2024

DRINKING WATER NEEDS ASSESSMENT

CALIFORNIA Water Boards

JUNE 2024

Acknowledgements

Contributors

This report was prepared by the California State Water Resources Control Board (State Water Board) within the California Environmental Protection Agency (CalEPA). Contributing authors include:

Kristyn Abhold, William Allen, Andrew Altevogt, Jackie Carpenter, Chad Fischer, Joseph Guzman, Jody Hack, Elizabeth Herrera, Eric van Holm, Emily Houlihan, Mawj Khammas, David Leslie, Hee Kyung Lim, Suzanne Kline, Karen Nishimoto, Jasmine Oaxaca, Lucio Orellana, Sirichad Ouitavon, Matthew Pavelchik, Bryan Potter, Christina Raynard, Montarat Reilly, Dimitri Stanich, Bansari Tailor, Jeff Wetzel, and David Zensius.

Acknowledgments

We are grateful to UCLA Luskin Center for Innovation (UCLA), Corona Environmental Consulting (Corona), Sacramento State University Office of Water Programs, the Pacific Institute and the University of North Carolina Environmental Finance Center for their support in developing the foundational methodologies employed in the inaugural 2021 Drinking Water Needs Assessment.

We also thank Julia Ekstrom (California Department of Water Resources), Komal Bangia, and Laura August (California Office of Environmental Health Hazards Assessment) for their support enhancing the Needs Assessment's methodologies and coordinating their agencies' data sharing.

Additionally, we acknowledge the contributions and insights from comment letters the State Water Board received from a diverse group of stakeholders, as well as input received at public meetings and workshops held around the state on versions of this work.

CONTENTS

DEFINITION OF TERMS

Adequate Supply: means sufficient water to meet residents' health and safety needs at all times. (Health & Saf. Code, § 116681, subd. (a).)

Administrator: an individual, corporation, company, association, partnership, limited liability company, municipality, public utility, or other public body or institution which the State Water Board has determined as competent and performs the administrative, technical, operational, legal, or managerial services required for a water system to comply with Health and Safety Code section 116686, pursuant to the Administrator Policy Handbook adopted by the State Water Board. (Health & Saf. Code, §§ 116275, subd. (g), 116686, subd. (m)(1).)

Affordability Assessment: the evaluation of any community water system serving a disadvantaged community to ascertain if it must charge fees, directly or indirectly, that exceed the Affordability Threshold to supply, treat, and distribute potable water that complies with federal and state drinking water standards. The assessment utilizes several indicators to identify communities experiencing economic challenges which make them unable to incur additional costs. (Health & Saf. Code, § 116769, subd. (a)(2)(B).)

Affordability Threshold: the designated values used to assess the economic capacity of a community or household to pay for current drinking water charges and incur additional costs or fees in the future. This capacity is used in the Affordability Assessment. For the purposes of the 2023 Affordability Assessment, the State Water Board employed affordability thresholds for the following indicators independently and combined: Percent Median Household Income; Extreme Water Bill; and Household Socioeconomic Burden. Learn more about current and future indicators and affordability thresholds in Appendix: Affordability Assessment Methodology.[1]

Arrearage: debt accrued by a water system's customer from failure to pay water service bill(s) which are at least 60 days or more past due.

At-Risk Public Water System: a community water system with up to 30,000 service connections or 100,000 population served and K-12 schools that are non-transient non-community water systems and is confronting circumstances which threaten its ability to continue to meet one or more key Human Right to Water goals: (1) providing safe drinking water; (2) accessible drinking water; (3) affordable drinking water; and/or (4) maintaining a sustainable water system.

At-Risk State Small Water Systems (SSWS) and Domestic Wells (DW): State Small Water Systems and Domestic Wells located in areas where groundwater is threatened by: (1) encroaching contaminants which are likely to lead to concentration levels that exceed safe

[1] Appendix: Affordability Assessment Methodology https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024affordabilityassessment-metodology.pdf

drinking water standards; (2) water shortage risk; and/or (3) socioeconomic risk. This definition may be expanded in future assessments as more data becomes available.

CalEnviroScreen[2]: a mapping tool produced and maintained by the Office of Environmental Health Hazard Assessment (OEHHA) that uses environmental, health, and socioeconomic information to identify California communities that are most affected by many sources of pollution, and where people are often especially vulnerable to pollution's effects.

California Native American Tribe: socially-divided communities of California indigenous peoples recognized federally and non-federally and on the contact list maintained by the Native American Heritage Commission for the purposes of Chapter 905 of the Statutes of 2004. (Health & Saf. Code, § 116766, subd. (c)(1).) Typically, drinking water systems for federally recognized tribes fall under the regulatory jurisdiction of the United States Environmental Protection Agency (U.S. EPA), while public water systems operated by non-federally recognized tribes currently fall under the jurisdiction of the State Water Board.

Capital Costs: means the costs associated with the acquisition, construction, and development of water system infrastructure. These costs may include the cost of infrastructure (treatment solutions, consolidation, etc.), design and engineering costs, environmental compliance costs, construction management fees, general contractor fees, etc. Full details of the capital costs considered and utilized in the Needs Assessment are in Appendix: Cost Assessment Methodology.[3]

Centralized Treatment: treating water at a central place before conveying it through a dedicated distribution system to customers.

Community Water System: a public water system that serves at least 15 service connections used by yearlong residents or regularly serves at least 25 yearlong residents of the area served by the system. (Health & Saf. Code, § 116275, subd. (i).)

Consistently Fail: a failure to provide an adequate supply of safe drinking water. (Health & Saf. Code, § 116681, subd. (c).)

Consolidation: the joining of two or more public water systems, state small water systems, or affected residences into a single public water system, either physically or managerially. For the purposes of this report, consolidations may include voluntary or mandatory consolidations. (Health & Saf. Code, § 116681, subd. (e).)

Constituents of Emerging Concern: encompass any physical, chemical, biological, or radiological substance or matter in any environmental media that may pose a risk to human and/or ecological health, for which there is not currently published enforceable California or federal environmental or health standard, or the existing standard is evolving or being re-

[2] CalEnviroScreen 4.0 | OEHHA
https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40
[3] Appendix: Cost Assessment Methodology
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024costassessment-methodology.pdf

evaluated, and/or the presence, frequency of occurrence, source, fate and transport, and/or toxicology of which is not well understood, routinely monitored, and/or may lack analytical methods. For purposes of the Risk Assessment, three chemicals are incorporated: hexavalent chromium, 1,4-dioxane, and per- and polyfluoroalkyl substances (PFAS).

Contaminant: any physical, chemical, biological, or radiological substance or matter in water. (Health & Saf. Code, § 116275, subd. (a).)

Cost Assessment: the estimation of funding needed for the Safe and Affordable Drinking Water Fund for the next fiscal year based on the amount available in the fund, anticipated funding needs, and other existing State Water Board funding sources. Thus, iterations of the Cost Assessment estimates anticipated expenditures related to the implementation of interim and/or emergency measures and longer-term solutions for Failing and At-Risk Public Water Systems, State Small Water Systems, and Domestic Wells. Some iterations of the Cost Assessment also include the identification of available funding sources and the funding and financing gaps that may exist to support interim and long-term solutions. (Health & Saf. Code, § 116769.)

Decentralized Treatment: water treatment units that remove contaminants from the water served to only one home or building and are not used to treat irrigation water. Decentralized treatment can be point of entry (POE) and point of use (POU) technologies.

Disadvantaged Community (DAC): the entire service area of a community water system, or a community therein, in which the median household income is less than 80% of the statewide annual median household income level. (Health & Saf. Code, § 116275, subd. (aa).)

Domestic Well: a groundwater well used to supply water for the domestic needs of an individual residence or a water system that is not a Public Water System and has no more than four service connections. (Health & Saf. Code, § 116681, subd. (g).)

Drinking Water Needs Assessment (**Needs Assessment):** the annual State Water Board report that provides a comprehensive identification of California drinking water challenges in achieving the Human Right to Water. The report analyzes and identifies drinking water infrastructure, managerial capacity, technical, and financial needs for communities served by public water systems, state small water systems, and domestic wells. The Needs Assessment consists of four core components: 1) Failing Water System List, 2) Risk Assessment, 3) Cost Assessment, and 4) Affordability Assessment. The Needs Assessment informs the annual Fund Expenditure Plan for the Safe and Affordable Drinking Water Fund and broader SAFER program activities. (Health & Saf. Code, § 116769.)

Drinking Water State Revolving Loan Fund (DWSRF): a funding program managed by the State Water Board that finances infrastructure improvements to mitigate drinking water risks and support the Human Right to Water. In accordance with federal rules, the DWSRF program generally prioritizes financing for projects that (1) address the most serious human health risks, (2) are necessary to comply with federal Safe Drinking Water Act requirements and (3) assist public water systems most in need on a per household basis.

Electronic Annual Report (eAR): the Water Board's annual survey of California's public water systems which collects critical information to assess their compliance with regulatory requirements, updates contact and inventory information (such as population and number of service connections), and captures information used to assess capacities, financial and otherwise, of water systems.

Entrenched Failing Water System: Failing water systems that are currently Failing and have been on the Failing list for at least three consecutive years.

Failing: the inability of a public water system to provide an adequate and reliable supply of drinking water which is at all times pure, wholesome, and potable. (Health & Saf. Code, § 116555.)

Failing List: the catalogue of public water systems that are out of compliance or consistently fail to meet primary drinking water standards. Systems that are assessed for meeting the Failing List criteria include Community Water Systems and Non-Community Water Systems that serve K-12 schools and daycares. The Failing List criteria were expanded in April 2021 to better align with statutory definitions of what it means for a water system to consistently fail to meet primary drinking water standards. (Health & Saf. Code, § 116275(c).)

Fund Expenditure Plan (**FEP):** based on the Drinking Water Needs Assessment and adopted annually by the State Water Board, describes how money from the Safe and Affordable Drinking Water Fund will be prioritized, documents past and planned expenditures, prioritizes projects for funding, and includes elements pursuant to Article 4 of Chapter 4.6 of the Health and Safety Code for the Safe and Affordable Drinking Water Fund, established pursuant to Health and Safety Code section 116766.

Human Consumption: the use of water for drinking, bathing or showering, hand washing, oral hygiene, or cooking, including, but not limited to, preparing food and washing dishes. (Health & Saf. Code, § 116275, subd. (e).)

Human Right to Water (HR2W): the recognition that "every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking and sanitary purposes," as defined in Assembly Bill 685 (AB 685). (California Water Code § 106.3, subd. (a).)

Intended Use Plan (IUP): The Drinking Water State Revolving Fund (DWSRF) program finances infrastructure improvements to mitigate drinking water risks and support the human right to water. This Intended Use Plan (IUP) describes the State Water Board plan for implementing the DWSRF and its complementary financing programs within a fiscal year.

Intertie: an interconnection allowing the passage of water between two or more water systems.

Interim Replacement Water or **Interim Solution:** includes, but is not limited to; bottled water, vended water, and point-of-use or point-of-entry treatment units. (Health & Saf. Code, § 116767, subd. (q).)

Large Community Water Systems: a community water system that serves over 30,000 service connections and a population above 100,000.

Loan: any repayable financing instrument, including a loan, bond, installment sale agreement, note, or other evidence of indebtedness.

Local Cost Share: a proportion of the total interim and/or long-term project costs (capital, O&M, and financing costs) that are not eligible for a State grant and would therefore be borne by water systems, their ratepayers, and/or domestic well owners. Some local cost share needs may be eligible for public or private financing (i.e. a loan). Some local costs share needs may not be eligible for financing and is typically funded through available reserves or cash on hand.

Local Primacy Agency (LPA): the local health officer within a county to whom the State Water Board has delegated primary responsibility for the administration and enforcement of California Safe Drinking Water Act. An LPA is authorized by means of a local primacy delegation agreement if the local health officer demonstrates the capability to meet the local primacy program requirements established by the State Water Board pursuant to subdivision (h) of Health and Safety Code section 116375. (Health & Saf. Code, § 116330, subd. (a).)

Mandatory Consolidation: State Water Board--mandated Consolidation requiring two or more water systems to merge with, or receive an extension of service from another, public water system.

Maximum Contaminant Level (MCL): the highest permissible amount of a contaminant statutorily allowed in water. (Health & Saf. Code, § 116275, subd. (f).)

Median Household Income (MHI): the financial level that represents the middle value of revenue for an entire community averaging the total money received per each home and its occupants. The methods utilized for calculating MHI are included in Appendix: Median Household Income (MHI) and Economic Status Determination Methodology[4] and Appendix: Affordability Assessment Methodology[5] . MHIs in this Needs Assessment are estimated values for the purposes of this statewide assessment. The State Water Board's Division of Financial Assistance determines funding eligibility using the MHI and on a system-by-system basis.

Medium Community Water System: a community water system that serves between 3,000 and 30,000 service connections.

Net Present Worth (NPW): estimate of the total sum of funds that need to be set aside today to cover all expenses (capital, including other essential infrastructure costs, and annual O&M) during the potential useful life of the infrastructure investment, which is conservatively estimated at 20-years for the Cost Assessment. The estimate of the total sum of funds is

[4] Appendix: Median Household Income (MHI) and Economic Status Determination Methodology https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024MHI-caclulation.pdf

[5] Appendix: Affordability Assessment Methodology https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024affordabilityassessment-metodology.pdf

adjusted by an annual discount rate which accounts for the higher real cost of financial outlays in the immediate future when compared to the financial outlays in subsequent years.

Non-Community Water System: a Public Water System and is not a Community Water System. (Health & Saf. Code, § 116275, subd. (j).)

Non-Transient, Non-Community Water System: a Public Water System that is not a Community Water System and regularly serves at least 25 of the same persons for six months or more during a given year, such as a school. (Health & Saf. Code, § 116275, subd. (k).)

Operations and Maintenance (O&M): collective term for the materials, functions, duties, and labor associated with the daily operations, normal repairs, replacement of parts and structural components, and other activities needed to preserve a water system's capital assets so that it can continue to provide safe drinking water.

Other Essential Infrastructure (OEI): a broad category of additional infrastructure needed for the successful implementation of the Cost Assessment's long-term modeled solutions and to enhance the system's sustainability. OEI includes storage tanks, upgraded electrical, added backup power, and additional customer meters.

Point of Use (**POU):** a treatment device located where the end user accesses the drinking water.

Point of Entry (POE): a treatment device located at the inlet to an entire building or facility.

Potentially At-Risk: categorical description of a Community Water System with 30,000 service connections or less, or population served up to 100,000 and K-12 schools that is potentially threatened by circumstances which could cause its failure to meet one or more key Human Right to Water goals—all Californians have drinking water that is: (1) safe; (2) accessible; (3) affordable; and/or (4) sustainable.

Primary Drinking Water Standard: a set of established protocols for water intended for human consumption: (1) Maximum levels of contaminants that, in the judgment of the State Water Board, beyond which may have an adverse effect on the health of persons, (2) Specific treatment techniques adopted by the state board in lieu of maximum contaminant levels pursuant to Health & Saf. Code, section 116365, subd. (j), and (3) Monitoring and reporting requirements as specified in regulations adopted by the state board that pertain to maximum contaminant levels. (Health & Saf. Code, § 116275, subd. (c).)

Public Water System: a system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. A PWS includes any collection, pre-treatment, treatment, storage, and distribution facilities under control of the operator of the system that are used primarily in connection with the system; any collection or pretreatment storage facilities not under the control of the operator that are used primarily in connection with the system; and any water system that treats water on behalf of one or more public water systems for the purpose of rendering it safe for human consumption. (Health & Saf. Code, § 116275, subd. (h).)

Resident: a person who physically occupies, whether by ownership, rental, lease, or other means, the same dwelling for at least 60 days of the year. (Health & Saf. Code, § 116275, subd. (t).)

Risk Assessment: The evaluation of Public Water Systems, with a focus on small and medium Community Water Systems and non-transient, non-community K-12 schools, for the identification of those at risk of failing to provide an adequate supply of safe drinking water. It includes an estimate of the number of households served by Domestic Wells or State Small Water Systems in areas of high risk for groundwater contamination; water shortage; and/or socioeconomic risk. Various methodologies have been developed for different system types: (1) public water systems; (2) state small water systems and domestic wells; and (3) tribal water systems. (Health & Saf. Code, § 116769.)

Risk Indicator: the quantifiable measurements of key data points that allow the State Water Board to assess the potential for a community water system or a non-transient, non-community water system that serves a K-12 school to fail to sustainably provide an adequate supply of safe drinking water due to water quality, water accessibility, affordability, institutional, and/or TMF capacity issues.

Risk Threshold: the levels, points, or values associated with an individual indicator that delineates when a water system is threatening failure, typically based on regulatory requirements or industry standards.

Safe and Affordable Drinking Water Fund (**SADWF):** the fund created through the passage of Senate Bill 200 (SB 200) to help provide an adequate and affordable supply of drinking water for both the near and long terms. SB 200 directs the annual transfer of five percent of the annual proceeds of the Greenhouse Gas Reduction Fund (GGRF) (up to $130 million) into the fund until June 30, 2030. (Health & Saf. Code, § 116766.)

Safe and Affordable Funding for Equity and Resilience Program (**SAFER Program):** a set of State Water Board tools, funding sources, and regulatory authorities designed to ensure safe, accessible, and affordable drinking water for all Californians.

Safe Drinking Water: water that meets all primary and secondary drinking water standards, as defined in Health and Safety Code section 116275.

SAFER Clearinghouse: a database system, developed and maintained by the State Water Board to assist with the implementation, management, and tracking of the SAFER Program.

SAFER Status: a categorization of community water systems and non-transient, non-community schools determined by the Needs Assessment's Failing system criteria and Risk Assessment. The following five SAFER Statuses are used by the State Water Board. If a water system's SAFER Status is currently Failing, its Risk Assessment result will replace its SAFER Status once the system comes off the Failing list.

- ***Failing***: Failing water systems are those that are meeting current Failing criteria as defined by the State Water Board.[6]
- ***At-Risk***: Water systems at-risk of failing. The system's risk scores are the highest within the results of the Risk Assessment.
- ***Potentially At-Risk***: Water systems potentially at-risk of failing. The system has accrued risk points within the Risk Assessment, but not enough to be designated At-Risk.
- ***Not At-Risk***: Water system's not at-risk of failing. The system has accrued zero or very little risk points within the Risk Assessment.
- ***Not Assessed***: Water systems that are currently not Failing and are excluded from the Risk Assessment analysis.

Sanitary Survey: a comprehensive inspection to evaluate a water system's ability to provide safe drinking water to their customers and comply with the federal Safe Drinking Water Act (SDWA).

Score: a standardized numerical value scaled between 0 and 1, that quantifies risk across risk indicators. Scores enable the evaluation and comparison of risk indicators.

Secondary Drinking Water Standards: quantity levels that specify Maximum Contaminant Levels necessary to protect the public welfare. Secondary drinking water standards may apply to any contaminant in drinking water that may adversely affect the public welfare. Regulations establishing secondary drinking water standards may vary according to geographic and other circumstances and may apply to any contaminant in drinking water that adversely affects the taste, odor, or appearance of the water when the standards are necessary to ensure a supply of pure, wholesome, and potable water. (Health & Saf. Code, § 116275, subd. (d).)

Service Connection: the point of water access between the customer's piping or constructed conveyance, and the system's meter, service pipe, or constructed conveyance, with certain exceptions set out in the definition in the Health and Safety Code. (See Health & Saf. Code, § 116275, subd. (s).)

Senate Bill No. 200: the legislative bill signed into law in 2019 that established the Safe and Affordable Funding for Equity and Resilience (SAFER) Program that enabled the State Water Board to advance the goals of the Human Right to Water. (Senate Bill No. 200, CHAPTER 120)

Senate Bill No. 552: a legislative bill signed into law in 2021 that requires small water suppliers and non-transient non-community water systems, to apply draught resiliency measures subject to funding availability. (Senate Bill No. 552, CHAPTER 245)

Severely Disadvantaged Community (**SDAC):** the categorization of an entire water-system service area where the Median Household Income is less than 60% of the statewide MHI. (See Water Code § 13476, subd. (j).)

[6] Failing criteria is summarized in the Drinking Water Needs Assessment and detailed online at the link below. Failing Criteria: https://www.waterboards.ca.gov/water_issues/programs/hr2w/docs/hr2w_expanded_criteria.pdf

Significant Deficiencies: State Water Board staff or LPA staff observed shortcomings identified during a Sanitary Survey or other water system inspections. Significant Deficiencies include but are not limited to: defects in design, operation, or maintenance; failure or malfunction of the sources, treatment, storage; or use of a distribution system that U.S. EPA determines to be causing or has the potential to cause the introduction of contamination into the water delivered to consumers.

Small Community Water System: a community water system that serves no more than 3,000 service connections.

Small Disadvantaged Community (Small DAC or **SDAC):** category for entire service area, or the community therein, with a community water system that serves no more than 3,300 service connections or a year-round population of no more than 10,000, and in which the Median Household Income is less than 80% of the statewide annual MHI.

Sounder: a tool used to measure groundwater depth in a well.

Source Capacity: the total amount of water supply available, expressed as a flow, from all active sources permitted for use by a water system, including approved surface water, groundwater, and purchased water. (Title 22 of the California Code of Regulations, § 64551.40.)

State Small Water System (SSWS): a system for the provision of piped water to the public for human consumption that serves at least five, but not more than 14, service connections and does not regularly serve drinking water to more than an average of 25 individuals daily for more than 60 days out of the year. (Health & Saf. Code, § 116275, subd. (n).)

State Water Board: the California State Water Resources Control Board.

Static Well Level: the resting state of the water level in a well under normal, no pumping conditions.

Technical Assistance: direct support, provided by third parties contracted with the State Water Board, to communities to identify challenges, develop plans, build capacity, and develop application materials to access water infrastructure funding. In many cases technical assistance does not eliminate the need for other capital improvements, but it should increase the technical, managerial, and financial capacity of water systems.

Technical, Managerial and Financial capacity (TMF capacity): the ability of a water system's administrators to plan for, achieve, and maintain long term compliance with drinking water standards, thereby ensuring the quality and adequacy of the water supply. This includes adequate resources for fiscal planning and management of the water system.

Transient, Non-Community Water System: A public water system that does not meet the definition of a community water system or non-transient, non-community water system, which serves 25 or more people at least 60 days out of a year or there are 15 or more service connections that are not used by yearlong residents (e.g., restaurants, gas stations, parks, etc.).

Waterworks Standards: regulations adopted by the State Water Board entitled California Waterworks Standards (Chapter 16 (commencing with § 64551) of Division 4 of Title 22 of the California Code of Regulations). (Health & Saf. Code, § 116275, subd. (q).)

Weight: numerical significance established by the application of a multiplying value to each risk indicator or category within the Risk Assessment. Allows for the accentuation of significance of certain risk indicators and categories deemed more critical than others.

EXECUTIVE SUMMARY

The Human Right to Water (HR2W) recognizes that "every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking and sanitary purposes." In 2019, to advance the goals of the HR2W, California passed Senate Bill 200 (SB 200), which enabled the State Water Board to create the Safe and Affordable Funding for Equity and Resilience Drinking Water program (SAFER program). SB 200 established a set of tools, funding sources, and regulatory authorities that the State Water Board harnesses through the SAFER program to help struggling water systems sustainably and affordably provide safe drinking water. The SAFER program is driven by collective responsibility: water systems, non-profit organizations, governments, a community advisory board, and other interested parties work together to develop and implement solutions.

As of April 2024, nearly five years into the SAFER program, the State Water Board has distributed over $831 million in grants for drinking water projects in California's disadvantaged communities—accelerating the pace of assistance so that over two-and-a-half times more funding has been delivered since 2019 than the $310 million distributed in the five years prior to the program. In this same period, 251 water systems serving 2 million people have come back into compliance with drinking water standards and 142 consolidations, benefiting approximately 100,000 people, have been completed.

Figure 1: SAFER Program Accomplishments (2019 - 2023)

The Needs Assessment is a comprehensive, data-driven analysis that:

1. Identifies communities served by Failing public water systems;
2. Predicts which public water systems, state small water systems, and domestic wells are at risk of failing;
3. Estimates how much it may cost to achieve the Human Right to Water for Failing and At-Risk systems and the communities they serve;
4. Estimates the potential five-year funding gap between estimated funding needs and state funding availability; and
5. Identifies disadvantaged communities that may be facing affordability challenges, which may limit their ability to address existing and future drinking water challenges.

The results of the annual Needs Assessment are used by the State Water Board's SAFER program and the SAFER Advisory Group[7] to inform the prioritization of available state funding in the Safe and Affordable Drinking Water Fund (SADWF) Fund Expenditure Plan (FEP).[8]

Figure 2: How the Needs Assessment is Utilized by the SAFER Program

The Needs Assessment serves to highlight and track progress in achieving safe drinking water in communities that have historically lacked access. It also serves to document the pace of implementing drinking water solutions, measure water system performance to encourage resiliency, explore sustainable long-term solutions like consolidation, and estimate the cost of implementing these solutions.

By incorporating this Needs Assessment into the SAFER program and implementation of SADWF, the State Water Board will continue to lead long-term drinking water solutions. At the same time, the Needs Assessment brings clarity to the amount and type of work that must be done by state, federal, local and stakeholder partners collectively to realize the Human Right to Water for all Californians.

[7] SAFER Advisory Group
https://www.waterboards.ca.gov/safer/advisory_group.html
[8] Safe and Affordable Drinking Water Fund
https://www.waterboards.ca.gov/water_issues/programs/grants_loans/sustainable_water_solutions/safer.html

2024 NEEDS ASSESSMENT RESULTS

385
FAILING
Public Water Systems

Population Served
913,500

45% Receiving $352 M in State Funding & Technical Assistance

613
AT-RISK
Public Water Systems

Population Served
1,535,200

16% Receiving $136 M in State Funding & Technical Assistance

727
HIGH-RISK
State Small Water Systems

143,663
HIGH-RISK
Domestic Wells

KEY FINDINGS:

1. 98% of California's population receives water from systems that meet drinking water standards. 79% of water systems have continually been in compliance with drinking water standards since 2017.
2. Approximately 56% of Failing public water systems serve disadvantaged communities and 67% serve majority communities of color.
3. The Risk Assessment was able to predict risk of failure for 91% of water systems on the Failing list in 2023.
4. Estimated 5-year funding needs for modeled long-term and interim solutions for Failing and At-Risk public water systems is approximately $6.6 billion and $4.9 billion for high-risk state small water systems and domestic wells.
5. The State Water Board has a projected $3.5 billion in 5-year funding availability, $2 billion for grants and $1.5 billion for loans. The estimated 5-year funding gap is $5.5 billion for grant eligible needs. All estimated 5-year loan eligible needs are met by projected available loan capacity.
6. In the long-run, local communities and private well owners may need to cover $13.9 billion to achieve the Human Right to Water.
7. Small drinking water systems charge on average $32 more a month for the same volume of water compared to larger water systems.
8. Approximately 94 (3%) of community water systems face high drinking water affordability burden and 311 (10%) may be experiencing medium affordability burden.

SAFER PROGRAM 2019-2023 ACCOMPLISHMENTS

The Safe and Affordable Funding for Equity and Resilience (SAFER)[9] program is a set of tools, funding resources, and regulatory authorities coordinated to assist California communities as they work to develop local compacity to ensure reliable access to safe drinking water. Informed by the Drinking Water Needs Assessment, State Water Board staff and partner organizations proactively identify and reach out to water systems that are on the Failing list or At-Risk list to inform them of available resources, support them through the financial assistance application process, and collaboratively develop interim and long-term solutions.

As of April 2024, nearly five years into the SAFER program, the State Water Board has distributed over $831 million in grants for drinking water projects in California's disadvantaged communities—accelerating the pace of assistance so that over two-and-a-half times more funding has been delivered since 2019 than the $310 million distributed in the five years prior to the program. In this same period, 251 water systems serving 2 million people have come back into compliance with drinking water standards and 142 consolidations, benefiting approximately 100,000 people, have been completed.

The following provides a high-level summary of the tools and resources employed by the SAFER program and the systems that were prioritized for State Water Board engagement and support.

ENHANCING WATER SYSTEM CAPACITY

The goal of the SAFER program is to help Failing and At-Risk systems address their drinking water problems by building their operators' technical, financial, and managerial capacity. The program accomplishes this through funding support and regulatory authorities, including consolidations, Administrator appointments, technical assistance, and the facilitation of community involvement to advance sustainable solutions. Ultimately, the SAFER program enables systems to operate independently and sustainably so they can secure the Human Right to Water for the communities they serve, in partnership with those communities. The

[9] SAFER Program
https://www.waterboards.ca.gov/safer/

State Water Board's Division of Drinking Water (DDW),[10] which administers the SAFER program together with the Division of Financial Assistance (DFA),[11] utilizes a broad and diverse set of programs and tools to help support water system capacity. The following sections summarize how these tools are leveraged to support California water systems.

SANITARY SURVEYS

A sanitary survey is a comprehensive review and inspection to evaluate the adequacy of a water system to provide safe drinking water. The comprehensive evaluation and inspection must include: 1) sources of supply, 2) treatment facilities, 3) distribution system, 4) finished water storage, 5) pumps, pump facilities, and controls, 6) monitoring, reporting, and data verification, 7) system management and operation, and 8) operator compliance with State requirements. The sanitary survey includes an in-office file review and a physical field visit inspection.

U.S. EPA requires that sanitary surveys be conducted at least every three years for community water systems and every five years for non-community water systems. Typically, DDW staff performs these sanitary surveys. However, in 27 counties, this authority is delegated to Local Primacy Agencies (LPAs). The State Board tracks sanitary survey completion rates annually as shown in Table 1 and Table 2.

During sanitary surveys, DDW and LPA staff visit water systems to evaluate their compliance with the Safe Drinking Water Act (SDWA) and ensure responsible staff are proficient in sampling and complying with other California regulations and requirements. The sanitary survey is also an opportunity to identify shortcomings, such as technical assistance needs, capacity development needs, or significant deficiencies. Significant deficiencies are substantial defects that are causing or have the potential to cause the introduction of contamination into water delivered to customers. Sanitary survey results enable DDW and LPA staff to initiate technical assistance or other capacity development.

Table 1: Community Water System Sanitary Survey

Regulating Agency	# of Systems	2023 Inspections	Sig. Def. Identified in 2023	# of Inspections 2019-2023	# Sig. Def. Identified 2019-2023
State Water Board	2,007	509	11	2,716	101
LPAs	835	292	8	1,495	18
TOTAL:	**2,842**	**801**	**19**	**4,211**	**119**

[10] Division of Drinking Water I State Water Board
https://www.waterboards.ca.gov/drinking_water/programs/
[11] Division of Financial Assistance I State Water Board
https://www.waterboards.ca.gov/water_issues/programs/grants_loans/

Table 2: Non-Community Water System Sanitary Surveys

Regulating Agency	# of Systems	2023 Inspections	Sig. Def. Identified in 2023	# of Inspections 2019-2023	# Sig. Def. Identified 2019-2023
State Water Board	2,166	256	4	1,851	61
LPAs	2,257	556	15	2,817	39
TOTAL:	**4,422**	**912**	**19**	**4,668**	**100**

SAFER ENGAGEMENT UNITS

The DDW's SAFER Section includes four Engagement Units[12] located across the state.[13] SAFER Engagement Units provide direct assistance to water systems, the communities they serve, and key partners to help navigate and address drinking water challenges.

SAFER Engagement Units focus on community water systems and schools (defined as non-transient, non-community water systems) that are on the Failing list. Many Failing water systems struggle to implement solutions on their own and the staff of the SAFER Engagement Units are experienced and trained to help navigate obstacles and assist systems achieve the Human Right to Water goal of delivering safe, reliable, and affordable drinking water. The SAFER Engagement Units are staffed by engineers, scientists and analysts who provide guidance, analysis, and support to water systems and communities. SAFER Engagement Unit staff help manage projects, facilitate communication, overcome obstacles, and inform local decision-making.

Many of the water systems the SAFER Engagement Units work with are experiencing long-term challenges, often pre-dating the Risk Assessment (2021) and Failing list criteria (2017). Because these systems are combatting antiquated and failing infrastructure, inadequate economic resources, historic disinvestment and customer affordability challenges, it can take many years to determine sustainable solutions, foster necessary agreement, and deliver new or upgraded drinking water infrastructure. Furthermore, implementing project solutions to deliver safe drinking water to these systems is extremely sophisticated and logistically challenging, while the technical, managerial, and financial (TMF) capacity within the system is often far too limited to shepherd these projects to a successful outcome. This mismatch of limited TMF capacity and complicated sustainable solutions necessitates project leadership from SAFER Engagement Unit staff to guide water systems and stakeholders to successful project outcomes. Figure 3 illustrates the steps the Engagement Units often take to guide water systems through successful planning and implementation of drinking water projects.

[12] SAFER Engagement Units I State Water Board
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/engagement_unit.html
[13] The four SAFER Engagement Units are: the Northern Engagement Unit, Southern Engagement, Rural Solutions Engagement Unit, and County Engagement Unit. Currently the SAFER Section is comprised of 27 staff.

Figure 3: SAFER Engagement Unit Project Facilitation Process

6 STEPS: WHAT SAFER ENGAGEMENT UNITS DO

STEP 1: PROBLEM IDENTIFICATION

Coordinate with water systems, communities, and regulators to ensure accurate information is collected to identify water quality, quantity, and other unique challenges. The goal of this step is to fully understand the drinking water needs of the community.

STEP 2: EVALUATE ALTERNATIVES

Evaluate interim and long-term drinking water solution alternatives to identify solutions. Engage water systems, communities, and stakeholders to ensure alternatives meet the unique needs of each community or communities.

STEP 3: SCOPE THE PROJECT

Develop an appropriate project schedule and deliverables with stakeholders.

STEP 4: COMPLETE PLANNING ACTIVITIES & FINALIZE DESIGN

Guide systems and project teams to ensure all applicable project planning items are completed on project specific timelines. Ensure the engineered solution meets project goals and timelines.

STEP 5: CONSTRUCT PROJECT

Manage projects and work with stakeholders to ensure infrastructure projects are constructed in alignment with project concepts, planning activities, and engineered design.

STEP 6: DELIVER SAFE & ACCESSIBLE WATER

Work closely with communities and project stakeholders to implement projects that provide communities with safe and affordable drinking water.

Since their establishment in 2019-2020, SAFER Engagement Units have worked with 755 water systems. As summarized in Table 3, the number of systems Engagement Unit staff initiated support for was highest when the units were first formed. Since 2020, between 27 – 115 new Failing systems were added to the Failing list each year. Therefore, the number of systems receiving newly initiated Engagement Unit support has declined and will vary in the future based on trends with the Failing list. On January 1, 2024, SAFER Engagement Units were actively supporting 524 unique public water systems. Unit staff provide a wide range of support to public water systems and the communities they serve.

