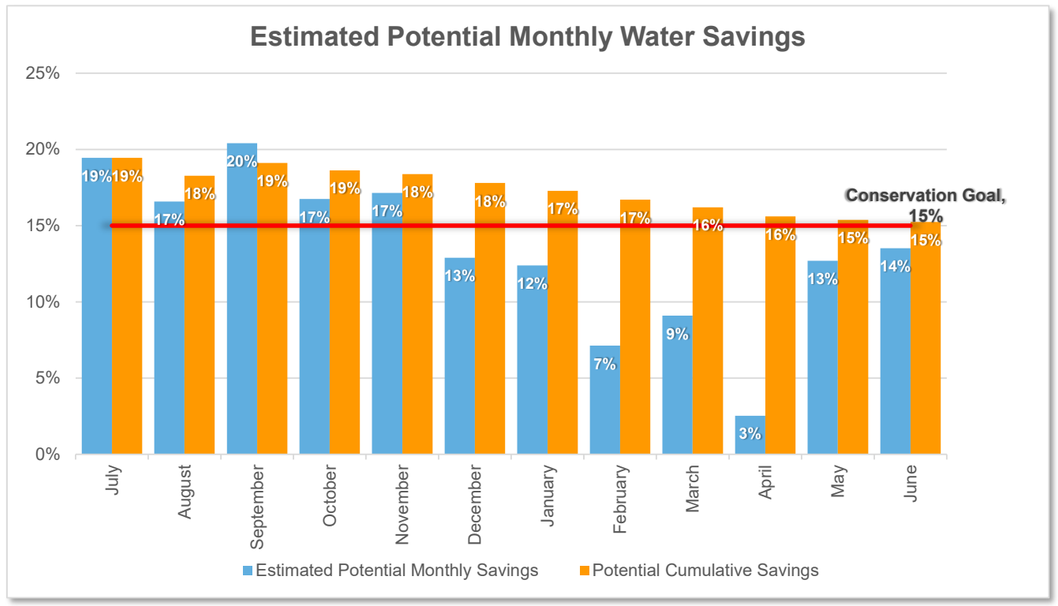
Estimated Monthly Water Use and Savings Summary

Units: (af)

This provides a summary of the estimated production relative to Baseline Year production and potential water savings, assuming implementation of selected actions at the water savings and implementation rates indicated in the Drought Response Actions worksheet. Select the units that your production data are displayed in.

Month	Baseline Year (2019) Production (af)	Estimated Drought Year Production (af)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
July	1,084	873	19%	19%	15%	
August	762	636	17%	18%	15%	
September	1,213	965	20%	19%	15%	
October	789	657	17%	19%	15%	
November	780	646	17%	18%	15%	
December	551	480	13%	18%	15%	
January	535	469	12%	17%	15%	
February	348	323	7%	17%	15%	
March	431	392	9%	16%	15%	
April	298	290	3%	16%	15%	
May	561	490	13%	15%	15%	
June	565	488	14%	15%	15%	





Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

1 - Home

North Marin Water District

Enter Agency Information		
Agency Name	North Marin Water District	
Total Population Served	61,658	
Conservation Goal (%)	25%	
Drought Stage	Stage 3	
Number of Residential Accounts	18,699	
Number of Commercial, Industrial, and Institutional (CII) Accounts	909	
Number of Dedicated Irrigation Accounts	356	
Baseline Year(s)	2019	FY
Percentage of Residential Indoor Use During Minimum Month (%)	100%	
Percentage of CII Indoor Use During Minimum Month (%)	100%	
Comments		

Navigation	
USER'S GUIDE	Download and read the guide before using this Tool
1 - HOME	Enter agency information
2 - INPUT BASELINE YEAR WATER USE	Enter Baseline Year production and use
3 - BASELINE YEAR WATER USE	Review and confirm entered information
4 - DROUGHT RESPONSE ACTIONS	Select Drought Response Actions and input estimated water savings and implementation rates.
5 - ESTIMATED WATER SAVINGS	Review estimated water production and compare estimated savings to conservation target.

Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

1 - Home

North Marin Water District

6 - DROUGHT RESPONSE TRACKING	**Track production and water savings against the conservation target.**

Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

1 - Home

North Marin Water District

For questions about this tool or for additional information, contact:

Anona Dutton, P.G., C.Hg.
adutton@ekiconsult.com
(650) 292-9100

eki environment & water

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2 - Input Baseline Year (2019) Water Use

North Marin Water District

Input Baseline Year (2019) Production and Water Use

Units: (af)

Select the units to input monthly production and use data. Enter the total monthly potable water production for the Baseline Year. Next, enter monthly water use data by sector for the Baseline Year. If you bill on a bi-monthly basis, divide your billing data between the months that the billing cycle includes. If your single-family and multi-family accounts are tracked separately, enter the combined water use for both sectors in the Residential Water Use column. If your commercial, industrial, and institutional (CII) accounts are tracked separately, enter the combined water use for each sector in the CII Water Use column. Your non-revenue water use is calculated by subtracting your monthly residential, CII, and dedicated irrigation water uses from your monthly production. Your monthly residential gallons per capita per day (R-GPCD) is calculated by dividing your monthly residential water use by your population entered in Worksheet 1 - Home.

Date	Total Production (af)	Residential Water Use (af)	CII Water Use (af)	Dedicated Irrigation Water Use (af)	Non-Revenue Water Use (af)	Total R-GPCD	Comments
July	1,084	686	186	157	55	117	NRW is assumed to be 4%.
August	762	567	101	60	34	97	Water use is reported on a fiscal-year basis.
September	1,213	789	171	189	64	139	
October	789	591	100	59	40	101	
November	780	538	99	100	42	95	
December	551	423	74	29	25	72	
January	535	403	73	31	27	69	
February	348	274	54	4	16	52	
March	431	326	69	14	21	56	
April	298	232	50	3	13	41	
May	561	354	153	27	28	60	
June	565	429	83	27	27	76	

3 - Baseline Year (2019) Water Use Profile

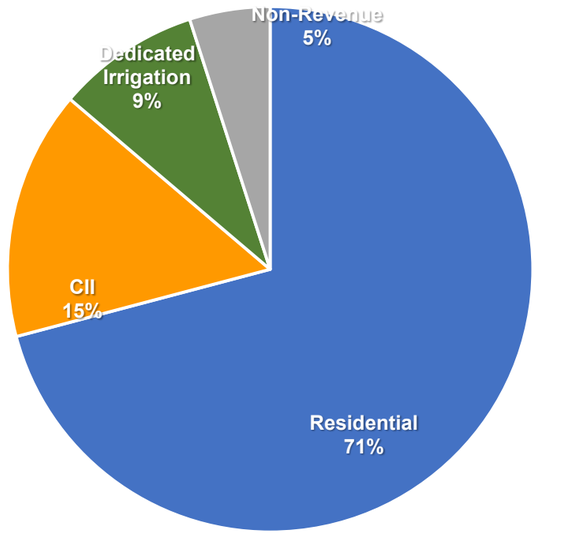
North Marin Water District

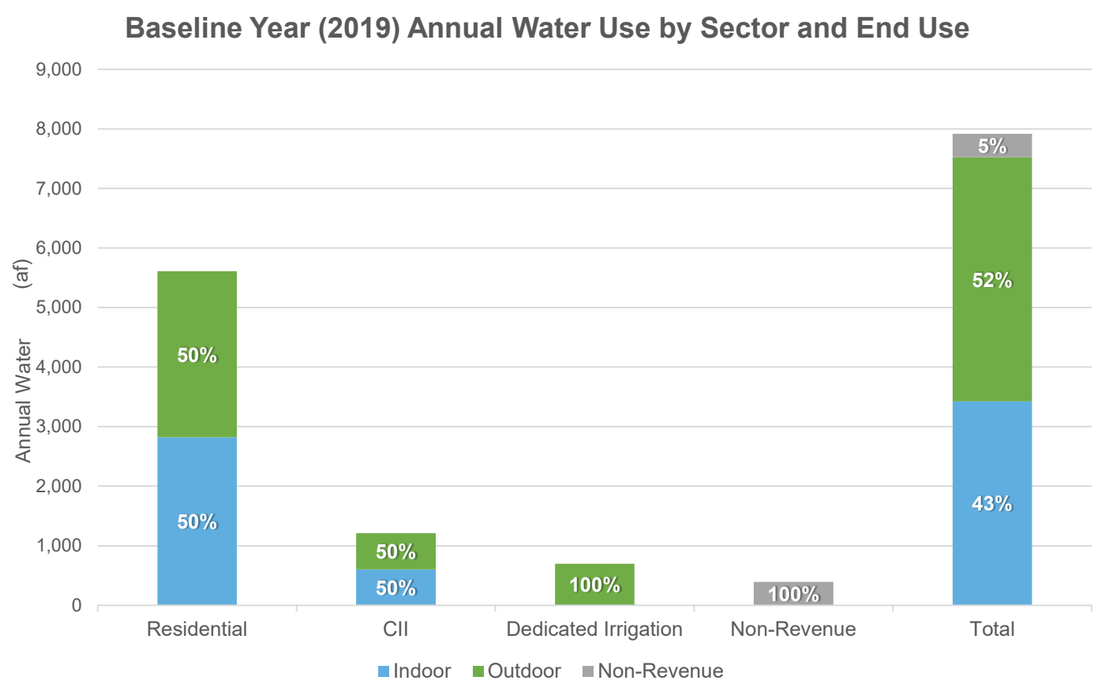
Baseline Year (2019) Annual Water Use Summary

Units: (af)

A summary of your Baseline Year water use by sector and major end use category is shown below. Select the units in which your production and use data are displayed.

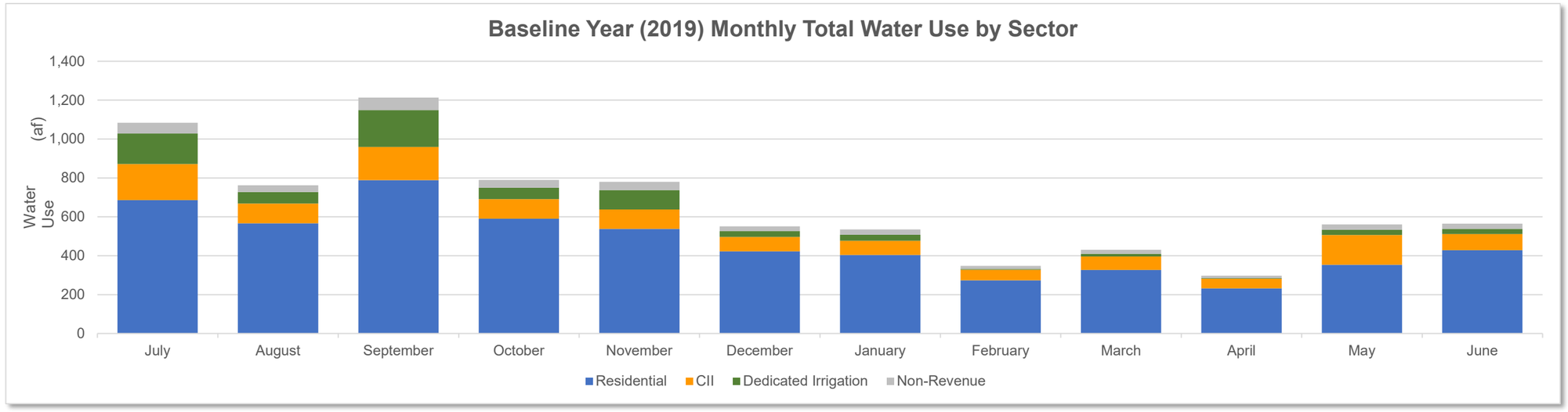
Water Use	Total Production (af)	Water Use (af)				Comments
		Residential	CII	Dedicated Irrigation	Non-Revenue	
Total	7,916	5,611	1,214	699	392	
Total Indoor	3,426	2,821	605	--	--	
Total Outdoor	4,097	2,789	609	699	--	
Total Non-Revenue	392	--	--	--	392	
Total Indoor %	43%	50%	50%	0%	--	
Total Outdoor %	52%	50%	50%	100%	--	
Total Non-Revenue %	5%	--	--	--	100%	

