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DRAFT

Water Shortage Allocation Methodology

Prepared for
Sonoma Water
January 30, 2014
Updated September 8, 2021

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155905

This is a draft and is not intended to be a final representation
of the work done or recommendations made by Brown and Caldwell.
It should not be relied upon; consult the final report.

Brown AND Caldwell

11020 White Rock Road, Suite 200
Rancho Cordova, CA 95670

10540 White Rock Road, Suite 180
Rancho Cordova, California 95670

T: 916.444.0123
F: 916.635.8805

September 8, 2021

Mr. Paul Piazza
Sonoma Water
404 Aviation Boulevard
Santa Rosa, California 95403

155905

Subject: Draft Water Shortage Allocation Methodology Report

Dear Mr. Piazza:

Brown and Caldwell is pleased to submit this draft report for your review.

The spreadsheet model is being submitted to you separately. Please do not hesitate to contact me if you have questions or comments.

Sincerely,

BROWN AND CALDWELL

Paul Selsky, PE (No. C43544)
Project Manager

Katie Ruby, PE (No. C90005)

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List of Abbreviations

AFY	acre-feet per year
AM	allocation model
CII	commercial, industrial, and institutional
gpcd	gallons per capita per day
gpm	gallons per minute
Marin Water	Marin Municipal Water District
mgd	million gallons per day
RSA	Restructured Agreement for Water Supply
Sonoma Water	Sonoma County Water Agency
TAC	Technical Advisory Committee

Section 1

Introduction

The Sonoma County Water Agency (Sonoma Water) and its customers have a methodology for allocating water provided by Sonoma Water during periods of water shortages. A water shortage is a temporary period of reduced water supplies that are less than the normal water demand. Water shortage can be caused by climatological conditions such as droughts, equipment or facility failure, or actions by regulatory agencies. This report presents the water shortage allocation methodology and a description of the model developed for apportioning water to the water contractors and other customers served by Sonoma Water on an annual basis and a monthly basis.

1.1 Background

On February 2, 2010, Sonoma Water's Board of Directors adopted Resolution No. 10-0085 directing Sonoma Water to take certain actions to cooperate with its water contractors regarding water supply planning activities. Chief among these two actions were:

1. Update Sonoma Water's annual water shortage allocation methodology.
2. Develop a methodology to allocate water supply in the summer months when diversions from the Russian River may be constrained due to reduced flows or water availability.

The water contractors requested that Sonoma Water develop a methodology to apportion water during peak demand periods when water demands by the water contractors exceed the amount of water that Sonoma Water can divert from the Russian River. Such constraints occurred in 2007, 2008, and 2009 due to reduced summertime flows in the river.

The allocation of water shortages is described in Sonoma Water's 2006 Restructured Agreement for Water Supply (RSA). Pertinent sections of the RSA are described below.

- Section 3.5 of the RSA describes the approach to allocate water shortages.
- Section 3.5(c)(2), page 32, describes the need to make the "reasonable requirements determinations so as to encourage Customers to implement water conservation, recycled water, and local water supply projects".

An annual shortage allocation model (AM) was previously developed in 2006. The water shortage AM was updated in 2014, including adding a monthly shortage approach. In 2021, the monthly and annual models were further refined in collaboration with the water contractors, as described in this report.

1.2 Sonoma Water's Contractors and Customers

The water shortage allocation methodology applies to the retail water agencies that purchase water from Sonoma Water. Sonoma Water is a wholesale supplier of water through the aqueduct system to the following eight cities and water districts, known as water contractors, in Sonoma and Marin counties:

- City of Santa Rosa
- Town of Windsor
- City of Rohnert Park

- City of Cotati
- City of Petaluma
- City of Sonoma
- Valley of the Moon Water District
- North Marin Water District

Sonoma Water also provides water to other customers through separate water supply agreements. These other customers are listed below:

- Marin Municipal Water District (Marin Water)
- Forestville Water District
- California-American Water Company
- Kenwood Village Water Company
- Lawndale Mutual Water Company
- Penngrove Water Company

The latter five agencies are known in this report as the other Sonoma Water customers. Several smaller water agencies that divert water directly from the Russian River are known as Russian River diverters. In addition to being supplied water through the aqueduct system, the Town of Windsor also diverts a portion of its purchased water supply from the Russian River. Collectively, the water contractors and other customers deliver water directly to more than 600,000 people. For the purpose of this report, the term "customer" is used to refer collectively to the water contractors, other Sonoma Water customers, Marin Water, and the Russian River diverters.

1.3 Approach

The development of the shortage allocation methodology and model was coordinated with the contractors and Marin Water for decisions on aspects of the methodology and to obtain data for revising the model input parameters. The collaboration with the contractors was done through meetings of an ad-hoc committee of the Technical Advisory Committee (TAC). The ad-hoc committee prepared a preface statement that is included with this report as Appendix A.

1.3.1 Methodology

Sonoma Water's shortage allocation methodology was compared to water shortage allocation approaches used by other wholesale water suppliers. A summary of the approaches used by three other wholesale water agencies in California (Metropolitan Water District of Southern California, San Diego County Water Authority, and the San Francisco Public Utilities Commission), in comparison to Sonoma Water's methodology, is included in Appendix B. While no two approaches are exactly alike, Sonoma Water's approach is similar to others in terms of incorporating human health needs, local supply, and demand hardening.