Table 3: Number of Public Water Systems with New Engagement Initiated per Year

	2019	2020	2021	2022	2023
Northern California	N/A	111	73	89	34
Southern California	N/A	243	139	29	37
TOTAL:	**N/A**	**354**	**212**	**118**	**71**

SAFER Engagement Units utilize funding tools and build collaboration with water systems and project stakeholders. These tools include voluntary and mandatory consolidations, the Water System Outreach Map,[14] partnership events, third-party Administrators, Point of Use/Point of Entry household treatment[15] and SAFER funding. By engaging, training, and supporting communities and stakeholders, SAFER Engagement Units lead complex projects to success—securing access to safe and affordable drinking water.

Table 4: Current Active Engagement Services Rendered (January 2024)[16]

Engagement Service	Description	# of Systems
Consolidation Assistance	Provide support to water systems navigating a consolidation project. Services may include review of consolidation agreements, assisting funding acquisition and/or technical assistance, community outreach and education, liaising with the receiving water system, and review of project scope, design, and timeline.	298
Administrator Support	Work with DFA to appoint an Administrator and support that Administrator to advance long-term solutions for the water system. This support includes but is not limited to designating public	22

[14] Water System Outreach Map
https://gispublic.waterboards.ca.gov/portal/apps/webappviewer/index.html?id=70d27423735e45d6b037b7fbaea9a6a6
[15] Point-of-Use (POU) and Point-of-Entry (POE) Treatment - Permanent Regulations
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/regulations/
[16] Some water systems many have more than one service rendered while working with Engagement Unit staff.

Engagement Service	Description	# of Systems
	water systems for administrators, holding public meetings, working with proposed administrators on their respective workplans for administrator assignments, working with DFA on funding eligibility, issuance of administrator orders, and ongoing performance review of appointed Administrators.	
Interim Solutions	Provide support to a water system to access interim or emergency assistance. This may include support in acquisition of funding and technical assistance, community outreach and education, and technical review of proposed interim solutions.	10
General Assistance	Provide expertise in navigating funding options for engineering, community engagement, funding acquisition for projects, legal assistance, water system staff training, regulatory compliance and reporting, and performing rate studies and rate setting.	73
Tracking	Some Failing and At-Risk water systems do not require assistance to identify and implement long-term solutions. Or some systems have received SAFER support and are on a path towards compliance. These systems are tracked to ensure progress is being made.	209

Small Water System Challenges

Five years of SAFER program implementation has provided the State Water Board with substantial experience and insight into the struggles facing small systems. SAFER Engagement Unit staff describe and categorize these challenges as follows:

Governance Limitations

Volunteer boards, integral to the governance of small water systems, frequently encounter limitations that impede effective operations. Many boards struggle to maintain full membership, leading to gaps in leadership and decision-making capacity. Aging staff and volunteers, without successors in sight, struggle to grasp evolving regulatory and technical demands. As a result, crucial decisions related to infrastructure upgrades, compliance issues, and emergency response can be delayed or inadequately addressed. This knowledge gap necessitates reliance on third-party expertise, adding coordination challenges and extending project timelines.

Financial Constraints
Financial constraints pose another significant hurdle for small water systems. Limited resources restrict their ability to respond to emergencies promptly or sustain day-to-day operations effectively. Inadequate water rates, billing practices, and collections exacerbate financial strains, making critical infrastructure improvements unattainable and perpetuating a cycle of deferred maintenance. This financial instability further compromises the long-term viability of these systems. Small water systems may have limited ability to hire the proper staff and technical experts to operate the water system, provide financial oversight, or design and execute construction projects. Additionally, small water systems face challenges in accessing State Water Board funding due to the complexity of funding processes, including securing financial assistance, and managing the reimbursement process.

Technical and Regulatory Competency
The lack of technical expertise from small water system staff often falls short of the increasingly complex legal, regulatory, and operational demands placed on water systems today. These challenges also complicate project implementation. Securing necessary legal agreements, navigating intricate regulatory frameworks, and addressing compliance issues require significant time and resources.

Public Communication and Transparency Gaps
Public trust and perception also play a key role in project acceptance and stakeholder engagement. Public skepticism towards water system organizations, fueled by past incidents or lack of transparency, can hinder community buy-in for necessary projects and initiatives. Small water systems routinely struggle to communicate with their customers. Public meetings can be irregular and other forms of communication, such as webpages, emails and mailers may not exist. SAFER Engagement Unit staff routinely hear about small water systems' inadequate communication with their customers.

Project Challenges
Consolidation, while recognized as a preferred strategy for enhancing system sustainability, is not without challenges. Legal complexities surrounding entity mergers, divergent interests among stakeholders, governance complexities, and infrastructure and operational hurdles can impede consolidation efforts. From the small water systems' perspective, consolidation may represent a loss of ownership, autonomy, and control. Large receiving water systems, pivotal partners in consolidation initiatives, may exhibit reluctance due to capacity constraints. They may also lack the staffing and resources needed to support a small water system consolidation project or the excess source capacity to serve the small water system. Lastly, some large water systems have expressed reluctance about being involved with the State Board's funding program. Large water systems have communicated to SAFER Engagement Unit staff the following concerns:

- The funding process can be long and complex.
- The reimbursement process may not be timely enough to pay contractors, requiring the large water system to float construction costs.
- Project components for the consolidation may not follow established local ordinances or water master plans.

- Legal requirements in the State Board's funding agreements may create an unnecessary liability and may not follow a system's normal processes for adding customers.

SAFER Engagement Unit staff work with water systems to navigate project challenges. They host regular stakeholder meetings to secure buy-in, coordinate and participate in public meetings to gain project momentum and liaise with the DFA to ensure crucial support reaches small water systems through the state Water Board's Technical Assistance program. However, the scale and complexity of these challenges underscore the ongoing need for sustained support and advocacy to safeguard community health and ensure the resilience of our water systems. Each hurdle presents a unique set of challenges that require strategic solutions and collaborative efforts to overcome. Project examples throughout the remainder of this report section illustrate the types of challenges communities encounter and how SAFER Engagement Units work with communities and their water systems to overcome them.

PROJECT EXAMPLE

Anderson Valley Regional Consolidation Project

The Anderson Valley Community Services District is a new entity that plans to construct a new public water system to serve the community of Boonville in Mendocino County. The project was awarded State Water Board funds in 2016 to complete planning for the new water system but experienced delays in completing a Water Rate Study to establish appropriate water rates and ensure the water system is financially sustainable. Much of the public outreach prior to SAFER engagement was conducted door-to-door by the District's board president and vice-president. The SAFER Northern Engagement Unit identified the need for larger scale public outreach and collaborated with the DFA to fund a technical assistance provider to complete an interest survey. The responses from the interest survey provided the necessary data for the District's contract engineering company to establish preliminary water rates for the Water Rate Study. The completed Water Rate Study is a significant step for the Community Services District as it endeavors to regionalize several small water systems.

Northern and Southern Engagement Units

The Northern and Southern Engagement Units primarily assist Failing water systems to consolidate with neighboring, higher-capacity systems. Navigating the landscape of small water system compliance and project implementation is a complex endeavor marked by numerous formidable challenges that underscore the critical need for strategic interventions and dedicated resources from the SAFER Engagement Units. Engagement Unit staff work closely with project stakeholders, such as potential receiving water systems, and coordinate with other board staff in the DFA or Office of Public Participation, to help drive consolidations to completion.

PROJECT EXAMPLE

Fuller Acres & Athal Mutual Water Company Consolidation Project

The Fuller Acres and Athal Mutual Water Companies are small Failing water systems that are struggling through the consolidation process. Both water systems exceed the maximum contaminant level for 1,2,3-trichloropropane and have not met the compliance deadline specified in their respective compliance orders. Additionally, both water systems serve severely disadvantaged communities. The most cost effective and sustainable solution for these water systems is to consolidate with the Lamont Public Utilities District, a large public water system approximately one mile away that is currently undergoing its own major upgrade project with SAFER funding.

The SAFER Southern Engagement Unit has spent many hours meeting with key stakeholders from the small water systems to share the benefits of consolidation and address concerns about relinquishing their water systems. Additionally, SAFER staff have reviewed and commented on several iterations of engineering reports that analyzed various project alternatives, which required many meetings with the SAFER funded third-party technical assistance provider and their contract engineer. SAFER staff coordinated three public meetings for these small water systems that focused on community outreach and education regarding the benefits of consolidation, and the mandatory consolidation and Administrator appointment processes. At each meeting, members of the public expressed their support for the project and their frustrations and lack of trust with their current water system boards and staff.

Work toward consolidation continues and SAFER Engagement Unit staff are actively engaged with all aspects of the project. Tasks yet to be completed include project design, finalized consolidation agreements, environmental review, funding acquisition, project bidding, and project construction.

Rural Solutions Unit

In 2022, the SAFER program established the Rural Solutions Unit (RSU) with the primary objective of assisting Failing water systems that are too removed from others to be physically consolidated. Strategies supported by the RSU for these communities include Administrator appointments, development of new or additional water sources, centralized treatment, point-of-entry (POE) treatment, point-of-use (POU) treatment, and other innovative solutions throughout the State. The RSU works with DFA, public water systems, domestic well owners, technical assistance providers, engineering firms, device manufacturers, and stakeholders to develop and implement drinking water solutions.

The RSU led the State Water Board's effort to develop a report[17] identifying and addressing the potential successes and shortcomings of POU/POE treatment equipment as interim solutions to contamination in public drinking water systems and domestic wells. Finalized and published in 2023, the report addresses equity, technical, social, regulatory, and financial aspects of POU/POE treatment, and provides recommendations and identifies areas for further study for successful implementation of POU/POE treatment. The RSU is now starting the process of implementing these recommendations.

County Engagement Unit

In 2023, the SAFER program established the County Engagement Unit (CEU)[18] to oversee county Local Primacy Agency (LPA) programs and work with counties to implement Senate Bill SB 552[19] requirements. Statewide, 27 out of 58 counties elect to operate an LPA program through which they carry out provisions of the California Safe Drinking Water Act and California Health and Safety Code. The CEU works with LPAs to ensure that the regulatory requirements delegated to them through Local Primacy Delegation Agreements are consistently met. This includes developing annual workplans, conducting annual evaluations and providing guidance, often in coordination with other branches of the DDW. The CEU also works with counties and other stakeholders to facilitate drought preparedness for domestic wells and state small water systems, as required by SB 552.

In 2023, the CEU worked closely with counties to evaluate their performance during the 2022-2023 fiscal year. The evaluations established that LPAs successfully:

- Completed 271 of 367 (74%) of their permit goals, with an additional 191 permits in progress.
- Completed 771 of 761 (101%) of their sanitary survey goal.
- Issued 666 enforcement actions.
- Returned 343 systems to compliance (Failing, At-Risk, and other public water systems have resolved violations and are now delivering safe, affordable, accessible, and reliable drinking water).
- Achieved a 96% completion rate for their required electronic Annual Report (eAR) submission.

In addition to these successes, staff identified areas for improvement for LPA programs and provided recommendations and directives for short-term changes in program implementation. Information gathered during the evaluations will guide long-term LPA program development at the State Water Board.

---

[17] 2023 State Water Board POU POE Report
https://www.waterboards.ca.gov/safer/docs/2023/2023-POU-POE-report.pdf
[18] County Engagement Unit I State Water Board
https://www.waterboards.ca.gov/drinking_water/programs/documents/ddwcountyengagementunit-map-20230717.pdf
[19] Senate Bill No. 552, section 10609.62, Chapter 245
https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=202120220SB552

For developing water shortage contingency plans as required by SB 552, the CEU also supported small community water systems and non-transient non-community schools by providing templates, best practice examples, and training.[20] These were collaboratively developed with the Department of Water Resources and the California State University, Sacramento in 2022, with feedback solicited from small water systems to ensure the resources met their needs and complied with SB 552 requirements. To date, 504 of 2,680 (19%) systems required to develop a water shortage contingency plan have done so.

TECHNICAL ASSISTANCE

Technical assistance is direct support to communities provided by third parties contracted with the State Water Board. These parties identify challenges, develop plans, build capacity and develop application materials to access water infrastructure funding. In many cases technical assistance does not eliminate the need for other capital improvements, but it should increase the technical, managerial, and financial capacity of water systems. Technical assistance is designed to assist water systems in developing the financial and managerial structures necessary to maintain a sustainable water system, including asset management plans, water rate studies, fiscal policies, drought plans, etc. A combination of updated infrastructure and proactive long-term managerial and fiscal policies can help address affordability issues and preventatively meet the needs of these water systems before expensive emergency responses are necessary.

The State Water Board prioritizes water systems serving small, disadvantaged communities (DACs) or low-income households for technical assistance support. Technical assistance providers utilize the results for the Needs Assessment as a starting point to better assess entrenched challenges and work with the water systems to better understand their needs. Technical assistance providers often support project scoping, including development of an engineering report, cost estimate, plans and specifications, and necessary environmental documentation for the most feasible long-term solution.

In addition, the State Water Board may use a regional approach to pool services to multiple systems within an area to reduce costs.[21] In all cases, DFA staff are assigned to oversee and manage the scope, cost and progress of all technical assistance work, with increased attention given to new types of services that have been approved under the SAFER program.

---

[20] Water Shortage Contingency Plan Templates:
Small Water Supplier Template (community water systems w/ 1,000 - 2,999 service connections)
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/docs/2023/templateblankwscp1000-2999connections.docx
Small Water Supplier Best Practice Example
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/docs/2023/smalltowncsdsamplewscp1000-2999connections.docx
Non-Transient, Non-Community School Template
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/docs/2023/templateblankwscpschools.docx
Non-Transient, Non-Community School Best Practice Example
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/docs/2023/sampletemplatewscpschools.docx

[21] Policy for Developing the Fund Expenditure Plan
https://www.waterboards.ca.gov/water_issues/programs/grants_loans/sustainable_water_solutions/docs/2023/final_policy_for_dev_fep_sadwf_0130.pdf

The State Water Board continues to expand investments in the technical assistance program, with a focus on small, disadvantaged communities and consolidations. Legislation enacted in 2021 added qualified technical assistance providers as a new eligible funding recipient for monies from the Safe and Affordable Drinking Water Fund.[22] The State Water Board developed a Request for Qualifications (RFQ) process to identify qualified technical assistance providers,[23] including for-profit entities. In 2022, DFA approved $64 million to be awarded to 6 new technical assistance providers (with funding encumbered in 2022 and 2023). The expanded list of qualified technical assistance providers enables new types and a greater volume of services to be available to communities and public water systems, as well as the expansion of services to other areas of the state. DFA has qualified 18 drinking water technical assistance providers in total via the RFQ process.

Table 5: Technical Assistance Providers in 2023

Technical Assistance Providers	
California Rural Water Association	Provost & Pritchard Consulting Group
California Urban Water Agencies	Pueblo Unido Community Development Corporation
Coleman Engineering	Rural Community Assistance Corporation
Community Water Center	Self-Help Enterprises
GHD, Inc.	Stantec Consulting Services, Inc.
Leadership Counsel for Justice and Accountability	University Enterprises Inc. at California State University, Sacramento
NV5, Inc.	University of California at Davis, School of Law

From 2019 through 2023, the State Water Board funded nearly $73 million in technical assistance for 673 water systems through agreements with several technical assistance providers.[24] Of this funding, approximately $42 million has been committed towards 116 projects for full planning via technical assistance (which guides systems towards a construction funding agreement). This information is summarized in Table 6.

Table 7 summarizes the amount of funding committed by funding source to support technical assistance via master funding agreements with qualified technical assistance providers. As of April 2024, the amount of funding remaining for multi-year technical assistance master agreements is approximately $136 million.

[22] Safe and Affordable Funding for Equity and Resilience
https://www.waterboards.ca.gov/water_issues/programs/grants_loans/sustainable_water_solutions/safer.html
[23] Drinking Water Technical Assistance Provider Request for Qualifications Guidelines
https://www.waterboards.ca.gov/water_issues/programs/grants_loans/docs/2022/rfq-guidelines.pdf
[24] Four water systems had a technical assistance request approved in 2022 that were ultimately cancelled, with little to no technical assistance provided.

Table 6: Number of SAFER Systems that Received Technical Assistance (2019 – 2023)[25]

SAFER Status	2019	2020	2021	2022	2023
Failing	46	38	164	111	82
At-Risk	N/A	N/A	94	58	35
Potentially At-Risk	N/A	N/A	65	39	18
Not At-Risk	125	122	231	149	41
TOTAL:	**171**	**160**	**554**	**357**	**176**

Table 7: Technical Assistance Funding Committed to Master Agreements (2019 – 2023)

Year	Drinking Water State Revolving Fund Set-Aside	Prop 1[26]	Safe and Affordable Drinking Water Fund	General Fund
2023	$0	- $163,995	$56,368,394	$16,885,948
2022	$0	- $364,057	$51,766,654	$2,176,087
2021	$0	- $481,187	$8,058,045	$0
2020	$0	- $11,693,393[27]	$67,171,151	$0
2019	$0	$250,000	$56,368,394	$0
TOTAL:	**$0**	**$12,452,631**	**$183,364,244**	**$19,062,035**

PROJECT EXAMPLE

Rio Bravo-Greeley School Water Treatment O&M Project

Approximately five miles west of Bakersfield, the Rio Bravo-Greeley School water system serves a rural campus that includes an elementary school, middle school, district office, and employee housing, serving a total of 1,190 people. The campus is dependent on a water system that, in 2015 and 2018, was cited for violating maximum contaminant levels

[25] These are the number of unique SAFER systems which received technical assistance each year. A total of 673 different water systems received technical across these years combined.
[26] For 2020 – 2023, this represents the amount of Prop 1 funding disencumbered due to either funding swap or unused funding at the end of a funding agreement. A total amount of $23,875,601 Prop 1 funds was encumbered for technical assistance between 2016 and 2019.
[27] In 2020, Prop 1 funds on five technical assistance agreements were swapped for Safe and Affordable Drinking Water Fund funding.

for nitrate and 1,2,3-TCP. The school received a $5 million grant for planning and construction of a new treatment plant in March 2018 from the Department of Water Resources and received over $731,000 in State Water Board funding for interim bottled water. The plant will be in service soon and the SAFER program is providing grant funding for three years of operation and maintenance (O&M).[28] In addition to addressing serious public health threats, the project provides the State Water Board with current data about the costs of nitrate treatment in small, disadvantaged communities.

"The Rio Bravo-Greeley Union School District is thrilled that our water treatment facility is nearly complete," said Jennifer Hedge, district superintendent. "Since 2015, we've worked to find solutions to address nitrate and then 1,2,3-TCP contaminants in our water. This journey has been long but greatly supported by the State Water Board. Our school community will soon have access to safe drinking water and no longer depend on bottled water support on campuses. With guaranteed safe water and a more efficient system in place, we can confidently move forward knowing that everyone in our school community has access to clean and safe drinking water."

WATER SYSTEM PARTNERSHIPS & CONSOLIDATIONS

Small water systems are often less resilient to natural disasters like drought and wildfire, have more difficulty adjusting to regulatory changes, and struggle to fund infrastructure maintenance and replacement. Water system partnerships and consolidations are proven strategies that have successfully benefitted many small communities.[29] Water system partnerships strengthen the collective ability of all stakeholders to ensure safe and sustainable drinking water. These partnerships can be either informal, such as resource sharing, or formal, such as contracting between water systems. Consolidation, or the combining of two or more water systems, can be either physical or managerial, and leverage economies of scale that can result in cost savings from resource sharing.

Physical consolidation is the joining of two or more water systems, which commonly includes a smaller system being subsumed into a larger water system. When a physical consolidation occurs, one water system is dissolved, and its customers are provided service by the receiving water system. If the project can be expanded to include multiple water systems in the area, the State Water Board may support a regionalization project that benefits a broader customer base. Managerial consolidation occurs when a small water system becomes part of a larger water system for all managerial purposes but continues to use its original water supply and distribution system. More organization and connectivity in the water system landscape creates a more sustainable and resilient water supply. Some hypothetical examples include:

[28] The operation and maintenance (O&M) agreement with the State Water Board is from September 1, 2023, through September 30, 2026.

[29] Water Partnerships Overview I State Water Board
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/waterpartnership.html

- **Managerial Consolidation**: “Water System A” is a mutual water system with an aging, all-volunteer staff. The staff no longer want to be responsible for the water system and there are no community members willing to take over. The water system is too far from the nearest large water system to make it cost-effective to physically consolidate, but the larger water system is willing to assume legal responsibility for the system and take over regulatory reporting, billing, operations, etc. The smaller water system dissolves and is no longer legally responsible for water service.

- **Physical consolidation**: “Water System B” is a senior mobile home park with its own water system and the owner decides it no longer wishes to be responsible for providing drinking water. The nearest city can provide water to the mobile home park through a physical pipe interconnection. By connecting with the nearest city’s water system, the mobile home park will dissolve its water system and no longer be responsible for providing water. In this case, the city’s water system is considered the "receiving" water system and the mobile home park the "subsumed" water system.

- **Regionalization**: The neighbors of “Water System C” include other mobile home parks, some neighborhoods with their own small water systems, and a K-12 school with an unreliable well. Community organizations and local elected officials work with the State Water Board to develop a regionalization project that will leverage economies of scale to create a regional sustainable drinking water solution.

SAFER program funds help small water systems pay for consolidations and may incentivize the larger water systems to assume additional responsibility where feasible. Consolidations typically require community engagement, water system governance changes, complex engineering, and multiple agreements between numerous parties. DDW’s SAFER Engagement Unit staff and engineers assist with initiating partnership discussions, outreach to other agencies and stakeholders, and facilitate possible consolidation alternatives.

PROJECT EXAMPLE

Porterville Regional Consolidation Project

Consolidating multiple smaller water systems with larger, regional water systems expands the resilience and resources of all concerned. Just outside of Porterville in Tulare County, two small, disadvantaged communities, located approximately one mile apart, were served by Failing drinking water systems for some time. Akin Water Company served 26 homes and approximately 90 people, while Central Mutual Water Company served 40 homes, a preschool, and an estimated 120 individuals. In 2017, Akin began having total coliform and *E. coli* bacteriological contamination. Concurrently, Central Mutual Water began experiencing water outages due to an aging well and a decreasing water table caused by the severe drought. Fortunately, Porterville agreed to consolidation, which enabled the State Water Board to support the advancement of a

consolidation project, leveraging the proximity and resources of the three communities. Joining the two struggling water systems with Porterville is an example of a regional consolidation that benefits all. Since 2017, Porterville has successfully consolidated seven small community water systems and the East Porterville area of private domestic wells. The city continues to collaborate with the State Water Board to pursue additional consolidation projects in the region.

"The funding, support and assistance provided by the State Water Board and the staff of the Division of Financial Assistance were critical for the success of these consolidations," said Michael L. Knight, Porterville Assistant City Manager. "We—the residents of Porterville and surrounding communities were partners with the State for the consolidation projects, leveraging the proximity and resources of the three communities to the benefit of all."

Since 2019, 142 public water systems have been consolidated, serving nearly 100,000 Californians (Table 8). One of these consolidation projects utilized the State Water Board's mandatory consolidation authority and 14 are currently in process (Table 9).[30] The State Water Board maintains an online map of completed consolidation projects.[31]

In addition, the SAFER program is actively facilitating or tracking roughly 261 ongoing water system consolidations. Approximately 51% of currently failing water systems are considering or are moving forward with full physical consolidation, including 21 schools. SAFER Engagement Unit staff actively manage consolidation projects for Failing water systems, which includes engagement with other State Water Board staff, LPA staff, the various water systems involved in the project, the communities served, and additional key partners.

Table 8: Consolidated Public Water Systems (2019 – 2023)

SAFER Status	2019	2020	2021	2022	2023	TOTAL	Total Population Served
Failing	12	5	3	5	6	**31**	6,779
At-Risk	N/A	N/A	0	2	2	**4**	1,138
Potentially At-Risk	N/A	N/A	1	6	1	**8**	4,105
Not At-Risk or Not Assessed	27	18	24	18	12	**99**	86,473
TOTAL:	**39**	**23**	**28**	**31**	**21**	**142**	**98,495**

[30] Mandatory Consolidation I State Water Board
https://www.waterboards.ca.gov/drinking_water/programs/compliance/
[31] California Water Partnership
https://gispublic.waterboards.ca.gov/portal/apps/webappviewer/index.html?id=fabf64fbe50343219a5d34765eb7daad

Table 9: Mandatory Consolidations in Process

Joining System	Receiving System	Population	County	Year Initiated
Cutler PUD	Orosi PUD	6,200	Tulare	2023
Athal MWC	Lamont PUD	150	Kern	2022
Fuller Acres MWC	Lamont PUD	545	Kern	2022
East Wilson Road WC	East Niles CSD	35	Kern	2022
Oasis Property Owners Assoc.	East Niles CSD	100	Kern	2022
San Joaquin Estates MWC	East Niles CSD	165	Kern	2022
Wilson Road WC	East Niles CSD	66	Kern	2022
Wini Mutual Water Company	East Niles CSD	29	Kern	2022
Del Oro WC – Country Estates District	East Niles CSD	297	Kern	2022
Victory MWC	East Niles CSD	849	Kern	2022
NorCal Water Works	Del Oro Water Company	45	Tehama	2021
Tooleville Mutual Non-Profit Association	City of Exeter	340	Tulare	2021
Six Acres Water Company	City of Cloverdale	66	Sonoma	2020
West Water Company	CSA 41-Fitch	40	Sonoma	2020
TOTAL:		**8,927**		

ADMINISTRATORS

A water system Administrator is a qualified specialist that provides technical, managerial, and/or financial expertise to struggling water systems. Disadvantaged communities served by a Failing water system are eligible for an Administrator funded through SAFER program. The Administrator Policy Handbook[32] provides direction regarding the appointment of Administrators by the State Water Board.

Administrators may be individual persons, businesses, non-profit organizations, local agencies like counties or nearby larger utilities, and other entities. Administrators act on behalf of a designated water system as a general manager or may be assigned limited specific duties, such as supervising an infrastructure improvement project. Administrators are often appointed for a limited term to help a water system through the consolidation process or to come into compliance.

[32] Administrator Policy Handbook
https://www.waterboards.ca.gov/safer/docs/2023/administrator-policy-handbook-2023-revision.pdf

The appointment of an Administrator is an authority given to the State Water Board to act when a water system, based on the Needs Assessment and the direct knowledge and expertise of DDW/LPA staff, is identified as in need but does not have the resources itself to secure one. The State Water Board does recognize the significant and, in some cases, the potentially disruptive effect of ordering acceptance of an Administrator and therefore uses this authority prudently; only doing so after careful consideration and seeking and incorporating significant community engagement, as stipulated in the Administrator Policy Handbook.

At present, qualified Administrators include:

- non-profit technical assistance providers (e.g., California Rural Water Association)
- counties (e.g., Sonoma and Tulare)
- for-profit water systems (e.g., Russian River Utility), and
- engineering services providers (e.g., Provost and Prichard, Stantec Consulting)

Since obtaining a list of qualified Administrators in 2020, the State Water Board has designated 16 public water systems[33] in need of an Administrator and held public meetings for the impacted communities, representing approximately 4,355 people and 1,275 service connections in seven counties.[34]

Currently, there are nine Administrator projects with appointments and funding approved by the State Water Board (Table 10). Six additional water systems have identified Administrators and await executed funding agreements and/or are working through liability concerns before the Administrator is ordered (Table 10). The Administrator process has been started for one other water system, which does not yet have an identified Administrator. Thus far, one Administrator appointment as been completed with the North Edwards Water District (Table 12).

Table 10: Administrator Projects – Currently Active (2020 – 2024[35])

System Name	Population	County	Funding Approved by State Water Board	Administrator Appointed	Year Appointed
East Orosi CSD	932	Tulare	**$585,923**	County of Tulare	2022
Six Acres Water Company	66	Sonoma	**$214,472**	Marlene Demery & Associates	2022
Keeler CSD	66	Inyo	**$1,166,197**	Provost and Pritchard	2023
Cazadero Water Company	250	Sonoma	**$512,765**	Russian River Utility	2023

[33] Ten systems were initiated in 2020, three in 2021, and three in 2022.
[34] Water System Administrators
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/administrator.html
[35] Through February 2024.

System Name	Population	County	Funding Approved by State Water Board	Administrator Appointed	Year Appointed
Teviston CSD	343	Tulare	**$872,216**	Stantec Consulting	2023
NorCal Water Works	45	Tehama	**$1,166,558**	Provost and Pritchard	2023
Sierra Vista Water Association	44	Tulare	**$1,166,558**	Provost and Pritchard	2023
South Kern Mutual Water Company	32	Kern	**$688,882**	Provost and Pritchard	2024
Old River Mutual Water Company	126	Kern	**$688,882**	Provost and Pritchard	2024
TOTAL:	**1,904**		**$7,062,453**		

Table 11: Administrator Projects - In Development

System Name	Population	County	Administrator Identified
Valley Ford Water Association	61	Sonoma	Russian River Utility
Las Deltas Mutual Water System	375	Fresno	Provost and Pritchard
West Water Company	40	Sonoma	County of Sonoma
Allensworth CSD	521	Tulare	Stantec Consulting
Lake Morena Views MWC	360	San Diego	Stantec Consulting
Athal Mutual Water Company	150	Kern	*Pending*
TOTAL:	**2,451**		

Table 12: Administrator Projects - Completed

System Name	Population	County	State Water Board Funding	Administrator Appointed	Year Appointed	Year Completed
North Edwards Water District	944	Kern	**$309,457**	California Rural Water Association	2020	2023

The State Water Board is currently working with Administrators that are likely to have multiple Administrator projects spanning multiple years. This has led to the development of Administrator master agreements to simplify the process and expedite future Administrator appointments for multiple water systems.

In 2022, the State Water Board developed Administrator master agreements with Provost & Pritchard Consulting Group and Stantec. In 2023, a third Administrator master agreement was developed with SRT Consultants. As of April 2024, the amount remaining in these multi-year Administrator master agreements is $22.9 million, which can go towards assisting approximately 10 future systems that are designated for Administrator appointment over the next three years. The State Water Board continues to accept Statements of Qualifications from potential Administrators. More information about the Administrator program is found on the State Water Board's Administrator web page.[36]

PLANNING & CONSTRUCTION FUNDING ASSISTANCE

Long-term solutions, such as drinking water infrastructure construction and consolidation, were provided to 188 water systems serving approximately 12.5 million individuals. Planning assistance (towards construction of long-term solutions) was provided to 61 water systems serving approximately 413,000 individuals.[37] Since 2019, the percentage of Failing and At-Risk systems receiving assistance from the State Water Board and the amount of funding received each fiscal year has increased year to year, with a majority of funding going towards capital projects. Table 13 summarizes the amount of funding provided for planning and construction projects from 2019 through 2023. Table 14 and Table 15 summarize which funding programs supported these projects.

Table 13: Planning and Construction Funding (2019 – 2023)

Funding Provided	# of Systems	# of Projects	Planning Funding	Construction Funding
2023	82	64	$5.8 M	$448.2 M
2022	55	48	$6.2 M	$749.0 M
2021	73	60	$8.3 M	$511.4 M
2020	55	40	$5.2 M	$209.5 M
2019	37	33	$7.0 M	$188.0 M
TOTAL:	**302**	**245**	**$32.5 M**	**$2,106.1 M**

[36] State Water Board Administrators – Information for Potential Administrators
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/future-administrator.html
[37] Additional planning resources are available via the technical assistance program.

Table 14: Planning Funding by Funding Program (2019 – 2023)

Funding Provided	Drinking Water State Revolving Fund	Drinking Water Bonds	General Fund	Safe and Affordable Drinking Water Fund
2023	$4.3 M	$0.4 M	$0.8 M	$0.3 M
2022	$2.0 M	$2.1 M	$2.1 M	$0
2021	$2.0 M	$6.2 M	$0	$0.1 M
2020	$1.2 M	$2.8 M	$0	$1.2 M
2019	$6.6 M	$0.7 M	$0	$0
TOTAL:	**$16.1 M**	**$12.2 M**	**$2.9 M**	**$1.6 M**

Table 15: Construction Funding by Funding Program (2019 – 2023)

Funding Provided	Drinking Water State Revolving Fund	Drinking Water Bonds	General Fund	Safe and Affordable Drinking Water Fund
2023	$222.0 M	$11.2 M	$192.5 M	$22.5 M
2022	$689.0 M	$13.1 M	$42.5 M	$7.2 M
2021	$394.3 M	$83.2 M	$4.8 M	$29.4 M
2020	$131.1 M	$22.5 M	$4.4 M	$45.8 M
2019	$166.1 M	$21.8 M	$0	$0
TOTAL:	**$1,602.5 M**	**$151.8 M**	**$244.2 M**	**$104.9 M**

The State Water Board continues to work on several funding process improvements that are currently being implemented. These are described further in the FY 2023-24 Safe and Affordable Drinking Water FEP, which was adopted by the Board October 3, 2023. The FEP continues to include data on racial and other demographics for projects funded by the SADWF, and staff will continue to further evaluate racial equity in the program.

INTERIM OR EMERGENCY FUNDING ASSISTANCE

Interim water solutions target Failing or At-Risk public water systems. Interim solutions continued to be prioritized for community water systems, state small water systems, and domestic wells, serving small DACs or low-income households, with contaminants above primary MCLs or response levels. Interim solutions include POU/POE systems, hauled water, bottled water, vending machines/filling stations, or temporary connections to safe water sources.

Interim solutions are also available to support state small water systems and domestic wells via the development of regional bottled water, well testing, and/or POU/POE programs with

counties (or other local partners) with the highest numbers of state small water systems and/or domestic wells either in high-risk aquifers or high-risk of water shortage. These programs can include interim measures to address both drought and contamination, as well as longer-term solutions such as consolidations, public water system connections, or well repair/replacement.

Funding may be provided for these types of solutions by either system-specific agreements or regional (including county-wide) programs with third parties that can administer funding to eligible systems or households served by state small water systems or domestic wells. Table 16 summarizes system-specific interim solution and emergency funding for the last three fiscal years by funding program and lists the estimated number of people that benefited from this assistance. Table 17 summarizes active regional and county-wide programs.

Table 16: System-specific Interim Solutions & Emergency Funding by Funding Program (2020 – 2023)

Fiscal Year	SAFER Program Funding	No. of People Benefiting	No. of Systems Assisted
2019-20	$1.27 M	5,348	9
2020-21	$707,218	358	5
2021-22	$1.64 M	19,964	21
2022-23	$5 M	24,614	19
TOTAL:	**$8,696419**	**50,284**	**54**

Table 17: Regional Programs for Interim Solutions & Emergency Funding Approved (2019 – 2023)

Recipient and Program	County or Region Covered	Funding Approved by State Water Board	Funding Remaining[40]	Active Enrollees[38]
Self-Help Enterprises (SHE) Bottled Water	San Joaquin Valley[39]	$6,892,264	$3,218,748	3,600
SHE Point of Use/Point of Entry	San Joaquin Valley	$14,698,375	$12,748,218	245
SHE Tanks and Hauled Water	San Joaquin Valley	$86,376,502	$11,569,804	1,490

[38] Information presented on amount of funding remaining and active enrollees for the programs is as of April 2024. These programs include enrollees served by private wells, state smalls and eligible public water systems. Total enrollment over the life of the programs is higher.
[39] SHE's service area includes nine counties: Fresno, Kern, Kings, Madera, Mariposa, Merced, San Joaquin, Stanislaus, and Tulare.