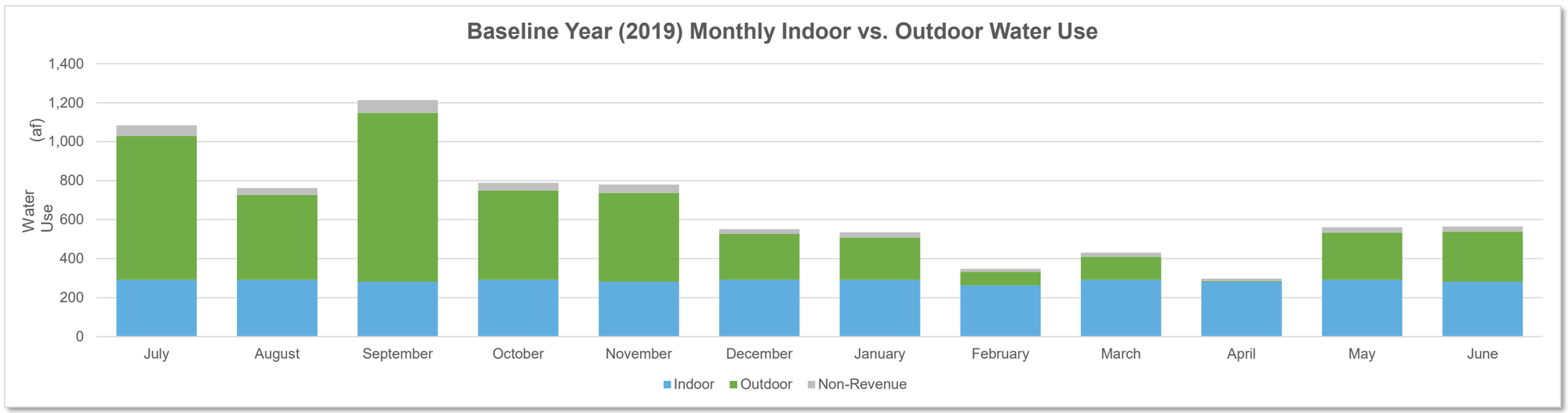




3 - Baseline Year (2019) Water Use Profile

North Marin Water District



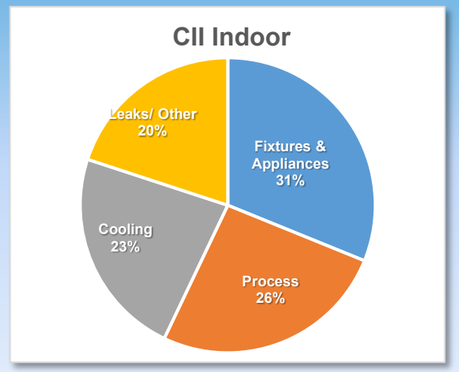


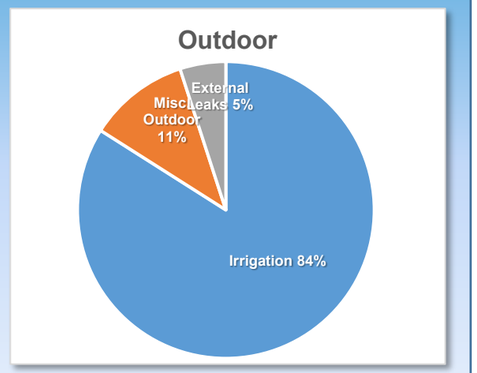
4 - Drought Response Actions - Stage 3

North Marin Water District

Maximum Savings Potential		
Use the default values or enter your own criteria for the maximum savings potential. Estimated water savings within each sector will not exceed the maximum savings criteria.		
Minimum Residential Indoor GPCD	25	R-GPCD
Maximum Residential Outdoor Savings	75%	of Baseline Residential Outdoor Water Use
Maximum CII Indoor Savings	50%	of Baseline CII Indoor Water Use
Maximum CII Outdoor Savings	75%	of Baseline CII Outdoor Water Use
Maximum Dedicated Irrigation Account Savings	75%	of Baseline Dedicated Irrigation Water Use
Maximum Non-Revenue Water Savings	50%	of Baseline Non-Revenue Water Use
Resulting Total Maximum Annual Savings Potential	**59%**	of Total Baseline Production

Assumed Proportion of Water Use by End Uses and Sector





4 - Drought Response Actions - Stage 3

North Marin Water District

Drought Response Actions

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Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
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Require Shut-Off Nozzles on Hoses for Vehicle Washing	Misc. Outdoor	☑	17%	50%	See Appendix D of the DRP	--
Prohibit Use of Potable Water to Wash Sidewalks and Driveways	Misc. Outdoor	☑	17%	50%		--
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	--

4 - Drought Response Actions - Stage 3

North Marin Water District

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **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	--
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%	See Appendix D of the DRP	--
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	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 7PM and 9AM	Irrigation	☑	**38%**	**80%**	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 7PM and 9AM	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%	--	--
Customer Water Budgets						
Establish Water Budget - 25% Reduction	Irrigation	☐	25%	50%	--	--
Establish Water Budget - 50% Reduction	Irrigation	☐	50%	50%	--	--
Establish Water Budget - 75% Reduction	Irrigation	☐	75%	50%	--	--

4 - Drought Response Actions - Stage 3

North Marin Water District

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ **Agency Drought Actions / Restrictions**						
▶ **Residential**						
Conduct Water Use Surveys Targeting High Water Users	All Residential Uses	☐	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 7PM and 9AM	Irrigation	☑	**38%**	**80%**	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 7PM and 9AM	Irrigation	☐	79%	50%		
Prohibit use of Potable Water for Irrigation	Irrigation	☐	100%	50%		
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☑	50%	50%	EBMUD, 2008	--
Require Repair of all Leaks within 24 hours	Leaks	☑	100%	**35%**	--	--
Require Pool Covers	Misc. Outdoor	☑	28%	25%	Maddaus & Mayer, 2001	--
Prohibit Filling of Pools	Misc. Outdoor	☑	55%	25%	DeOreo et al., 2011	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All Residential Uses	☐	10%	50%	--	--
Establish Water Budget - 20% Reduction	All Residential Uses	☐	20%	50%	--	--
▶ **CII**						
Conduct CII Surveys Targeting High Water Users	All CII uses	☐	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 7PM and 9AM	Irrigation	☑	**38%**	**75%**	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 7PM and 9AM	Irrigation	☐	79%	50%		
Prohibit Use of Potable Water for Construction and Dust Control	Misc. Outdoor	☑		100%	--	--
Prohibit Single-Pass Cooling Systems	Cooling	☐	80%	1%	Vickers, 2001	--
Require Repair of all Leaks within 24 hours	Leaks	☑	100%	5%	--	--
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☑	50%	50%	EBMUD, 2008	--
Require Water-Efficient Pre-Rinse Spray Valves	Fixtures & Appliances	☐	0.8%	50%	EPA, 2015; Pacific Institute, 2003	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All CII uses	☐	10%	50%	--	--
Establish Water Budget - 20% Reduction	All CII uses	☐	20%	50%	--	--
Establish Water Budget - 30% Reduction	All CII uses	☐	30%	50%	--	--

4 - Drought Response Actions - Stage 3

North Marin Water District

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ **Residential Customer Actions to Encourage**						
Install Bathroom Faucet Aerators	Faucets and Dishwashers	☐			--	--
Install a Water-Efficient Showerhead	Showers/Baths	☐			--	--
Turn Off Water when Brushing Teeth, Shaving, Washing Dishes, or Cooking	Faucets and Dishwashers	☐			--	--
Fill the Bathtub Halfway	Showers/Baths	☐			--	--
Wash Only Full Loads of Clothes	Clothes Washers	☐			--	--
Install a High-Efficiency Toilet	Toilets	☐			--	--
Take Shorter Showers	Showers/Baths	☐			--	--
Run Dishwasher Only When Full	Faucets and Dishwashers	☐			--	--
Reduce Outdoor Irrigation	Irrigation	☐			--	--
Install Drip-Irrigation	Irrigation	☐			--	--
Use Mulch	Irrigation	☐			--	--
Plant Drought Resistant Trees and Plants	Irrigation	☐			--	--
Use a Broom to Clean Outdoor Areas	Misc. Outdoor	☐			--	--
Flush Less Frequently	Toilets	☐			--	--
Re-Use Shower or Bath Water for Irrigation	Irrigation	☐			--	--
Wash Car at Facility that Recycles the Water	Misc. Outdoor	☐			--	--

5 - Estimated Water Savings - Stage 3

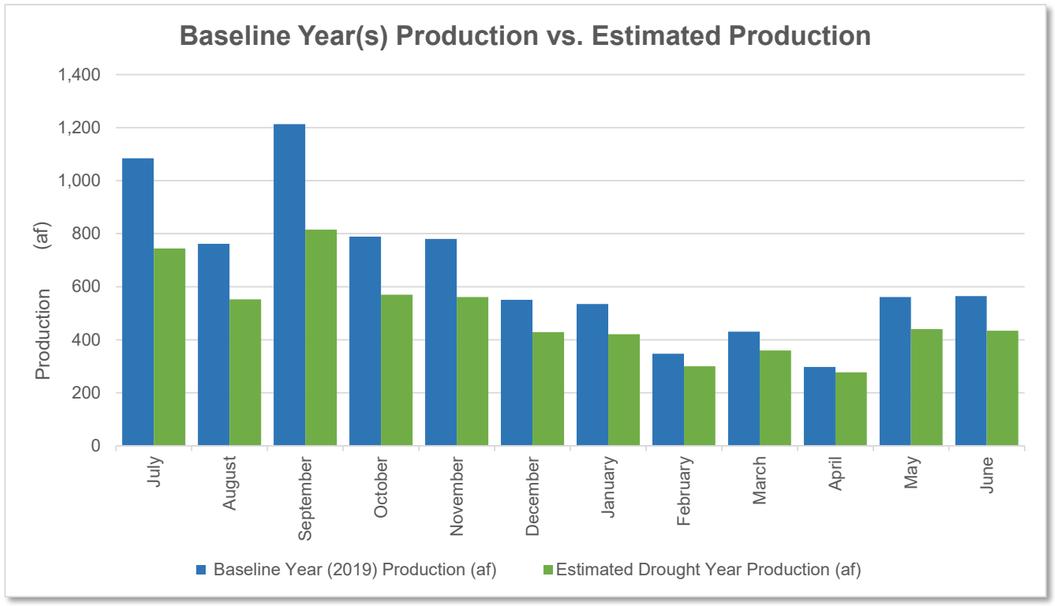
North Marin Water District

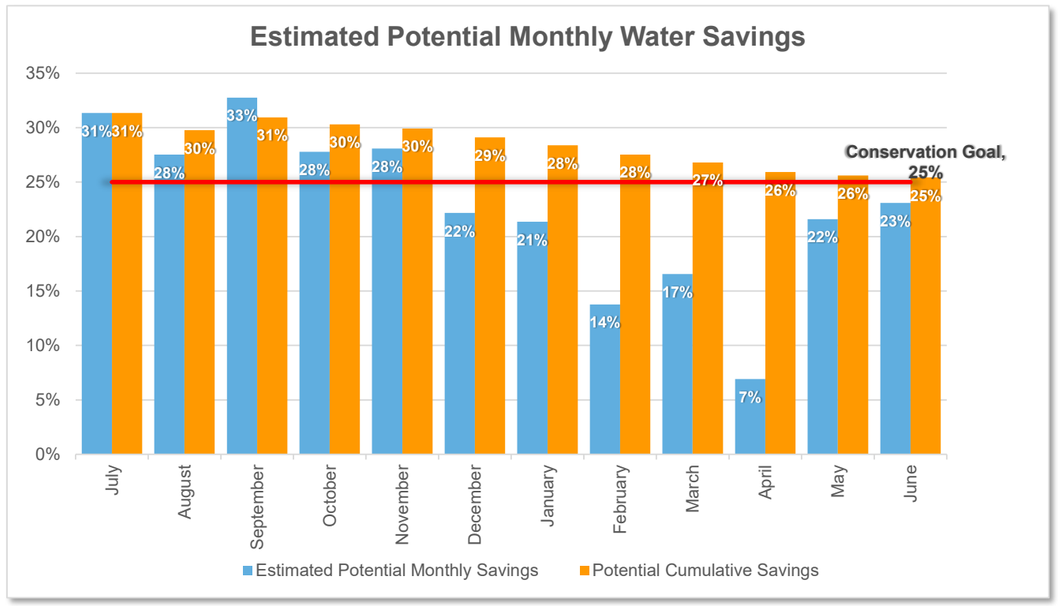
Estimated Monthly Water Use and Savings Summary

Units: (af)

This provides a summary of the estimated production relative to Baseline Year production and potential water savings, assuming implementation of selected actions at the water savings and implementation rates indicated in the Drought Response Actions worksheet. Select the units that your production data are displayed in.