The shortage allocation methodology is intended to address "in the river" types of shortages. This type of shortage affects the water supply to all of Sonoma Water's customers. Shortages such as a disruption of a portion of the water transmission aqueduct that only impacts some of Sonoma Water's customers are not addressed by this methodology.

The two key benchmarks for quantifying the allocation of water supplies during shortages as described in the RSA are the amount of water needed for human consumption, sanitation, and fire protection demand and the amount needed to provide for reasonable requirements. The term "human health" is used in this report to refer to human health, sanitation, and fire flow and is essentially the indoor water needs of a community. The reasonable requirement is an average of recent actual water use.

The shortage allocation methodology allocates Sonoma Water supplies available above the human health amount based on the entitlement limits in the RSA. The allocation of supplies below the human health amount is based on a proportion of the human health amount. The method consists of determining the human health and reasonable requirements for each customer and the resulting totals for Sonoma Water, including an amount for transmission system losses, and then allocating Sonoma Water supply to the customers.

An overview of the shortage allocation approach is presented in Figure 1-1 below, with more detail discussed in subsequent sections.

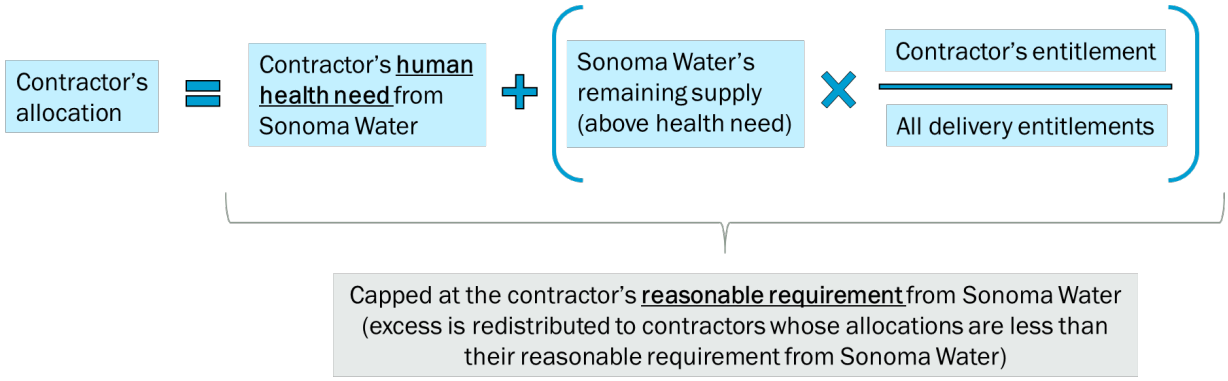

Figure 1-1. Overview of allocation approach

1.3.2 Model

Accompanying this report is an Excel spreadsheet-based shortage AM. A previous model was developed in 2006 as an annual shortage AM. The model was revised in 2014 to provide for calculation of the water shortage allocation on both an annual basis and a monthly basis for each customer, and to incorporate some additional refinements (e.g., accounting for transmission system losses). In 2021, some further refinements were made to the model, as described in this report.

This report documents the changes made to the model between 2006 and 2021, with the annual model discussed in Section 2 and the monthly model discussed in Section 3.

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Section 2

Annual Shortage Allocation

The annual shortage allocation approach determines the amount of annual supply in acre-feet per year (AFY) that would be allocated to each customer. This section presents the methodology for determining the human health need, reasonable requirements, and the resulting allocation.

2.1 Human Health, Sanitation, and Fire Flows

The human health scenario represents a severe water supply shortage where water deliveries are limited to indoor water use plus an amount for fire flow. The human health need for each customer consists of their total need for water from all sources, including from Sonoma Water. The human health need for Sonoma Water supply for each customer is the total human health need minus the local water supplies.

The human health need for each customer is adjusted for each customer to recognize that increased long term conservation efforts result in a loss of flexibility to reduce further water demands on a temporary basis, known as demand hardening. The RSA states that the human consumption level is defined by recognizing the "…resulting decrease in end user ability to reduce water use resulting from such conservation." It also states that "if necessarily or appropriate for equitable purposes," the approach may consider commercial, industrial, and institutional (CII) water uses separately.

The 2021 model considers CII and non-CII water use separately, with non-CII (i.e., residential) water use adjusted for demand hardening. The basis of the adjustment is the population weighted regional average indoor residential per capita water use by the contractors. For customers whose per capita indoor residential water use is less than the regional average, the residential portion of the human health need is escalated to the average value. For customers whose per capita indoor residential water use is greater than the regional average, the residential portion of the human health need is reduced to less than the actual indoor water use.

The total human health need for each customer includes the adjusted indoor residential water use plus indoor CII water use and fire flow.

For each customer, the amount of water from Sonoma Water needed to meet the human health need is the total human health need minus the local supplies.