Recipient and Program	County or Region Covered	Funding Approved by State Water Board	Funding Remaining[40]	Active Enrollees[38]
SHE Regional Private Domestic Water Well Abandonment, Repair, Replacement & Connection Program	San Joaquin Valley	$ 50,153,253	$36,579,415	256
Rural Community Assistance Corporation (SB108 Drinking Water Well Replacement Program)	Statewide except in SHE Service Area	$7,050,002	$172,680	108
SHE Emergency Funding	San Joaquin Valley	$5,500,000	$3,385,028	35[40]
Community Water Center Bottled Water	Regional[41]	$3,976,612	$3,147,311	348
Pueblo Unido Community Development Corporation – Interim Drinking Water Program	Riverside County	$2,265,437	$1,773,525	320
Santa Cruz County Regional Program	Santa Cruz County	$601,000	$601,000	0
Shasta County Drinking Water Drought Assistance Program	Shasta County	$2,474,998	$955,083	113
Imperial County Regional Point of Entry Installation and Urgent Drinking Water Needs Program	Imperial County	$3,184,725	$3,184,725	0

[40] Active enrollees represent services provided to 35 eligible state small water systems and public water systems within SHE's service area, representing 16,102 households.
[41] Santa Cruz, San Benito, San Luis Obispo, Santa Barbara, and portions of Santa Clara, Monterey, and Ventura Counties.

Recipient and Program	County or Region Covered	Funding Approved by State Water Board	Funding Remaining[40]	Active Enrollees[38]
Valley Water Collaborative	Modesto and Turlock Groundwater Basins	$5,540,725	$4,796,316	391
Tule Basin Water Foundation	Tule Groundwater Basin	$4,528,882	$4,528,882	0
Drinking Water for Schools Program[42]	Statewide	$6,435,000	$983,139	100
Bottled Water for Schools	Statewide	$4,547,038	$3,020,470	66[43]

SAFER PROGRAM PUBLIC ENGAGEMENT

Public outreach and community engagement activities for the SAFER program are intended to increase early community involvement; keep local drinking water projects on track; identify potential risks, issues, or delays; build local capacity and create a path towards equitable and resilient water governance.

STAKEHOLDER ENGAGEMENT

The State Water Board has a robust Public Outreach and Engagement Strategy[44] to ensure SAFER program staff provide the public with multiple and diverse opportunities to participate. Since 2017, the State Water Board has hosted 146 public meetings and workshops, with approximately 7,676 participants (Table 17). The following summarizes the different types of stakeholder engagement activities implemented by the SAFER program.

Community Meetings & Workshops: Local community meetings and workshops were convened to discuss challenges and solutions. These discussions addressed administrator needs, consolidation projects, regionalization projects, operational needs, etc.

SAFER Advisory Group Convenings: The SAFER Advisory Group[45] provides the State Water Board with feedback and constructive advice on the Safe and Affordable Drinking Water Fund, the Fund Expenditure Plan, and other related policies and analyses. The SAFER

[42] Includes 2 separate funding agreements – one implemented by RCAC statewide, and another implemented by SHE within their existing service area.
[43] This number represents 66 schools actively enrolled in the BWFS program.
[44] SAFER Program Outreach and Engagement Strategy
https://www.waterboards.ca.gov/safer/docs/SAFER-Outreach-Engagement-Strategy-ADA.pdf
[45] SAFER Advisory Group
https://www.waterboards.ca.gov/safer/advisory_group.html

Advisory Group is composed of 20 appointed members that represent public water systems, technical assistance providers, local agencies, nongovernmental organizations, the public and residents served by community water systems in disadvantaged communities, state small water systems, and domestic wells. The SAFER Advisory Group meets up to four times a year either virtually and/or at locations throughout California to provide many opportunities for public and community input. All meetings are widely publicized, open to the public, and offer translation services.[46]

Needs Assessment Workshops: The State Water Board provides stakeholders with opportunities to support the development and refinement of the methodologies employed in the Needs Assessment. Since 2019, the State Water Board has hosted 28 public workshops associated with the Needs Assessment. These workshops are typically hosted virtually to maximize public participation.

Table 17: SAFER Program Public Engagement (2019-2023)

Year	# of Meetings	# of Participants[47]	# of Meetings with Interpretation Services[48]
2023	26[49]	1,566	11
2022	32[50]	1,484	10
2021	48	1,572	27
2020	38	3,054	N/A
2019	2[51]	N/A	N/A
TOTAL:	**146**	**7,676**	**48**

TRIBAL WATER SYSTEM ENGAGEMENT

The State Water Board recognizes the sovereignty of California Native American tribes and understands that tribes face unique challenges in providing clean, safe, and affordable drinking water to their communities. The State Water Board also recognizes that solutions rarely happen in a vacuum. They require intentional relationship building and collaboration with key state and federal partners who have established relationships with California Native American Tribes.

Initial program efforts focused on: 1) building relationships and collaboration with those state and federal partners, and 2) providing outreach and education about the SAFER program to tribes, tribal governments, and tribal communities.

[46] SAFER Advisory Group
https://www.waterboards.ca.gov/safer/advisory_group.html
[47] Count includes unique participants or registrants per event. If an attendee participated in multiple meetings, their participation is included for each event.
[48] The State Water Board provided interpretation services upon request. Information regarding interpretation services provided for meetings prior to 2021 is not available.
[49] 5 meetings were held virtually and 9 in-person.
[50] 29 meetings were held virtually and 3 in-person.
[51] This count represents two Needs Assessment related workshops hosted in 2019. It likely under-reports the number of SAFER program related meetings in 2019 because, at that time, this information was not tracked.

Over the last five years, collaboration with state and federal partners has proven its worth in both identifying tribal water systems in need and finding unique and collaborative ways to meet those needs. Agency partners meet on a regular basis to strategize solutions for tribal partners. Through this collaboration, staff have identified how the SAFER program's unique funding tools can be used to fill funding gaps that impede progress.

SAFER program staff actively seek to engage tribal communities through regular presentations and information sharing at various tribal-focused events. These events include tribal conferences and summits, the Assembly Committee on Native American Affairs, tribal board presentations, and community events. Meeting with tribal leadership at these in-person venues has proven invaluable in building confidence and advancing the SAFER program goal of providing safe and affordable drinking water to all Californians. In addition, the State Water Board hosted three tribal drinking water workshops, with a total of 174 participants. These workshops were focused on sharing tribal-specific opportunities available through the SAFER program and obtaining feedback from tribes about the best ways to engage with them.

In January 2023, Assembly Bill 2877 (AB 2877)[52] was passed to further address barriers to funding tribal water solutions. As a result of AB 2877, internal and external collaboration increased, resulting in an improved understanding of tribal drinking water needs and advancement of tribal drinking water projects.

The State Water Board is currently involved in over 25 drinking water projects impacting tribes and tribal communities, including technical assistance, planning, construction, emergency services, and operations and maintenance projects.

PROJECT EXAMPLE

Utu Utu Gwaitu Paiute Tribe Safe Drinking Water Project

In August 2023, the State Water Board committed more than $152,000 to the Utu Utu Gwaitu Paiute Tribe at the Benton Paiute Reservation, in Mono County. The funding will support operational needs and an interim solution to elevated levels of arsenic in the tribe's wells. The assistance, made possible by the State Water Board's SAFER program, will secure the tribe's access to safe and affordable drinking water while the long-term solution of new wells and a treatment facility are being developed by Indian Health Service. As part of its agreement with the tribe, the State Water Board will pay half the salary of a water system operator with expertise in managing point-of-use system treatment systems over a period of four years, while a long-term, sustainable solution is implemented. State Water Board funding will also cover the costs of installing point-of-use system treatment systems, conducting routine water quality testing, and filter replacement.

[52] Assembly Bill 2877
https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202120220AB2877

"The Utu Utu Gwaitu Paiute Tribe is truly happy to receive the SAFER funding," said Tribal Chairman Shane Saulque. "It has brought great relief to our community to know that the maintenance of the point of use systems is being funded and that a long-term drinking water solution is coming. This is a huge support for our day-to-day life."

NEW PROGRAMS & TOOLS

The State Water Board implements and enforces legislative and regulatory requirements to ensure the Human Right to Water is achieved. In 2023, there were no new regulatory developments that were *directly* related to the SAFER program or the broader Capacity Development Strategy. There were also no modifications to the state's control points for assessing capacity for new public water systems. In 2023, new legislation and a State Water Board resolution was passed and is summarized below. The Appendix *New Legislation Related to the SAFER Program and Capacity Development Strategy*[53] includes a full summary of relevant legislation and Board resolutions directly and indirectly related to the SAFER Program and the State Water Board's broader Drinking Water Capacity Strategy.

NEW LEGISLATION (2023)

Below is a list of new legislation in 2023. See Appendix: New Legislation Related to the SAFER Program and Capacity Development Strategy[54] for more information.

- Assembly Bill 755[55] – Water: public entity: cost-of-service analysis.
- Assembly Bill 1572[56] – Potable water: nonfunctional turf.
- Assembly Bill 541[57] – California Safe Drinking Water Act: wildfire aftermath: benzene testing.
- Assembly Bill 664[58] – California Safe Drinking Water Act: domestic wells.
- Assembly Bill 1627[59] – California Safe Drinking Water Act.

[53] Appendix: New Legislation Related to the SAFER Program and Capacity Development Strategy https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024-legislation-safer-capdev.pdf
[54] Appendix: New Legislation Related to the SAFER Program and Capacity Development Strategy https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024-legislation-safer-capdev.pdf
[55] Bill Text - AB-755 Water: public entity: water usage demand analysis. (ca.gov) https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202320240AB755
[56] Bill Text - AB-1572 Potable water: nonfunctional turf. (ca.gov) https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202320240AB1572
[57] Bill Text - AB-541 California Safe Drinking Water Act: wildfire aftermath: benzene testing. https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202320240AB541
[58] Bill Text - AB-664 California Safe Drinking Water Act. https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202320240AB664
[59] Bill Text - AB-1627 California Safe Drinking Water Act. https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202320240AB1627

- Senate Bill 3[60] – Discontinuation of residential water service: community water system.
- Assembly Bill 682[61] – State Water Resources Control Board: online search tool: funding applications.

NEW STATE WATER BOARD RESOLUTIONS (2023)

- On March 8th, 2023, the State Water Board adopted Resolution No. 2023-0005[62] to make minor changes to the administrator policy handbook in order to award funds to an administrator on behalf of a designated water system under the SAFER program. The final version of this new policy was adopted in Resolution No. 2023-0006.
- On March 8th, 2023, the State Water Board adopted Resolution No. 2023-0006[63] to accept the guidelines for the expedited drinking water grant funding program (EDWG). EDWG funding program will be available to a subset of the projects that are currently funded consistent with Drinking Water State Revolving Fund (DWSRF) processes, and will utilize a variety of state funding sources for drinking water infrastructure projects.
- On May 26th, 2023, the State Water Board adopted Resolution No. 2023-0014[64] to approve an emergency regulation to reduce water demand and improve water conservation.
- On September 6th, 2023, the State Water Board adopted Resolution No. 2023-0026[65] to accept proposed changes to the administrator policy handbook under the SAFER program.

NEW TOOLS AND DATA

The State Water Board has made great progress in improving data collection, data quality, and access to data analysis. Below is a highlight of new and ongoing activities that support the SAFER Program.

Clearinghouse Reporting

On January 1, 2024, the DDW issued a revised Technical Reporting Order[66] to all public water systems requiring reporting of water shortage, source conditions, and supply and demand information. The SAFER Clearinghouse is the reporting platform used to submit this data.[67]

---

[60] Bill Text - SB-3 Discontinuation of residential water service: covered water system. (ca.gov)
https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202320240SB3
[61] Bill Text - AB-682 State Water Resources Control Board: online search tool: funding applications.
https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202320240AB682
[62] Resolution 2023-0005 (ca.gov)
https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2023/rs2023-0005.pdf
[63] Resolution 2023-0006 (ca.gov)
https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2023/rs2023-0006.pdf
[64] Resolution 2023-0014 (ca.gov)
https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2023/rs2023-0014.pdf
[65] Resolution No. 2023-0026 (ca.gov)
https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2023/rs2023-0026.pdf
[66] 2024 DDW Technical Reporting Order
https://www.waterboards.ca.gov/drought/resources-for-drinking-water-systems/docs/ddw-technical-order.pdf
[67] Drought & Conservation Reporting Webpage
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/clearinghouse_drought_conservation_reporting.html

The intent of reporting in the SAFER Clearinghouse is to satisfy multiple reporting requirements utilizing one reporting portal. These platforms include: Monthly Conservation Reporting for Urban Retail Water Suppliers, Drought Resiliency (Senate Bill 552) for Small Communities and non-transient non-community School, and supply and demand reporting for all public water systems previously submitted to the electronic Annual Report.

Drought & Conservation Technical Reporting

Three consecutive years of drought led to decreased water in lakes, streams, and domestic wells, affecting people who rely on these resources to maintain their standard of living. Governor Newsom declared a drought state of emergency in October 2021, and the DDW has maintained a Drought Watch List to identify drinking water systems likely to experience drought impacts.

On July 21, 2022, the DDW issued a Drought Technical Order[68] to more than 200 water systems to help track and prepare for potential water shortages. This Order was replaced with the Drought and Conservation Technical Reporting Order[69] on January 1, 2023, which expanded required drought and conservation data reporting to all community water systems and non-transient non-community schools.[70] The newly launched SAFER Clearinghouse is the reporting platform used to submit this data.

In 2023, 3,042 water systems had accounts with the Drought and Conversation Technical Reporting System. Over 30,000 reports were submitted, more than 90 percent of which came from community water systems.1,007 water systems had past due reports.

System Area Boundary Layer (SABL)

The State Water Board maintains a geospatial dataset of water service area boundaries for California public water systems, known as System Area Boundary Layer (SABL).[71] To provide an accurate dataset of public water system service area boundaries, the State Water Board has undertaken a project to review, add, and correct public water system boundaries that were collected under previous efforts.[72] This project is anticipated to be completed in 2024.

In 2023, the State Water Board added 95 new public water system boundaries, for a total of 4,780. Furthermore, 378 existing boundaries were verified (versus pending or not verified).

---

[68] 2022 Drought Technical Order
https://www.waterboards.ca.gov/drought/resources-for-drinking-water-systems/docs/20220721-drought-technical-order-ddw-hq-22d-001-ada-signed.pdf

[69] 2023 Drought and Conservation Technical Reporting Order
https://www.waterboards.ca.gov/drought/resources-for-drinking-water-systems/docs/2023-drought-technical-order-ddw-hq-drought2023-001.pdf

[70] Drought & Conservation Reporting Webpage
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/clearinghouse_drought_conservation_reporting.html

[71] California Drinking Water System Boundaries
https://gispublic.waterboards.ca.gov/portal/home/item.html?id=fbba842bf134497c9d611ad506ec48cc

[72] System Area Boundary Layer (SABL) Look-up Tool
https://gispublic.waterboards.ca.gov/portal/apps/webappviewer/index.html?id=272351aa7db14435989647a86e6d3ad8

SABL is an essential dataset utilized in the Needs Assessment to calculate risk indicator datapoints for water systems such as: median household income, location in critically over drafted groundwater basin, etc. SABL is also used to determine potential consolidation or intertie projects. Accurate system boundaries improve the findings of the Needs Assessment.

State Small Water Systems & Domestic Well Inventory & Water Quality Data

SB 200 (Health and Safety Code § 116772) requires county health officers and other relevant local agencies to electronically submit state small water system and domestic well inventories and water quality testing results (performed by accredited laboratories) to the State Water Board. The collection and submittal of water quality testing and associated data for state small water systems and domestic wells has, historically, been performed at the county level with little to no oversight or support from the State Water Board. In 2021, the State Water Board developed and shared with counties, a guidance document on how to comply with SB 200 reporting requirements.[73]

Appendix: County State Small Water System & Domestic Well Data Reporting[74] summarizes the data received from counties since 2021 for state small water systems and domestic wells.

[73] State Small Water System and Domestic Well Water Quality Data Submission Guidance for Counties https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/docs/ssws_dw_data_submittal_guidance.pdf
[74] Appendix: County State Small Water System & Domestic Well Data Reporting https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024county-ssws-dw-rpt.pdf

ABOUT THE NEEDS ASSESSMENT

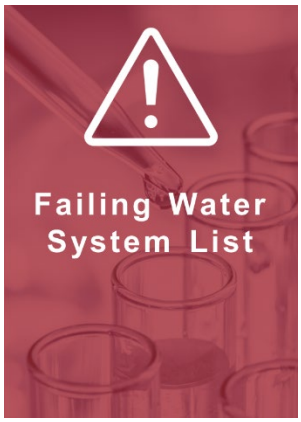
In 2016, the State Water Board adopted a resolution making the Human Right to Water (HR2W), as defined in Assembly Bill 685, a primary consideration and priority across all state and regional board programs.[75] The HR2W recognizes that "every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking and sanitary purposes."

In 2019, to advance the goals of the HR2W, California passed Senate Bill 200 (SB 200) which enabled the State Water Board to establish the Safe and Affordable Funding for Equity and Resilience (SAFER) program. SB 200 established a set of tools, funding sources, and regulatory authorities the State Water Board can harness through the SAFER program to help struggling water systems sustainably and affordably provide safe drinking water to their customers. Among the tools created under SB 200 is the Safe and Affordable Drinking Water Fund (SADWF). The Fund provides up to $130 million per year through 2030 to enable the State Water Board to develop and implement sustainable solutions for underperforming drinking water systems.

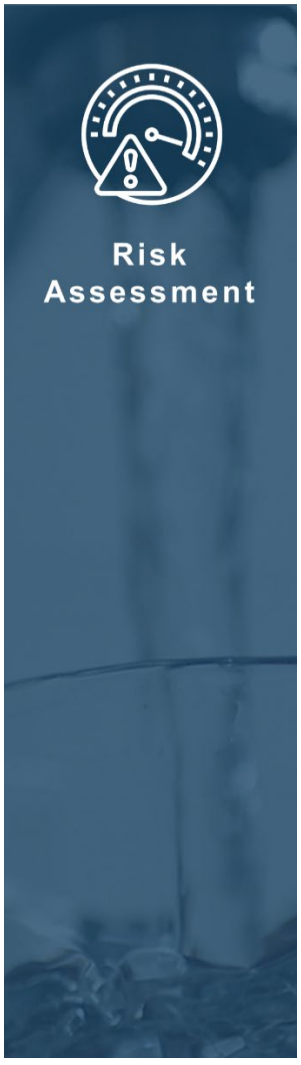
The SAFER program harnesses the SADWF together with other State Water Board financial assistance programs to advance the implementation of interim and long-term solutions for communities across the state. The State Water Board prioritizes SAFER program funding annually through the SADWF's Fund Expenditure Plan (FEP). The annual FEP should be informed by "data and analysis drawn from the drinking water Needs Assessment**,**" as required by California Health and Safety Code section 116769.

The State Water Board's Drinking Water Needs Assessment (Needs Assessment) consists of four core components: the Failing Water System List (Failing list), Risk Assessment, Cost Assessment, and Affordability Assessment.

[75] State Water Board Resolution No. 2016-0010
https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2016/rs2016_0010.pdf



Since 2017, the State Water Board has assessed water systems that fail to meet the goals of the HR2W and maintains a list and map of these systems on its website.[76] Systems that are on the Failing list are those that are out of compliance or consistently fail to meet primary drinking water standards. Systems that are assessed for meeting the Failing list criteria include Community Water Systems and non-transient non-community water systems that serve schools and daycares.[77] The Failing list criteria was expanded in April 2021 & 2024 and may be refined over time.



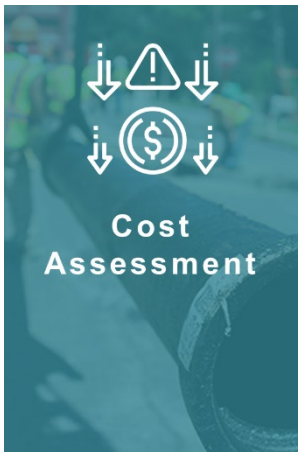
SB 200 directs the State Water Board to identify "public water systems, community water systems, and state small water systems that may be at risk of failing to provide an adequate supply of safe drinking water" and "an estimate of the number of households that are served by domestic wells or state small water systems in high-risk areas."[78] Therefore, the annual Needs Assessment report contains a Risk Assessment that uses different methodologies to analyze risk across these types of systems, as follows:

Public Water Systems
The Risk Assessment methodology utilizes indicators to identify K-12 schools and community water systems--serving up to 30,000 service connections with no more than 100,000 population served—that are at risk of failing. These indicators assess risk in the following categories: water quality, accessibility, affordability, and TMF (technical, managerial, and financial) capacity.

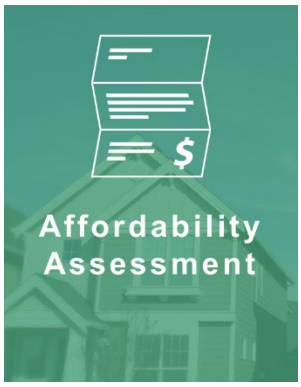
State Small Water Systems & Domestic Wells
The Risk Assessment methodology for state small water systems and domestic wells utilizes indicators to assess risk in the following categories: water quality, water shortage, and socioeconomic risk.

Tribal Water Systems
The State Water Board is partnering with Indian Health Services, U.S. Environmental Protection Agency, and tribal communities to understand the best way to integrate tribal drinking water needs into the Needs Assessment.

[77] California Health and Safety Code section 116275(c)
[78] California Health and Safety Code section 116769



SB 200 directs the State Water Board to "estimate the funding needed for the next fiscal year based on the amount available in the fund, anticipated funding needs, other existing funding sources."[79] Thus, the Cost Assessment estimates the costs related to the implementation of interim and/or emergency measures and longer-term solutions for Failing and At-Risk public water systems and high-risk state small water systems and domestic wells. The Cost Assessment also includes the identification of available funding sources and the funding and financing gaps that may exist to support interim and long-term solutions.



SB 200 calls for the identification of "any community water system that serves a disadvantaged community that must charge fees that exceed the affordability threshold established by the board in order to supply, treat, and distribute potable water that complies with federal and state drinking water standards."[80] The Affordability Assessment evaluates several different affordability indicators to identify communities that may be experiencing affordability challenges.

DEVELOPMENT AND ENHANCEMENT PROCESS

The State Water Board's Needs Analysis Unit in the Division of Drinking Water (DDW) leads the development of the annual Needs Assessment in coordination with the Division of Water Quality (DWQ), Division of Financial Assistance (DFA), and Division of Information Technology (DIT).

The State Water Board developed the foundational methodologies utilized in the Needs Assessment in 2019 and 2020 through multiple public workshops and a one-time contract with the University of California, Los Angeles Luskin Center for Innovation (UCLA) (agreement term: 09.01.2019 through 03.31.2021).[81] The State Water Board has also partnered with the

[79] California Health and Safety Code section 116769.
[80] California Health and Safety Code section 116769 (2) (B).
[81] Before SB 200 was passed in 2019, the Legislature appropriated $3 million in 2018 via Senate Bill 862 (Budget Act of 2018) to implement a "Needs Analysis" on the state of drinking water in California. The State Water Board contracted with UCLA to support the initial development of Needs Assessment methodologies for the Risk Assessment and Cost Assessment from September 1, 2019, to March 31, 2021. UCLA in turn collaborated with subcontractors Corona Environmental Consulting (Corona), the Sacramento State University Office of Water Programs (OWP), the Pacific Institute, and the University of North Carolina Environmental Finance Center (UNC EFC) to produce a portion of the work contained in the 2021 Needs Assessment and previous white papers.

Department of Water Resources (DWR) and the Office of Environmental Health Hazard Assessment (OEHHA) to further enhance the Needs Assessment.

The State Water Board is committed to engaging the public and key stakeholder groups to solicit feedback and recommendations to inform the development of the Needs Assessment methodologies. Since 2019, 28 workshops (some covering multiple component topics) have been hosted to inform the core methodologies (Figure 4). White papers, presentations, public comments and webinar recordings can be found on the State Water Board's Needs Assessment webpage.[82] The State Water Board will continue to host public workshops to provide opportunities for stakeholders to learn about and contribute to its efforts to enhance and develop a more robust Needs Assessment.

Figure 4: Number of Public Workshops on Needs Assessment Methodologies

NEEDS ASSESSMENT COMPONENTS	2019	2020	2021	2022	2023
Failing List		1	1	1	2
Risk Assessment: Public Water Systems	1	3	1	2	3
Risk Assessment: State Small Water Systems & Domestic Wells	1	4	2	2	3
Cost Assessment	3	2	2	3	5
Affordability Assessment		2	1	5	3

HOW THE NEEDS ASSESSMENT IS UTILIZED BY THE STATE WATER BOARD

The State Water Board conducts the Needs Assessment annually to inform the annual SAFER Fund Expenditure Plan, support implementation of the SAFER program and advance its water system Technical, Managerial, Financial (TMF) Capacity Development Strategy.

SAFER PROGRAM

The results of the Needs Assessment are used by the State Water Board and the SAFER Advisory Group[83] to inform prioritization of public water systems, tribal water systems, state small water systems and domestic wells for funding in the Safe and Affordable Drinking Water

[82] Drinking Water Needs Assessment I State Water Board
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/needs.html
[83] SAFER Advisory Group
https://www.waterboards.ca.gov/safer/advisory_group.html

Fund Expenditure Plan; guide State Water Board technical assistance; and develop strategies for implementing interim and long-term solutions (Figure 5).

Figure 5: How the Needs Assessment is Utilized by the SAFER Program

The SAFER program's goal is to ensure that all Californians can access safe drinking water in their homes. Meeting this goal requires solving many difficult, multi-faceted problems and addressing aspects of long-term disparities, especially in disadvantaged communities.

PUBLIC WATER SYSTEM CAPACITY DEVELOPMENT STRATEGY

The Capacity Development program was established as a key component of the 1996 Federal Safe Drinking Water Act (SDWA) Amendments. The Amendments were passed by Congress in part because of the significant problems small public water systems were having providing safe and reliable drinking water to their customers. The SDWA emphasizes prevention and assistance, both financial and technical, to resolve these problems. The Amendments have provided incentives (including funding) for each state to develop a Capacity Development program to assist public water systems in building technical, managerial, and financial capacity.[84] The Capacity Development program provides a framework for states and water systems to work together to protect public health.

The SDWA allows states the flexibility to develop strategies to meet their individual needs. California's initial Capacity Development Strategy was adopted in 2000,[85] and in 2022 the State Water Board engaged with stakeholders through two public workshops to update the Strategy to better align with the SAFER program and new federal requirements.[86] Stakeholders helped identify barriers to capacity development and shaped the Strategy's eight core Elements (Table 18). No changes to the Strategy have been made since 2022.

Many Elements from the previous Strategy have been revised to incorporate the activities implemented through the SAFER program. The Needs Assessment is a core component of Element 2, "Identification & Prioritization of Existing Systems in Need of Improved TMF Capacity" and Element 8, "Measuring TMF Capacity Building Success." The results of the

[84] State Water Board Capacity Development Webpage
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/TMF.html
[85] 2000 Capacity Development Strategy
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/cd_strategy.pdf
[86] California Capacity Development Strategy for Public Water Systems (2022)
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/docs/2022/2022-capdev-strategy-v2.pdf

Needs Assessment help ensure the State Water Board and the public have the information needed to advance capacity development activities for Failing and At-Risk water systems. The Retrospective section of the Needs Assessment provides an annual update on State Water Board activities and progress in implementing the State Water Board's Capacity Development Strategy Elements.

Table 18: Capacity Development Strategy Elements

Number	Capacity Development Strategic Elements
Element 1	Ensuring NEW Public Water Systems have TMF Capacity

Element 2	Identification & Prioritization of Existing Systems in Need of Improved TMF Capacity
	• Needs Assessment
	  ○ Failing Water Systems
	  ○ Risk Assessment
	  ○ Cost Assessment
	  ○ Affordability Assessment

Element 3	Supporting Direct Capacity Building • Water System Partnerships & Consolidation • Administrators • Engagement Units • Operator Certification • Sanitary Surveys
Element 4	Supporting Capacity Building Work of Third-Party Organizations • Technical Assistance
Element 5	Ensuring TMF Capacity of State Funding & Financing Recipients
Element 6	Promoting Asset Management
Element 7	Building Capacity Through Complete and Accurate Data Gathering and Reporting
Element 8	Measuring TMF Capacity Building Success

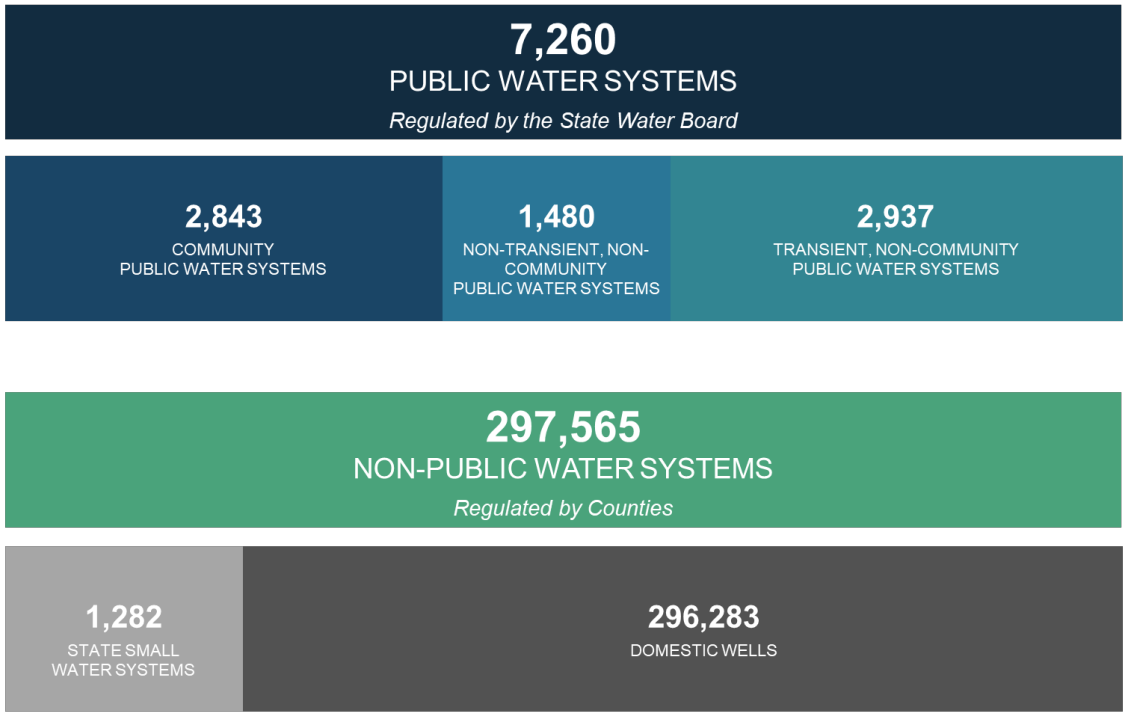
SYSTEMS ANALYZED

CALIFORNIA WATER SYSTEM CLASSIFICATIONS

California has more than 7,000 active water systems, 1,282 state small water systems, and approximately 300,000 known domestic wells (estimates for domestic wells are much higher, but data for locations and activity status are missing). The State Water Board classifies water systems into different water systems "types" or "classifications," which often correspond to different regulatory requirements.

The State Water Board and Local Primacy Agencies are responsible for regulating public water systems. State small water systems and domestic wells are permitted and regulated by counties. Data on state small water systems and domestic wells is limited. Appendix: County State Small Water System & Domestic Well Data Reporting[87] summarizes the data received from counties since 2021 for these systems.

Figure 6: California Water System Classifications[88]



In 2023, 29 new public water systems were created, 14 were deactivated, and 22 went from public to non-public. Over the past three years, no newly permitted public water systems have been on U.S. EPA's Significant Non-Compliers list. [89]

[87] Appendix: County State Small Water System & Domestic Well Data Reporting https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024county-ssws-dw-rpt.pdf

[88] The counts of public water systems reflect the current active inventory of public water systems on 03.14.2024. The number of state small water systems included represents systems with known locations included in the Needs Assessment. The count of domestic wells is based on the number of domestic well records identified using the Department of Water Resources Online System for Well Completion Reports (OSWCR). The actual count and location of active domestic wells is currently unknown.

[89] New Public Water Systems (2021 – 2023) https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024-new-public-water-systems-3-Years.xlsx

Notably, 85% of community water systems are considered “small,” serving less than 3,000 service connections (Figure 7). However, these small water systems serve approximately 8% of the population (Figure 8).

Figure 7: Number of Community Water Systems by Service Connections

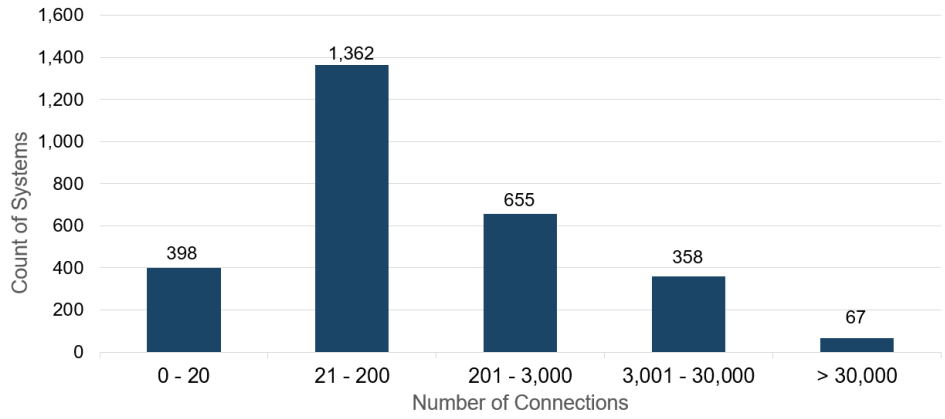
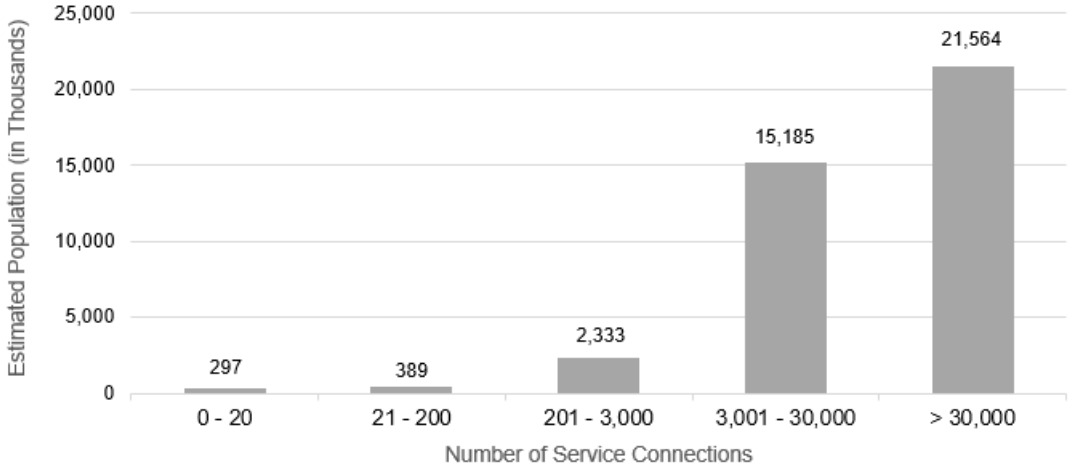


Figure 8: Total Estimated Population (in Thousands) Served by Water Systems of Different Sizes (by Service Connections)



SYSTEMS INCLUDED IN THE NEEDS ASSESSMENT

The 2024 Needs Assessment’s components analyze different inventories of water system types. Table 19 summarizes the water system types included in each component.