Month	Baseline Year (2019) Production (af)	Estimated Drought Year Production (af)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
July	1,084	744	31%	31%	25%	
August	762	552	28%	30%	25%	
September	1,213	816	33%	31%	25%	
October	789	570	28%	30%	25%	
November	780	561	28%	30%	25%	
December	551	429	22%	29%	25%	
January	535	421	21%	28%	25%	
February	348	300	14%	28%	25%	
March	431	359	17%	27%	25%	
April	298	277	7%	26%	25%	
May	561	440	22%	26%	25%	
June	565	434	23%	25%	25%	





Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

1 - Home

North Marin Water District

Enter Agency Information		
Agency Name	North Marin Water District	
Total Population Served	61,658	
Conservation Goal (%)	35%	
Drought Stage	Stage 4	
Number of Residential Accounts	18,699	
Number of Commercial, Industrial, and Institutional (CII) Accounts	909	
Number of Dedicated Irrigation Accounts	356	
Baseline Year(s)	2019	FY
Percentage of Residential Indoor Use During Minimum Month (%)	100%	
Percentage of CII Indoor Use During Minimum Month (%)	100%	
Comments		

Navigation	
USER'S GUIDE	Download and read the guide before using this Tool
1 - HOME	Enter agency information
2 - INPUT BASELINE YEAR WATER USE	Enter Baseline Year production and use
3 - BASELINE YEAR WATER USE	Review and confirm entered information
4 - DROUGHT RESPONSE ACTIONS	Select Drought Response Actions and input estimated water savings and implementation rates.
5 - ESTIMATED WATER SAVINGS	Review estimated water production and compare estimated savings to conservation target.

Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

1 - Home

North Marin Water District

6 - DROUGHT RESPONSE TRACKING	**Track production and water savings against the conservation target.**

Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

1 - Home

North Marin Water District

For questions about this tool or for additional information, contact:

Anona Dutton, P.G., C.Hg.
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(650) 292-9100

eki environment & water

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2 - Input Baseline Year (2019) Water Use

North Marin Water District

Input Baseline Year (2019) Production and Water Use

Units: (af)

Select the units to input monthly production and use data. Enter the total monthly potable water production for the Baseline Year. Next, enter monthly water use data by sector for the Baseline Year. If you bill on a bi-monthly basis, divide your billing data between the months that the billing cycle includes. If your single-family and multi-family accounts are tracked separately, enter the combined water use for both sectors in the Residential Water Use column. If your commercial, industrial, and institutional (CII) accounts are tracked separately, enter the combined water use for each sector in the CII Water Use column. Your non-revenue water use is calculated by subtracting your monthly residential, CII, and dedicated irrigation water uses from your monthly production. Your monthly residential gallons per capita per day (R-GPCD) is calculated by dividing your monthly residential water use by your population entered in Worksheet 1 - Home.

Date	Total Production (af)	Residential Water Use (af)	CII Water Use (af)	Dedicated Irrigation Water Use (af)	Non-Revenue Water Use (af)	Total R-GPCD	Comments
July	1,084	686	186	157	55	117	NRW is assumed to be 4%.
August	762	567	101	60	34	97	Water use is reported on a fiscal-year basis.
September	1,213	789	171	189	64	139	
October	789	591	100	59	40	101	
November	780	538	99	100	42	95	
December	551	423	74	29	25	72	
January	535	403	73	31	27	69	
February	348	274	54	4	16	52	
March	431	326	69	14	21	56	
April	298	232	50	3	13	41	
May	561	354	153	27	28	60	
June	565	429	83	27	27	76	

3 - Baseline Year (2019) Water Use Profile

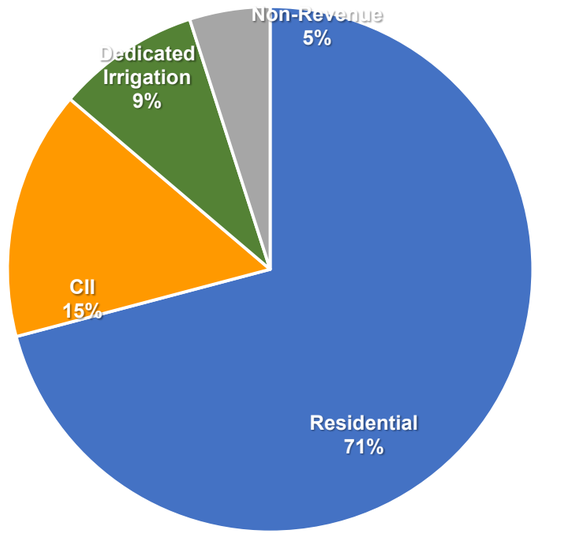
North Marin Water District

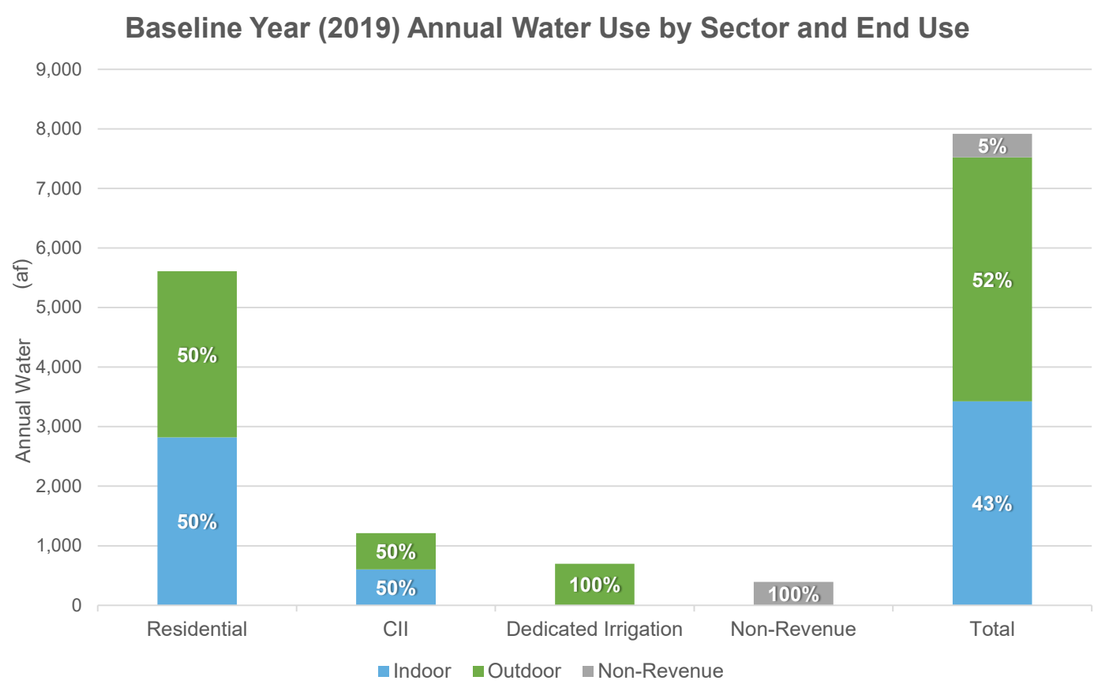
Baseline Year (2019) Annual Water Use Summary

Units: (af)

A summary of your Baseline Year water use by sector and major end use category is shown below. Select the units in which your production and use data are displayed.

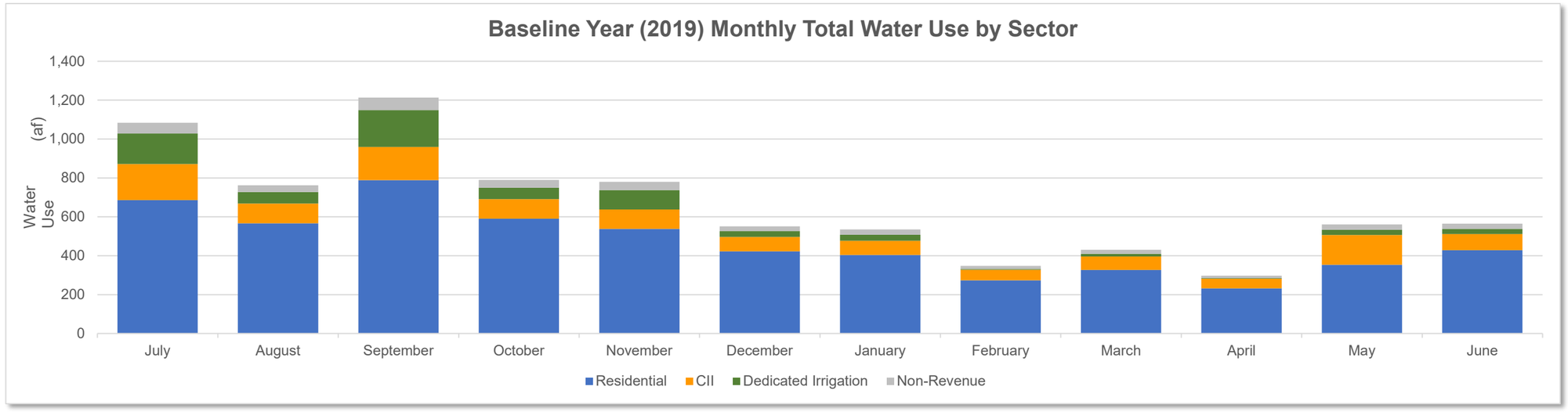
Water Use	Total Production (af)	Water Use (af)				Comments
		Residential	CII	Dedicated Irrigation	Non-Revenue	
Total	7,916	5,611	1,214	699	392	
Total Indoor	3,426	2,821	605	--	--	
Total Outdoor	4,097	2,789	609	699	--	
Total Non-Revenue	392	--	--	--	392	
Total Indoor %	43%	50%	50%	0%	--	
Total Outdoor %	52%	50%	50%	100%	--	
Total Non-Revenue %	5%	--	--	--	100%	