The human health need for each customer is developed through the following seven steps:

1. **Indoor water use for each customer (CII and non-CII).** The indoor water use is determined as the three-year average of January and February water use of all water supplies, excluding recycled water. CII and non-CII water use are considered separately, based on available data.
2. **Indoor per capita water use for each customer (non-CII).** The non-CII indoor water use for each of the three years from Step 1 is divided by the population for each of the three years to determine the gallons per capita per day (gpcd) for non-CII indoor use.
3. **Regional average non-CII indoor per capita water use.** The population weighted average non-CII indoor per capita water use for the region is determined by taking the sum of the non-CII indoor per capita water use for all of the contractors from Step 2 times the population and then dividing by the total population. The values for Marin Water, the other Sonoma Water customers, and the Russian River customers are excluded from the regional average calculation.

4. **Adjusted non-CII indoor water use for each customer.** The non-CII indoor water use is calculated as the regional non-CII indoor per capita water use from Step 3 times each customer's population.
5. **Total human health need for each customer.** The human health need is the adjusted non-CII indoor water use from Step 4 plus the CII indoor water use from Step 1 and the fire flow need. The annual fire flow is based on one fire every month for each customer, assuming a 3,000 gallons per minute (gpm) fire flow for 3-hours, or 540,000 gallons per fire, or 20 AFY.
6. **Local water supplies for each customer.** Local supplies are based on projected available local supplies for the year. Alternatively, the model can use historical data to estimate local supplies as some specified percentage of the three-year average use of local supplies.
7. **Human health need for Sonoma Water supply for each customer.** The supply need from Sonoma Water is the adjusted human health need from Step 5 minus the local water supplies from Step 6.

The region's total human health need for Sonoma Water supplies is the sum of each customer's human health need for Sonoma Water supplies plus an amount to address transmission system losses. Transmission system losses are assumed to be 3.0 percent of the total amount of Sonoma Water supplies diverted into the aqueduct system, or 3.09 percent of Sonoma Water supplies that are delivered by the system to the customers. Sonoma Water supplies for the Russian River diverters and a portion of Sonoma Water supply for the Town of Windsor are not provided through the aqueduct system and are therefore not included in the determination of transmission system losses.

This current methodology differs from the previous (2006) model as follows:

- The previous model used the lowest two months' water use for one year to determine indoor water use. This updated approach uses the January and February water use averaged over three years, and only applies the demand hardening adjustment to the non-CII portion.
- The previous model determined the amount of local supply that would be used to supply a portion of the human health need as 90 percent of each customer's average use of local supplies for a four-year period. This updated approach uses projected local supply numbers, or a specified percent of the three-year average use of local supplies.
- The previous model did not include transmission system losses. This updated approach assumes transmission system losses at 3.0 percent of the total.
- The previous model did not include an amount for fire flow. This updated approach provides 20 AFY for each customer.

2.2 Reasonable Requirements

Per the Restructured Agreement, the fundamental purpose of the reasonable requirement is to "ensure that no customer receives more water during a shortage than that customer reasonably needs." The reasonable requirement for each customer is based on their three-year average use of water from all sources, including Sonoma Water, and represents normal or routine operations. The reasonable requirement for Sonoma Water supply for each customer is the total reasonable requirement minus local supplies.

The reasonable requirement for each customer is developed through the following three steps:

1. **Total reasonable requirement for each customer.** The total reasonable requirement is equal to the three-year average water use of all water supplies, excluding recycled water.
2. **Local water supplies for each customer.** Local supplies are based on projected local supply quantities, the same as used for the human health need determination. Alternatively, the model

can use historical data to estimate local supplies as some specified percentage of the three-year average use of local supplies.

3. **Reasonable requirement for Sonoma Water supply for each customer.** The reasonable requirement for Sonoma Water supply is the total reasonable requirement from Step 1 minus the local water supplies from Step 2.

The total regional reasonable requirement for Sonoma Water supplies is the sum of each customer's reasonable requirement for Sonoma Water supplies plus an amount to address transmission system losses. Transmission system losses are assumed to be 3.0 percent of the total amount of Sonoma Water supplies diverted into the Aqueduct system, or 3.09 percent of Sonoma Water supplies that are delivered by the system to the customers.

This current methodology differs from the April 2006 model as follows:

- The previous model did not quantify the total average annual use for each customer, consisting of both local and Sonoma Water supplies. This updated approach uses the average of the three-year annual water use for determining the total average annual use for each customer.
- The previous model used a demand hardening adjustment factor based on the regional one-year average annual per capita demand and applied to the Sonoma Water supply portion. This updated approach caps the reasonable requirement at the three-year average total water use of each customer, which eliminates the demand hardening adjustment.
- The previous model did not separately identify the local supply for reasonable requirements. However, the previous model had a built-in assumption of 100 percent of the two-year average use of local supplies. This updated approach uses projected local supply numbers, or a specified percent of the three-year average use of local supplies.
- The previous model used the average of two years of use to determine the annual use of Sonoma Water supplies. This updated approach calculates the reasonable requirement for Sonoma Water supplies for each customer as the total three-year average use minus local supplies.
- The previous model did not include transmission system losses. This updated approach assumes transmission system losses at 3.0 percent of the total.