Table 19: Systems Included in the 2023 Needs Assessment Components

Needs Assessment Component	Water Systems Included	# Systems
	• All community water systems.	2,843

Needs Assessment Component	Water Systems Included	# Systems
Failing List and Affordability Assessment	• Non-transient non-community K-12 schools.	338
Risk Assessment for Public Water Systems	• Community water systems up to 30,000 service connections and up to 100,000 population served. • Wholesalers are excluded.	2,717
	• Non-transient Non-community K-12 schools.	338
Risk Assessment for State Small Water Systems and Domestic Wells	• All state small water systems where location data is available.	1,282
	• All domestic wells with "domestic" well completion reports in the Department of Water Resources Online System for Well Completion Reports.	296,283

FAILING PUBLIC WATER SYSTEMS

OVERVIEW

On September 25, 2012, Governor Edmund G. Brown Jr. signed Assembly Bill (AB) 685, making California the first state in the nation to legislatively recognize the human right to water (HR2W). Now in the Water Code as Section 106.3, the state statutorily recognizes that "every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes." The HR2W extends to all Californians, regardless of socioeconomic status or whether they live in rural or urban communities.

On February 16, 2016, the State Water Board adopted a resolution identifying the HR2W as a top priority and core value of the Board. The resolution stated the State Water Board will work "to preserve, enhance, and restore the quality of California's water resources and drinking water for the protection of the environment, public health, and all beneficial uses, and to ensure proper water resource allocation and efficient use, for the benefit of present and future generations."

FAILING CRITERIA

The State Water Board assesses public water systems that fail to meet the goals of the Human Right to Water and maintains a list and map of these systems on its website.[90] The Failing list is updated and refreshed daily as violations and enforcement actions are issued, updated, or resolved. Systems that are on the Failing list are those that are out of compliance with or consistently fail to meet drinking water standards.

The original Failing criteria developed in 2017 only identified water systems with water-quality based violations and active/open enforcement actions. The Failing list criteria were expanded in April 2021 to better align with statutory definitions of what it means for a water system to "consistently fail" to meet primary drinking water standards.[91] At that time, *E. coli* violations,

[90] SAFER Dashboard
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/saferdashboard.html
[91] California Health and Safety Code section 116275(c)

treatment technique violations, and multiple monitoring and reporting violations were also added.

In April 2024, taking into account lessons learned from the 2021-2022 drought, the State Water Board expanded the Failing criteria again to better capture water systems that are unable to consistently provide safe drinking water to their customers due to water shortage. In particular, the State Water Board added source capacity and water outage violations to the Failing criteria. By including systems experiencing water shortages on the Failing list, the State Water Board ensures that these systems are duly prioritized for funding and support.

Table 20 summarizes how Failing criteria has changed over time. Additional details regarding the history of the Failing list and criteria methodology can be found on the State Water Board's Failing water system webpage.[92]

Table 20: Expanded Criteria for Failing Water Systems

Criteria	Jan. 2017 – April 2021	April 2021 – April 2024	After April 2024
Primary MCL Violation with an open Enforcement Action	Yes	Yes	Yes
Secondary MCL Violation with an open Enforcement Action	Yes	Yes	Yes
***E. coli* Violation with an open Enforcement Action**	No	Yes	Yes
Treatment Technique Violations: • One or more Treatment Technique violations (in lieu of an MCL), related to a primary contaminant, with an open enforcement action; and/or • Three or more Treatment Technique violations (in lieu of an MCL), related to a primary contaminant, within the last three years.	Partially	Expanded	Yes
Monitoring and Reporting Violations: • Three Monitoring and Reporting violations (related to an MCL) within the last three years where at least one violation has been open for 15 months or greater.	No	Yes	Yes
NEW: Source Capacity & Water Outage Violations with an open Enforcement Action	No	No	Yes

[92] Human Right to Water | California State Water Resources Control Board https://www.waterboards.ca.gov/water_issues/programs/hr2w/

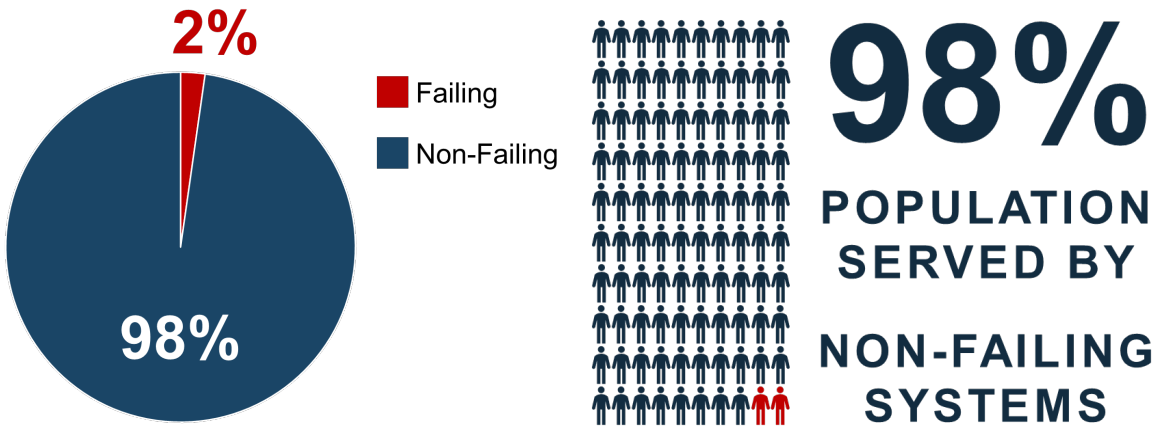
WATER SYSTEMS ASSESSED

Systems that are assessed for meeting the Failing list criteria include all Community Water Systems (CWSs) and Non-Transient, Non-Community (NTNC) water systems that serve schools and daycares. The current Failing list is refreshed daily and publicly available on the SAFER Dashboard.[93]

FAILING LIST TRENDS

As of January 1, 2024, 98% of California's population received water from systems that met or exceeded drinking water standards. 79%[94] of community water systems and K-12 schools have continually been in compliance with drinking water standards from the beginning of 2017 through the end of 2023, never appearing on the Failing list.

Figure 9: Population Served by Non-Failing Water Systems



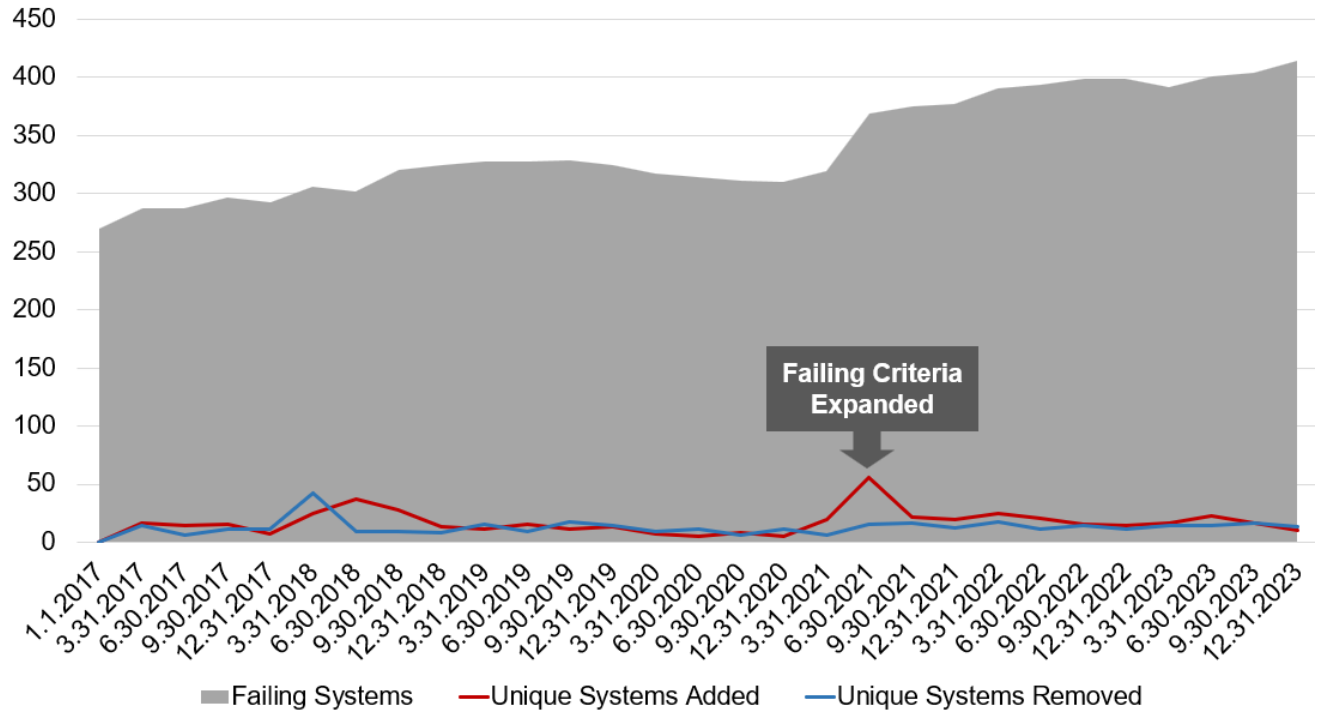
From January 1, 2017 through December 31, 2023: [95]

- There have been 715 unique water systems on the Failing list and 283 (42%) of these systems have come off the list during this time (Figure 10).
- On average, 76 unique systems are added to the Failing list each year and 60 unique systems are removed (Figure 11).
- The proportion of public water systems on the Failing list each year has increased over time (Figure 12). This is driven by two main factors (1) more systems come on the Failing list as the State Water Board has expanded the Failing criteria; (2) on average, water systems stay on the Failing list for three years or more. The following section explains this further.

[93] SAFER Dashboard https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/saferdashboard.html
[94] 2,283 community water systems and 242 water systems that serve schools.
[95] Water systems that are no longer public water systems regulated by the State Water Board are excluded from this analysis.

- Systems on the Failing list are slightly more likely to serve disadvantaged communities (DAC) or severely disadvantaged communities (SDAC) than systems that have come off the list. 63%[96] of systems that are on the Failing list serve DAC/SDAC communities, compared to 60% of water systems that have come off the Failing list.
- Systems currently on the Failing list serve a larger share of communities of color on average (50%). In contrast, only 45% of the population for systems that have come off the Failing list are serving majority communities of color.
- Systems that have come off the Failing list tend to be larger, with an average number of service connections of 2,081 (median of 64) as compared to 632 for systems that are on the list (median 49).

Figure 10: Number of Systems on the Failing List (2017-2023)



[96] 17% are DAC and 45% are SDAC.

Figure 11: Unique Number of Systems Coming on and off the Failing List Annually

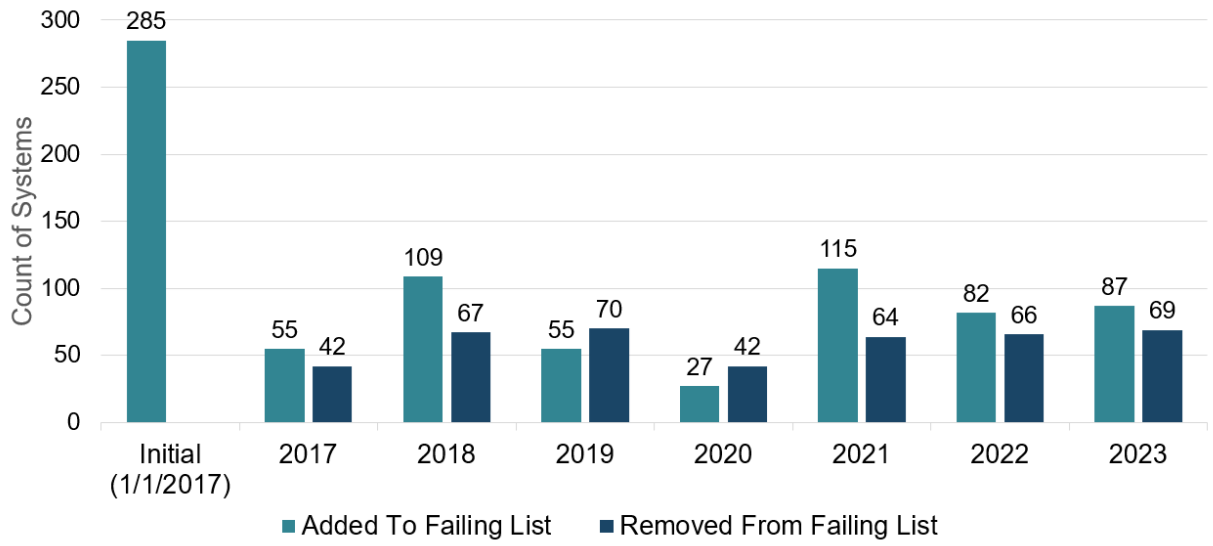
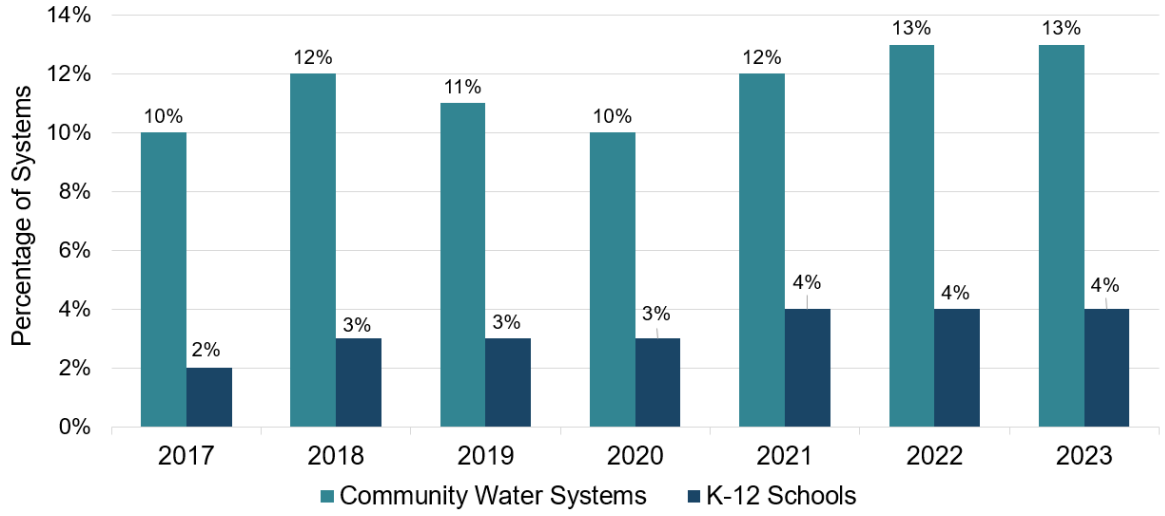


Figure 12: Percentage of Community Water Systems and K-12 Schools on the Failing List Compared to All Community Water Systems and K-12 Schools (2017-2023)

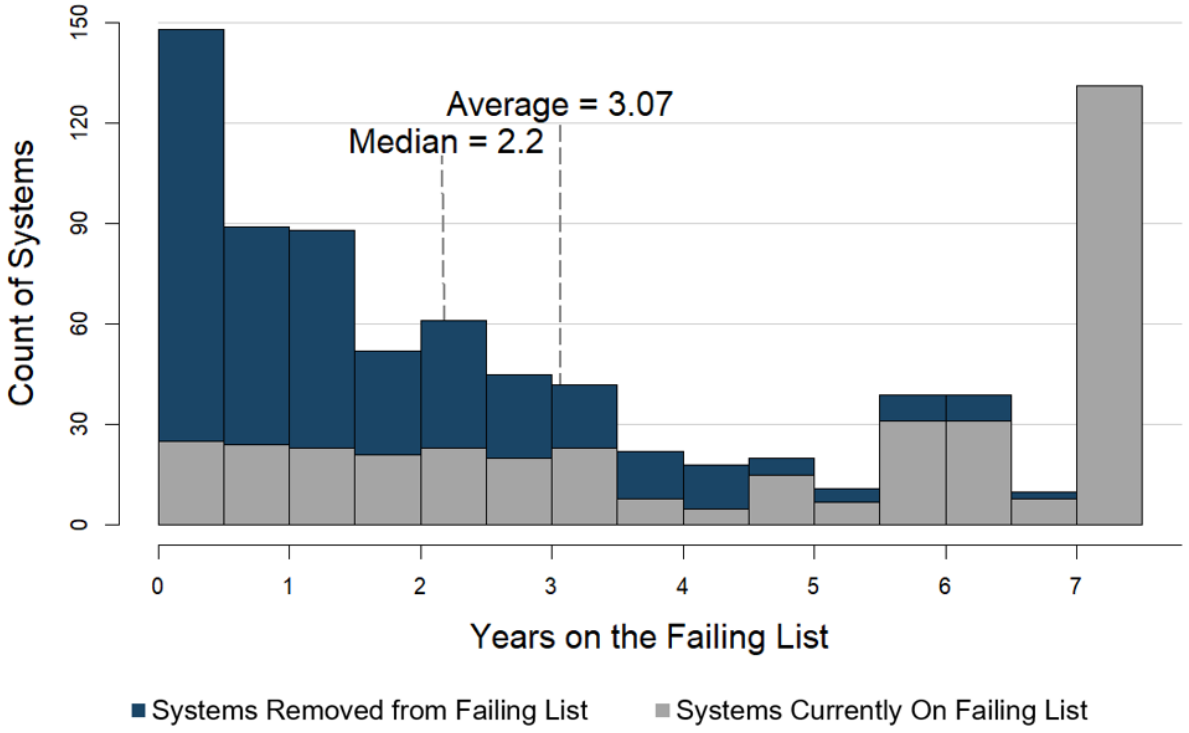


ENTRENCHED FAILING SYSTEMS

Entrenched Failing water systems are those that have been on the Failing list for greater than three years and have not come off the list. Figure 11 below is a histogram showing the duration of stay on the Failing list for all systems that have either returned to compliance or are currently in violation. The histogram shows periods of 6 months, indicating by the height of the bar how many total systems have been on or are on the list for a duration of that six-month period. The length of stay for systems that have returned to compliance or are currently in violation can be distinguished by the two colors.

As shown in Figure 13, since 2017, the average duration of public water systems on the Failing list, that have either come off the list or are still on the list, is three years. However, that figure is somewhat misleading, as the most common lengths of stay on the Failing list are less than six months (148 systems) and seven years (133 systems), as shown in Figure 13. All 133 water systems that have a Failing list duration of seven years are currently still on the Failing list, while only 9% (12) of water systems with a duration of less than six months are still on the Failing list. The average Failing list duration of three years is higher than the median duration, which is closer to two years spent on the Failing list before returning to compliance.

Figure 13: Duration of Systems on the Failing List[97]



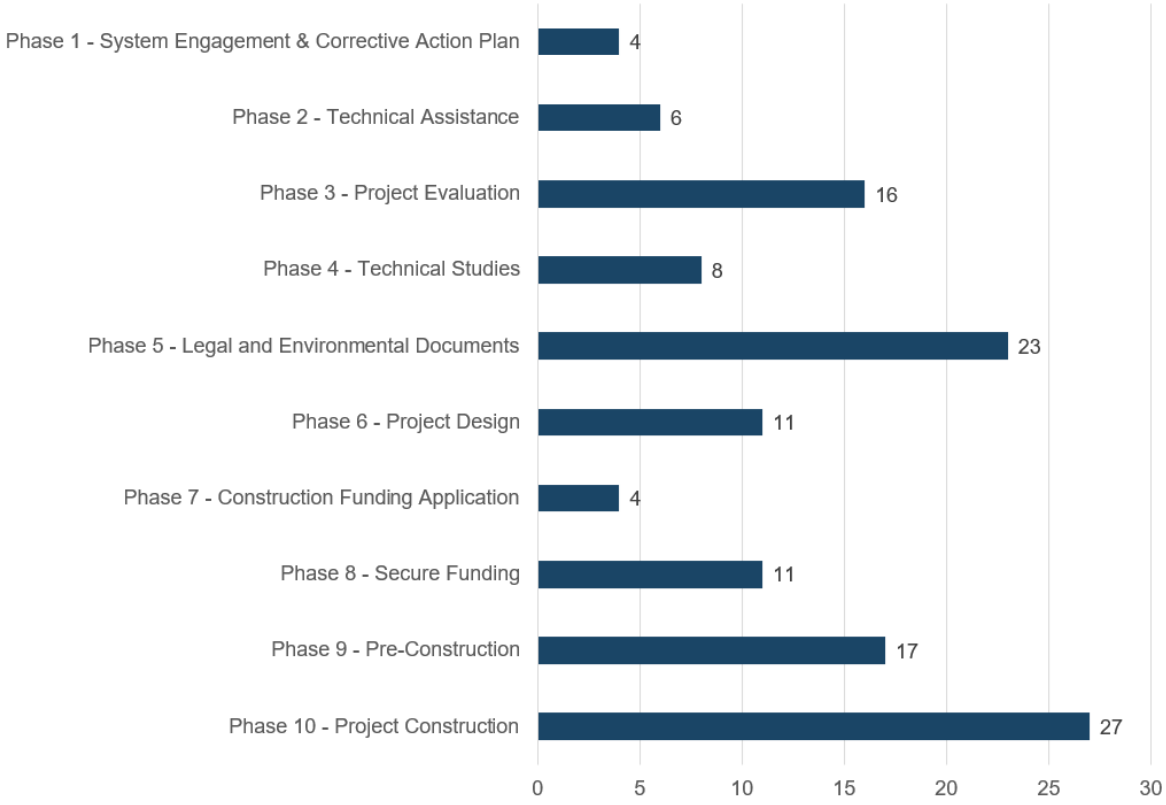
Several notable differences exist between the group of public water systems which have been on the Failing list for seven years and those that have been on the list for six months or less. Systems that quickly come off the Failing list tend to be larger. On average, public water systems with short durations on the Failing list serve 3,881 service connections, while those on the Failing list for seven years serve on average 235 service connections. Nearly all public water systems on the Failing list for seven years are Failing due to a primary MCL violation

[97] The histogram includes all 815 separate occurrences of public water systems on the Failing list, whether they are currently on the list or not. Systems which have had multiple occurrences are included multiple times, with each stay represented separately. Currently Failing public water systems (as of January 1, 2024) do not have an end date. The duration of these systems on the Failing list is based on the number of days between when they came on the list to January 1, 2024.

(128 of 133 systems), while only 65 (44%) of those that came off with a six-month duration or less were Failing for a primary MCL.[98] Only two Failing public water systems on the Failing list for six months or less were meeting multiple Failing criteria, compared to 31 systems meeting multiple Failing criteria on the Failing list for seven years.

Figure 14 displays the status of 127 (95%) systems on the Failing list for seven years. The most common status is Phase 10 - Project Construction (27), followed by Phase 5 - Legal and Environmental Documents (23) and Phase 9 - Pre-Construction (16).

Figure 14: Project Progress of Water Systems on Failing List for Seven Years



Duration of Systems that have Come off the Failing List

Systems that have come off the Failing list tend to do so within two years of first coming on to the list. Nearly half of Failing water systems come off the Failing list within one year (45%), and 68% of all systems do so within the first two years. In total, only 22 systems have spent five years or more on the Failing list before coming off the Failing list.

[98] For public systems coming off the Failing list within 6 months (131, four systems Failed for more than one Failing criteria), the primary MCL violation criteria was still the most common cause for systems being added to the Failing list (67). This was followed by monitoring & reporting violation criteria (25), treatment technique violation criteria (18), *E. coli* violation criteria (15), and secondary MCL violation criteria (10).

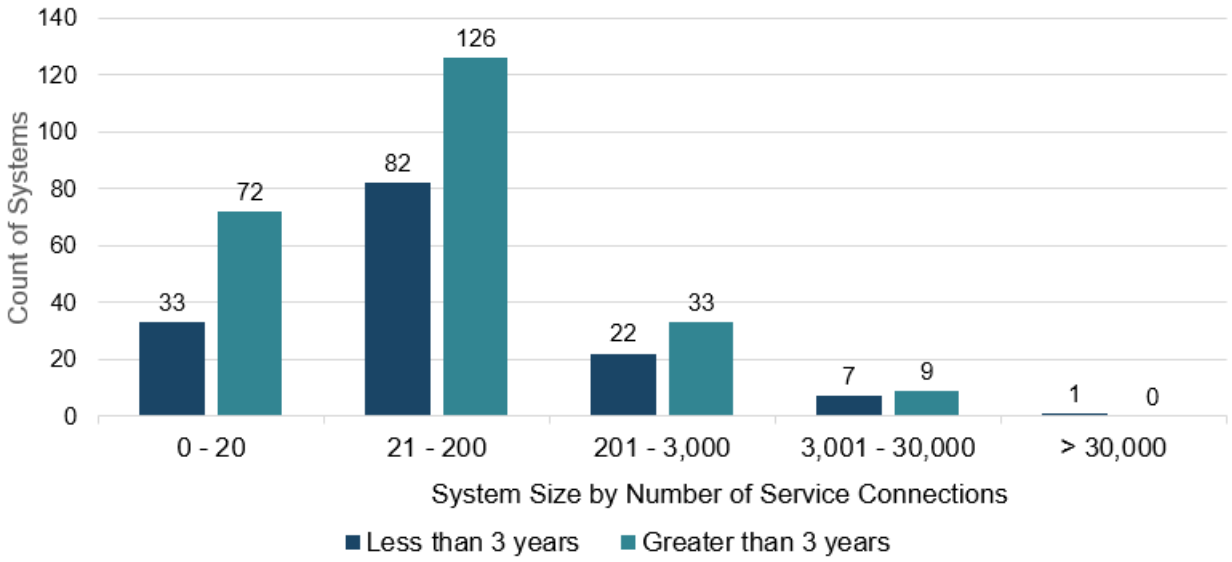
Duration of Systems Currently on the Failing List

On January 1, 2024, there were 385 public water systems on the Failing list. 34% of systems on the Failing list at that time have been on the Failing list for seven years or more, as shown in Figure 13. The remaining systems on the Failing list are distributed somewhat evenly, with about 10-30 systems in each six-month period. The length of time on the list will continue to increase for these systems until they no longer meet the Failing list criteria.

62% of these systems are considered entrenched, having been on the Failing list for over three years. The largest concentration of these systems is in the Central Valley: Kern County (60 systems); Tulare County (32 systems); Fresno County (31 systems); and Madera County (28 systems).

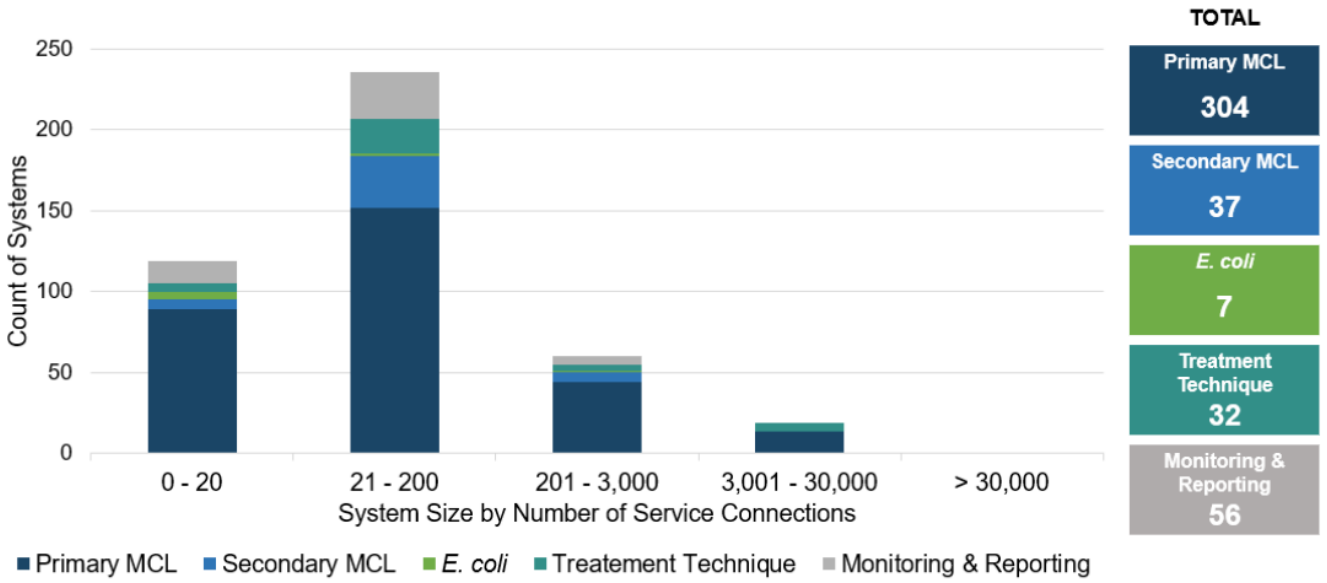
Figure 15 describes the systems on the entrenched list and not, divided by the number of connections served by the system. The largest count of entrenched systems serves between 21 and 200 connections. However, the largest share of entrenched systems are small systems (68%), with the percentages decreasing with each increase in size.

Figure 15: Failing List Duration (1.1.2024)



To better understand these entrenched Failing water systems, the State Water Board analyzed why they are failing. As shown in Figure 16 many entrenched Failing systems have fewer than 500 service connections, and regardless of size, the most common reason for their Failing status is a Primary MCL violation.

Figure 16: Count of Failing Criteria Met by Current Failing Systems on List for Greater than 3 Years by Service Connections[99]



The State Water Board is actively assisting entrenched Failing water systems. All of the 132 Failing water systems that have been on the Failing list since 2017 are receiving funding assistance, technical assistance, Administrator assistance, and/or SAFER Engagement Unit assistance.

SYSTEMS WITH MULTIPLE FAILING LIST OCCURRENCES

Since the Failing list was established in 2017, 78% (2,525) of community water systems and non-transient non-community K-12 schools have never been on the list;19% (628) have had only one occurrence on the Failing list. Of the 628 water systems that have had a single Failing list occurrence, 282 have come off the Failing list. The remaining 86 (2.6%) water systems have appeared on the Failing list more than once, with the most occurrences being six by one system. Of those 86, only 10 have appeared on the Failing list more than twice. 72% of water systems that have multiple occurrences on the Failing list return to the Failing list for the same reason as their prior occurrence. For those systems that met a different criterion, a switch from Primary MCL to a different criterion was the most common reason.

[99] 40 Failing public water systems are meeting multiple Failing criteria categories as of January 1, 2024.

Figure 17: Community Water Systems and Non-Community Schools Failing List Occurrences[100]

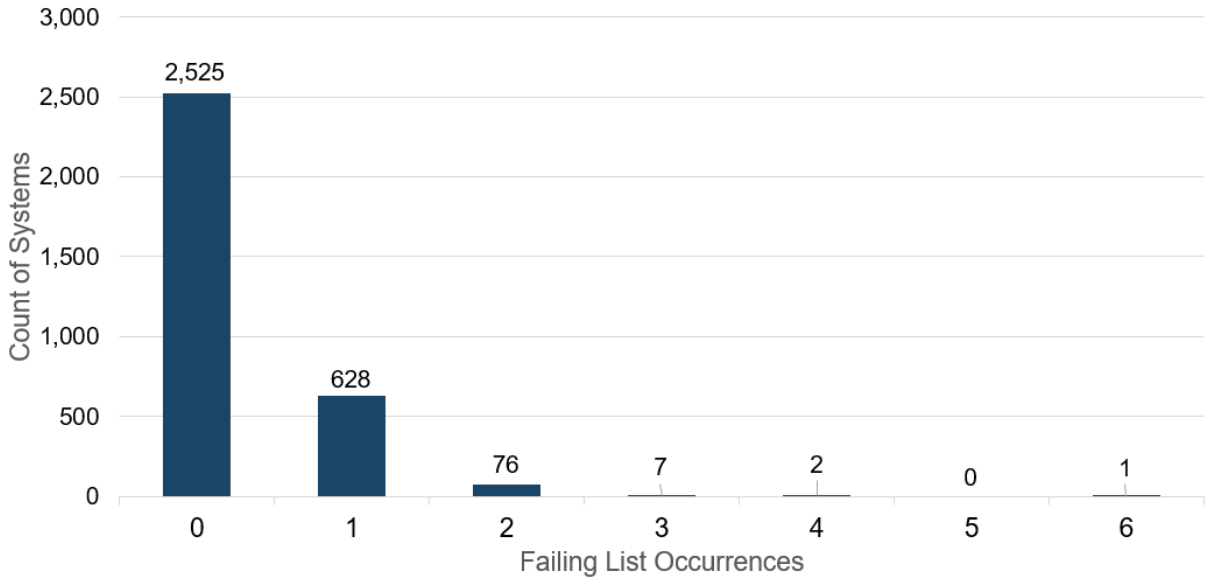
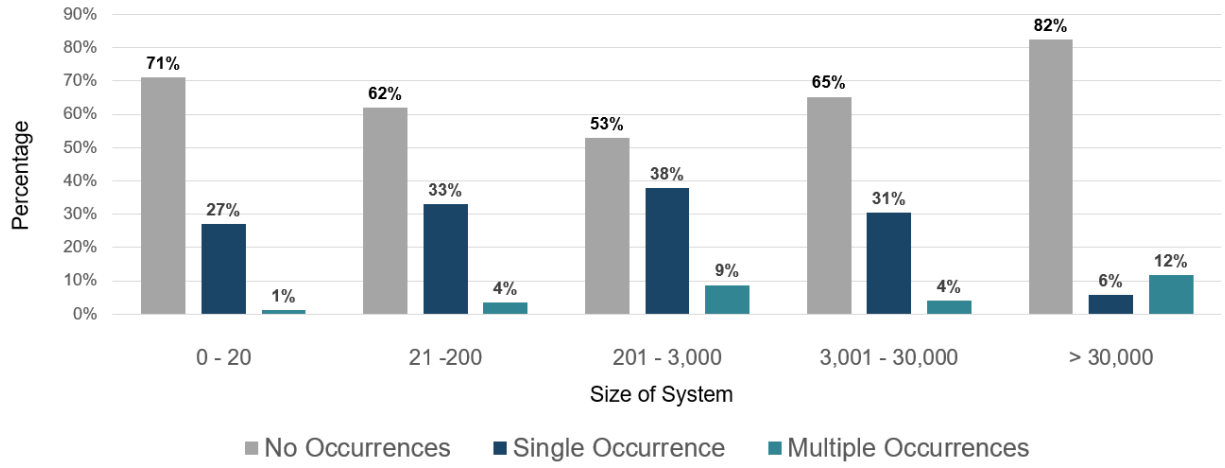


Figure 18 displays the percentage of all water systems that have appeared never, once or multiple times on the Failing list, by number of service connections. Water systems with between 201 and 3,000 service connections have the largest share of systems that have appeared once (38%) while systems with more than 30,000 connections have the largest proportion with multiple occurrences (12%). However, larger water systems with 30,000 service connections or more have the lowest proportion of systems that have ever appeared on the Failing list (18%).