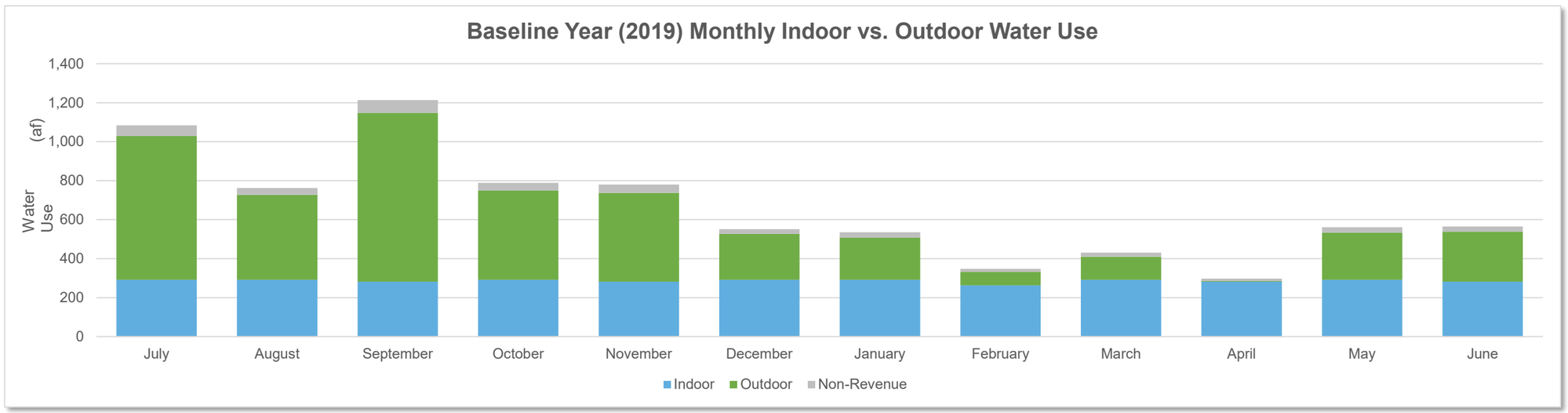




3 - Baseline Year (2019) Water Use Profile

North Marin Water District



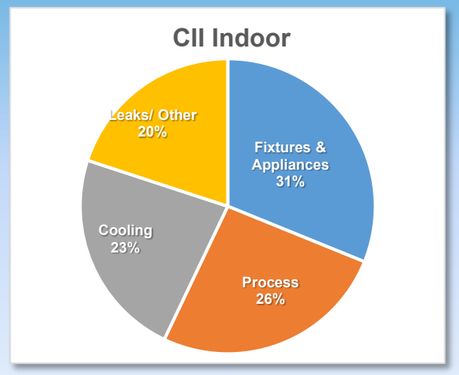


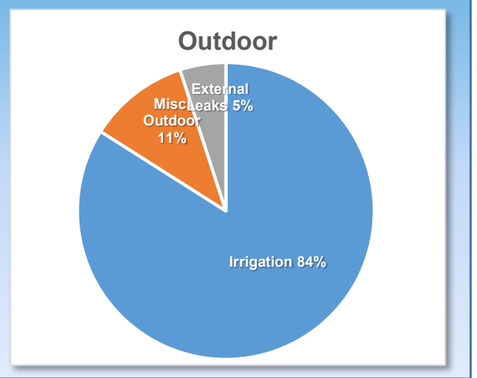
4 - Drought Response Actions - Stage 4

North Marin Water District

Maximum Savings Potential		
Use the default values or enter your own criteria for the maximum savings potential. Estimated water savings within each sector will not exceed the maximum savings criteria.		
Minimum Residential Indoor GPCD	25	R-GPCD
Maximum Residential Outdoor Savings	75%	of Baseline Residential Outdoor Water Use
Maximum CII Indoor Savings	50%	of Baseline CII Indoor Water Use
Maximum CII Outdoor Savings	75%	of Baseline CII Outdoor Water Use
Maximum Dedicated Irrigation Account Savings	75%	of Baseline Dedicated Irrigation Water Use
Maximum Non-Revenue Water Savings	50%	of Baseline Non-Revenue Water Use
Resulting Total Maximum Annual Savings Potential	**59%**	of Total Baseline Production

Assumed Proportion of Water Use by End Uses and Sector





4 - Drought Response Actions - Stage 4

North Marin Water District

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 Information Program; additional basis for the default values are included in the User Manual.

Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Possible Mandatory Prohibitions**	All Outdoor	☑	14%	**75%**	--	--
Prohibit Irrigation with Potable Water Outside of Newly Constructed 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%	See Appendix D of the DRP	--
Prohibit Use of Potable Water to Wash Sidewalks and Driveways	Misc. Outdoor	☑	17%	50%		--
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	--

4 - Drought Response Actions - Stage 4

North Marin Water District

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Agency Drought Actions / Restrictions**						
► **Agency Actions**						
Media Campaign, Newspaper Articles, Website	All	☑	**1.5%**	**80%**	EBMUD, 2011	--
Promote Water Conservation / Rebate Programs	All	☑		50%	--	--
Water Efficiency Workshops, Public Events	All	☑	**1.5%**	**80%**	EBMUD, 2011	--
Water Bill Inserts	All	☑	**1.5%**	100%	EBMUD, 2011	--
Promote / Expand Use of Recycled Water	Irrigation	☑	100%		--	--
Home or Mobile Water Use Reports	All	☐	5%	10%	WaterSmart Software, 2015	--
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%	See Appendix D of the DRP	--
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	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 7PM and 9AM	Irrigation	☐	38%	80%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 7PM and 9AM	Irrigation	☑	79%	**60%**		
Prohibit use of Potable Water for Irrigation	Irrigation	☐	100%	50%		
Require Repair of all Leaks within 24 hours	External Leaks	☑	100%	5%	--	--
Customer Water Budgets						
Establish Water Budget - 25% Reduction	Irrigation	☐	25%	50%	--	--
Establish Water Budget - 50% Reduction	Irrigation	☐	50%	50%	--	--
Establish Water Budget - 75% Reduction	Irrigation	☐	75%	50%	--	--

4 - Drought Response Actions - Stage 4

North Marin Water District

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Agency Drought Actions / Restrictions**						
► **Residential**						
Conduct Water Use Surveys Targeting High Water Users	All Residential Uses	☐	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 7PM and 9AM	Irrigation	☐	38%	80%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 7PM and 9AM	Irrigation	☑	79%	**60%**		
Prohibit use of Potable Water for Irrigation	Irrigation	☐	100%	50%		
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☑	50%	50%	EBMUD, 2008	--
Require Repair of all Leaks within 24 hours	Leaks	☑	100%	**35%**	--	--
Require Pool Covers	Misc. Outdoor	☑	28%	25%	Maddaus & Mayer, 2001	--
Prohibit Filling of Pools	Misc. Outdoor	☑	55%	25%	DeOreo et al., 2011	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All Residential Uses	☐	10%	50%	--	--
Establish Water Budget - 20% Reduction	All Residential Uses	☐	20%	50%	--	--
► **CII**						
Conduct CII Surveys Targeting High Water Users	All CII uses	☐	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 7PM and 9AM	Irrigation	☐	38%	80%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 7PM and 9AM	Irrigation	☑	79%	**60%**		
Prohibit Use of Potable Water for Construction and Dust Control	Misc. Outdoor	☑		100%	--	--
Prohibit Single-Pass Cooling Systems	Cooling	☑	80%	1%	Vickers, 2001	--
Require Repair of all Leaks within 24 hours	Leaks	☑	100%	5%	--	--
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☑	50%	50%	EBMUD, 2008	--
Require Water-Efficient Pre-Rinse Spray Valves	Fixtures & Appliances	☐	0.8%	50%	EPA, 2015; Pacific Institute, 2003	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All CII uses	☐	10%	50%	--	--
Establish Water Budget - 20% Reduction	All CII uses	☐	20%	50%	--	--
Establish Water Budget - 30% Reduction	All CII uses	☐	30%	50%	--	--

4 - Drought Response Actions - Stage 4

North Marin Water District

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ **Residential Customer Actions to Encourage**						
Install Bathroom Faucet Aerators	Faucets and Dishwashers	☐			--	--
Install a Water-Efficient Showerhead	Showers/Baths	☐			--	--
Turn Off Water when Brushing Teeth, Shaving, Washing Dishes, or Cooking	Faucets and Dishwashers	☐			--	--
Fill the Bathtub Halfway	Showers/Baths	☐			--	--
Wash Only Full Loads of Clothes	Clothes Washers	☐			--	--
Install a High-Efficiency Toilet	Toilets	☐			--	--
Take Shorter Showers	Showers/Baths	☐			--	--
Run Dishwasher Only When Full	Faucets and Dishwashers	☐			--	--
Reduce Outdoor Irrigation	Irrigation	☐			--	--
Install Drip-Irrigation	Irrigation	☐			--	--
Use Mulch	Irrigation	☐			--	--
Plant Drought Resistant Trees and Plants	Irrigation	☐			--	--
Use a Broom to Clean Outdoor Areas	Misc. Outdoor	☐			--	--
Flush Less Frequently	Toilets	☐			--	--
Re-Use Shower or Bath Water for Irrigation	Irrigation	☐			--	--
Wash Car at Facility that Recycles the Water	Misc. Outdoor	☐			--	--

5 - Estimated Water Savings - Stage 4

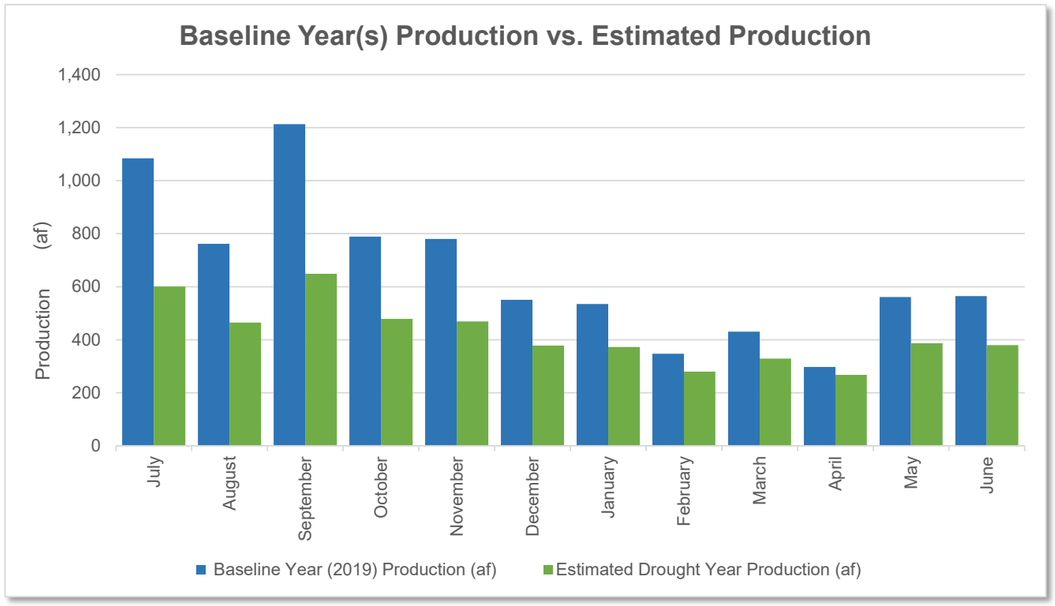
North Marin Water District

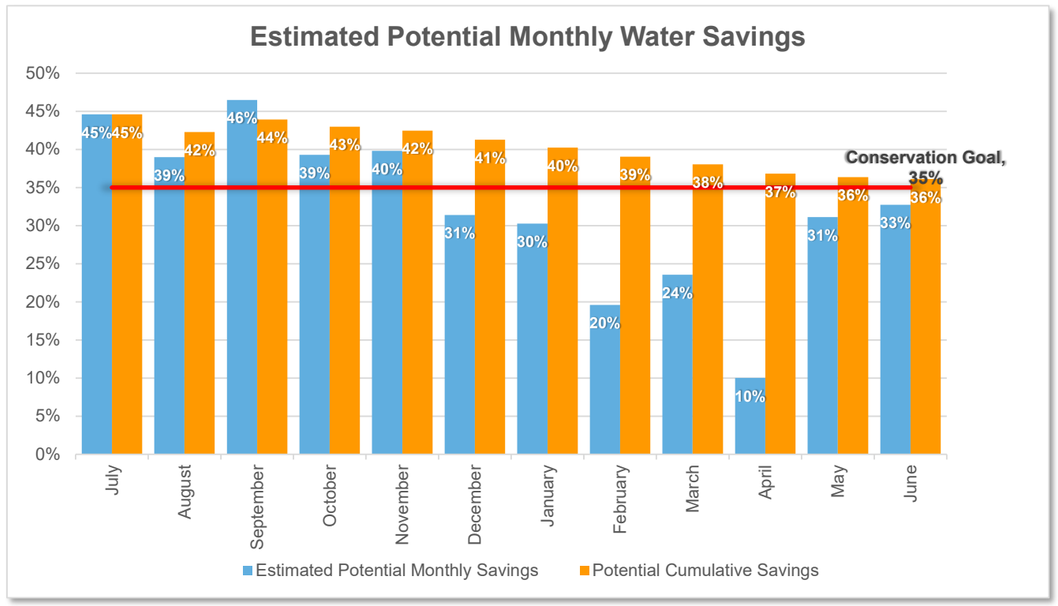
Estimated Monthly Water Use and Savings Summary

Units: (af)

This provides a summary of the estimated production relative to Baseline Year production and potential water savings, assuming implementation of selected actions at the water savings and implementation rates indicated in the Drought Response Actions worksheet. Select the units that your production data are displayed in.