2.3 Determination of Annual Allocation

The annual allocation of Sonoma Water supply to each customer is determined in one of two ways depending on the amount of Sonoma Water supply available:

1. If the available Sonoma Water supply is *less* than the total regional human health need (including transmission system losses), the allocation for each customer is based directly on the ratio of each customer's human health need for Sonoma Water supply to the total regional human health need for Sonoma Water supply.
2. If the available Sonoma Water supply is *more* than the total regional human health need (including transmission system losses), Sonoma Water supply is allocated to each customer in two steps. First, each customer would receive their human health need for Sonoma Water supply plus a portion of Sonoma Water supply that is greater than the total regional human health need. The second portion would be allocated based directly on the percentage of each customer's delivery entitlement to the total of all of the entitlements as presented in the RSA. The allocation would not exceed the reasonable requirement for each customer. In the situation where a customer's allocation exceeds their reasonable requirement, the excess would be redistributed to any customers whose allocations are less than their reasonable requirements.

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Section 3

Monthly Shortage Allocation

The monthly shortage allocation approach determines the amount of monthly supply over a one-year period in million gallons per day (mgd) that would be allocated to each customer. The previous (2006) model did not have a feature to determine the monthly allocation. This section presents the methodology for determining the human health need, reasonable requirements, and the resulting allocation for this monthly approach, as developed in 2014 and further refined in 2021.

3.1 Human Health, Sanitation, and Fire Flows

As explained for the annual allocation methodology, the total human health need is determined based on the January and February water use. The total human health need for each customer is the same for each month of the year. Similar to the annual methodology, the monthly allocation methodology considers CII water uses separately, with non-CII indoor water use as the basis for the demand hardening adjustment.

For each customer, the human health need for Sonoma Water supply for a particular month is the total human health need minus the local supplies available for a particular month.

The human health need for each customer is developed on a monthly basis through the following seven steps:

1. **Indoor water use for each customer (CII and non-CII).** The indoor water use is determined as the three-year average of January and February water use of all water supplies, excluding recycled water. CII and non-CII water use are considered separately, based on available data.
2. **Indoor per capita water use for each customer (non-CII).** The non-CII indoor water use for each of the three years from Step 1 is divided by the population for each of the three years to determine the per capita demand (in gpcd) for non-CII indoor use.
3. **Regional average non-CII indoor per capita water use.** The population weighted average non-CII indoor per capita water use for the region is determined by taking the sum of the non-CII indoor per capita water use for each contractor from Step 2 times the population and then dividing by the total population. The values for Marin Water, the other Sonoma Water customers, and the Russian River customers are excluded from the regional average calculation.
4. **Adjusted non-CII indoor water use for each customer.** The non-CII indoor water use is calculated as the regional non-CII indoor per capita water use from Step 3 times each customer's population. This value is the same for every month of the year.
5. **Total human health need for each customer.** The human health need is the same for every month of the year. The human health need is the adjusted non-CII indoor water use from Step 4 plus the CII indoor water use from Step 1 and the fire flow need. The monthly fire flow is based on one fire every week for each customer, assuming a 3,000 gpm fire flow for 3-hours, or 540,000 gallons per week, or 0.08 mgd.
6. **Local water supplies for each customer.** Local supplies are based on local supplies available for that particular month. This value may change month to month. Alternatively, the model can use historical data to estimate local supplies as some specified percentage of the three-year average use of local supplies.

7. **Human health need for Sonoma Water supply for each customer.** Sonoma Water supply need is the adjusted human health need from Step 5 minus the local water supplies from Step 6. The human health need for Sonoma Water supply will vary by month since the local supply varies by month.

The total region's human health need for Sonoma Water supplies for a particular month is the sum of each customer's human health need for Sonoma Water supplies plus an amount to address transmission system losses. Transmission system losses are assumed to be 3.0 percent of the total amount of Sonoma Water supplies diverted into the Aqueduct system, or 3.09 percent of Sonoma Water supplies that are delivered by the system to the customers.

3.2 Reasonable Requirements

The monthly reasonable requirement for each customer is their three-year average use of water from all sources including Sonoma Water for that particular month. The reasonable requirement for Sonoma Water supply for each customer is the total reasonable requirement minus the local supplies available for that particular month.

The monthly reasonable requirement for each customer is developed through the following three steps:

1. **Total monthly reasonable requirement for each customer.** The total monthly reasonable requirement is equal to the three-year average monthly water use of all water supplies for a particular month, excluding recycled water.
2. **Local water supplies for each customer.** Local supplies are based on actual local supplies available for that particular month, the same as used for the human health need determination. Alternatively, the model can use historical data to estimate local supplies as some specified percentage of the three-year average use of local supplies.
3. **Monthly reasonable requirement for Sonoma Water supply for each customer.** The reasonable requirement for Sonoma Water supply need is the total reasonable requirement from Step 1 minus the local water supplies from Step 2. The reasonable requirement for Sonoma Water supply will vary by month.

The total monthly regional reasonable requirement for Sonoma Water supplies is the sum of each customer's reasonable requirement for Sonoma Water supplies plus an amount to address transmission system losses. Transmission system losses are assumed to be 3.0 percent of the total amount of Sonoma Water supplies diverted into the Aqueduct system, or 3.09 percent of Sonoma Water supplies that are delivered by the system to the customers.

3.3 Determination of Monthly Allocation

The monthly allocation of Sonoma Water supply to each customer is determined in one of two ways depending on the amount of Sonoma Water supply available.