Figure 18: Percentage of Systems with Failing List Occurrences by Connection Size



[100] Some deactivated systems did not have information for their number of occurrences on the Failing list, so the figures reported here for multiple occurrences may be an undercount.

Figure 19 and Figure 20 display information about the number of Failing list occurrences within each county. As shown in Figure 19, Los Angeles (164), Monterey (138), Sonoma (131), and San Bernardino (119) have the largest number of systems that have not appeared on the Failing list. San Diego, Tulare, and Kern have each had six systems appear on the Failing list more than once. As shown in Figure 20 , the highest share of multiple occurrences is in Marin (18%), Alpine (17%), and Kings County (15%). 100% of systems in 5 counties (Lassen County, Sierra County, Orange County, San Francisco County, and Alameda County) have never appeared on the Failing list.

Figure 19: Count of Failing List Occurrences by County

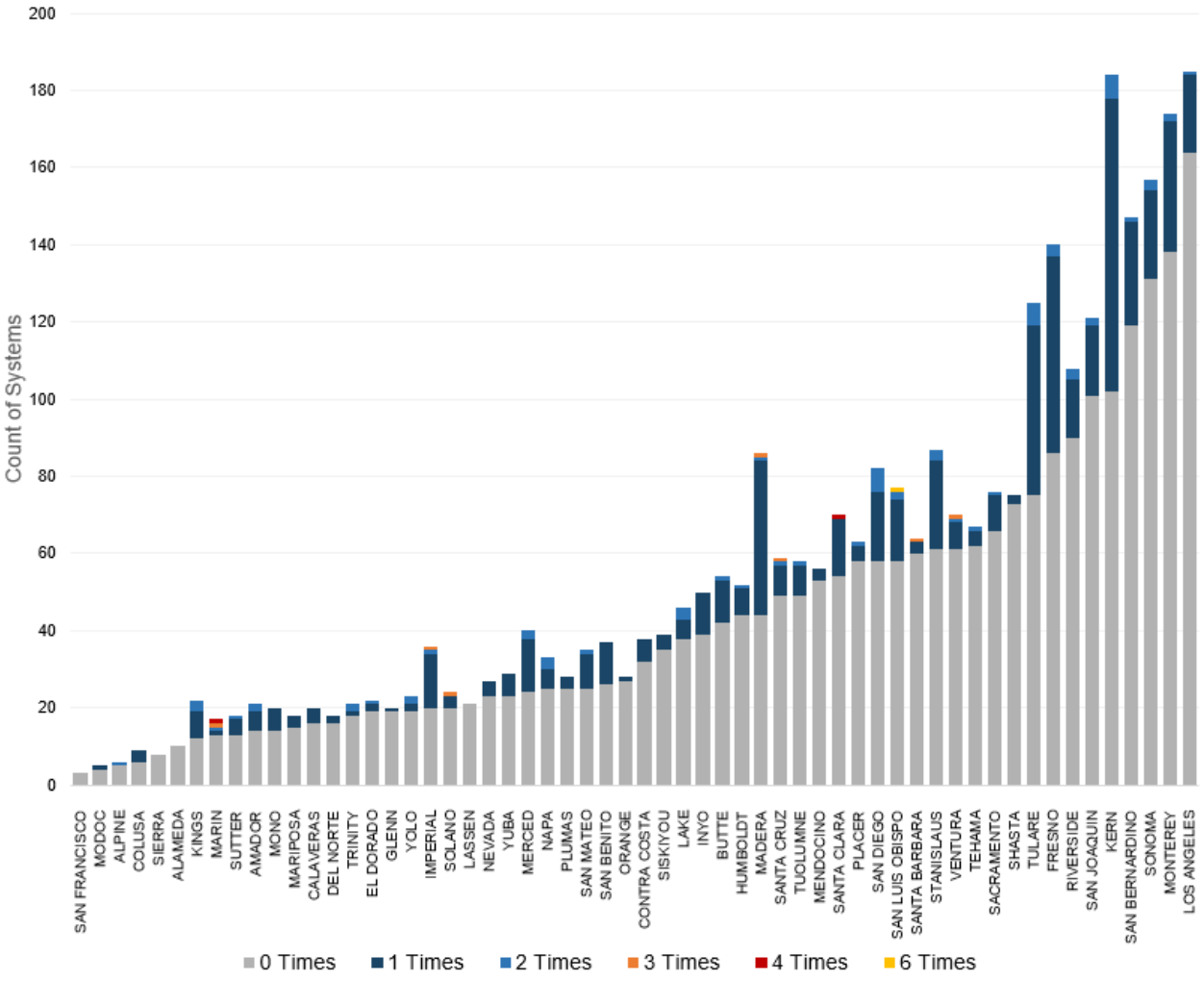
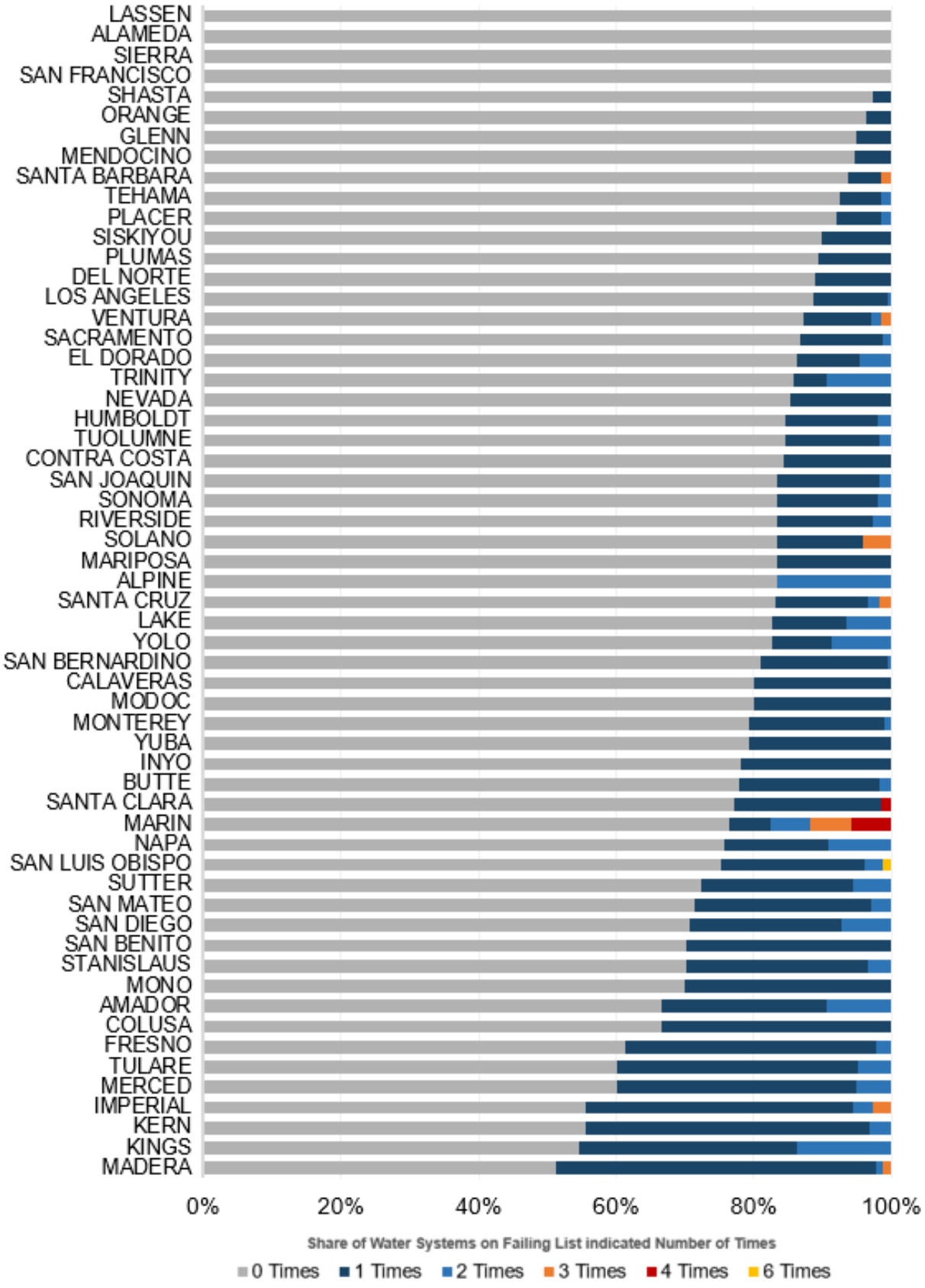


Figure 20: Proportion of Failing List Occurrences by County



2023 FAILING SYSTEMS

In 2023 there were 457 unique water systems on the Failing list at one point throughout the year (Table 21). This includes systems that were on the Failing list prior to 2023 but had yet to come off the list.

Table 21: 2023 Failing List Systems

Water Systems	Number of Unique Systems	Total Population Served	Average Number of Service Connections	# of Systems on List Greater than 3-Yrs.
Small Water Systems[101]	379 (83%)	324,442 (15%)	233	188 (79%)
Medium Water Systems[102]	20 (4%)	648,660 (30%)	8,631	10 (4%)
Large Water Systems[103]	2 (.5%)	1,193,253	136,535	0
K-12 Schools	56 (12%)	17,739 (0.8%)	6	40 (15%)
TOTAL:	**457**	**2,184,094**	**1,169**	**238 (52%)**

In 2023, there were 67 unique water systems that came on, and 59 water systems that came off, the Failing List. Table 22 breaks down, by water system size, the Failing criteria that caused all systems on the list to come or remain on the list in 2023. Approximately 50 water systems were meeting more than one criterion.

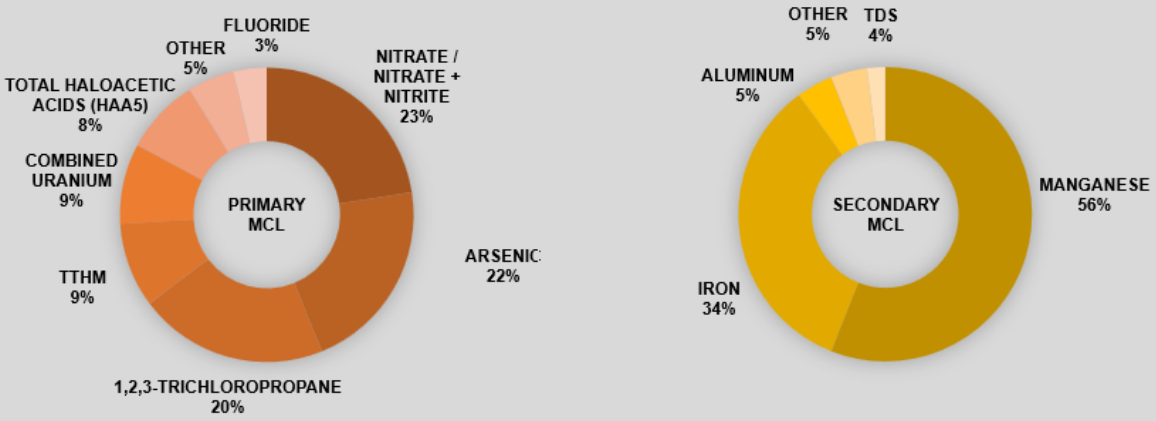
Table 22: Number of Instances of Failing List Criteria Met in 2023

Water Systems	Primary MCL Violation	Secondary MCL Violation	*E. coli* Violation	Treatment Technique Violation	Monitoring & Reporting Violations
Small Water Systems	262	47	8	29	62
Medium Water Systems	18	0	0	5	0
Large Water Systems	1	0	0	1	0
K-12 Schools	47	1	3	4	6
TOTAL:	**328**	**48**	**11**	**39**	**68**

[101] Small water system = 3,000 service connections or less.
[102] Medium water system = 3,000 to 30,000 service connections.
[103] Large water system = Greater than 30,000 service connections.

Statewide, the top contaminants that contributed to higher proportions of systems on the Failing list in 2023 is unchanged from 2022 and are: arsenic, 1,2,3-trichloropropane, and nitrate / nitrate + nitrite for primary MCL violations and manganese and iron for secondary MCL violations.

Figure 21: Primary and Secondary MCL Violation Contaminants



FAILING LIST USED IN THE 2024 NEEDS ASSESSMENT

Multiple components of the Needs Assessment rely on the Failing list of systems. For the purposes of the Risk Assessment, Failing systems are excluded from the results, except for comparison purposes. If a water system meets one or more of the Failing criteria, then that system is considered a Failing water system and cannot be considered "at-risk" of failing. However, once a water system is removed from the Failing list, it may be added to the At-Risk list of water systems if it meets the Risk Assessment criteria. Failing systems are included in the Cost Assessment and Affordability Assessment results.

The Needs Assessment analyzes data at a point in time. For purposes of the 2024 Needs Assessment, the State Water Board utilized the Failing list as of January 1, 2024.[104] The Failing list on this date had 385 water systems, serving 913,462 people.

Table 23: Failing List from January 1, 2024

System Type	Number
Small Community Water Systems[105]	318
Medium Community Water Systems[106]	16

[104] This list of Failing public water systems on January 1, 2024 was queried from the State Water Board's databases on 01.23.2024
[105] 3,000 service connections or less.
[106] 3,000 to 30,000 service connections

System Type	Number
Large Community Water Systems[107]	1
K-12 Schools[108]	50
TOTAL:	**385**

FAILING LIST DEMOGRAPHICS

The State Water Board has conducted an analysis of Failing water systems and their demographic data to better understand the populations served by these systems. However, there are several limitations to this demographic analysis. Demographic data is collected at the census block group or census tract level, and current census surveys do not indicate household drinking water source type. Therefore, the demographic information presented in the tables below may not represent the actual population served by public water systems. Any interpretation of these results should keep in mind the limitations of the analysis.

Demographic data (household size, linguistic isolation, poverty, median household income, and race/ethnicity) was taken from the 2021 American Community Survey. CalEnviroScreen 4.0 data is from OEHHA.[109] The CalEnviroScreen 4.0 data is displayed as percentiles, with higher percentiles indicating areas that are most affected by pollution and where people are especially vulnerable to the effects of pollution. The socioeconomic analysis was calculated using water service area boundaries, area-weighted census tract data where appropriate, and calculating weighted averages. This methodology means that there may be a bias towards demographic data from larger, rural tracts/block groups, as these areas are often larger than smaller, urban tracts/block groups.

When compared with non-Failing water systems, Failing water system areas tend to have higher CalEnviroScreen scores, a higher percentage of households in poverty, a higher percentage of limited English-speaking households, a larger household size, and a higher percentage of communities of color served. A slightly higher percentage are serving DAC or SDAC communities.

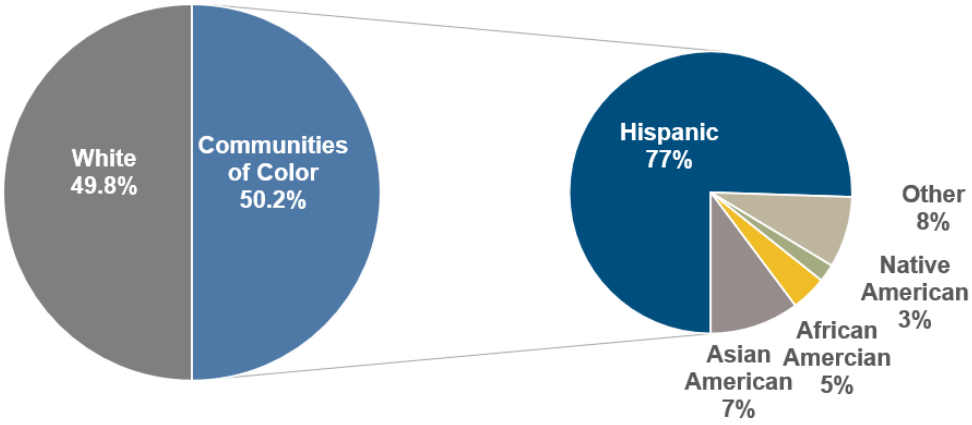
Table 24: Demographic Analysis for Failing Systems[110]

	Statewide (all areas)	Failing
Total Count of Systems	**3,056**	**385**

[107] Greater than 30,000 service connections
[108] Community and non-community public water systems that serve K-12 schools.
[109] OEHHA CalEnviroScreen
https://oehha.ca.gov/calenviroscreen
[110] The three CalEnviroScreen 4.0 data categories in this assessment utilize 2015-2019 American Community Survey (ACS) data. The following data categories in this assessment utilize updated 2016-2021 ACS data: Average percentage of households 2x below federal poverty, Average percentage of households with limited English speaking, Average household size, Percent of systems in DAC/SDAC areas, and Percent of communities of color served.

	Statewide (all areas)	Failing
Average CalEnviroScreen 4.0 Percentile	43.2nd	52.5th
Average CalEnviroScreen 4.0 Population Characteristics[111] Percentile	44.5th	50.8th
Average CalEnviroScreen 4.0 Pollution Burden Percentile	43rd	52.6th
Average percentage of households 2x below federal poverty	30.3%	36%
Average percentage of households with limited English speaking	5.5%	8.5%
Average household size	2.8	3
Percent of systems in DAC/SDAC areas	50.3% (1,536)	55.5% (213)
Percent of communities of color served	43.1%	50.2%

Figure 22: Distribution of Failing Water Systems by Majority Race/Ethnicity of Census Tract



[111] "Population Characteristics" scores for each census tract are derived from the average percentiles for the three sensitive populations indicators (asthma, cardiovascular disease, and low birth weight) and five socioeconomic factor indicators (educational attainment, housing-burdened low-income households, linguistic isolation, poverty, and unemployment).

RISK ASSESSMENT RESULTS FOR PUBLIC WATER SYSTEMS

OVERVIEW

The purpose of the Risk Assessment for public water systems is to identify systems at-risk or potentially at-risk of failing to meet one or more key Human Right to Water goals: (1) providing safe drinking water; (2) accessible drinking water; (3) affordable drinking water; and/or (4) maintaining a sustainable water system. Data on performance and risk is most readily available for public water systems and thus the Risk Assessment methodology for public water systems allows for a multi-faceted examination across four risk indicator categories: Water Quality, Accessibility, Affordability; and TMF (technical, managerial, and financial) Capacity.

FAILING LIST PREDICTIVE POWER OF THE 2023 RISK ASSESSMENT

In 2023, the Risk Assessment results identified 814 At-Risk and 499 Potentially At-Risk water systems.[112] **Approximately 91% of systems that were on the Failing list in 2023 were designated At-Risk or Potentially At-Risk in the 2023 Risk Assessment.** The Risk Assessment continues to improve its ability to identify systems at-risk of failing. The predictive power of the Risk Assessment improved by 5% from 2022.

Table 25: Predictive Power of the 2023 Risk Assessment

2023 Risk Assessment Result *(based on 2022 data)*	Total Systems	Systems on the 2023 Failing List	Predictive Power of Risk Assessment
At-Risk	814	302	79.27%
Potentially At-Risk	499	46	12.07%
Not At-Risk	1,740	33	8.66%
TOTAL:	**3,053**	**381**	**100%**

[112] Regardless of Failing status. When the State Water Board published the Risk Assessment results, typically the current list of Failing systems is removed from the count of At-Risk systems. For purposes of this analysis, the risk score is used to assess the predictive power of the Risk Assessment.

2024 RISK ASSESSMENT METHODOLOGY UPDATES

No changes have been made to the Risk Assessment methodology when compared to the methodology used in the 2023 Needs Assessment. The underlying data used to conduct the Risk Assessment has been refreshed with the most recent and available data. See Appendix: Risk Assessment Public Water System Methodology[113] for more information.

WATER SYSTEMS ASSESSED

The Risk Assessment is conducted for community water systems up to 30,000 service connections or 100,000 population served and non-transient, non-community systems that serve K-12 schools. 77 large community water systems are excluded from the Risk Assessment, 4 of which were on the Failing list as of January 1, 2024. The inventory of systems included in the Risk Assessment align with State Water Board's expanded funding eligibilities in the 2021-22 Intended Use Plan to medium disadvantaged community water systems.[114] The 2024 Risk Assessment excludes 68 wholesalers because they do not provide direct service to residential customers. Some water system types have also been excluded from certain risk categories or specific risk indicators (Table 26).

Table 26: Public Water Systems Analyzed in the 2024 Risk Assessment

Water System Type[115]	Number	Water Quality	Accessibility	Affordability	TMF Capacity
Community Water Systems[116]	2,717	Yes	Yes	Yes	Military bases are excluded
K-12 Schools[117]	338	Yes	Yes	Yes	Yes
TOTAL ANALYZED:	**3,055**				

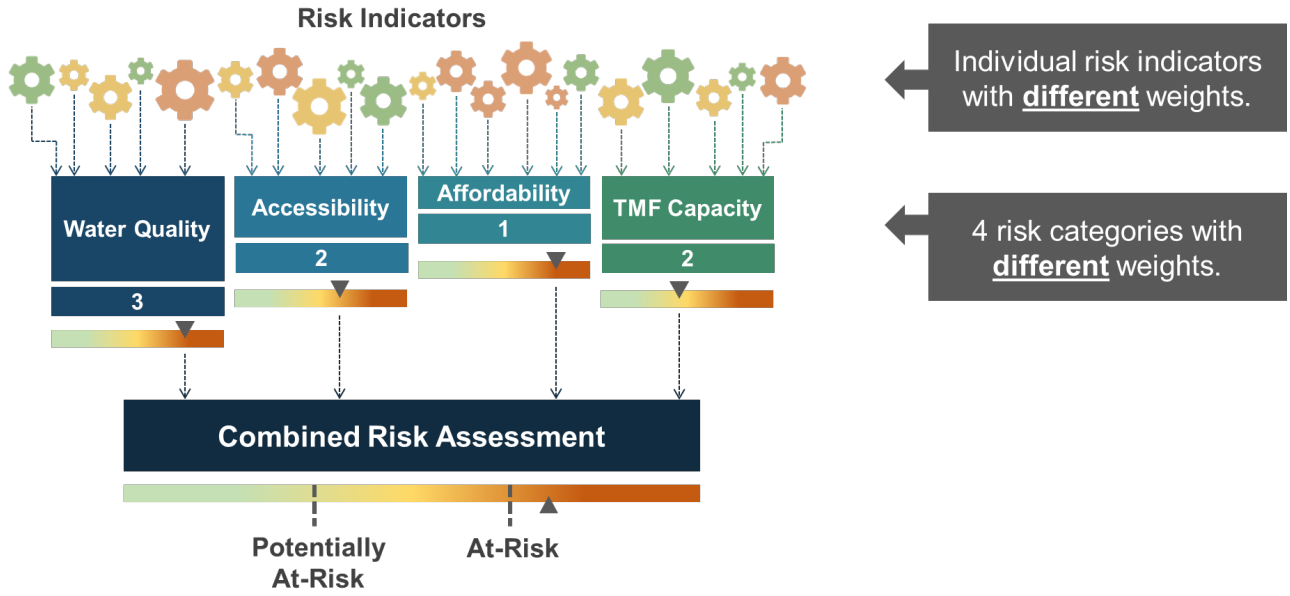
RISK ASSESSMENT METHODOLOGY

The first Risk Assessment, published in the 2021 Needs Assessment, was developed by the State Water Board in partnership with UCLA though a phased public process from January 2019 through January 2021. Since the initial Risk Assessment, many enhancements have been made to the methodology to accommodate new or missing data, respond to stakeholder feedback and improve the predictive power of the analysis. Appendix: Risk Assessment Public Water System Methodology[118] contains an in-depth overview of the Risk Assessment

[113] Appendix: Risk Assessment Public Water System Methodology https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024risk-assessment-pws-methodolgy.pdf
[114] Drinking Water State Revolving Fund (DWSRF) Intended Use Plan https://www.waterboards.ca.gov/water_issues/programs/grants_loans/docs/dwsrf_iup_sfy2021_22_final2.pdf
[115] Systems on the Failing list were included in the Risk Assessment analysis; however, they were excluded from the final Risk Assessment results.
[116] Wholesalers were excluded.
[117] These systems were manually identified by the State Water Board.
[118] Appendix: Risk Assessment Public Water System Methodology

methodology, which relies on three core elements that are utilized to calculate an aggregated risk score for the public water systems assessed (Figure 23):

Figure 23: Illustration of the Risk Assessment Methodology



Risk Indicators	Quantifiable measurements of key data points that assess the potential for a water system to fail to sustainably provide an adequate supply of safe drinking water due to water quality, water quantity, infrastructure and/or institutional issues.
Risk Indicator Thresholds	The levels, points, or values associated with an individual risk indicator that delineates when a water system is more at-risk of failing, typically based on regulatory requirements or industry standards.
Scores & Weights	The application of a multiplying value or weight to each risk indicator and risk category, as certain risk indicators and categories may be deemed more critical than others and/or some may be out of the control of the water system.

RISK INDICATOR CATEGORIES

The Risk Assessment analyzes risk in the following categories:

https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024risk-assessment-pws-methodolgy.pdf

Water Quality	Water Quality risk indicators measure current water quality and trends to identify compliance with regulatory requirements, as well as frequency of exposure to drinking water contaminants.
Accessibility	Accessibility risk indicators measure a system's ability to deliver safe, sufficient, and continuous drinking water to meet public health needs.
Affordability	Affordability risk indicators measure the capacity of households and the community to supply the revenue necessary for a water system to pay for necessary capital, operations, and maintenance expenses.
TMF Capacity	Technical, Managerial, & Financial (TMF) Capacity risk indicators measure a system's capacity to plan for, achieve, and maintain long term compliance with drinking water standards.

RISK INDICATORS

The initial 2021 Risk Assessment utilized 19 risk indicators. These risk indicators were identified and developed between 2019-2021 by the State Water Board and UCLA, with public feedback.[119] Risk indicators that measure water quality, accessibility, affordability, and TMF capacity were selected based on their direct relationship to a water system's ability to remain in compliance with drinking water standards. In 2021, the State Water Board made significant changes to the indicators used in the 2022 Risk Assessment. To keep the Risk Assessment methodology static, minimal changes were made to the 2023 risk indicators and no changes have been made for the 2024 Risk Assessment (Table 27). Information on each risk indicator calculation methodology, thresholds, scores, and weights can be found in Appendix: Risk Assessment Public Water System Methodology.[120]

Table 27: Risk Indicators

Category	2024 Risk Indicators
Water Quality	History of *E. coli* Presence
	Increasing Presence of Water Quality Trends Toward MCL
	Treatment Technique Violations
	Past Presence on the Failing List

[119] Information on how the initial 19 risk indicators used in 2021 were selected from a list of 129 potential risk indicators is detailed in the October 7, 2020 white paper:
Evaluation of Potential Indicators and Recommendations for Risk Assessment 2.0 for Public Water Systems
https://www.waterboards.ca.gov/safer/docs/e_p_i_recommendations_risk_assessment_2_public_water_systems.pdf

[120] Appendix: Risk Assessment Public Water System Methodology
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024risk-assessment-pws-methodolgy.pdf

Category	2024 Risk Indicators
	Percentage of Sources Exceeding a MCL
	Constituents of Emerging Concern
Accessibility	Number of Sources
	Absence of Interties
	DWR – Drought & Water Shortage Risk Assessment Results
	Critically Over drafted Groundwater Basin
	Bottled or Hauled Water Reliance
	Source Capacity Violations
Affordability	Percent of Median Household Income (%MHI)
	Extreme Water Bill
	Household Socioeconomic Burden
TMF Capacity	Operator Certification Violations
	Monitoring and Reporting Violations
	Significant Deficiencies
	Days Cash on Hand
	Operating Ratio
	Net Annual Income

RISK ASSESSMENT RESULTS

The results of the Risk Assessment are presented as a water system's "SAFER Status." The SAFER Status can be one of four options as defined in Table 28. If a water system's SAFER Status is currently Failing, its Risk Assessment result (At-Risk, Potentially At-Risk, Not At-Risk, or Not Assessed) will replace its SAFER Status once the system comes off the Failing list.

Table 28: SAFER and Risk Assessment Status

Status	About
Failing	Failing water systems are those that are meeting current Failing criteria as defined by the State Water Board.[121]
At-Risk	Water systems at-risk of failing. The system's risk scores are the highest within the results of the Risk Assessment.

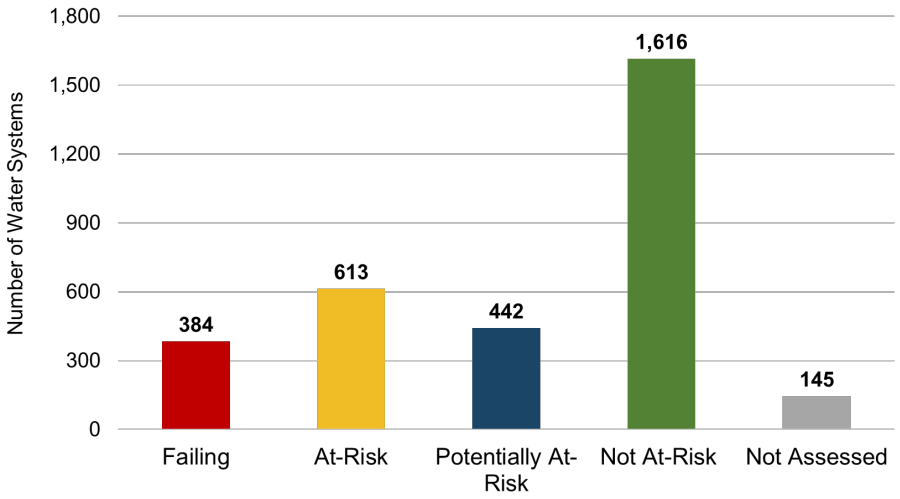
[121] Failing Criteria https://www.waterboards.ca.gov/water_issues/programs/hr2w/docs/hr2w_expanded_criteria.pdf

Status	About
Potentially At-Risk	Water systems potentially at-risk of failing. The system has accrued risk points within the Risk Assessment, but not enough to be designated At-Risk.
Not At-Risk	Water systems not at-risk of failing. The system has accrued zero or very little risk points within the Risk Assessment.
Not Assessed	Water systems that are currently not Failing and excluded[122] from the Risk Assessment analysis.

AT-RISK WATER SYSTEMS

The 2024 Risk Assessment was conducted for 3,055 public water systems. After removing the 384 Failing systems included in the analysis,[123] the 2024 Risk Assessment results indicate the majority of assessed water systems (1,616 or 53%) are Not At-Risk. The analysis identified 613 (20%) At-Risk water systems, 442 (14%) Potentially At-Risk water systems, and 1,616 (61%) Not At-Risk water systems.[124]

Figure 24: 2024 Risk Assessment Results



The Risk Assessment results for public water systems indicated that Failing systems have more than double the average risk score (1.17 vs. 0.55) when compared to non-Failing systems. Furthermore, 305 (79%) Failing systems exceeded the At-Risk threshold compared to 613 (23%) non-Failing systems (Figure 25). If these Failing systems come off the Failing list, they will be considered At-Risk systems.

[122] Large community water system with greater than 30,000 service connection or more than 100,000 population served are not included in the Risk Assessment and will not have a Risk Assessment result.
[123] There were 385 Failing systems on January 1, 2024. The Risk Assessment analysis excludes 1 large Failing water system due to its size.
[124] Attachment: Risk Assessment Results Spreadsheet
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024risk.xlsx

Figure 25: Distribution of Total Risk Score for Water Systems (n=3,055)

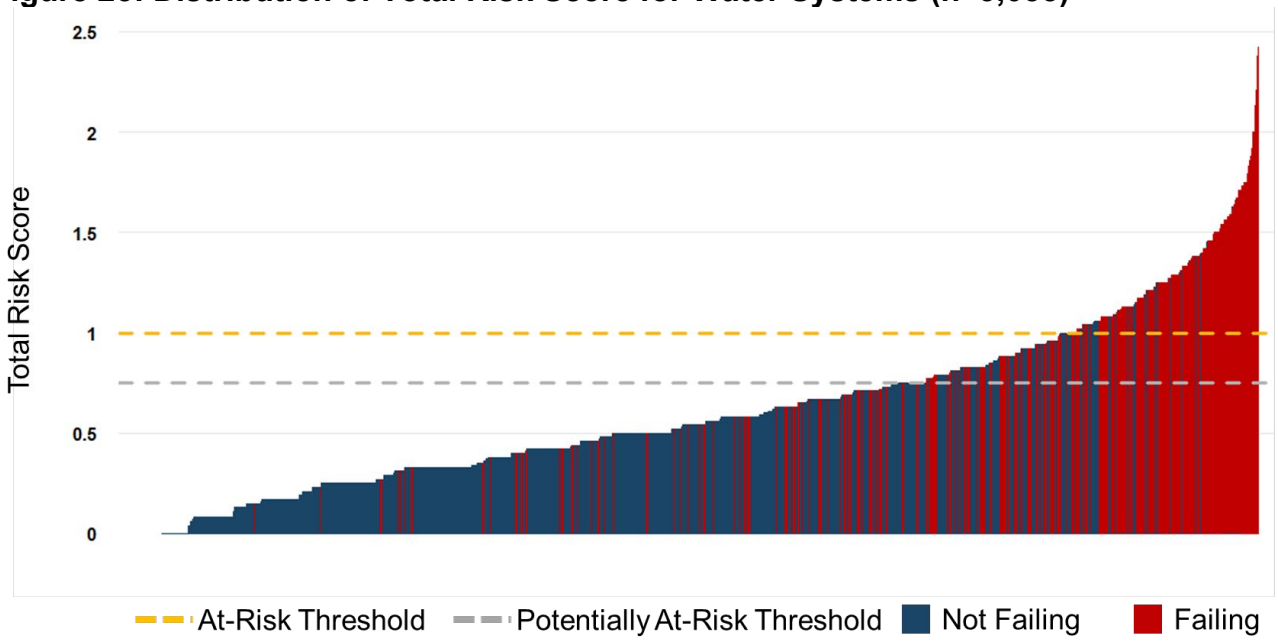
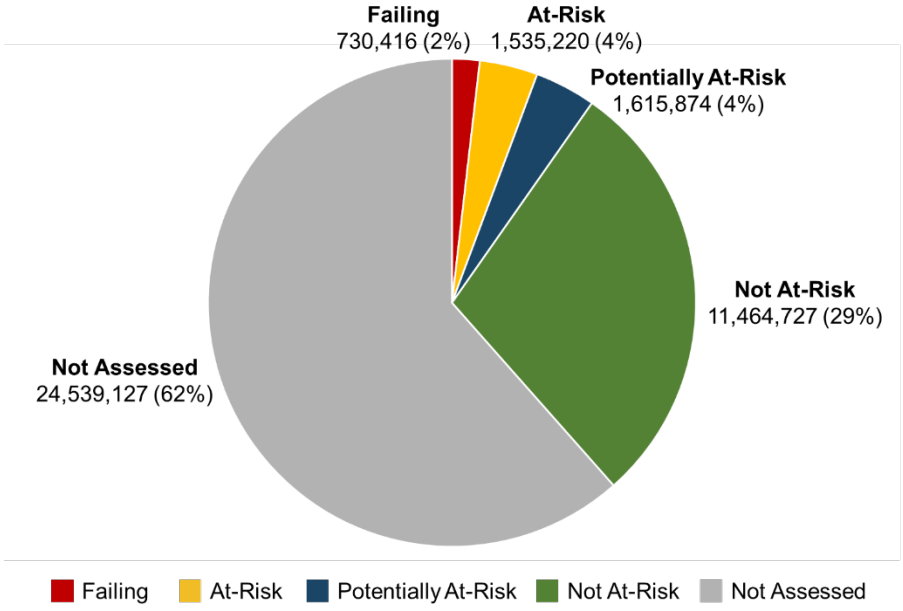


Figure 26 shows the proportion of population served by SAFER status of all community water systems and water systems that serve K-12 schools. The majority of the population living in areas served by systems assessed by the Risk Assessment, approximately 29%, are served by Not At-Risk water systems. At-Risk water systems serve approximately 4% of the population, while the Potentially At-Risk serve 4%. Only 2% of the population was served by Failing systems. However, most of the state's population is in water systems that are not assessed 62%.