Month	Baseline Year (2019) Production (af)	Estimated Drought Year Production (af)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
July	1,084	601	45%	45%	35%	
August	762	465	39%	42%	35%	
September	1,213	649	46%	44%	35%	
October	789	479	39%	43%	35%	
November	780	469	40%	42%	35%	
December	551	378	31%	41%	35%	
January	535	373	30%	40%	35%	
February	348	280	20%	39%	35%	
March	431	329	24%	38%	35%	
April	298	268	10%	37%	35%	
May	561	387	31%	36%	35%	
June	565	380	33%	36%	35%	





Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

1 - Home

North Marin Water District

Enter Agency Information		
Agency Name	North Marin Water District	
Total Population Served	61,658	
Conservation Goal (%)	45%	
Drought Stage	Stage 5	
Number of Residential Accounts	18,699	
Number of Commercial, Industrial, and Institutional (CII) Accounts	909	
Number of Dedicated Irrigation Accounts	356	
Baseline Year(s)	2019	FY
Percentage of Residential Indoor Use During Minimum Month (%)	100%	
Percentage of CII Indoor Use During Minimum Month (%)	100%	
Comments		

Navigation	
USER'S GUIDE	Download and read the guide before using this Tool
1 - HOME	Enter agency information
2 - INPUT BASELINE YEAR WATER USE	Enter Baseline Year production and use
3 - BASELINE YEAR WATER USE	Review and confirm entered information
4 - DROUGHT RESPONSE ACTIONS	Select Drought Response Actions and input estimated water savings and implementation rates.
5 - ESTIMATED WATER SAVINGS	Review estimated water production and compare estimated savings to conservation target.

Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

1 - Home

North Marin Water District

6 - DROUGHT RESPONSE TRACKING	**Track production and water savings against the conservation target.**

Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

1 - Home

North Marin Water District

For questions about this tool or for additional information, contact:

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2 - Input Baseline Year (2019) Water Use

North Marin Water District

Input Baseline Year (2019) Production and Water Use

Units: (af)

Select the units to input monthly production and use data. Enter the total monthly potable water production for the Baseline Year. Next, enter monthly water use data by sector for the Baseline Year. If you bill on a bi-monthly basis, divide your billing data between the months that the billing cycle includes. If your single-family and multi-family accounts are tracked separately, enter the combined water use for both sectors in the Residential Water Use column. If your commercial, industrial, and institutional (CII) accounts are tracked separately, enter the combined water use for each sector in the CII Water Use column. Your non-revenue water use is calculated by subtracting your monthly residential, CII, and dedicated irrigation water uses from your monthly production. Your monthly residential gallons per capita per day (R-GPCD) is calculated by dividing your monthly residential water use by your population entered in Worksheet 1 - Home.

Date	Total Production (af)	Residential Water Use (af)	CII Water Use (af)	Dedicated Irrigation Water Use (af)	Non-Revenue Water Use (af)	Total R-GPCD	Comments
July	1,084	686	186	157	55	117	NRW is assumed to be 4%.
August	762	567	101	60	34	97	Water use is reported on a fiscal-year basis.
September	1,213	789	171	189	64	139	
October	789	591	100	59	40	101	
November	780	538	99	100	42	95	
December	551	423	74	29	25	72	
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March	431	326	69	14	21	56	
April	298	232	50	3	13	41	
May	561	354	153	27	28	60	
June	565	429	83	27	27	76	

3 - Baseline Year (2019) Water Use Profile

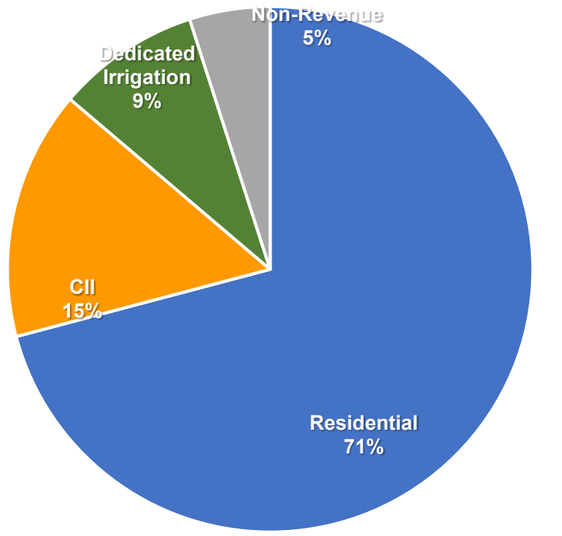
North Marin Water District

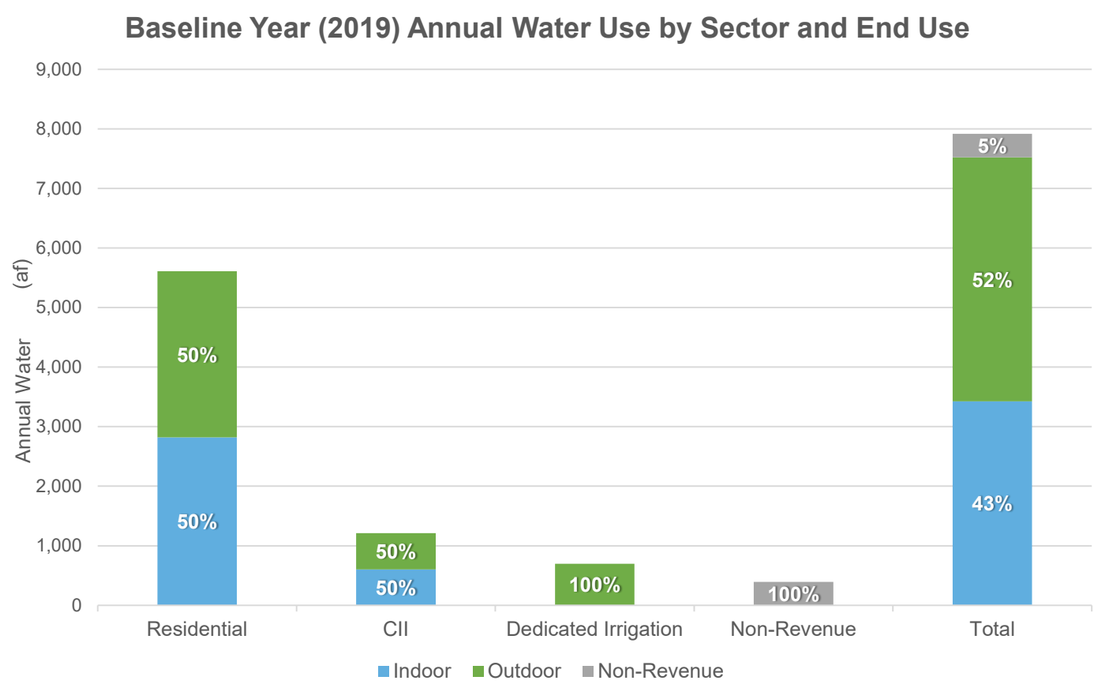
Baseline Year (2019) Annual Water Use Summary

Units: (af)

A summary of your Baseline Year water use by sector and major end use category is shown below. Select the units in which your production and use data are displayed.

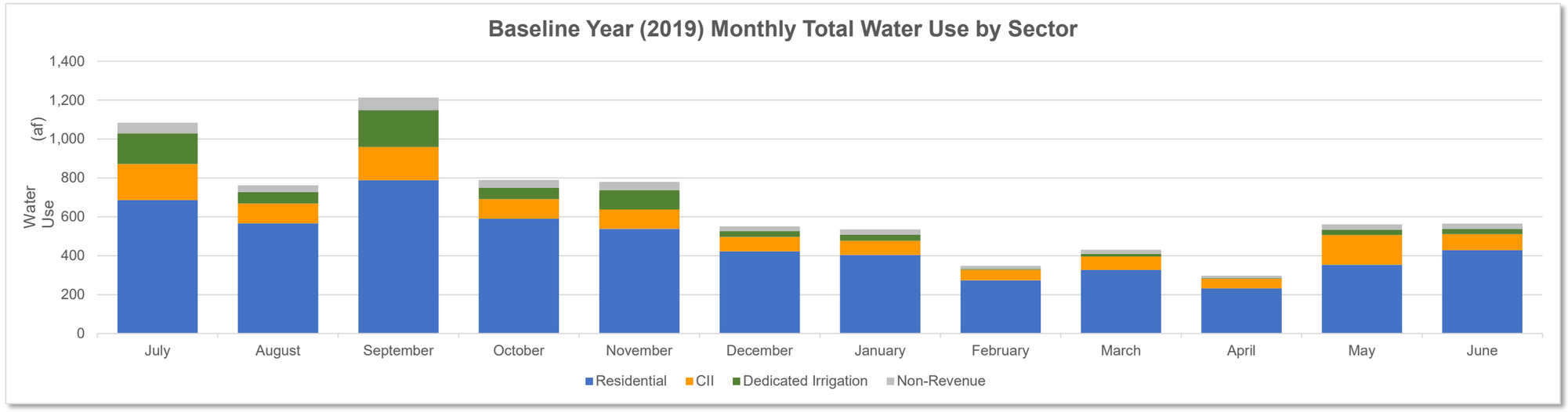
Water Use	Total Production (af)	Water Use (af)				Comments
		Residential	CII	Dedicated Irrigation	Non-Revenue	
Total	7,916	5,611	1,214	699	392	
Total Indoor	3,426	2,821	605	--	--	
Total Outdoor	4,097	2,789	609	699	--	
Total Non-Revenue	392	--	--	--	392	
Total Indoor %	43%	50%	50%	0%	--	
Total Outdoor %	52%	50%	50%	100%	--	
Total Non-Revenue %	5%	--	--	--	100%	

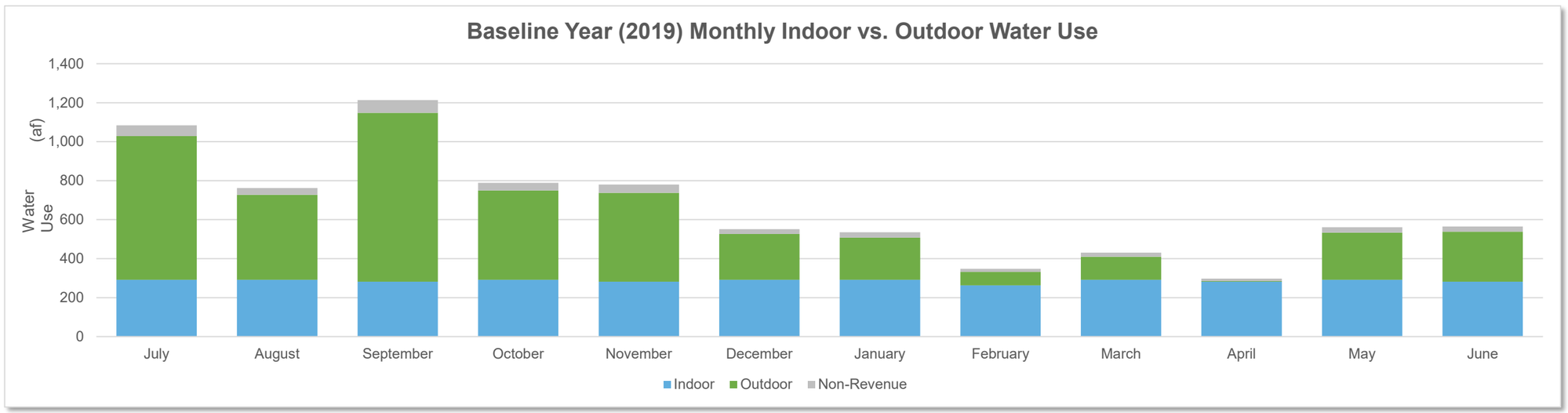




3 - Baseline Year (2019) Water Use Profile

North Marin Water District



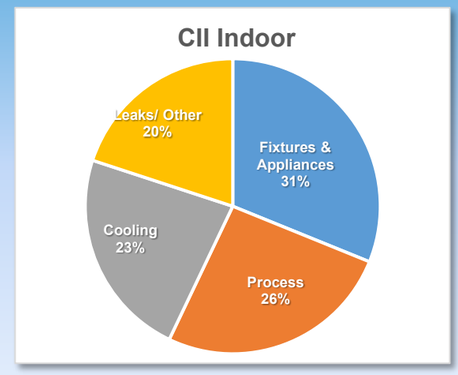


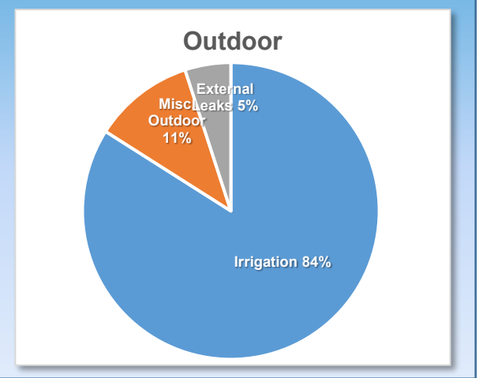
4 - Drought Response Actions - Stage 5

North Marin Water District

Maximum Savings Potential		
Use the default values or enter your own criteria for the maximum savings potential. Estimated water savings within each sector will not exceed the maximum savings criteria.		
Minimum Residential Indoor GPCD	25	R-GPCD
Maximum Residential Outdoor Savings	100%	of Baseline Residential Outdoor Water Use
Maximum CII Indoor Savings	30%	of Baseline CII Indoor Water Use
Maximum CII Outdoor Savings	100%	of Baseline CII Outdoor Water Use
Maximum Dedicated Irrigation Account Savings	100%	of Baseline Dedicated Irrigation Water Use
Maximum Non-Revenue Water Savings	50%	of Baseline Non-Revenue Water Use
Resulting Total Maximum Annual Savings Potential	**70%**	of Total Baseline Production

Assumed Proportion of Water Use by End Uses and Sector





4 - Drought Response Actions - Stage 5

North Marin Water District

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 Information Program; additional basis for the default values are included in the User Manual.

Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Possible Mandatory Prohibitions**	All Outdoor	☑	14%	**90%**	--	--
Prohibit Irrigation with Potable Water Outside of Newly Constructed 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%	See Appendix D of the DRP	--
Prohibit Use of Potable Water to Wash Sidewalks and Driveways	Misc. Outdoor	☑	17%	50%		--
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	--

4 - Drought Response Actions - Stage 5

North Marin Water District

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Agency Drought Actions / Restrictions**						
► **Agency Actions**						
Media Campaign, Newspaper Articles, Website	All	☑	**1.5%**	**80%**	EBMUD, 2011	--
Promote Water Conservation / Rebate Programs	All	☑		50%	--	--
Water Efficiency Workshops, Public Events	All	☑	**1.5%**	**80%**	EBMUD, 2011	--
Water Bill Inserts	All	☑	**1.5%**	100%	EBMUD, 2011	--
Promote / Expand Use of Recycled Water	Irrigation	☑	100%		--	--
Home or Mobile Water Use Reports	All	☐	5%	10%	WaterSmart Software, 2015	--
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%	See Appendix D of the DRP	--
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	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 7PM and 9AM	Irrigation	☐	**38%**	**80%**	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 7PM and 9AM	Irrigation	☐	**79%**	**90%**		
Prohibit use of Potable Water for Irrigation	Irrigation	☑	100%	**70%**		
Require Repair of all Leaks within 24 hours	External Leaks	☑	100%	5%	--	--
Customer Water Budgets						
Establish Water Budget - 25% Reduction	Irrigation	☐	25%	50%	--	--
Establish Water Budget - 50% Reduction	Irrigation	☐	50%	50%	--	--
Establish Water Budget - 75% Reduction	Irrigation	☐	75%	50%	--	--

4 - Drought Response Actions - Stage 5

North Marin Water District

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Agency Drought Actions / Restrictions**						
► **Residential**						
Conduct Water Use Surveys Targeting High Water Users	All Residential Uses	☐	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 7PM and 9AM	Irrigation	☐	38%	80%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 7PM and 9AM	Irrigation	☐	79%	90%		
Prohibit use of Potable Water for Irrigation	Irrigation	☑	100%	**70%**		
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☑	50%	50%	EBMUD, 2008	--
Require Repair of all Leaks within 24 hours	Leaks	☑	100%	**35%**	--	--
Require Pool Covers	Misc. Outdoor	☑	28%	25%	Maddaus & Mayer, 2001	--
Prohibit Filling of Pools	Misc. Outdoor	☑	55%	25%	DeOreo et al., 2011	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All Residential Uses	☐	10%	50%	--	--
Establish Water Budget - 20% Reduction	All Residential Uses	☐	20%	50%	--	--
► **CII**						
Conduct CII Surveys Targeting High Water Users	All CII uses	☐	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 7PM and 9AM	Irrigation	☐	38%	80%	UC IPM, 2014	--
Limit Irrigation to 0 Day/Week, 10 Minutes/Day, Between 7PM and 9AM	Irrigation	☑	**100%**	**70%**		
Prohibit Use of Potable Water for Construction and Dust Control	Misc. Outdoor	☑		100%	--	--
Prohibit Single-Pass Cooling Systems	Cooling	☑	80%	1%	Vickers, 2001	--
Require Repair of all Leaks within 24 hours	Leaks	☑	100%	**10%**	--	--
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☑	50%	50%	EBMUD, 2008	--
Require Water-Efficient Pre-Rinse Spray Valves	Fixtures & Appliances	☐	0.8%	50%	EPA, 2015; Pacific Institute, 2003	--
Customer Water Budgets						
Establish Water Budget - 10% Reduction	All CII uses	☐	10%	50%	--	--
Establish Water Budget - 20% Reduction	All CII uses	☐	20%	50%	--	--
Establish Water Budget - 30% Reduction	All CII uses	☐	30%	50%	--	--

4 - Drought Response Actions - Stage 5

North Marin Water District

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ **Residential Customer Actions to Encourage**						
Install Bathroom Faucet Aerators	Faucets and Dishwashers	☐			--	--
Install a Water-Efficient Showerhead	Showers/Baths	☐			--	--
Turn Off Water when Brushing Teeth, Shaving, Washing Dishes, or Cooking	Faucets and Dishwashers	☐			--	--
Fill the Bathtub Halfway	Showers/Baths	☐			--	--
Wash Only Full Loads of Clothes	Clothes Washers	☐			--	--
Install a High-Efficiency Toilet	Toilets	☐			--	--
Take Shorter Showers	Showers/Baths	☐			--	--
Run Dishwasher Only When Full	Faucets and Dishwashers	☐			--	--
Reduce Outdoor Irrigation	Irrigation	☐			--	--
Install Drip-Irrigation	Irrigation	☐			--	--
Use Mulch	Irrigation	☐			--	--
Plant Drought Resistant Trees and Plants	Irrigation	☐			--	--
Use a Broom to Clean Outdoor Areas	Misc. Outdoor	☐			--	--
Flush Less Frequently	Toilets	☐			--	--
Re-Use Shower or Bath Water for Irrigation	Irrigation	☐			--	--
Wash Car at Facility that Recycles the Water	Misc. Outdoor	☐			--	--

5 - Estimated Water Savings - Stage 5

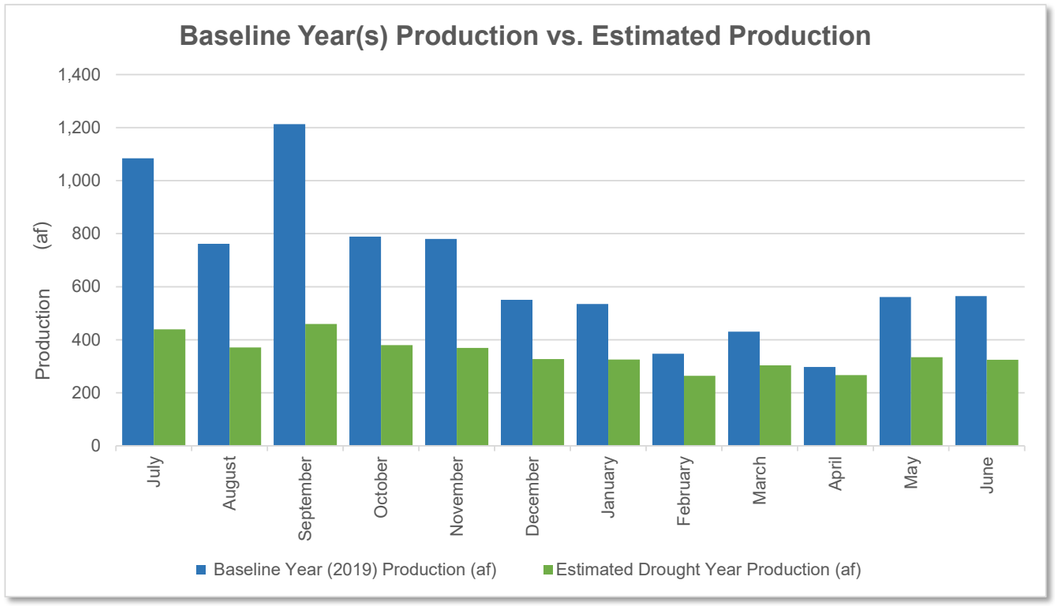
North Marin Water District

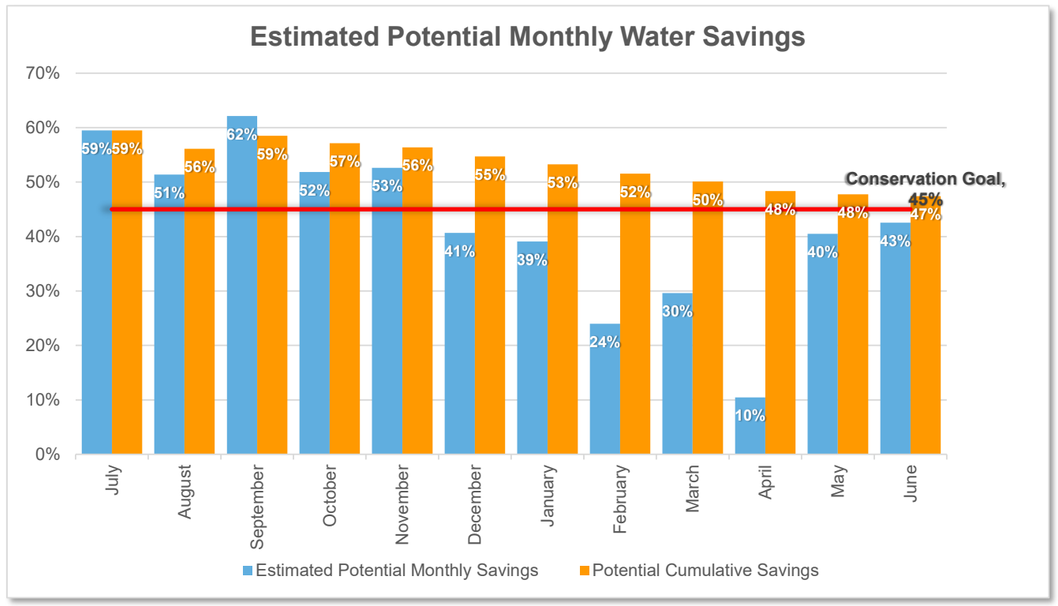
Estimated Monthly Water Use and Savings Summary

Units: (af)

This provides a summary of the estimated production relative to Baseline Year production and potential water savings, assuming implementation of selected actions at the water savings and implementation rates indicated in the Drought Response Actions worksheet. Select the units that your production data are displayed in.

Month	Baseline Year (2019) Production (af)	Estimated Drought Year Production (af)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
July	1,084	439	59%	59%	45%	
August	762	371	51%	56%	45%	
September	1,213	459	62%	59%	45%	
October	789	380	52%	57%	45%	
November	780	369	53%	56%	45%	
December	551	327	41%	55%	45%	
January	535	326	39%	53%	45%	
February	348	264	24%	52%	45%	
March	431	303	30%	50%	45%	
April	298	267	10%	48%	45%	
May	561	334	40%	48%	45%	
June	565	324	43%	47%	45%	





Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

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North Marin Water District

Enter Agency Information		
Agency Name	North Marin Water District	
Total Population Served	61,658	
Conservation Goal (%)	55%	
Drought Stage	Stage 6	
Number of Residential Accounts	18,699	
Number of Commercial, Industrial, and Institutional (CII) Accounts	909	
Number of Dedicated Irrigation Accounts	356	
Baseline Year(s)	2019	FY
Percentage of Residential Indoor Use During Minimum Month (%)	100%	
Percentage of CII Indoor Use During Minimum Month (%)	100%	
Comments		

Navigation	
USER'S GUIDE	Download and read the guide before using this Tool
1 - HOME	Enter agency information
2 - INPUT BASELINE YEAR WATER USE	Enter Baseline Year production and use
3 - BASELINE YEAR WATER USE	Review and confirm entered information
4 - DROUGHT RESPONSE ACTIONS	Select Drought Response Actions and input estimated water savings and implementation rates.
5 - ESTIMATED WATER SAVINGS	Review estimated water production and compare estimated savings to conservation target.

Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

1 - Home

North Marin Water District

6 - DROUGHT RESPONSE TRACKING	**Track production and water savings against the conservation target.**

Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

1 - Home

North Marin Water District

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2 - Input Baseline Year (2019) Water Use

North Marin Water District

Input Baseline Year (2019) Production and Water Use

Units: (af)

Select the units to input monthly production and use data. Enter the total monthly potable water production for the Baseline Year. Next, enter monthly water use data by sector for the Baseline Year. If you bill on a bi-monthly basis, divide your billing data between the months that the billing cycle includes. If your single-family and multi-family accounts are tracked separately, enter the combined water use for both sectors in the Residential Water Use column. If your commercial, industrial, and institutional (CII) accounts are tracked separately, enter the combined water use for each sector in the CII Water Use column. Your non-revenue water use is calculated by subtracting your monthly residential, CII, and dedicated irrigation water uses from your monthly production. Your monthly residential gallons per capita per day (R-GPCD) is calculated by dividing your monthly residential water use by your population entered in Worksheet 1 - Home.

Date	Total Production (af)	Residential Water Use (af)	CII Water Use (af)	Dedicated Irrigation Water Use (af)	Non-Revenue Water Use (af)	Total R-GPCD	Comments
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North Marin Water District

Baseline Year (2019) Annual Water Use Summary

Units: (af)

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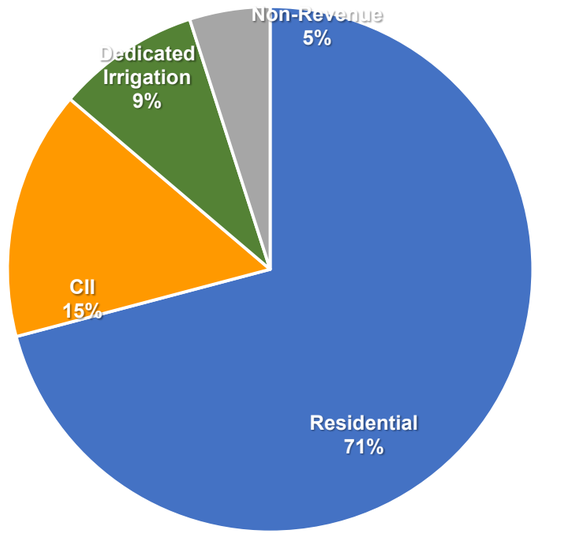
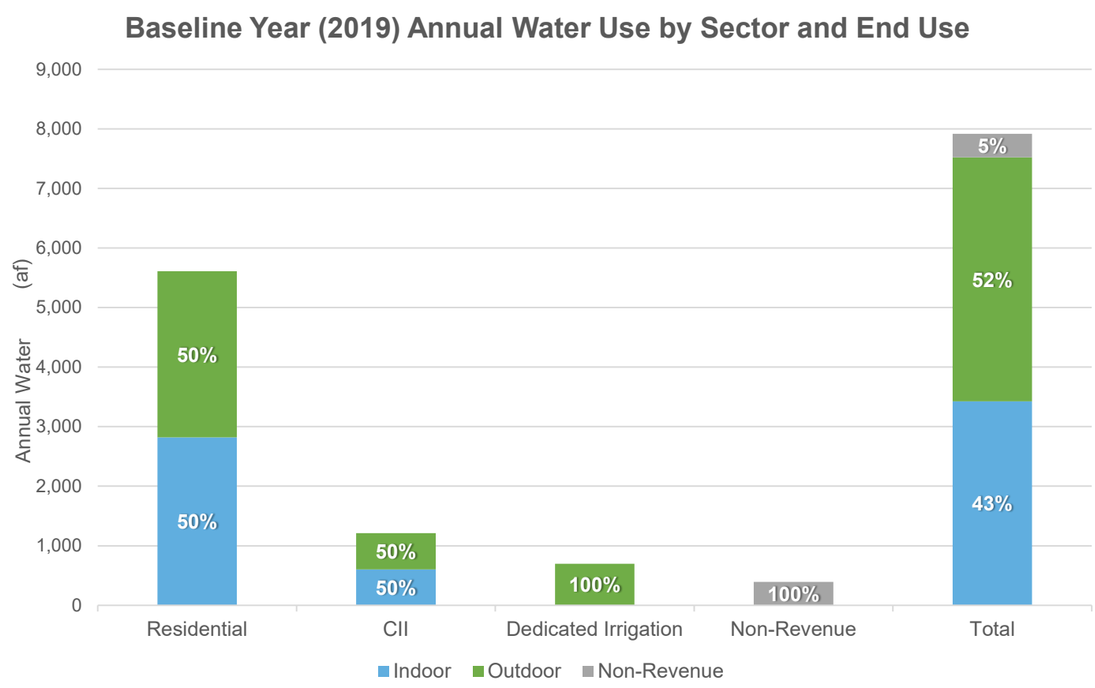
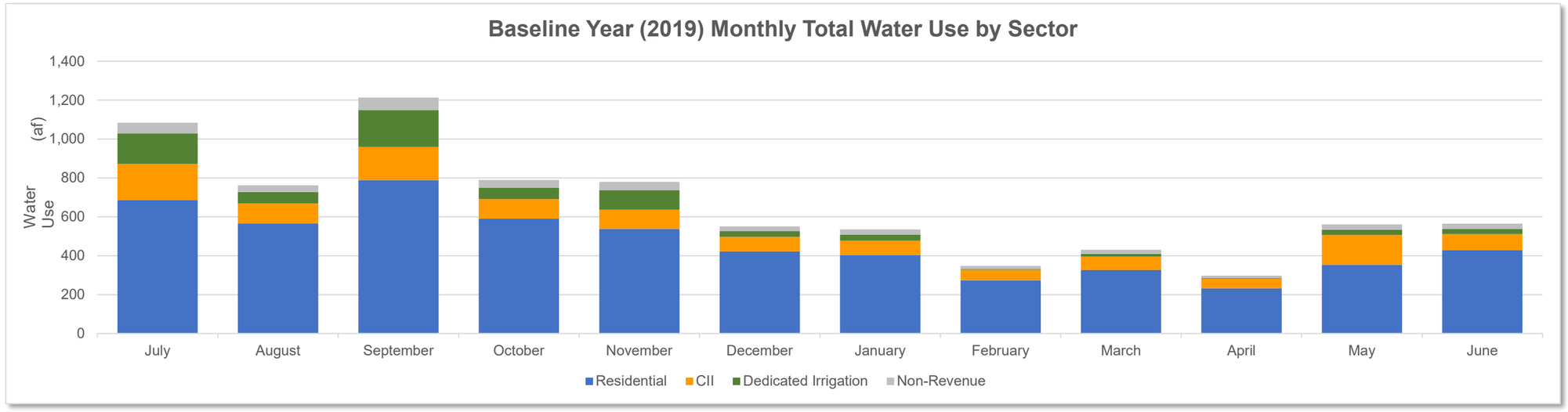
Total Outdoor	4,097	2,789	609	699	--	
Total Non-Revenue	392	--	--	--	392	
Total Indoor %	43%	50%	50%	0%	--	
Total Outdoor %	52%	50%	50%	100%	--	
Total Non-Revenue %	5%	--	--	--	100%	

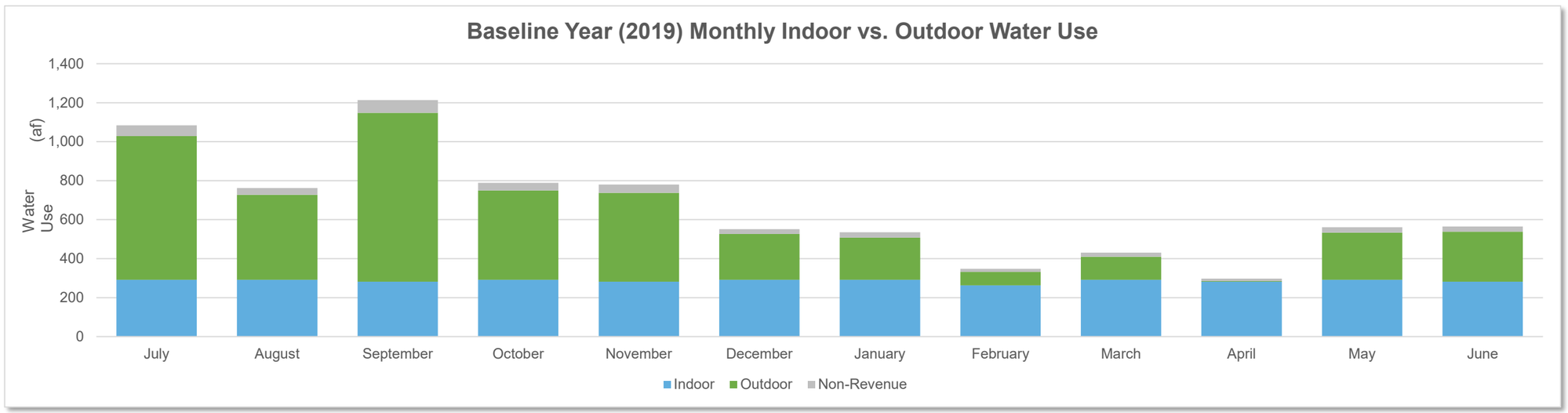




3 - Baseline Year (2019) Water Use Profile

North Marin Water District



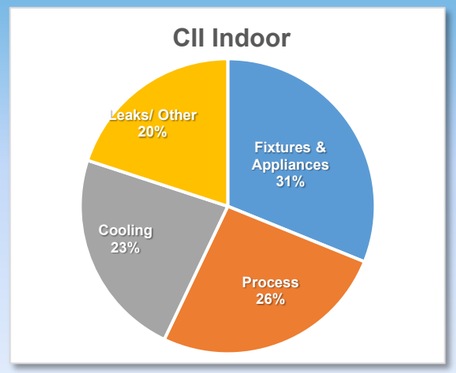


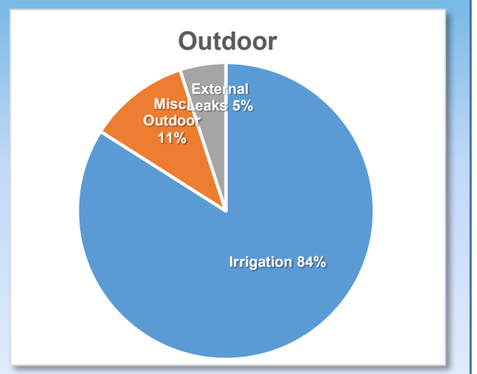
4 - Drought Response Actions - Stage 6

North Marin Water District

Maximum Savings Potential		
Use the default values or enter your own criteria for the maximum savings potential. Estimated water savings within each sector will not exceed the maximum savings criteria.		
Minimum Residential Indoor GPCD	25	R-GPCD
Maximum Residential Outdoor Savings	100%	of Baseline Residential Outdoor Water Use
Maximum CII Indoor Savings	30%	of Baseline CII Indoor Water Use
Maximum CII Outdoor Savings	100%	of Baseline CII Outdoor Water Use
Maximum Dedicated Irrigation Account Savings	100%	of Baseline Dedicated Irrigation Water Use
Maximum Non-Revenue Water Savings	50%	of Baseline Non-Revenue Water Use
Resulting Total Maximum Annual Savings Potential	**70%**	of Total Baseline Production

Assumed Proportion of Water Use by End Uses and Sector





4 - Drought Response Actions - Stage 6

North Marin Water District

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 Information Program; additional basis for the default values are included in the User Manual.

Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Possible Mandatory Prohibitions**	All Outdoor	☑	14%	**85%**	--	--
Prohibit Irrigation with Potable Water Outside of Newly Constructed 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%	See Appendix D of the DRP	--
Prohibit Use of Potable Water to Wash Sidewalks and Driveways	Misc. Outdoor	☑	17%	50%		--
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	--

4 - Drought Response Actions - Stage 6

North Marin Water District

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Agency Drought Actions / Restrictions**						
► **Agency Actions**						
Media Campaign, Newspaper Articles, Website	All	☑	**1.5%**	**80%**	EBMUD, 2011	--
Promote Water Conservation / Rebate Programs	All	☑		50%	--	--
Water Efficiency Workshops, Public Events	All	☑	**1.5%**	**80%**	EBMUD, 2011	--
Water Bill Inserts	All	☑	**1.5%**	100%	EBMUD, 2011	--
Promote / Expand Use of Recycled Water	Irrigation	☑	100%		--	--
Home or Mobile Water Use Reports	All	☐	5%	10%	WaterSmart Software, 2015	--
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%	See Appendix D of the DRP	--
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	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	**38%**	**80%**	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%	**95%**		
Require Repair of all Leaks within 24 hours	External Leaks	☑	100%	5%	--	--
Customer Water Budgets						
Establish Water Budget - 25% Reduction	Irrigation	☐	25%	50%	--	--
Establish Water Budget - 50% Reduction	Irrigation	☐	50%	50%	--	--
Establish Water Budget - 75% Reduction	Irrigation	☐	75%	50%	--	--

4 - Drought Response Actions - Stage 6

North Marin Water District

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Agency Drought Actions / Restrictions**						
► **Residential**						
Conduct Water Use Surveys Targeting High Water Users	All Residential Uses	☐	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	**38%**	**80%**	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%		
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☑	50%	50%	EBMUD, 2008	--
Require Repair of all Leaks within 24 hours	Leaks	☑	100%	**35%**	--	--
Require Pool Covers	Misc. Outdoor	☑	28%	25%	Maddaus & Mayer, 2001	--
Prohibit Filling of Pools	Misc. Outdoor	☑	55%	25%	DeOreo et al., 2011	--
Customer Water Budgets						
Establish Water Budget - 55% Reduction	All Residential Uses	☑	**55%**	**90%**	--	--
Establish Water Budget - 20% Reduction	All Residential Uses	☐	20%	50%	--	--
► **CII**						
Conduct CII Surveys Targeting High Water Users	All CII uses	☐	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	**38%**	**80%**	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 Construction and Dust Control	Misc. Outdoor	☑		100%	--	--
Prohibit Single-Pass Cooling Systems	Cooling	☑	80%	1%	Vickers, 2001	--
Require Repair of all Leaks within 24 hours	Leaks	☑	100%	**10%**	--	--
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☑	50%	50%	EBMUD, 2008	--
Require Water-Efficient Pre-Rinse Spray Valves	Fixtures & Appliances	☐	0.8%	50%	EPA, 2015; Pacific Institute, 2003	--
Customer Water Budgets						
Establish Water Budget - 55% Reduction	All CII uses	☑	**55%**	**90%**	--	--
Establish Water Budget - 20% Reduction	All CII uses	☐	20%	50%	--	--
Establish Water Budget - 30% Reduction	All CII uses	☐	30%	50%	--	--

4 - Drought Response Actions - Stage 6

North Marin Water District

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ **Residential Customer Actions to Encourage**						
Install Bathroom Faucet Aerators	Faucets and Dishwashers	☐			--	--
Install a Water-Efficient Showerhead	Showers/Baths	☐			--	--
Turn Off Water when Brushing Teeth, Shaving, Washing Dishes, or Cooking	Faucets and Dishwashers	☐			--	--
Fill the Bathtub Halfway	Showers/Baths	☐			--	--
Wash Only Full Loads of Clothes	Clothes Washers	☐			--	--
Install a High-Efficiency Toilet	Toilets	☐			--	--
Take Shorter Showers	Showers/Baths	☐			--	--
Run Dishwasher Only When Full	Faucets and Dishwashers	☐			--	--
Reduce Outdoor Irrigation	Irrigation	☐			--	--
Install Drip-Irrigation	Irrigation	☐			--	--
Use Mulch	Irrigation	☐			--	--
Plant Drought Resistant Trees and Plants	Irrigation	☐			--	--
Use a Broom to Clean Outdoor Areas	Misc. Outdoor	☐			--	--
Flush Less Frequently	Toilets	☐			--	--
Re-Use Shower or Bath Water for Irrigation	Irrigation	☐			--	--
Wash Car at Facility that Recycles the Water	Misc. Outdoor	☐			--	--

5 - Estimated Water Savings - Stage 6

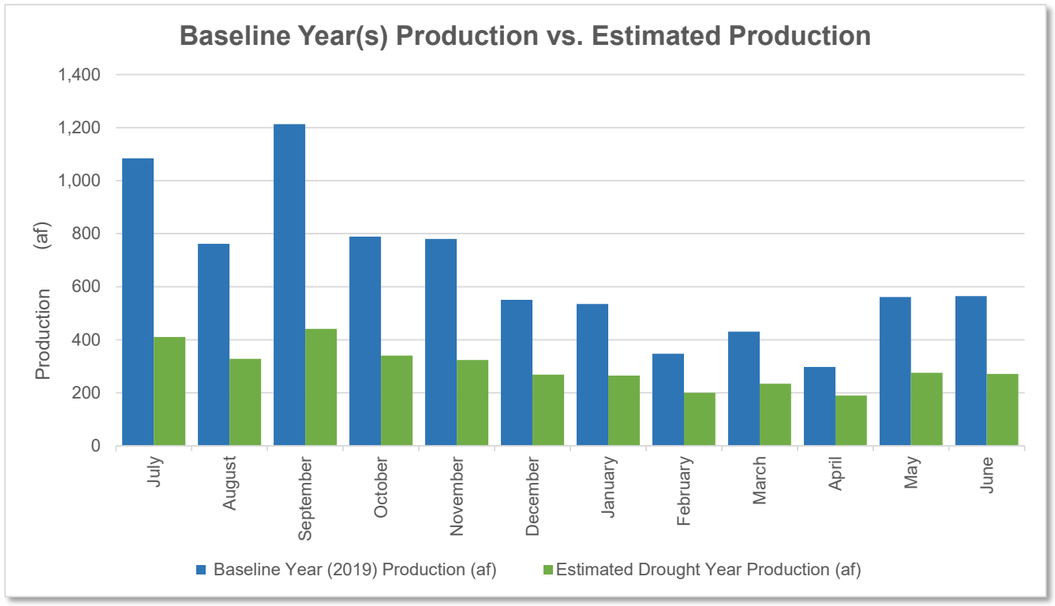
North Marin Water District

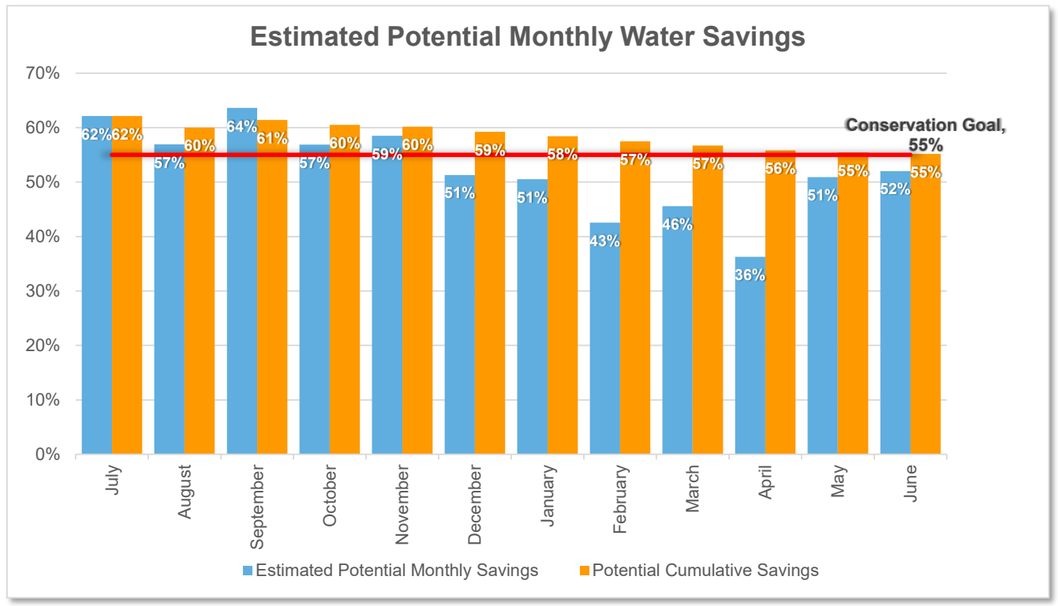
Estimated Monthly Water Use and Savings Summary

Units: (af)

This provides a summary of the estimated production relative to Baseline Year production and potential water savings, assuming implementation of selected actions at the water savings and implementation rates indicated in the Drought Response Actions worksheet. Select the units that your production data are displayed in.

Month	Baseline Year (2019) Production (af)	Estimated Drought Year Production (af)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
July	1,084	411	62%	62%	55%	
August	762	328	57%	60%	55%	
September	1,213	441	64%	61%	55%	
October	789	340	57%	60%	55%	
November	780	324	59%	60%	55%	
December	551	268	51%	59%	55%	
January	535	265	51%	58%	55%	
February	348	200	43%	57%	55%	
March	431	234	46%	57%	55%	
April	298	190	36%	56%	55%	
May	561	275	51%	55%	55%	
June	565	271	52%	55%	55%	





NORTH MARIN WATER DISTRICT

ATTACHMENT 3

2018 MARIN COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Available at the Following Link:

https://www.marinwatersheds.org/sites/default/files/2020-07/Marin%20County%20Multi-Jurisdictional%20Local%20Hazard%20Mitigation%20Plan%202018.pdf

NORTH MARIN WATER DISTRICT

ATTACHMENT 4

SONOMA COUNTY WATER AGENCY LOCAL HAZARD MITIGATION PLAN

Available at the Following Link:

https://evogov.s3.amazonaws.com/185/media/186587.pdf

NORTH MARIN WATER DISTRICT

ATTACHMENT 5

WATER SHORTAGE CONTINGENCY PLAN RESOLUTIONS

RESOLUTION 21-09

RESOLUTION OF THE BOARD OF DIRECTORS OF NORTH MARIN WATER DISTRICT ADOPTING THE 2020 URBAN WATER MANAGEMENT PLAN AND WATER SHORTAGE CONTINGENCY PLAN FOR THE NOVATO SERVICE AREA

WHEREAS, the Urban Water Management Planning Act, codified at California Water Code Section 10610 *et seq.*, requires that every urban water supplier directly or indirectly supplying water for municipal purposes to more than 3,000 customers prepare an Urban Water Management Plan (UWMP), the primary objective of which is to plan for the conservation and efficient use of water while balancing supply and demand; and

WHEREAS, pursuant to Water Code Section 10620(d)(2), each urban water supplier shall develop its own Water Shortage Contingency Plan (WSCP); and

WHEREAS, in November of 2020 and May of 2021, the North Marin Water District (District) circulated notice to other appropriate public agencies in the Marin and Sonoma County area that it was preparing a draft 2020 UWMP and WSCP; and

WHEREAS, District staff, with assistance from District consultant EKI Environment & Water, Inc., prepared the draft 2020 UWMP and WSCP in accordance with the requirements of the Urban Water Management Planning Act and made the draft 2020 UWMP and WSCP available for public review on June 1, 2021; and

WHEREAS, prior to, and at a duly noticed public hearing on June 15, 2021, the District's Board of Directors received and considered comments regarding the draft 2020 UWMP and WSCP and incorporated revisions and comments as appropriate.

NOW THEREFORE, BE IT RESOLVED by the Board of Directors of North Marin Water District as follows:

1. The Board of Directors does hereby find, determine and declare that the foregoing Recitals are true and correct, and incorporates the Recitals herein.
2. The Board of Directors does hereby approve and adopt the 2020 Urban Water Management Plan and all appendices.
3. The Board of Directors does hereby approve and adopt the Water Shortage Contingency Plan, which comprises Section 8 and Appendix G of the 2020 Urban Water Management Plan.

* * * * *

I hereby certify that the foregoing is a true and complete copy of a resolution duly and regularly adopted by the Board of Directors of NORTH MARIN WATER DISTRICT at a regular meeting of said Board held on the June 15, 2021 by the following vote:

AYES:	Directors Baker, Fraites, Grossi, Joly, Petterle
NOES:	None
ABSENT:	None
ABSTAINED:	None

Theresa, Secretary
North Marin Water District

(SEAL