1. If the available monthly Sonoma Water supply is *less* than the total regional monthly human health need (including transmission system losses), the monthly allocation for each customer is based directly on the ratio of each customer's monthly human health need for Sonoma Water supply to the total regional monthly human health need for Sonoma Water supply. The monthly allocation would not exceed the actual three-year average Sonoma Water supply for the month or the three-year average use of total supplies minus the planned local supply.

2. If the available monthly Sonoma Water supply is *more* than the total regional monthly human health need (including transmission system losses), Sonoma Water supply would be allocated to each customer in two steps. First, each customer would receive their human health need for Sonoma Water supply plus a portion of Sonoma Water supply that is greater than the total regional monthly human health need. The second portion would be allocated based directly on the percentage of each customer's entitlement to the total of all of the entitlements. The monthly allocation would not exceed the monthly reasonable requirement for each customer. In the situation where a customer's allocation exceeds their reasonable requirement, the excess would be redistributed to any customers whose allocations are less than their reasonable requirements for a particular month. The allocation of Sonoma Water supply to Marin Water is capped at 4 mgd for the months of May to September, except in the situation where all of the other customers are allocated their reasonable requirement.

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Section 4

Review of Recently Provided Water Supplies

This section presents the annual amounts of wholesale and local water supplies that were used from 2003 to 2020 and the monthly amounts from 2008 to 2020.

Figure 4-1 depicts the annual use of water supplies since 2003, consisting of aqueduct water and diverted water from Sonoma Water, local surface water, and groundwater. Recycled water is not included. The water supplies do not include transmission system losses. As shown in Figure 4-1, annual water use reached a low during the drought in 2015, and has increased slightly since, but not to predrought levels.

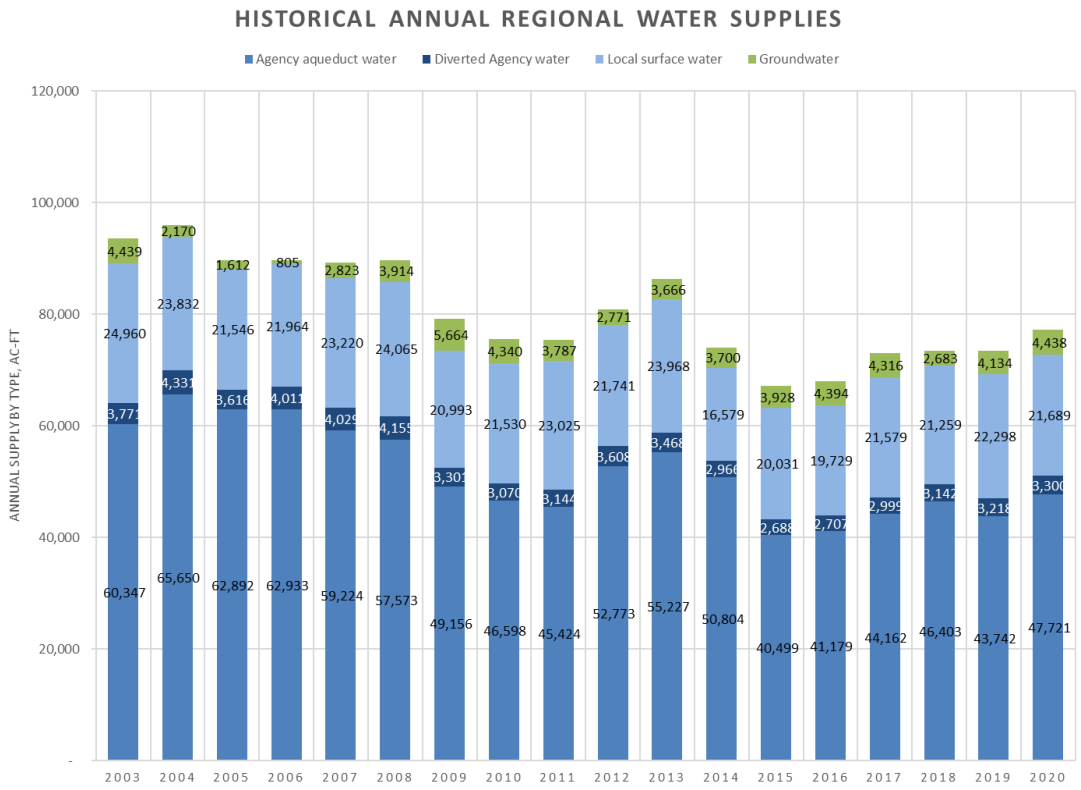

Figure 4-1. Historical annual regional water supplies

Figure 4-2 presents the monthly use of water supplies by type of supply. Figure 4-2 clearly depicts the lower demands in the winter months and the higher demands in the summer months.