Figure 26: Population of Communities by SAFER Status for Assessed Water Systems



The distribution of At-Risk and Potentially At-Risk systems also varies substantially across the state, as shown in Figure 27. The largest number of Not At-Risk water systems are in Los Angeles County (112), followed by Sonoma County (98) and Monterey (96). Kern County has the largest count of Failing Systems (58).

Figure 27: Count of Failing and At-Risk Water Systems in Each County[125]

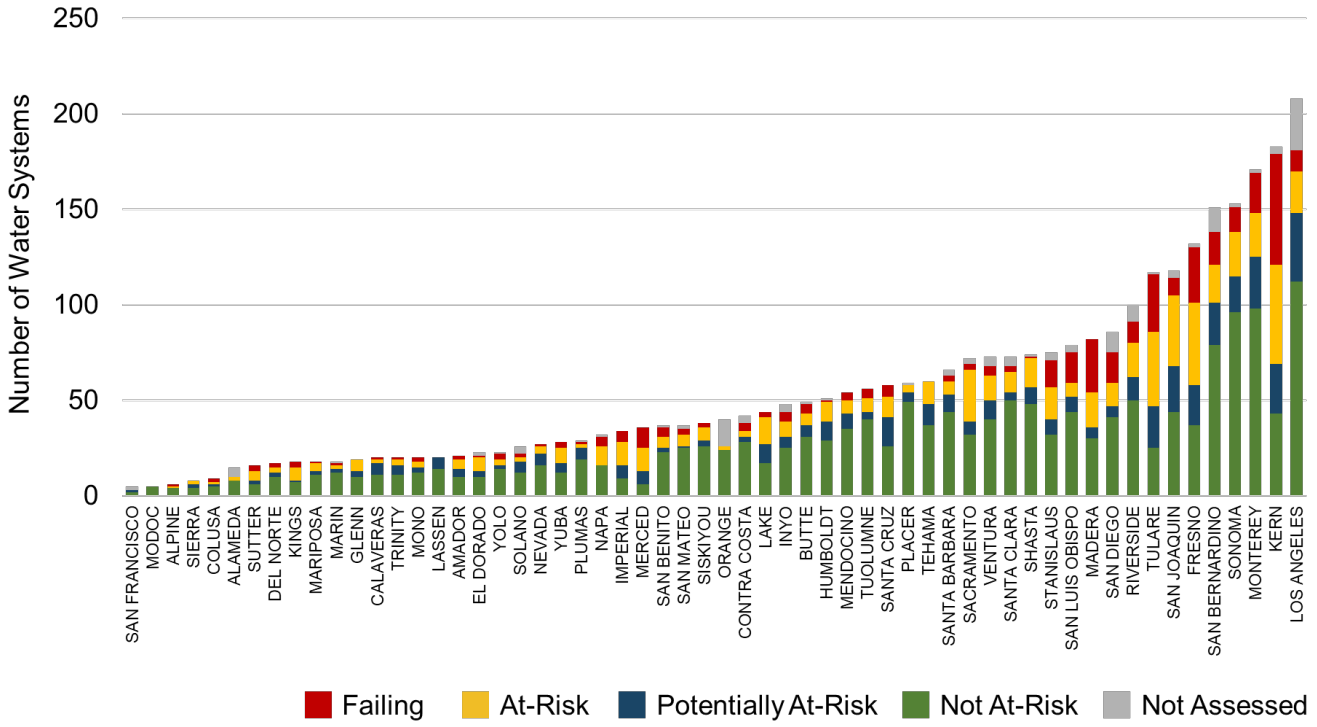
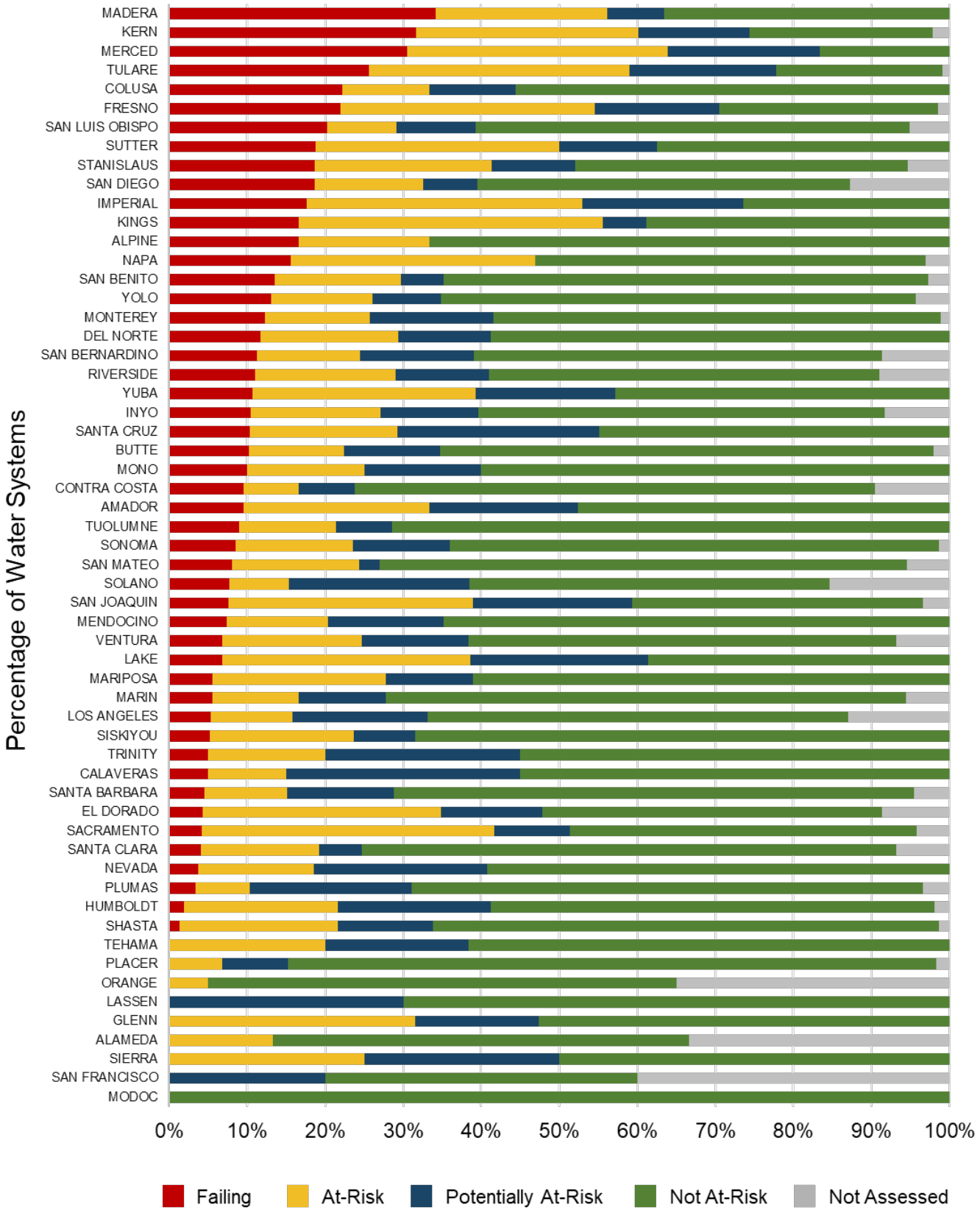


Figure 28 displays the proportion of SAFER status for each county. For instance, Madera County has the highest proportion of At-Risk systems (34.1%), whereas Alameda County, Glenn County, Lassen County, Modoc County, Orange County, Placer County, San Francisco County, Sierra County, and Tehama County have the lowest proportion of At-Risk systems (0%).

[125] Not Assessed represents large community water systems with service connections greater than 30,000 or population serves greater than 100,000. It also includes wholesalers.
Attachment: Risk Assessment Results Spreadsheet
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024risk.xlsx

Figure 28: Proportion of Water Systems by SAFER Status by County



RESULTS BY SYSTEM SIZE

The analysis of the Risk Assessment results indicates the majority (84%) of At-Risk water systems are small water systems with 3,000 service connections or less (Table 29).

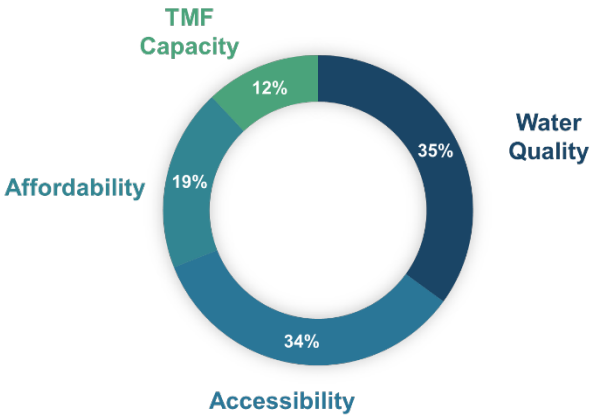
Table 29: 2023 Risk Assessment Results by Systems Size and Type

System Type	Small Systems[126]	Medium Systems[127]	Large Systems[128]	K-12 Schools[129]
Failing	321 (13.5%)	16 (4.8%)	4	47 (13.9%)
At-Risk	512 (21.5%)	31 (9.3%)	N/A	70 (20.7%)
Potentially At-Risk	380 (16%)	252 (75.2%)	N/A	26 (7.7%)
Not At-Risk	1,169 (49.1%)	36 (10.7%)	N/A	70 (20.7%)
Not Assessed	0 (0%)	0 (0%)	73	0
TOTAL:	**2,382 (100%)**	**335 (100%)**	**77**	**338 (100%)**

RISK DRIVERS

The performance of At-Risk water systems across all individual risk indicators shows that the Water Quality category contributes the most weighted risk points to At-Risk scoring (35%), with Accessibility coming second (34%) and the Affordability (19%) and TMF Capacity (12%) categories contributing distant third and fourth highest shares of risk points.

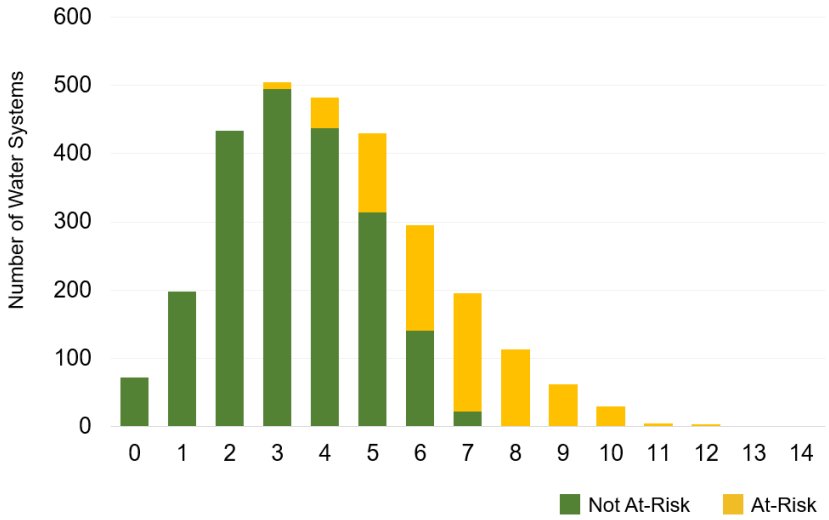
Figure 29: Share of Each Risk Indicator Category in Calculating the Total Risk Score for Systems Meeting At-Risk Threshold (n=918)[130]



[126] 3,000 service connections or less.
[127] Greater than 3,000 service connections (Risk Assessment results limited to systems up to 30,000 connections and 100,000 population served).
[128] Community water systems with greater than 30,000 service connections and 100,000 population served.
[129] Community and non-community public water systems that serve K-12 schools.
[130] This analysis includes the 613 At-Risk systems and 305 Failing systems that meet the At-Risk threshold in the 2024 Risk Assessment.

As Figure 30 below shows, all At-Risk systems exceed a threshold of concern for at least three risk indicators, with the average At-Risk system exceeding more than seven risk indicator thresholds of concern. This means that systems were not designated as At-Risk based on a single or even a handful of risk indicators. Moreover, At-Risk systems tended to have many more indicator concerns than Not At-Risk systems.

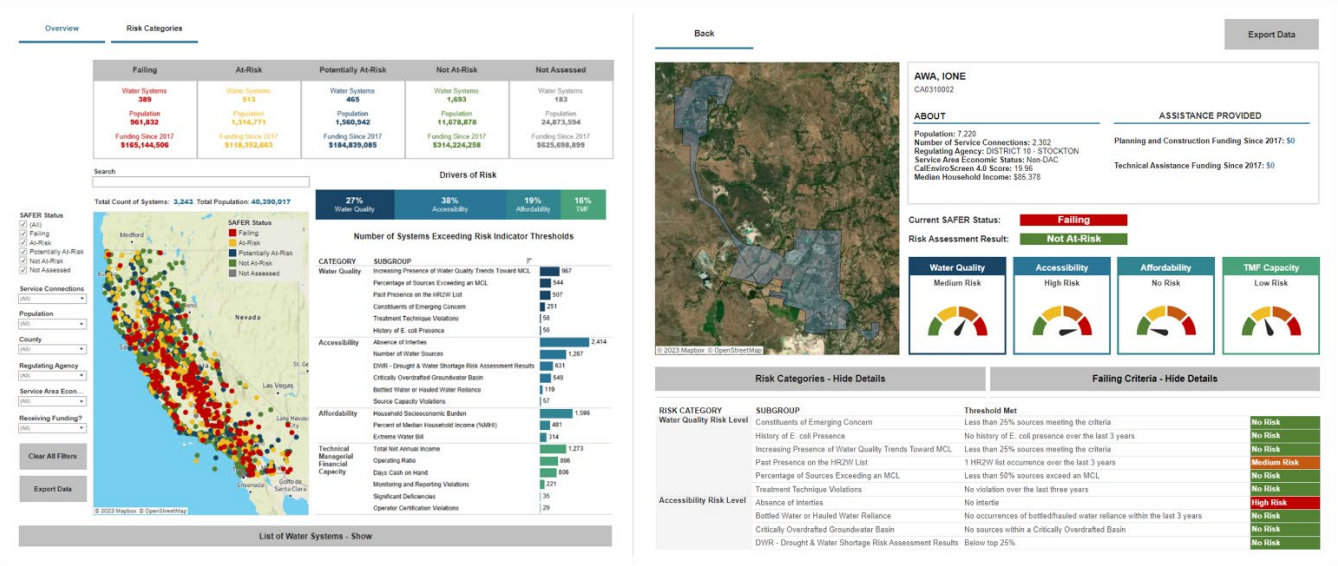
Figure 30: Distribution of the Number of Risk Indicator Thresholds Exceeded by At-Risk and Not At-Risk Water Systems (n=2,333)[131]



The results of the Risk Assessment and the current list of Failing water systems are accessible online through the State Water Board's SAFER Dashboard.[132] The SAFER Dashboard updates the Failing list daily and the Risk Assessment results are updated on a quarterly basis with new data as it becomes available. Learn more about the SAFER Dashboard in Appendix: SAFER Dashboard User Guide.[133]

[131] Systems that were automatically At-Risk for meeting the risk thresholds for "Number of Water Sources" and/or "Bottled or Hauled Water Reliance" were excluded from this analysis.
[132] SAFER Dashboard
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/saferdashboard.html
[133] Appendix: SAFER Dashboard User Guide
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/saferdashboardug.pdf

Figure 31: SAFER Dashboard



DEMOGRAPHIC ANALYSIS OF AT-RISK PUBLIC WATER SYSTEMS

Results for the 2024 Risk Assessment for public water systems can be combined with demographic data to better understand the populations most at-risk. However, there are several limitations to this demographic analysis. Demographic data is collected at the census block group or census tract level, and current census surveys do not indicate household drinking water source type. Therefore, the demographic information presented in the tables below may not represent the actual population served by public water systems. Any interpretation of these results should keep in mind the limitations of the analysis.

Demographic data (household size, linguistic isolation, poverty, median household income, and race/ethnicity) was taken from the 2022 5-year Estimate American Community Survey. CalEnviroScreen 4.0 data is from OEHHA.[134] The CalEnviroScreen 4.0 data is displayed as percentiles, with higher percentiles indicating areas that are most affected by pollution and where people are especially vulnerable to the effects of pollution. The socioeconomic analysis was calculated using water service area boundaries, area-weighted census tract data where appropriate, and calculating weighted averages. This methodology means that there may be a bias towards demographic data from larger, rural tracts/block groups as these areas are often larger than smaller, urban tracts/block groups.

When compared with Not At-Risk water systems, Failing and At-Risk public water systems areas tend to have higher CalEnviroScreen scores, as well as higher population characteristics. Population characteristics include various health and socioeconomic

[134] OEHHA CalEnviroScreen
https://oehha.ca.gov/calenviroscreen

datapoints[135] that represent demographic factors known to effect vulnerability to impacts of pollution. At-Risk systems also have: higher pollution burden, percentage of households in poverty, percentage of limited English-speaking households, household size, and are more likely to be in a DAC or SDAC area.

Table 30: Demographic Analysis for At-Risk and Failing Systems[136]

	Statewide (all areas)	Not At-Risk	Potentially At-Risk	At-Risk	Failing
Total Count of Systems	**3,056**	**1,616**	**442**	**613**	**385**
Average CalEnviroScreen 4.0 Percentile[137]	43.2th	36.3th	47.1th	52.7th	52.5th
Average CalEnviroScreen 4.0 Population Characteristics Percentile	44.5th	38.6th	48.3th	53th	50.8th
Average CalEnviroScreen 4.0 Pollution Burden Percentile	43.2th	37.8th	45.4th	49.8th	52.6th
Average percentage of households 2x below federal poverty	30%	25%	34%	37.6%	36%
Average percentage of households with limited English speaking	5.5%	3.7%	6%	7.7%	8.5%
Average household size	2.7	2.7	2.9	2.9	3
Percent of systems in DAC/SDAC areas[138]	50.3% (1,536)	40.6% (656)	57.7% (255)	67.2% (412)	55.5% (213)

[135] "Population Characteristics" scores for each census tract are derived from the average percentiles for the three sensitive populations indicators (asthma, cardiovascular disease, and low birth weight) and five socioeconomic factor indicators (educational attainment, housing-burdened low-income households, linguistic isolation, poverty, and unemployment).

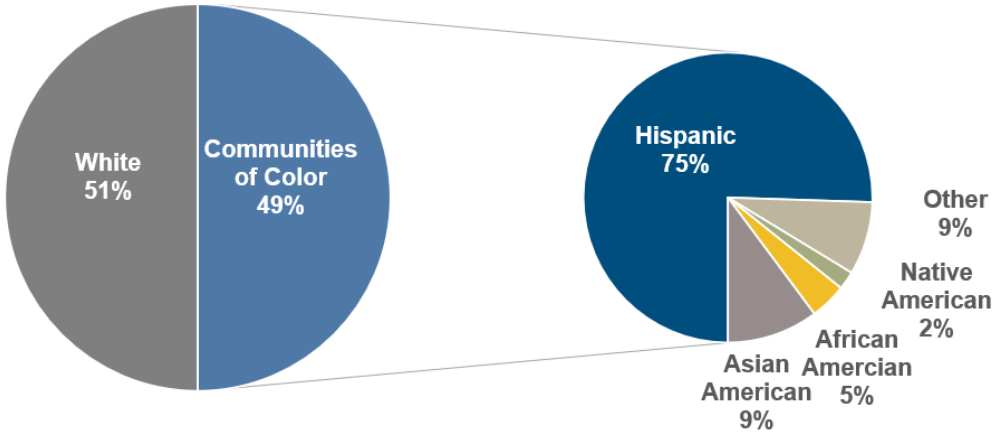
[136] The three CalEnviroScreen 4.0 data categories in this assessment utilize 2015-2019 American Community Survey (ACS) data. The following data categories in this assessment utilize updated 2022 5-year estimate ACS data: Average percentage of households 2x below federal poverty, Average percentage of households with limited English speaking, Average household size, Percent of systems in DAC/SDAC areas, and Percent community of color served.

[137] For all of the CalEnviroScreen percentiles in this table, the State Water Board applied the Needs Assessment's area-weighted GIS approach, utilizing water system service boundaries, to calculate CalEnviroScreen 4.0 scores for each water system. The average percentile was then derived using these calculations.

[138] DAC = "disadvantaged community" and represents areas with Median Household Income less than 80% of the California Median Household Income ($75,524).

	Statewide (all areas)	Not At-Risk	Potentially At-Risk	At-Risk	Failing
Percent of community of color served	43.14%	38.5%	46.4%	48.5%	50.2%

Figure 32: Distribution of At-Risk Public Water Systems by Majority Race/Ethnicity of Census Tract



RISK ASSESSMENT TRENDS ANALYSIS

SAFER STATUS TRENDS

Figure 33 and Table 31 provide a comparison of how the SAFER Status of water systems has changed from 2021 through 2024. It should be noted that the Risk Assessment methodology has changed since 2021, which influences the changes in the results of the analysis over time. Compared to the 2023 Risk Assessment results, the 2024 Risk Assessment identifies 104 more At-Risk water systems (including Failing system performance in the Risk Assessment) and a statewide increase in total average risk scores from 0.61 to 0.63. The increase in the number of At-Risk water systems and total average statewide risk scores is mostly attributed to 112 (18%) of At-Risk systems that were automatically At-Risk,[139] regardless of their performance across all risk indicators, because they have relied on bottled and/or hauled water to meet customer demand within the last three years. This is 82 more systems when compared to the 2023 Risk Assessment results, which had 119 (4%) systems automatically At-Risk.

SDAC = "severely disadvantaged communities" represents areas with Median Household Income less than 80% of the California Median Household Income ($55,143).

[139] There are 89 Failing water systems whose performance in the Risk Assessment is also automatically At-Risk. The total number of systems, regardless of Failing status, whose performance in the Risk Assessment is automatically At-Risk is 201.

Better data collection occurred between the 2023 and 2024 analysis. Learn more about this in Appendix: Risk Assessment Public Water System Methodology.[140]

Figure 33: Risk Assessment Results (2021-2024)[141]

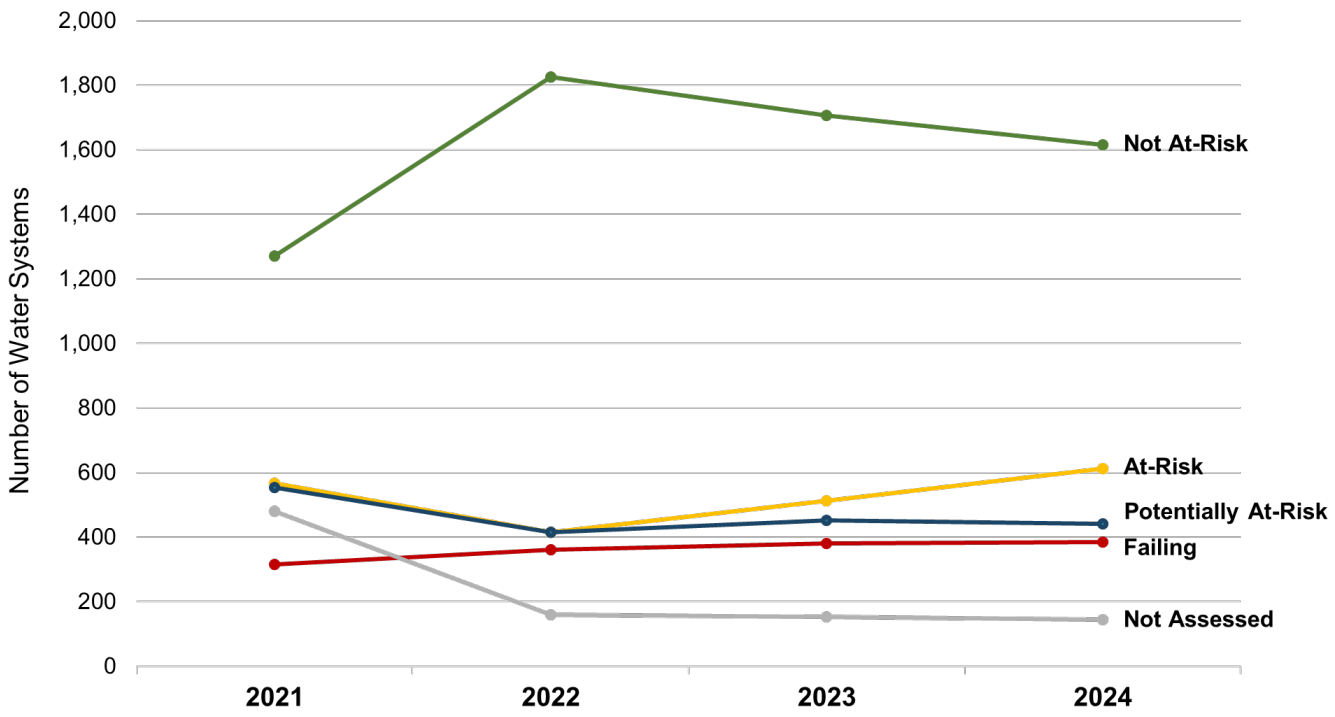


Table 31: SAFER Status (2021-2024)

System Type	2021	2022	2023	2024
Failing	316	361	381	384
At-Risk	567	415	512	613
Potentially At-Risk	553	416	453	442
Not At-Risk	1,271	1,825	1,707	1,616
Not Assessed	481	160	154	145
TOTAL:	**3,188**	**3,177**	**3,207**	**3,200**

[140] Appendix: Risk Assessment Public Water System Methodology
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024risk-assessment-pws-methodolgy.pdf

[141] Not Assessed includes: in 2021, wholesalers and community water systems with greater than 3,300 service connections; in 2022, 2023, and 2024 wholesalers and community water systems with greater than 30,000 service connections or 100,000 population served.

The results of the Risk Assessment have become more stable over time, in part because the majority of risk indicators have remained consistent from 2022. The largest changes in the Risk Assessment were observed between 2021 and 2022 due to the large change in risk indicators used in the Risk Assessment and risk-threshold adjustments. Since 2022 the changes in the results became increasingly smaller each subsequent year.

The majority of systems do not change their Failing and Risk Assessment results status (Figure 34). Of the 2,990 systems included in the 2022, 2023, and 2024 Risk Assessments, 1,945 (65%) had the same status from 2022 to 2023 and 2,295 (77%) had the same status from 2023 to 2024. For all four statuses, a larger share retained the same status from the previous year in 2024 than they had in 2023, demonstrating the improvement of the Risk Assessment's methodology. Not At-Risk is the most common SAFER status, and the majority of systems have continued with that designation year-to-year. Potentially At-Risk systems are the most likely to move to other statuses.

Figure 34: Diagram of Movement for All Systems SAFER Status from 2022-2024

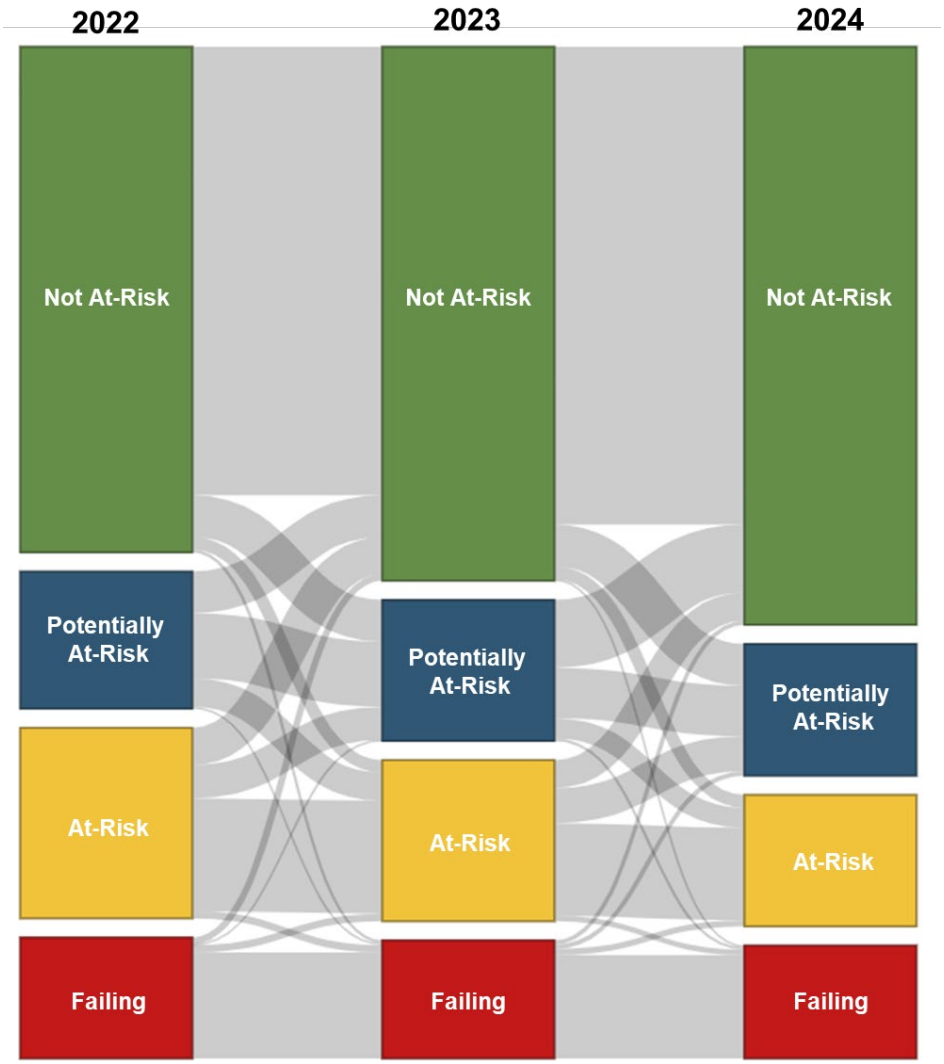
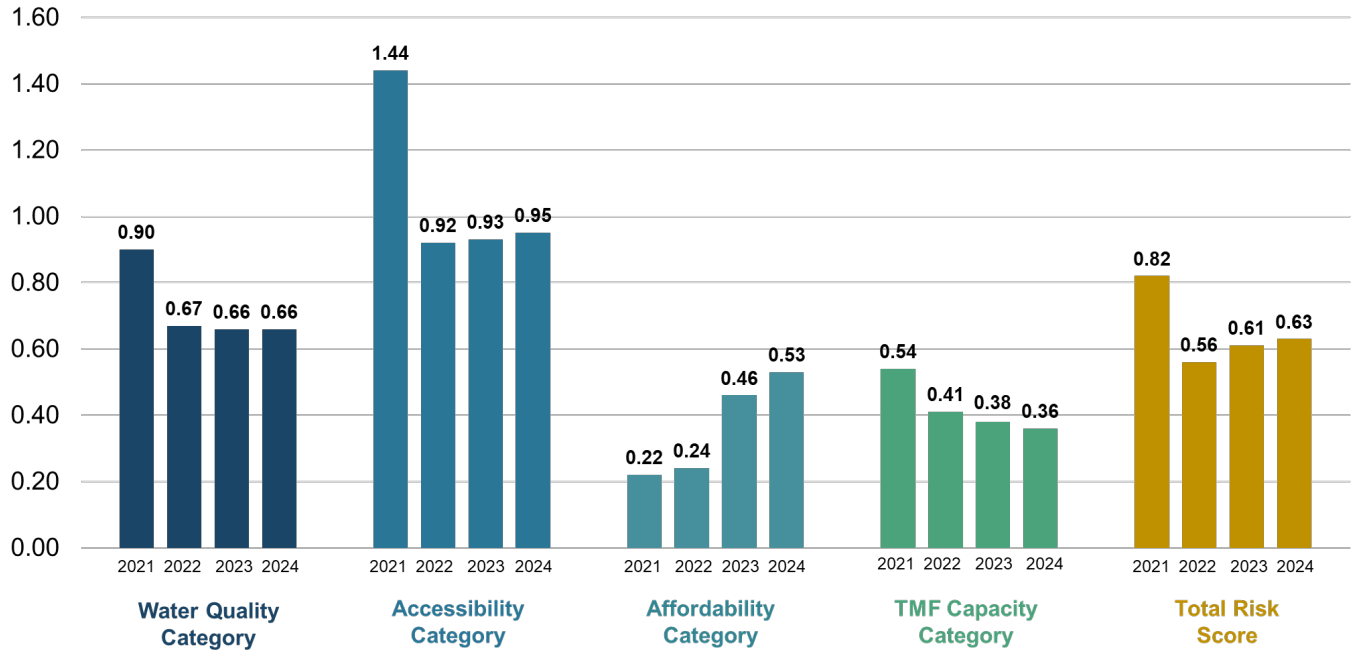


Figure 34 helps to demonstrate the status changes of systems that move year to year. Despite the hierarchy of statuses, it should be noted that systems that move into Failing status appear to come nearly evenly from the three other statuses. Systems that are At-Risk are more likely to improve their risk performance in the analysis and shift to either Potentially At-Risk or Not At-Risk than they are to Failing. Potentially At-Risk systems shift evenly into either Not At-Risk or At-Risk. The Not At-Risk water systems that shift tend to move to Potentially At-Risk, with decreasing proportions moving towards At-Risk or Failing.