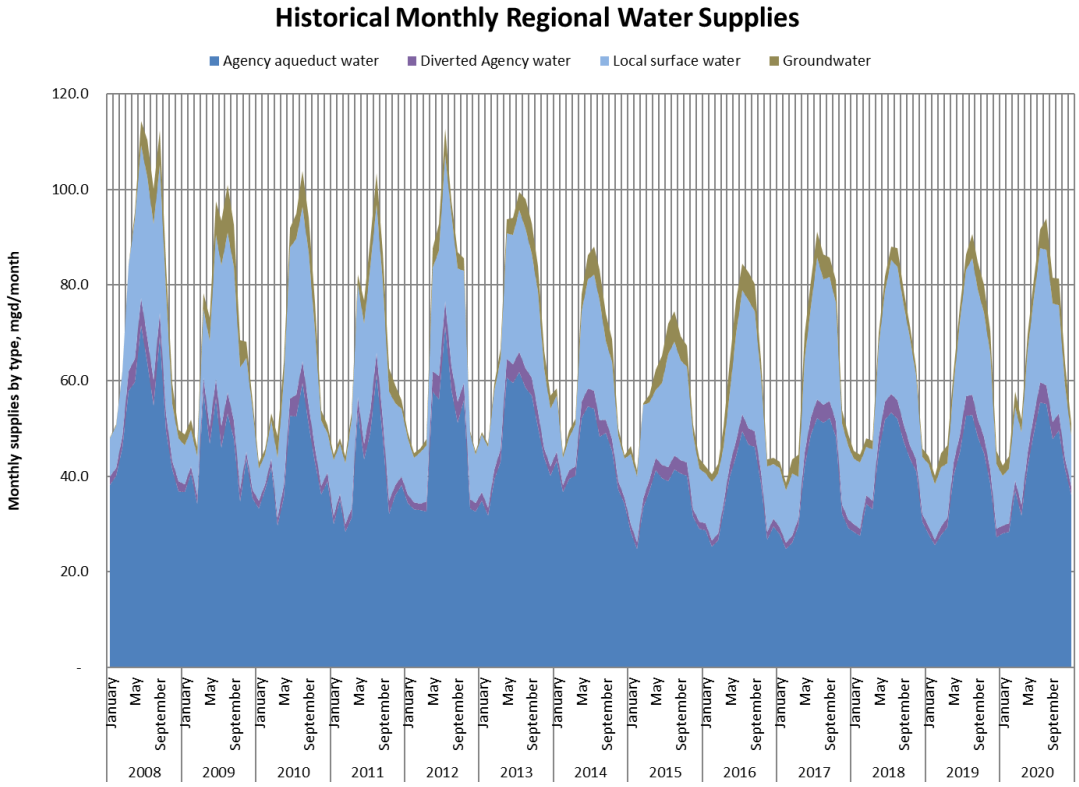

Figure 4-2. Historical monthly regional water supplies

Figure 4-3 depicts the monthly supplies of Sonoma Water aqueduct water provided to each contractor. Figures 4-4 and 4-5 depict the monthly use of local groundwater and local surface water respectively for each contractor.

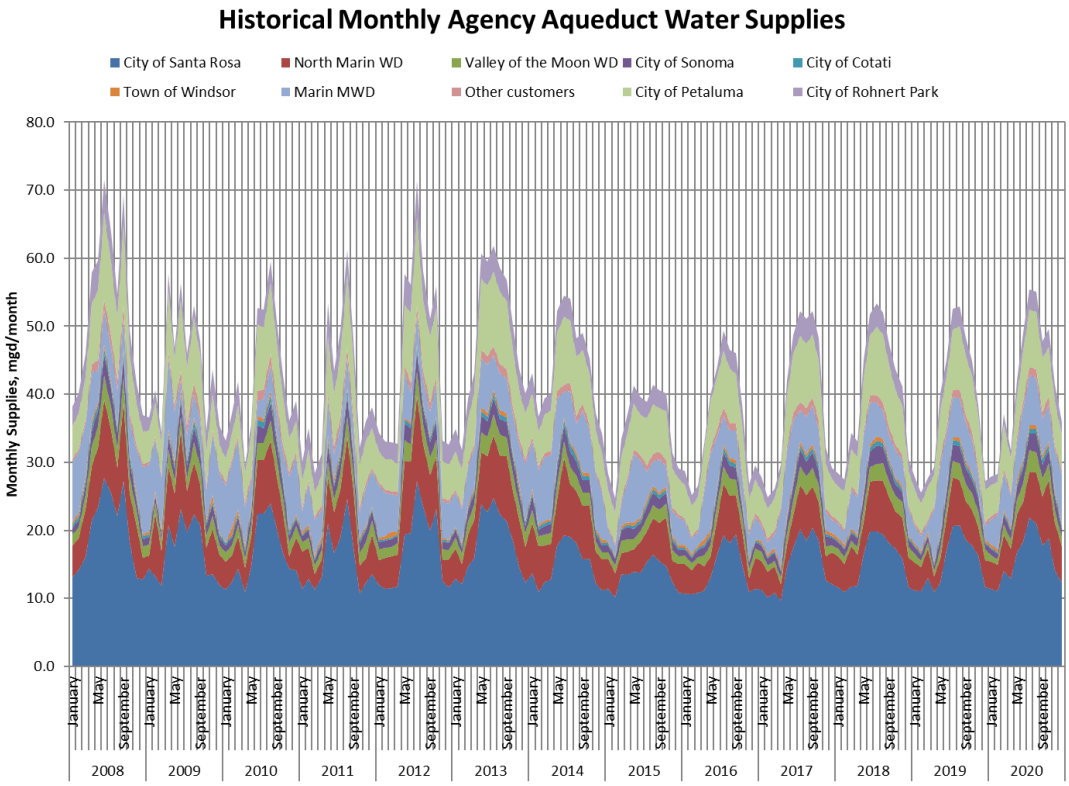

Figure 4-3. Historical Sonoma Water aqueduct water supplies

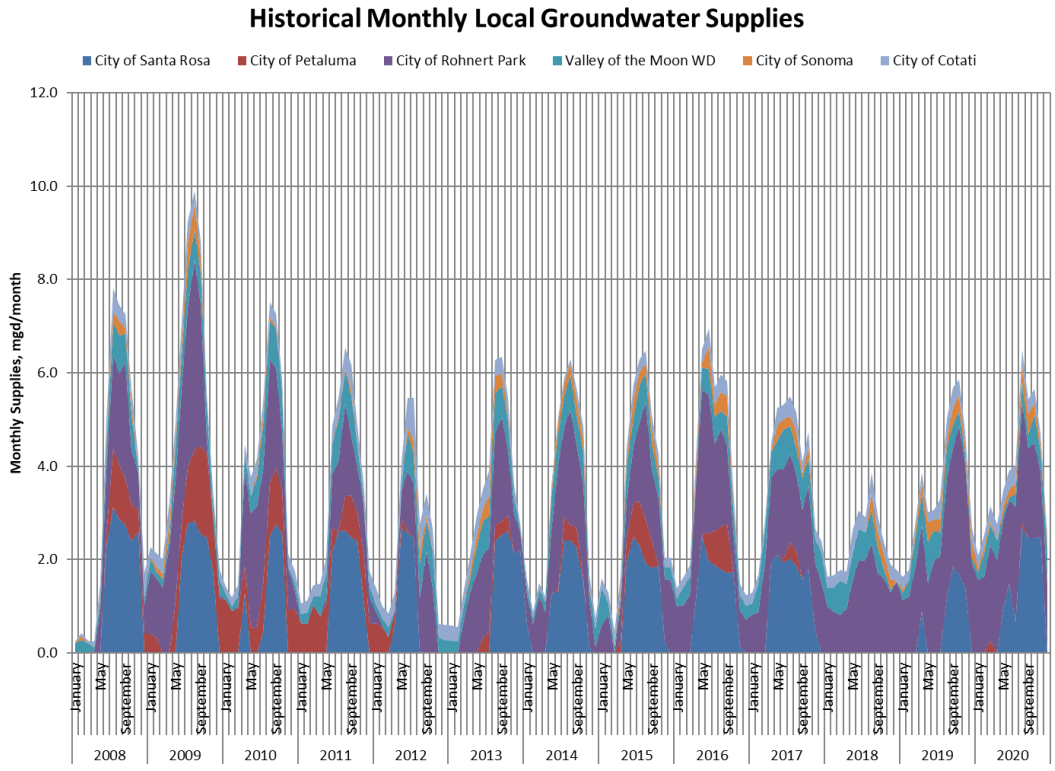

Figure 4-4. Historical monthly local groundwater supplies

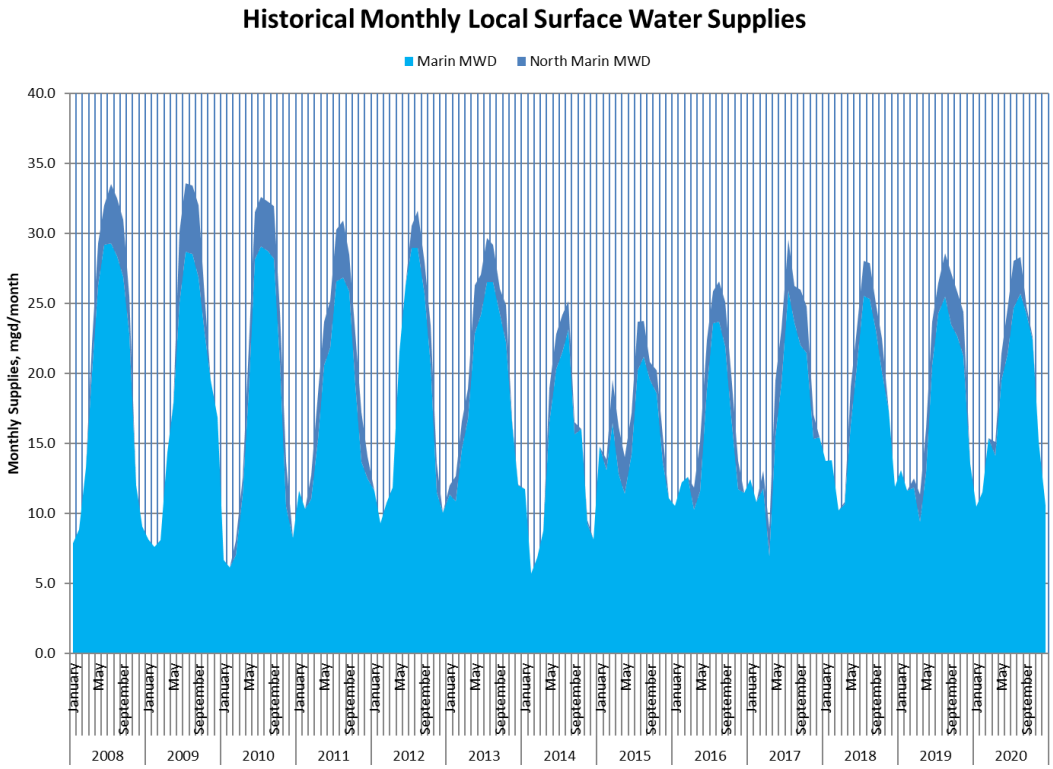

Figure 4-5. Historical monthly local surface water supplies

Appendix A: AM Preface Statement

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Allocation Model Preface Statement January 29, 2013