RISK ASSESSMENT CATEGORY PERFORMANCE TRENDS

A comparison of water system performance in each risk category was conducted for all four years that the Risk Assessment has been conducted (Figure 35). The largest shifts in water system performance across the Risk Assessment categories occurred between the 2021 and 2022 Risk Assessments across all four categories and in 2023 in the Affordability category. It is important to note that these shifts in category scores was largely driven by changes in the Risk Assessment's methodology[142] and did not reflect a shift in actual water system performance. From 2023 to 2024, no changes to the Risk Assessment methodology occurred, only improved data quality. Performance across the Risk Assessment categories remained consistent, with an increase in average risk scores increasing in the Affordability category.

Figure 35: Average Risk Score per Category (2021-2024)



[142] In 2022, the State Water Board removed five of the risk indicators used in the 2021 Risk Assessment and added eight new risk indicators. Additional modifications included enhancements to how existing risk indicators were calculated. These changes led to a reduction in category risk scores for most water systems in the Risk Assessment. In 2023, the State Water Board added a new Affordability category risk indicator: Household Socioeconomic Burden. The addition of the new risk indicator added *new* risk scores for 947 water systems that historically had been excluded from the Affordability category because they did no charge customers directly for water.

Table 32 and Figure 36 display the changes in risk scoring that occurred for individual water systems per Risk Assessment category between 2023 and 2024. In general risk scores did not shift significantly for most water systems included in the analysis, with most systems not experiencing a change in their risk scores across all four categories. However, 38% of systems saw an overall increase in their risk score, slightly more than those that experienced a decrease (33%) or no change (30%). The category that saw the greatest increase in risk scores was affordability (25%), followed by TMF capacity (18%).

Table 32: 2023 and 2024 Risk Assessment Weighted Score Comparison[143]

Weighted Score Difference	Water Quality Category	Accessibility Category	Affordability Category	TMF Capacity Category	Total Score of Risk Assessment
# Systems **risk score unchanged**	2,425 (81%)	2,844 (94%)	1,727 (57%)	1,873 (62%)	**892 (30%)**
# Systems **risk score increased**	310 (10%)	118 (4%)	744 (25%)	535 (18%)	**1,142 (38%)**
# Systems **risk score decreased**	284 (9%)	57 (2%)	539 (18%)	611 (20%)	**985 (33%)**
TOTAL:	**3,019**	**3,019**	**3,019**	**3,019**	**3,019**

[143] This analysis excluded 36 water systems that were not included in *both* the 2023 and 2024 Risk Assessments.

Figure 36: 2023 and 2024 Risk Assessment Weighted Score Comparison

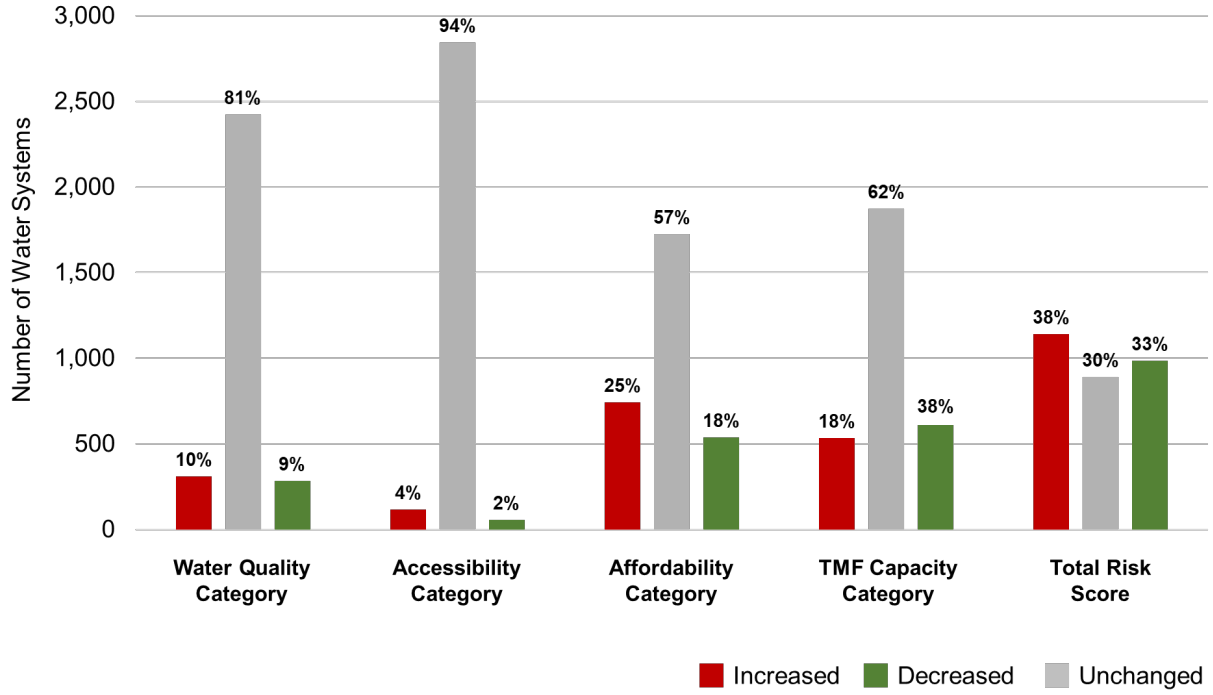
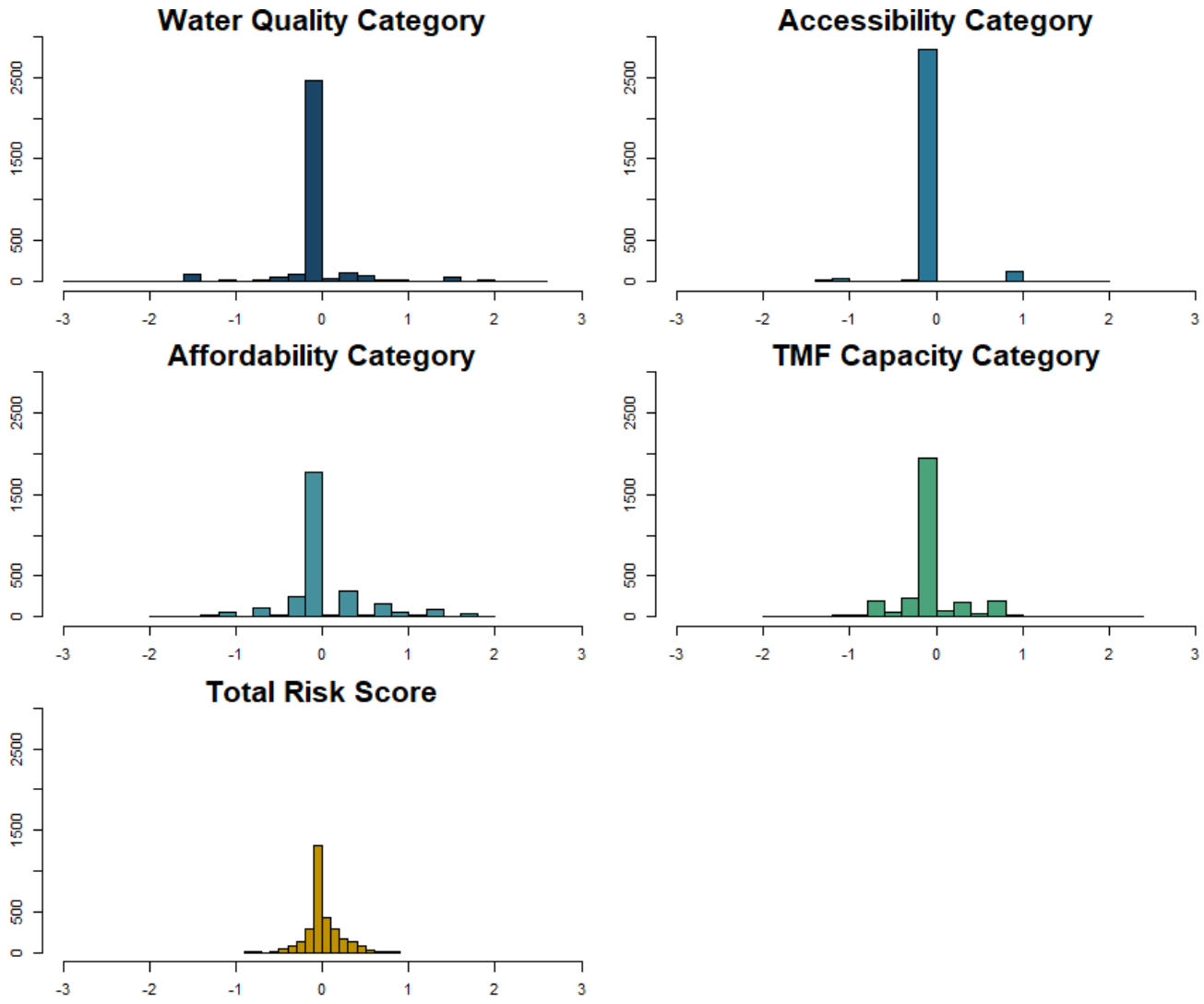


Figure 37 demonstrates the specific score change per category for systems that were included in 2023 and 2024 Risk Assessments. As shown, for all four categories, the most common change was “no change = 0 points”, shown by the large bar in the center of the graphs. The majority of systems that did see their risk scores per category increase or decrease, the magnitude of the change was on average less than 1 point. Thus, while systems are experiencing shifts in their risk score, overall, those shifts are small shifts, not large shifts.

Figure 37: Histograms of Risk Score Change from 2023 to 2024 for Risk Assessment Categories



RISK ASSESSMENT RESULTS FOR STATE SMALL WATER SYSTEMS & DOMESTIC WELLS

OVERVIEW

Figure 38: Categories of Risk

The Risk Assessment for state small water systems and domestic wells is focused on identifying areas where groundwater is at high-risk of containing contaminants that exceed safe drinking water standards, is at high-risk of water shortage, and where there is high socioeconomic risk. This information is presented as an online dashboard.[144] Water quality risk data is from the State Water Board's Aquifer Risk Map,[145] water shortage risk data is from the Department of Water Resources (DWR) Water Shortage Vulnerability Tool for Self-Supplied Communities,[146] and socioeconomic risk data was developed by the Office of Environmental Health Hazard Assessment. Previous work is available on the State Water Board's Needs Assessment webpage.[147]

[144] State Small Water System and Domestic Well Risk Assessment Dashboard https://gispublic.waterboards.ca.gov/portal/apps/experiencebuilder/experience/?id=ece2b3ca1f66401d9ae4bfce2e6a0403

[145] Aquifer Risk Map Webtool https://gispublic.waterboards.ca.gov/portal/apps/experiencebuilder/experience/?id=18c7d253f0a44fd2a5c7bcfb42cc158d

[146] Drought and Water Shortage Risk for Self-Supplied Communities https://tableau.cnra.ca.gov/t/DWR_IntegratedDataAnalysisBranch/views/DWRDroughtRiskExplorer-RuralCommunitesMarch2021/Dashboard?%3AshowAppBanner=false&%3Adisplay_count=n&%3AshowVizHome=n&%3Aorigin=viz_share_link&%3AisGuestRedirectFromVizportal=y&%3Aembed=y

[147] Drinking Water Needs Assessment Page https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/needs.html

RISK CATEGORY DATA

The State Water Board has limited water quality, water shortage, and location data for state small water systems and domestic wells, as these systems are not regulated by the state nor are maximum contaminant levels directly applicable to domestic wells.[148] Due to the lack of data from actual state small water systems and domestic wells, it is difficult to precisely determine the count of state small water systems and domestic wells that are At-Risk. To learn more, refer to data collection efforts from Counties in the 2022 Retrospective section of this report.

Water Quality

The risk analysis in the Water Quality category uses proxy groundwater quality data to identify areas where shallow groundwater quality may exceed primary drinking water standards. *These proxy data do not assess the compliance with state or federal water quality standards.* As a result, the presence of a given state small water system or domestic well within an "at-risk" area does not signify that they are known to be accessing groundwater with contaminants above drinking water standards.

Water Shortage

The risk analysis in the Water Shortage category, conducted by DWR, includes a suite of risk indicators that indicate where state small water systems and domestic wells may experience water shortage issues. The risk indicators utilize modeled data and observed data to assess for water shortage risk. As a result, the presence of a given state small water system or domestic well within an "at-risk" area does not signify that the well has gone dry or is experiencing water shortage issues.

Socioeconomic Risk

The socioeconomic risk is partially based on census data, which does not differentiate between state small water system and domestic well reliant communities. Therefore, the socioeconomic risk of an area may not represent the socioeconomic risk of individual homes or communities.

Physical monitoring and testing of state small water systems and individual domestic wells is needed to determine if those systems are unable to access safe drinking water. The State Water Board will continue to coordinate and support counties in their data collection, management, and sharing so that the Risk Assessment can improve its accuracy over time.

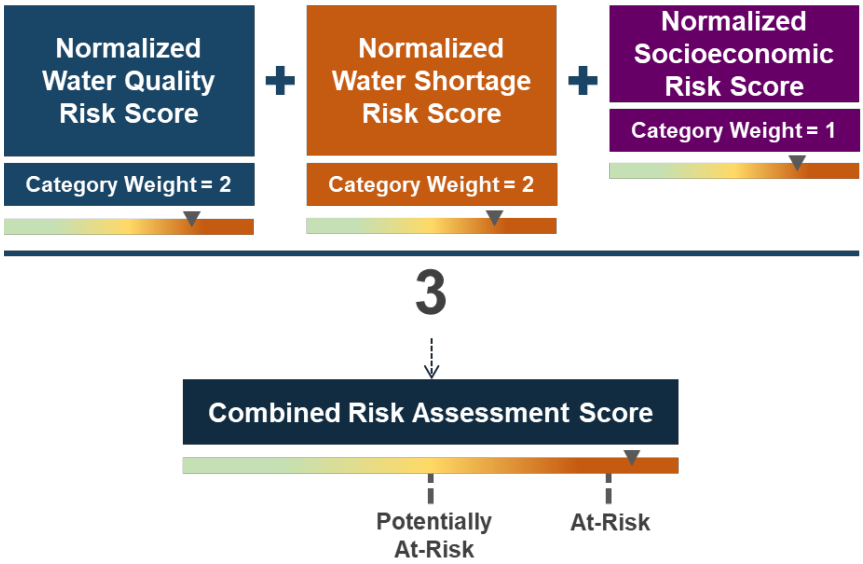
RISK ASSESSMENT METHODOLOGY

The three risk categories (water quality, water shortage, and socioeconomic risk) are combined following a similar methodology as the Risk Assessment for public water systems. Data from each category are normalized into four scores based on thresholds (Appendix: Risk

[148] State small water systems are typically required to conduct minimal monitoring. If water quality exceeds an MCL, corrective action is required only if specified by the Local Health Officer. State small water systems provide an annual notification to customers indicating the water is not monitored to the same extent as public water systems.

Assessment PWS Methodology[149]). The final combined risk score is calculated per square mile section. The score is calculated by multiplying the normalized category scores by the category weights, adding the weighted scores for all three categories, and dividing by the number of categories with data. The final risk score is binned into three groups: “At-Risk,” “Potentially At-Risk,” and “Not At-Risk.” Any area that serves a state small water systems or a domestic well with a high score in two or more categories is designated “At-Risk” and any area with a high score in either the water quality or water shortage categories is designated “At-Risk” or “Potentially At-Risk.”

Figure 39: Risk Assessment Methodology



The risk designation per square mile section is assigned to all state small water systems and domestic wells within that section. Location data for state small water systems were provided to the State Water Board through county reporting required through SB 200. Location data for domestic wells were sourced from the Online System for Well Completion Records[150] (managed by DWR) and consist of “domestic” type well records, excluding those drilled prior to 1970 and only including “New/Production or Monitoring/NA” completion record types. Combined risk scores are calculated for all areas of the state, but the risk assessment is only intended for areas with a state small water system or domestic well record. The online webtool includes a filter that only shows the risk scores for areas of the state with at least one domestic well or state small water system, although the data for all areas is available to download.

[149] Appendix: Risk Assessment Public Water System Methodology
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024risk-assessment-pws-methodolgy.pdf
[150] Department of Water Resources OSWCR database
https://services.arcgis.com/aa38u6OgfNoCkTJ6/arcgis/rest/services/i07_WellCompletionReports_Exported_v2_gdb/FeatureServer

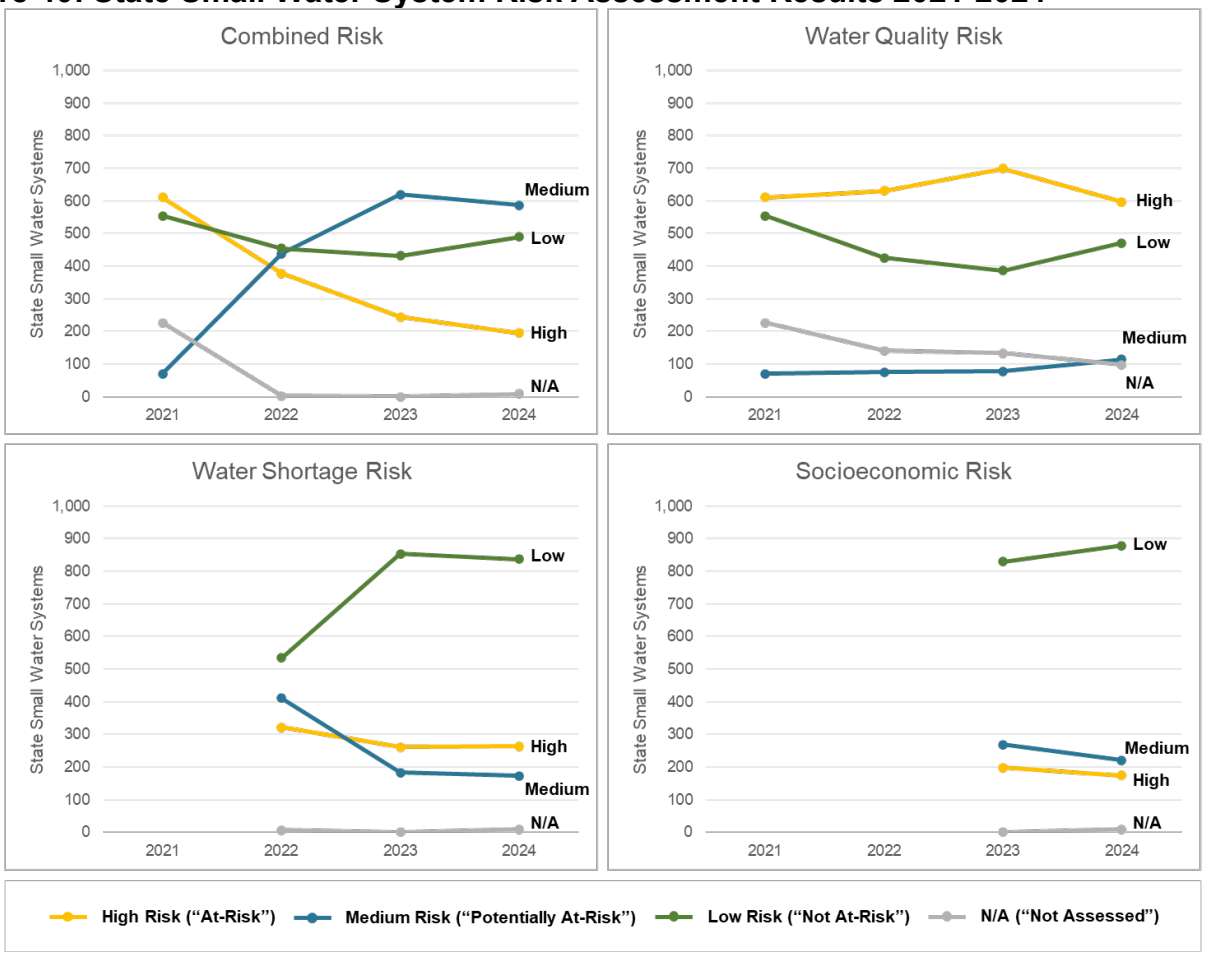
RISK ASSESSMENT RESULTS

Table 33 shows the approximate counts of state small water systems and domestic wells statewide located in different risk areas based on data from the 2024 Risk Assessment. Figure 40 and Table 34 show the state small water system risk assessment results over time. Figure 41 and Table 35 show the domestic well risk assessment results over time.

Table 33: State Small Water System and Domestic Well Results (Statewide)

Systems	At-Risk	Potentially At-Risk	Not At-Risk	Total
State Small Water Systems	195 (15%)	588 (46%)	499[151] (39%)	1,282 (100%)
Domestic Wells	73,431 (25%)	101,325 (34%)	121,527 (41%)	296,283 (100%)

Figure 40: State Small Water System Risk Assessment Results 2021-2024



[151] This number includes nine state small water systems without location information. Without location information, the risk of these systems could not be properly assessed.

Table 34: State Small Water System Risk Assessment Results 2021-2024

State Small Water Systems	2021	2022	2023	2024
Combined Risk				
At-Risk	611	378	245	195
Potentially At-Risk	71	438	620	588
Not At-Risk	554	455	432	490
Not Assessed	227	2	0	9
Water Quality				
At-Risk	611	631	699	597
Potentially At-Risk	71	75	78	115
Not At-Risk	554	426	387	472
Not Assessed	227	141	133	98
Water Shortage				
At-Risk	N/A	321	261	263
Potentially At-Risk	N/A	411	183	173
Not At-Risk	N/A	535	853	837
Not Assessed	N/A	6	0	9
Socioeconomic Risk				
At-Risk	N/A	N/A	198	174
Potentially At-Risk	N/A	N/A	269	220
Not At-Risk	N/A	N/A	830	879
Not Assessed	N/A	N/A	0	9

Figure 41: Domestic Well Risk Assessment Results (2021-2024)

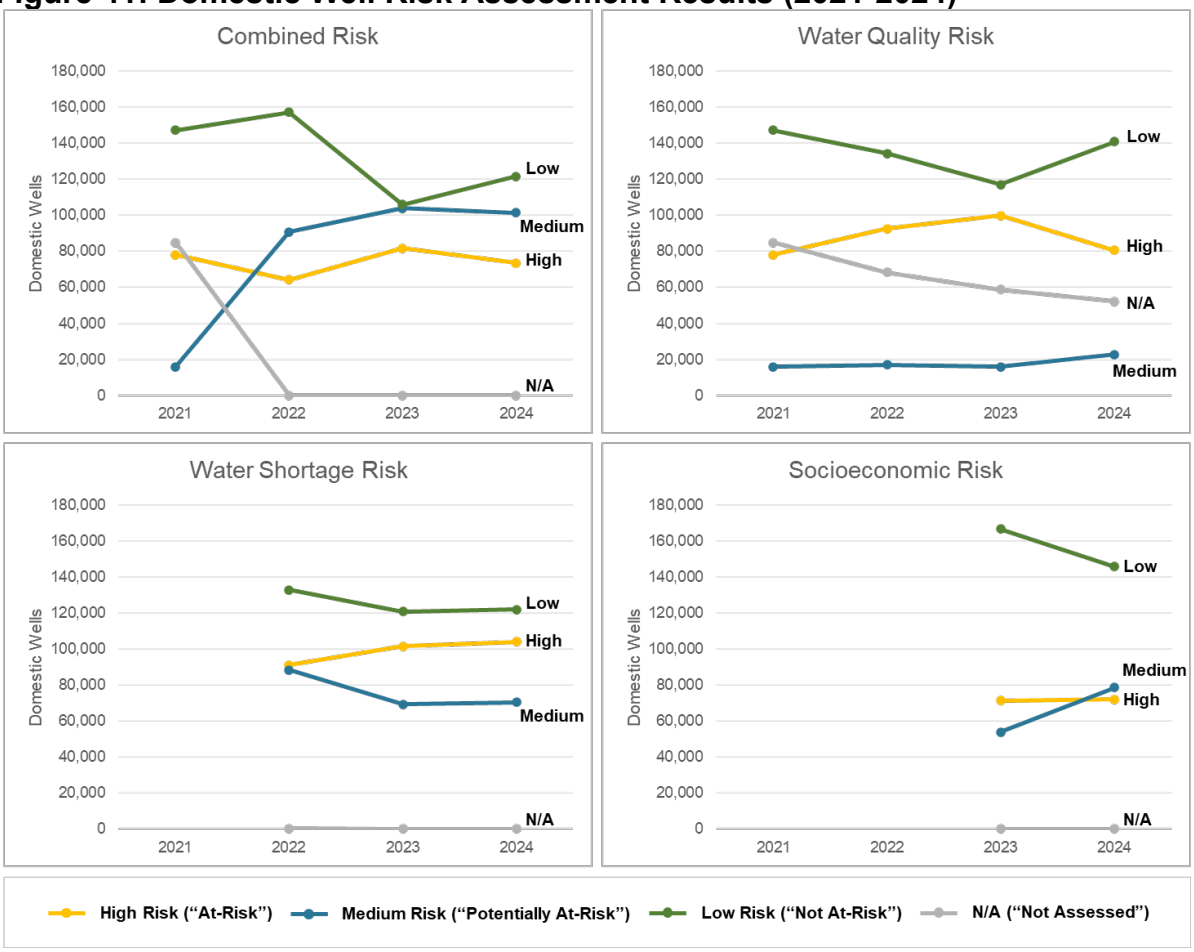


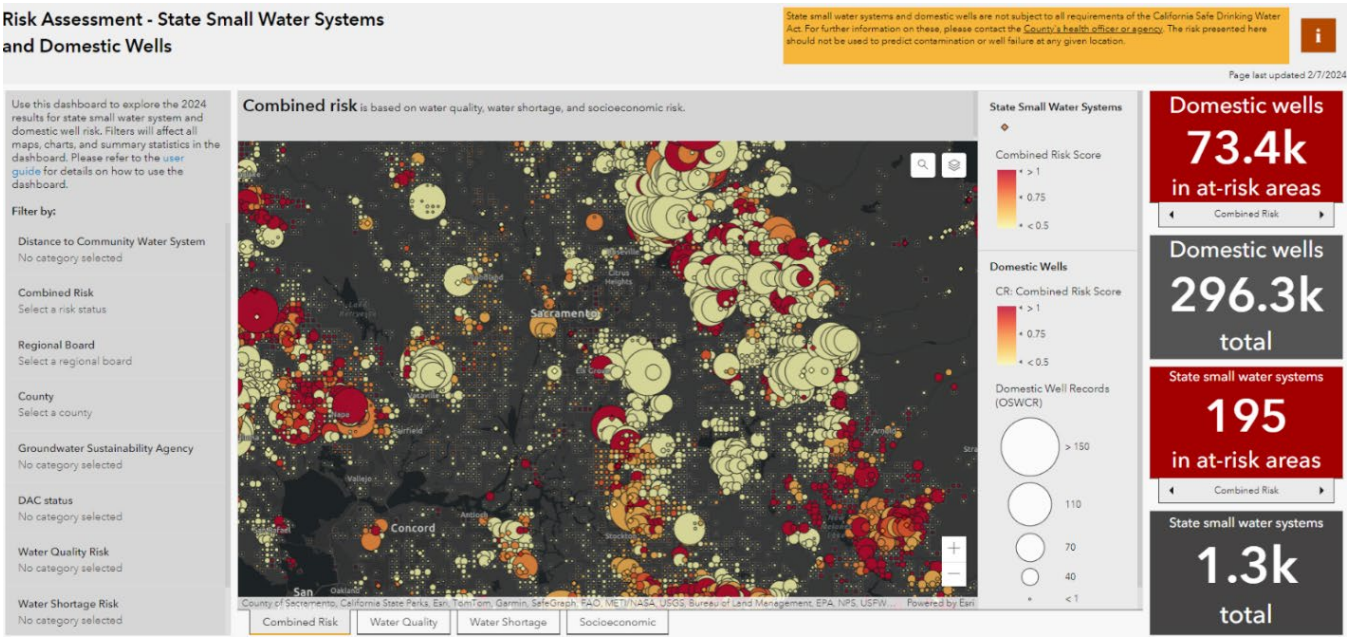
Table 35: Domestic Well Risk Assessment Results (2021-2024)

Domestic Wells	2021	2022	2023	2024
Combined Risk				
At-Risk	77,973	64,176	81,588	73,431
Potentially At-Risk	15,791	90,840	103,986	101,325
Not At-Risk	147,185	157,146	105,827	121,527
Not Assessed	84,800	25	0	0
Water Quality				
At-Risk	77,973	92,635	99,814	80,517
Potentially At-Risk	15,791	17,078	15,869	22,691
Not At-Risk	147,185	134,282	117,028	140,962
Not Assessed	84,800	68,192	58,690	52,113
Water Shortage				
At-Risk	N/A	90,974	101,393	103,954

Domestic Wells	2021	2022	2023	2024
Potentially At-Risk	N/A	88,340	69,245	70,350
Not At-Risk	N/A	132,709	120,763	121,888
Not Assessed	N/A	164	0	91
Socioeconomic Risk				
At-Risk	N/A	N/A	71,156	72,000
Potentially At-Risk	N/A	N/A	53,734	78,628
Not At-Risk	N/A	N/A	166,511	145,655
Not Assessed	N/A	N/A	0	0

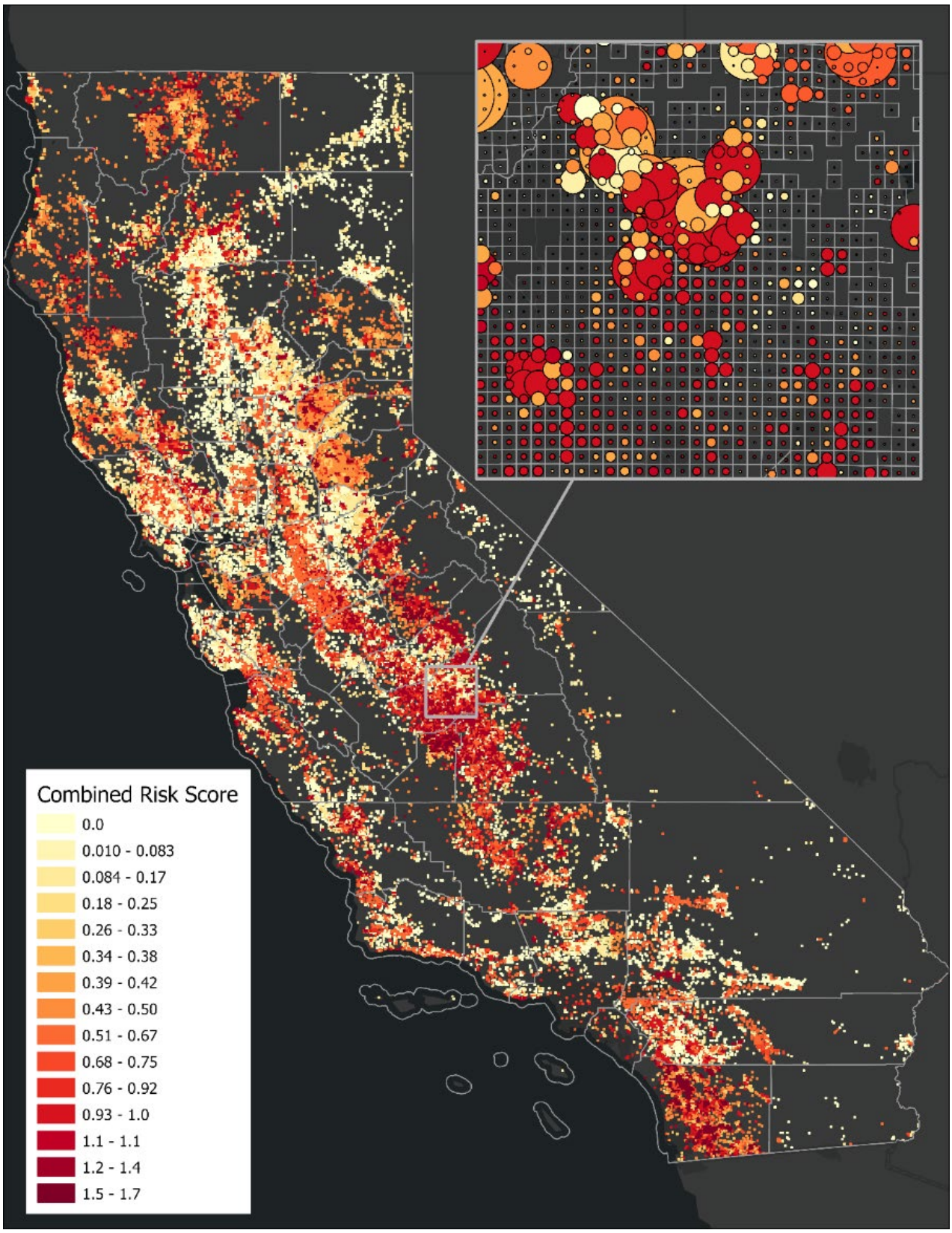
Figure 43 is a map that shows the combined risk for areas of the state with a state small water system or domestic well. To view this spatial data in more detail, and to see the state small water system and domestic well risk counts summarized by county please refer to the 2024 Risk Assessment – State Small Water System and Domestic Well Dashboard (Figure 42).[152]

Figure 42: Risk Assessment - State Small Water Systems and Domestic Well Dashboard



[152] State Small Water System and Domestic Well Risk Assessment Dashboard https://gispublic.waterboards.ca.gov/portal/apps/experiencebuilder/experience/?id=ece2b3ca1f66401d9ae4bfce2e6a0403

Figure 43: Combined Risk for State Small Water Systems & Domestic Wells



COMBINED RISK ANALYSIS

Areas of highest combined risk are located in the Southern San Joaquin Valley, parts of the western Sierra Nevada foothills, and parts of San Diego County. The counties with the highest number of domestic wells in At-Risk areas are Fresno, Nevada, San Diego, and Mariposa counties. The counties with the highest number of state small water systems in At-Risk areas are Monterey, Tulare, Kern, and Merced counties.

Approximately 14,675 domestic wells (18% At-Risk domestic wells) and 51 At-Risk state small water systems (26% of At-Risk state small water systems) are located within the boundary of a community water system. A further 28,000 At-Risk domestic wells and 101 At-Risk state small water systems are located within one mile of a community water system boundary.