Since September 2012, the TAC has been working with Sonoma Water (Sonoma Water and its' consultant on an update of the Allocation Model (AM) which was originally prepared by Jon Nelson in April 2006 and adopted by Sonoma Water's Board of Directors on April 18, 2006. The Restructured Agreement for Water Supply (RA) requires Sonoma Water to have an adopted water shortage allocation methodology available at all times, consistent with RA Section **3.5 Shortage of Water and Apportionment**, to inform each Customer of the water that would be available to that Customer pursuant to the terms of RA Section 3.5(a). The methodology is reflected in an excel spreadsheet calculation which distributes available supply or available capacity to the Water Contractors, Marin Municipal Water District (MMWD) and Other Sonoma Water Customers. To date an Ad Hoc committee of the TAC has reviewed, commented and recommended changes to the proposed AM update for both Annual Allocation and Monthly Allocation Models for water available in the Russian River (RA Section 3.5(a)). Neither the TAC nor Sonoma Water has yet dealt with the methodology or model to consider a temporary impairment of the capacity of the Transmission System pursuant to RA Section 3.5(b).

The TAC recommendations, now incorporated in the AM update, include recognizing local supplies at 75 % of the respective estimated annual quantity and daily capacity and is based on a MMWD daily capacity allocation of 4MGD from May 1 through September 30. The parties acknowledge that the available quantities and capacities for local supply will be dependent on circumstances occurring from time to time during an actual shortage condition and agree that the AM will need adjustment coincident with the actual shortage to reflect the local supply at that time as was done in 2009. The parties are committed to use the maximum local supply capacity available during monthly shortage conditions to benefit local and regional water supply reliability.

The parties acknowledge that the available quantities and capacities of Sonoma Water Supply in the AM reflect a 3.0 % allowance for Transmission System Losses and recommend that these amounts be verified subsequent to actual deliveries and the actual Transmission System losses be distributed prior to application of liquidated damages pursuant to Section 3.5(e) of the RA.

Furthermore, RA Agreement Section 3.5(f) enables the parties to agree on an alternate allocation methodology, provided the Water Advisory Committee unanimously approves such alternate allocation methodology.

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Appendix B: Comparison of Water Shortage Allocation Approaches (Prepared in 2014 and updated in 2021)

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Table B 1. Comparison of Wholesale Supply Allocation Methodologies

Methodology element	Sonoma Water	San Diego County Water Authority[a]	Metropolitan Water District of Southern California[a]	San Francisco Public Utilities Commission[a]
Basis of allocation approach	Allocation by entitlement limits.	Fixed allocation % of total supply to each agency based on adjusted base period % use of wholesale supply.	Regional % of total supply available, then adjusted for each agency for retail impact, conservation demand hardening credit, and minimum per capita water use credit.	For shortages <20%, allocation factor based on base period use of wholesale supply adjusted considering base and seasonal use. For>20%, meeting to discuss change to allocation.
Base period	3-yrs annual and monthly, called reasonable requirements.	3-yrs annual.	3-yrs annual.	3-yrs monthly production. Base component is Dec. to March period. Seasonal component is remainder.
Human health and safety demand considered	Yes	No	Minimum per-capita water use credit of 55 gpcd residential use and 100 gpcd total use.	Use threshold of 55 gpcd. Base component reduction of 10%.
Local supply used	A percentage of average use or a projected amount of local supply	70% of average use	100%, with extraordinary supplies not included.	No, essentially assumes 100%
Per capita demand compliance adjustment	No	Yes, aggregated gpcd cap.	No	No
Demand hardening adjustment	Yes, based on regional average non-CII gpcd.	No	Conservation demand hardening credit based on the total shortage % times the calculated conservation savings from devices installed.	No
Recent local supply change	Yes, to be discussed with agencies as needed.	Yes, for loss of local supply and extraordinary increase.	Agencies to provide allocation year local supplies.	No
Recent growth adjustment	Yes, updated population used for human health need.	Yes, including non-residential increase adjustment.	Yes, using county-level population growth, agency level, or population with employment option.	No
Regional reliability adjustment	No	When shortage >20% shortage, floor of 5% below average regional level of service.	Maximum retail impact adjustment % credit that provides more supply to agencies with greater % wholesale dependence.	Minimum reduction of 10% and maximum reduction of average reduction plus 20%.
Other items			Additional allocations may be made for seawater barrier demands.	Specific provisions for certain agencies.
Reference		Section 5-Supply Allocation Methodology, Drought Management Plan, San Diego County Water Authority. Updated April 2012	Water Supply Allocation Plan, MWD. August 2010	Tier 2 Drought Implementation Plan, BAWSCA. 2010 and Appendix G- Water Shortage Allocation Plan, 2010 Urban Water Management Plan, City and County of San Francisco. 2010

a. Not updated to reflect current water shortage allocation approach.

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City and County of San Francisco. Water Shortage Allocation Plan. 2010 Urban Water Management Plan. 2010.

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