Table 36: Distance of At-Risk Systems to Nearest Community Water System

Distance to Nearest Community Water System	At-Risk State Small Water Systems	At-Risk Domestic Wells
Within boundary	51 (26%)	12,924 (18%)[153]
< 0.38 miles	65 (33%)	11,561 (16%)
0.38 - 1 mile	36 (18%)	16,439 (22%)
1 – 3 miles	26 (13%)	20,139 (27%)
> 3 miles	17 (9%)	12,368 (17%)
TOTAL:	**195 (100%)**	**73,431 (100%)**

WATER QUALITY RISK ANALYSIS

The Central Valley and the Salinas Valley contain the most areas at high water quality risk. The counties with the highest number of domestic wells in high water quality risk areas include Fresno, Sonoma, San Joaquin and Tulare counties. The counties with the highest number of state small water systems in high water quality risk areas include Monterey, Kern, Riverside and Santa Clara counties.

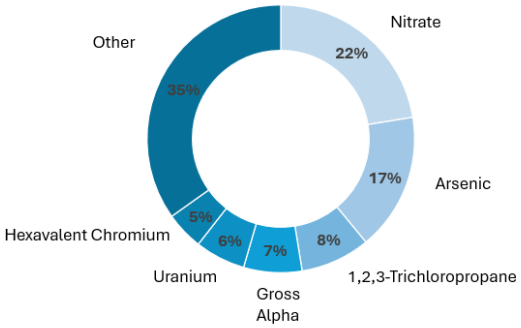
Statewide, the top contaminants that contributed to higher risk designations in domestic wells and state small water systems are nitrate, arsenic, 1,2,3-trichloropropane, gross alpha, uranium, and hexavalent chromium. Figure 44 shows the proportion of domestic wells in high water quality risk areas where the contaminant may exceed drinking water standards. Note that multiple contaminants may exceed drinking water standards at a single location.

The number of domestic wells and state small water systems in high water quality risk areas decreased from 2023 to 2024. There was a methodological update and an error correction in the 2024 Aquifer Risk Map that could explain this change in water quality risk.[154] The methodology for recent results was adjusted so that sections with between zero and one recent result above the comparison concentration are classified as medium risk instead of high

[153] Percentage represents the at-risk domestic wells that meet the distance criteria compared to the total number of at-risk domestic wells.
[154] For more details, refer to the 2024 Aquifer Risk Map Methodology.
https://www.waterboards.ca.gov/water_issues/programs/gama/docs/armmethods24.pdf

risk. Fractional results above the comparison concentration are possible because of averaging from neighboring areas. Additionally, there was a nitrate conversion error in the Groundwater Ambient Monitoring and Assessment Groundwater Information System (GAMA GIS) that caused incorrect nitrate and nitrite data to be included in the 2023 Needs Assessment. Some nitrite and nitrate results that were reported as “mg/L as NO3” or “mg/L as NO2” were incorrectly displayed as “mg/L as N” on GAMA GIS without any mathematical conversion. This means that the nitrate results were shown as ~4.4 times higher and nitrite results were shown as ~3.3 times higher than they should have been. This issue meant that multiple areas were listed as high risk for nitrate in 2023 but should have been listed as low risk. This data error was present in GAMA GIS from early 2022 to January 2023, so it only affected 2023 Needs Assessment results, not 2022 or 2024 Risk Assessment results. At this time, the 2023 Risk Assessment results will not be re-released with updated data.

Figure 44: Constituents Contributing to Shallow Water Quality Risk



WATER SHORTAGE RISK ANALYSIS

Areas of high water shortage risk are concentrated in the Southern San Joaquin Valley, in the fractured rock areas of the western Sierra foothills, in parts of San Diego County and Northern California.

High *Water Shortage* risk areas are highly correlated with reported dry wells. Of the dry well reports[155] made to the Department of Water Resources within the past year, 70% are located within an area with high water shortage risk. 12% of reports are located within medium *Water Shortage* risk areas, and 18% of reports are located within low water shortage risk areas.

Over half of communities served by domestic wells with high water shortage risk are within the boundary of or within one mile of an existing community water system. Nearly three quarters of communities served by a state small water system with high water shortage risk are within the boundary of or within one mile or an existing community water system. Distance to existing community water systems is an important factor when considering water shortage risk because after a well has gone dry it can take a considerable amount of time for a long-term solution to be implemented.

[155] Households report well outages or issues to the Department of Water Resources https://mydrywatersupply.water.ca.gov/report/

Table 37: High Water Shortage Risk Areas Distance to a Nearby Community Water System

Distance to Nearest Community Water System	State Small Water Systems with High Water Shortage Risk	Domestic Wells with High Water Shortage Risk
Within boundary	50 (19%)	16,739 (16%)
< 0.38 miles	100 (38%)	17,214 (17%)
0.38 - 1 mile	47 (18%)	22,425 (22%)
1 – 3 miles	42 (16%)	30,764 (30%)
> 3 miles	24 (9%)	16,812 (16%)
TOTAL:	**263 (100%)**	**103,954 (100%)**

SOCIOECONOMIC RISK ANALYSIS

For socioeconomic scores assigned at the county level (testing type, testing impact, monitoring programs, administrative services, website quality, funding resources, replacement well cost and average number of wells per driller) higher average county scores do not always correlate with higher domestic well counts. For example, the counties with the highest number of domestic wells (Fresno and Nevada counties) have extremely different county risk scores. Fresno county has one of the lowest county scores, while Nevada has among the highest. Some of the counties with the lowest number of domestic wells also have some of the highest county risk scores (Alameda, Humboldt, Contra Costa, Orange counties), while some counties with moderate numbers of domestic wells have very low county risk scores (San Joaquin, Tulare, San Bernardino).

The Central Valley does not have the highest overall socioeconomic risk scores, which could be because the county-level quality and administrative capacity indicator scores for the Central Valley are lower, indicating that many of these counties have more robust support for domestic wells than others. This lowers the overall socioeconomic risk scores in the Central Valley, even in areas with high census-level socioeconomic indicator scores. The areas with the highest socioeconomic risk scores are Nevada, Humboldt, San Diego, and Siskiyou counties.[156]

Disadvantaged community status does not appear to be associated with higher socioeconomic risk scores. The average socioeconomic risk score in disadvantaged community areas is 0.66, compared with an average socioeconomic risk score in non-disadvantaged community areas of 0.66. For areas with high socioeconomic risk, 39% are in disadvantaged community areas and 61% are in non- disadvantaged community areas. For areas with low socioeconomic risk, 27% of domestic wells are in disadvantaged community areas and 73% are in non-disadvantaged community areas.

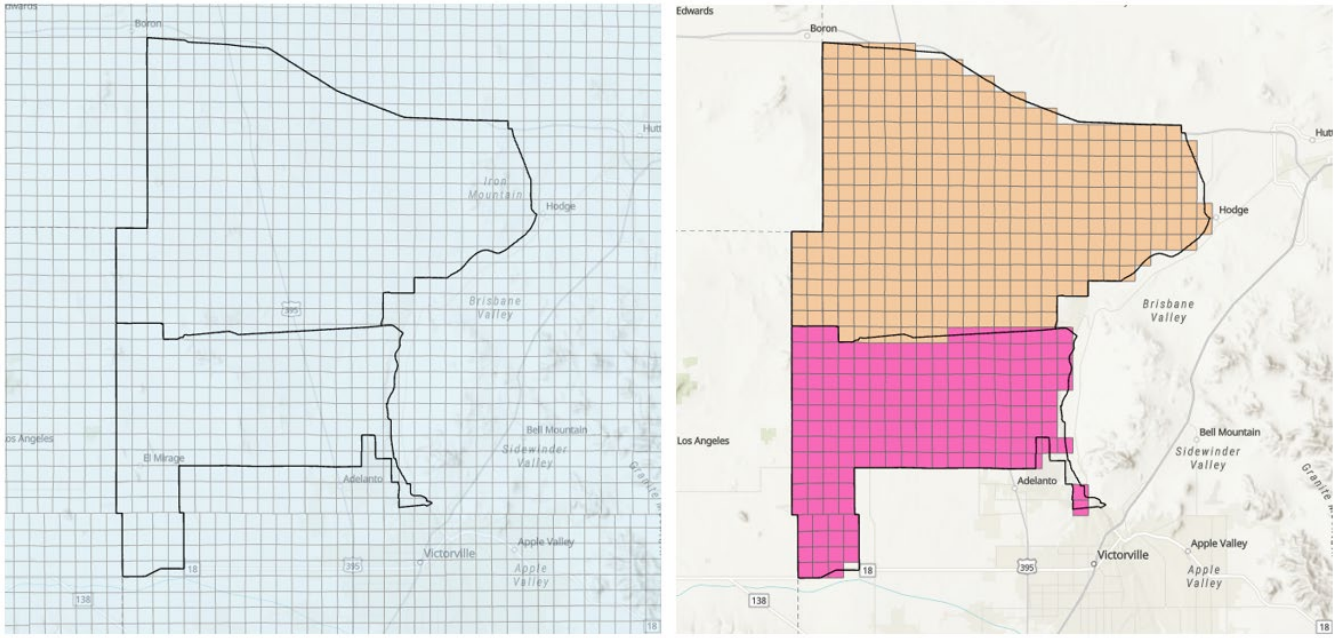
[156] County Risk Indicator Analysis
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2023prelimcountydata.xlsx

DEMOGRAPHIC ANALYSIS OF AT-RISK STATE SMALL WATER SYSTEMS AND DOMESTIC WELL AREAS

Results for the 2024 Risk Assessment for state small water systems and domestic wells can be combined with demographic data to better understand the populations most at-risk for water shortage and water quality issues. However, there are several limitations to this demographic analysis. Demographic data is available at the census block group or census tract level, and current census surveys do not indicate household drinking water source type. Therefore, the demographic information presented in the tables below may not represent the population served by state small water systems or domestic wells. Any interpretation of these results should keep in mind the limitations of the analysis.

Demographic data (household size, linguistic isolation, poverty, median household income, and race/ethnicity) is from the 2022 American Community Survey. CalEnviroScreen 4.0 data is from OEHHA[157]. The CalEnviroScreen 4.0 data is displayed as percentiles, with higher percentiles indicating areas that are most affected by pollution and where people are especially vulnerable to the effects of pollution. The demographic analysis for state small water systems was calculated by assigning census data to state small water systems using the census area overlying the point location of the state small water system. The demographic analysis for domestic wells was calculated by assigning census data to square mile sections using the census area overlying the section centroid (Figure 45).

Figure 45: PLSS and Block Group Boundary Intersection by Section Centroid



[157] OEHHA CalEnviroScreen
https://oehha.ca.gov/calenviroscreen

When compared with not at-risk state small water systems areas, at-risk state small water system areas tend to have slightly higher CalEnviroScreen 4.0 scores, a slightly higher percentage of households in poverty, a lower percentage of limited English-speaking households, a similar household size, and are more likely to be in a disadvantaged community (DAC) or severely disadvantaged community (SDAC) area. State small water systems that are potentially at-risk are the most likely to be in a majority community of color census area.

Table 38: Demographic Analysis for Areas with Combined At-Risk State Small Water Systems[158]

	Statewide (all areas)	Statewide (SSWS areas only)	Not At-Risk	Potentially At-Risk	At-Risk
Total Count of SSWS	**1,282**	**1,282**	**490**	**588**	**195**
Average CalEnviroScreen 4.0 Percentile	50.0	40.1	37.5	43.1	40.1
Average CalEnviroScreen 4.0 Population Characteristics[159] Percentile	50.0	41.1	39.3	42.3	42.3
Average CalEnviroScreen 4.0 Pollution Burden Percentile	50.0	41.9	37.9	42.3	40.3
Average percentage of households 2x below federal poverty	27.6%[160]	30.3%	28.9%	31.6%	29.7%
Average percentage of households with limited English speaking	8.4%[161]	8.1%	6.4%	10.6%	5%
Average household size	2.89	2.87	2.75	3.03	2.73

[158] The three CalEnviroScreen 4.0 data categories in this assessment utilize 2015-2019 American Community Survey (ACS) data. The following data categories in this assessment utilize updated 2017-2022 ACS data: Average percentage of households 2x below federal poverty, Average percentage of households with limited English speaking, Average household size, Percent of systems in DAC/SDAC areas, and Percent of community of color customers served.

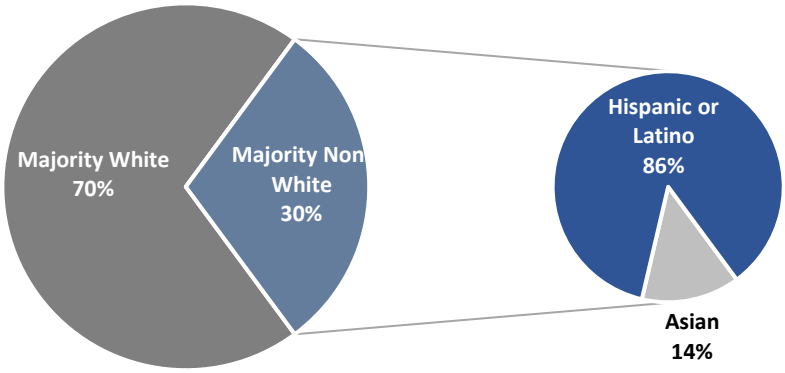
[159] "Population Characteristics" scores for each census tract are derived from the average percentiles for three sensitive populations indicators (asthma, cardiovascular disease, and low birth weight) and five socioeconomic factor indicators (educational attainment, housing-burdened low-income households, linguistic isolation, poverty, and unemployment). These data points represent demographic factors known to effect vulnerability to impacts of pollution.

[160] Healthy Alameda County :: Indicators :: People Living Below 200% of Poverty Level :: State : California https://www.healthyalamedacounty.org/?module=indicators&controller=index&action=view&comparisonId=&indicatorId=12169&localeTypeId=1&localeId=7

[161] S1602: Limited English ... - Census Bureau Table https://data.census.gov/table/ACSST1Y2022.S1602?q=S1602:%20Limited%20English%20Speaking%20Households&g=040XX00US06

	Statewide (all areas)	Statewide (SSWS areas only)	Not At-Risk	Potentially At-Risk	At-Risk
Percent of SSWS in DAC/SDAC areas[162]	32.1% (412)	32.1% (412)	32.2% (158)	29.3% (172)	42.1% (82)
Percent of SSWS in majority community of color	42.7% (583)	42.7% (583)	38.0% (186)	57.7% (339)	29.7% (58)

Figure 46: Distribution of At-Risk State Small Water Systems by Majority Race/Ethnicity of Census Tract



When compared with not At-Risk domestic well areas, At-Risk domestic well areas tend to have higher CalEnviroScreen scores, a slightly higher percentage of household poverty, a slightly higher percentage of households with limited English speaking, larger household size, are more likely to be in a DAC or SDAC area and are more likely to be in a majority community of color census area.

Table 39: Demographic Analysis for Areas with Combined At-Risk Domestic Wells[163, 164]

	Statewide (all areas)	Domestic Well Areas Only	Not At-Risk	Potentially At-Risk	At-Risk
Total Count of Domestic Wells	**296,283**	**296,283**	**121,527**	**101,325**	**73,431**

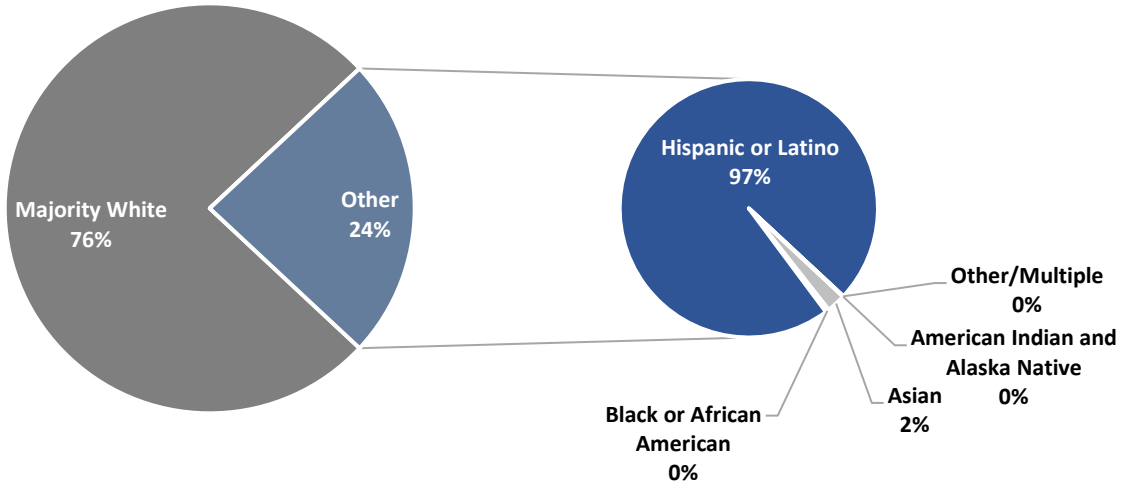
[162] DAC = "disadvantaged community" and represents areas with Median Household Income less than 80% of the California Median Household Income ($73,524).
SDAC = "severely disadvantaged communities" represents areas with Median Household Income less than 60% of the California Median Household Income ($55,143).
[163] CalEnviroScreen 4.0 data is available per census tract. Combined risk status for domestic wells is available per square mile section. To determine the CalEnviroScreen 4.0 percentile score average per combined risk category, each section was assigned the CalEnviroScreen 4.0 percentile score based on the tract that contains the centroid of the section. Some census tracts do not contain any section centroid and therefore do not contribute to the averages even if they overlap a section with a domestic well.
[164] The three CalEnviroScreen 4.0 data categories in this assessment utilize 2015-2019 American Community Survey (ACS) data. The following data categories in this assessment utilize updated 2017-2022 ACS data: Average percentage of households 2x below federal poverty, Average percentage of households with limited

	Statewide (all areas)	Domestic Well Areas Only	Not At-Risk	Potentially At-Risk	At-Risk
Average CalEnviroScreen 4.0 Percentile	50.0	41.2	39.3	43.3	43.2
Average CalEnviroScreen 4.0 Population Characteristics Percentile	50.0	43.5	43.3	44.8	44.6
Average CalEnviroScreen 4.0 Pollution Burden Percentile	50.0	40.3	37.8	43.1	42.6
Average percentage of households 2x below federal poverty	27.6%	30.0%	29.1%	30.9%	30.9%
Average percentage of households with limited English speaking	8.4%	4.5%	3.8%	5.4%	5.1%
Average household size	2.89	2.76	2.72	2.81	2.81
Percent of domestic wells in DAC/SDAC areas[165]	27.0% (79,891)	27.0% (79,891)	26.9% (32,653)	23.7% (23,980)	31.7% (23,358)
Percent of domestic wells in majority community of color	20.7%	20.7%	15.8%	24.2%	23.9%

English speaking, Average household size, Percent of systems in DAC/SDAC areas, and Percent of community of color served.

[165] DAC = "disadvantaged community" and represents areas with Median Household Income less than 80% of the California Median Household Income ($73,524).
SDAC = "severely disadvantaged communities" represents areas with Median Household Income less than 60% of the California Median Household Income ($55,14350,458).

Figure 47: Distribution of At-Risk Domestic Wells by Majority Race/Ethnicity of Census Tract

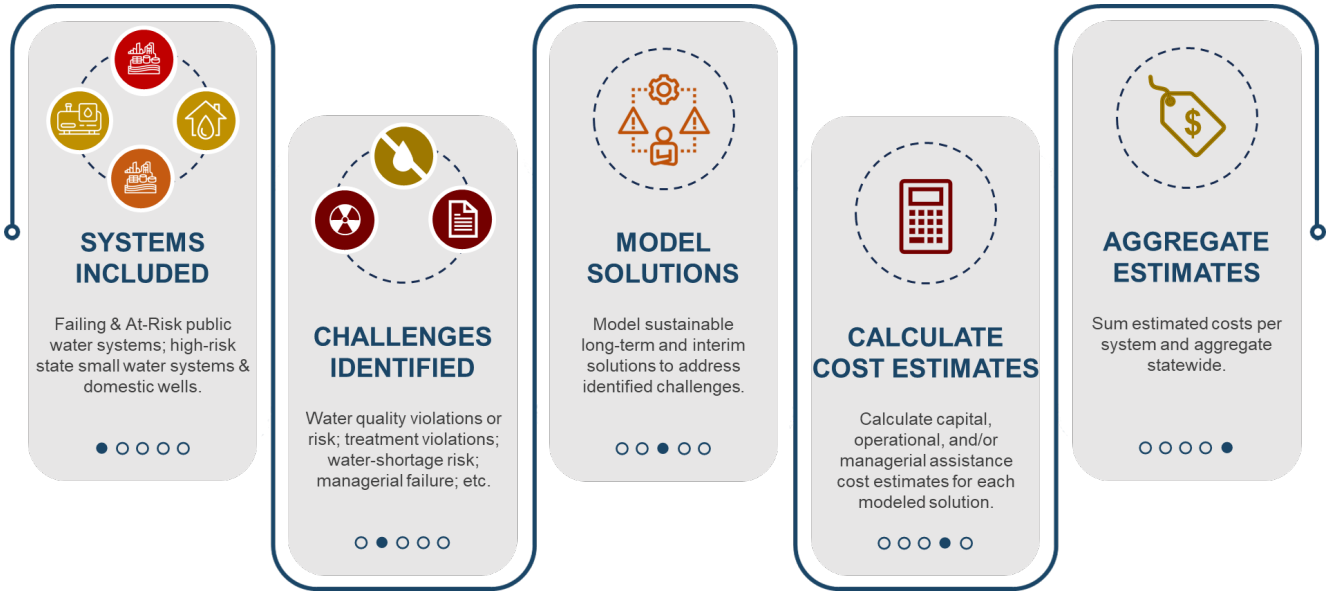


COST ASSESSMENT

OVERVIEW

The purpose of the Cost Assessment is to estimate the cost of achieving the Human Right to Water[166] in California. The Cost Assessment is a *model* comprised of decision criteria, cost assumptions, and calculation methodologies used to estimate a statewide cost for implementing long-term and interim solutions for Failing public water systems, At-Risk public water systems, high-risk state small water systems, and domestic wells. The estimated costs and resulting Funding Gap Analysis are utilized to inform the broader demands of the SAFER program, including annual funding needs for the Safe and Affordable Drinking Water Fund.[167]

Figure 48: Cost Assessment Model



[166] State Water Resources Control Board Resolution No. 2016-0010
https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2016/rs2016_0010.pdf
[167] Safe and Affordable Drinking Water Fund
https://www.waterboards.ca.gov/water_issues/programs/grants_loans/sustainable_water_solutions/safer.html

The Cost Assessment results include the following:

- **Long-Term Solution Estimated Needs**: costs associated with installation of new infrastructure and managerial assistance.
- **Interim Assistance Estimated Needs**: costs associated with emergency assistance needs for disadvantaged communities.
- **Modeled Treatment Operations & Maintenance Needs:** costs related to ongoing needs associated with running modeled centralized and decentralized treatment.

PURPOSE OF THE COST ASSESSMENT

The purpose of the Cost Assessment is to estimate the cost of achieving the Human Right to Water, which is the cost of ensuring safe and affordable drinking water for all Californians. It is not a comprehensive assessment of statewide drinking water infrastructure needs. All drinking water systems require routine maintenance, infrastructure replacement and enhancements, etc. The Cost Assessment only includes a small proportion of drinking water systems in the state (i.e. those necessary to achieve the Human right to Water) and should not be interpreted as representing the full extent of drinking water funding needs.

The embedded assumptions and cost estimates detailed in the Cost Assessment are purely for the purposes of the Needs Assessment. Local solutions and actual costs will vary from system to system and will depend on site-specific details. Therefore, **the Cost Assessment is not intended to be used by the State Water Board or any community to inform community-level decisions,** as it includes many assumptions about local needs and capacity. The purpose of the Cost Assessment is to provide an informative analysis of estimated needs statewide.

The Cost Assessment evaluates only a narrow range of possible interim and long-term solutions. Communities included in the analysis should be conducting a detailed evaluation of their unique drinking water challenges and identify a range of possible solutions to select the best path forward.

The Cost Assessment is not used by the State Water Board or any of its partners to inform local decisions. In particular, the Cost Assessment's output and underlying assumptions are not used by the State Water Board to make decisions regarding funding and assistance.

In 2021, the State Water Board conducted its first Cost Assessment in partnership with the University of California Los Angeles Luskin Center for Innovation, Corona Environmental

Consulting, and Sacramento State University Office of Water Programs. The results of that analysis were published in the 2021 Needs Assessment.[168] At that time, the Cost Assessment estimated that the total capital costs of addressing the challenges faced by Failing and At-Risk systems was approximately $4.5 billion for modeled long-term solutions and $1.6 billion for the estimated duration of modeled interim solutions.

Due to minor changes to the number of Failing and At-Risk systems in 2022, the State Water Board did not update the Cost Assessment estimates in the 2022 Needs Assessment. However, in September 2021 the Governor approved Senate Bill (SB) 552,[169] which requires small water systems (15 – 2,999 connections) and schools to meet new drought infrastructure resiliency measures. In response to stakeholder feedback for better drought-related cost estimates and the need to support SB 552 planning, the State Water Board conducted a targeted Drought Infrastructure Cost Assessment for the 2022 Needs Assessment.[170] The 2022 Drought Infrastructure Cost Assessment estimated needs of approximately $2.4 billion for 2,634 small community water systems.

The 2023 Needs Assessment did not include an updated Cost Assessment. In 2023, the State Water Board embarked on a two-year Cost Assessment enhancement effort that included:

1. Updating how the Cost Assessment identifies and selects interim and long-term solutions for Failing and At-Risk systems.
2. Updating and enhancing the cost assumptions and formulas used in the Cost Assessment to estimate costs – both capital and non-capital.
3. Improving the analysis of the Cost Assessment results.
4. Improving transparency by making the underlying data, formulas, etc. more accessible.

The State Water Board hosted five public workshops to solicit stakeholder feedback on the 2024 Cost Assessment. More information about the Cost Assessment's enhancements can be found online[171] and in Appendix: Cost Assessment Methodology.[172]

SYSTEMS ASSESSED

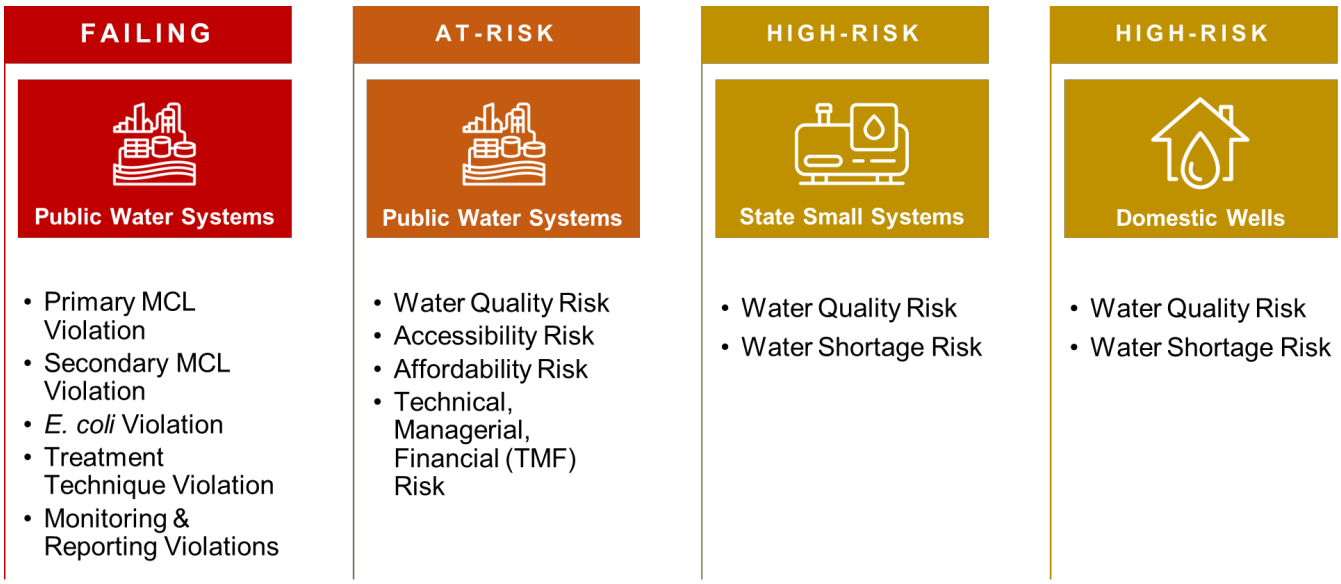
Senate Bill 200 directs the State Water Board to estimate the funding needed for the Safe and Affordable Drinking Water Fund to achieve the Human Right to Water. Therefore, the Cost Assessment estimates the cost for implementing interim and long-term solutions for Failing

[168] 2021 Drinking Water Needs Assessment
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2021_needs_assessment.pdf
[169] Senate Bill No. 552, section 10609.62, Chapter 245
https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=202120220SB552
[170] 2022 Drinking Water Needs Assessment
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2022needsassessment.pdf
[171] State Water Board I Drinking Water Needs Assessment
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/needs.html
[172] Appendix: Cost Assessment Methodology
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024costassessment-methodology.pdf

public water systems,[173] At-Risk public water systems,[174] high-risk state small water systems and domestic wells.[175] Learn more in Appendix: Cost Assessment Methodology.[176]

The inventory of systems included in the Cost Assessment represents a small proportion of California public water systems. Only 23% of community water systems are included in the analysis, along with 57% of the state's state small water systems and 48% of known domestic wells. Collectively, the public water systems included in the Cost Assessment serve approximately 7%[177] of California's population. Therefore, **the results of the Cost Assessment do not reflect statewide drinking water infrastructure needs.**

Figure 49: Systems Included in the Cost Assessment



[173] Failing Criteria for Community Water Systems & Schools
https://www.waterboards.ca.gov/water_issues/programs/hr2w/docs/hr2w_expanded_criteria.pdf
[174] Appendix: Risk Assessment Public Water System Methodology
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024risk-assessment-pws-methodolgy.pdf
[175] Appendix: Risk Assessment Methodology for State Small Water Systems & Domestic Wells
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024risk-assessment-ssws-dw-methodolgy.pdf
[176] Appendix: Cost Assessment Methodology
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024costassessment-methodology.pdf
[177] Failing public water systems serve 913,462 persons and At-Risk public water systems serve 1,535,220 persons.

Table 40: Failing and At-Risk Public Water Systems Included in the 2024 Cost Assessment

Water System Type	Large[178]	Medium[179]	Small[180]	K-12 Schools	TOTAL
Failing Public Water Systems	1 (0%)	16 (2%)	318 (32%)	50 (5%)	**385** (39%)
At-Risk Public Water Systems	*Excluded* (0%)	31 (3%)	511 (51%)	71 (7%)	**613** (61%)
TOTAL:	**1 (0%)**	**47 (5%)**	**829 (83%)**	**121 (12%)**	**998 (100%)**

Table 41: High-Risk State Small Water Systems and Domestic Well Systems Included in the 2024 Cost Assessment

System Type	High *Water Quality* Risk Only	High *Water Shortage* Risk Only	Both High *Water Quality* & *Shortage* Risk	TOTAL
State Small Water Systems Statewide: 1,282	464 (36%)	130 (10%)	133 (10%)	**727 (57%)**
Domestic Wells Statewide: 296,283	39,709 (13%)	63,146 (21%)	40,808 (14%)	**143,663 (48%)**

MODELED SOLUTIONS CONSIDERED

The Cost Assessment considered various potential modeled solutions for Failing public water systems, At-Risk public water systems, high-risk state small water systems, and domestic wells. Below are brief descriptions of the potential modeled solutions included in the analysis.

Long-Term Solutions

The Cost Assessment Model utilizes water system information to identify the most sustainable and potentially feasible modeled long-term solution(s). Modeled long-term solutions in the Cost Assessment include physical consolidation, centralized treatment, decentralized treatment, new public or private wells, bottled water, technical assistance, administrator assistance, and other essential infrastructure. Some systems may have one or more modeled long-term solutions depending on the system type, the identified challenges, and other system or community characteristics. Learn more about how the Cost Assessment models long-term solutions in Appendix: Cost Assessment Methodology.[181]

[178] Large water system = Greater than 30,000 service connections.
[179] Medium water system = 3,000 to 30,000 service connections.
[180] Small water system = 3,000 service connections or less.
[181] Appendix: Cost Assessment Methodology

Physical Consolidation: Joining two or more public water systems, state small water systems, or affected residences (domestic wells) into a single public water system, physically via pipelines.[182] The Cost Assessment identifies potential one-to-one physical consolidations between two different systems. These systems are classified in the Cost Assessment Model as either "Receiving" or "Joining" systems. The Cost Assessment Model uses spatial geographic information system (GIS) analysis to identify if the inventory of potential Joining and Receiving systems meets physical consolidation distance criteria and cost viability thresholds. Learn more in Supplemental Appendix: Physical Consolidation Cost Estimation Methodology.[183]

Centralized Treatment: The Cost Assessment Model only assesses centralized treatment for Failing public water systems where: (1) modeled physical consolidation is not viable; (2) the system is failing for water-quality related violations (primary, secondary, *E. coli*, or treatment technique violations); and (3) the system is a school or has 20 service connections or greater. Best available technologies are identified by the Cost Assessment Model that can reduce contaminant concentrations that exceed the Maximum Contaminant Level (MCL). The Cost Assessment Model includes multiple modeled centralized treatment solutions based on Title 22 California Code of Regulations.[184] Learn more in Supplemental Appendix: Centralized Treatment Cost Estimate Methodology.[185]

Decentralized Treatment: Point-of-use (POU) or point-of-entry (POE) treatment technologies are used to address contaminants present at levels that exceed water quality standards. The Cost Assessment models decentralized treatment technologies for Failing public water systems,[186] high-risk state small water systems and domestic wells where: (1) water quality challenges exist; (2) modeled physical consolidation is not viable as

https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024costassessment-methodology.pdf

[182] Health & Saf. Code, § 116681, subd. (e).

[183] Supplemental Appendix: Physical Consolidation Cost Estimate Methodology
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024costassessment-physical-consolidation.pdf

[184] Title 22, Article 12, Table 64447.2-A, Table 64447.3-A, Table 64447.4-A
https://govt.westlaw.com/calregs/Browse/Home/California/CaliforniaCodeofRegulations?guid=I799B50E05B6111EC9451000D3A7C4BC3&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default)

[185] Supplemental Appendix: Centralized Treatment Cost Estimate Methodology
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024costassessment-centralized-treatment.pdf

[186] Failing for water quality related criteria only. Systems failing for monitoring and reporting violations are excluded from the centralized treatment analysis.

a *Joining*[187] system; and (3) modeled centralized treatment is not viable. Learn more in Supplemental Appendix: Decentralized Treatment Cost Assessment Methodology.[188]

New Well: The Cost Assessment evaluates the need for: 1) a new backup public well for public water systems that have a well as the single source of their water supply, or 2) the construction of a replacement public well for public water systems with wells exceeding 25 years of their useful life.[189] The Cost Assessment also models new private wells for state small water systems and domestic wells that are identified as high-risk within the Risk Assessment's *Water Shortage* category, where modeled physical consolidation is not viable. Learn more in Supplemental Appendix: Additional Long-Term Modeled Solutions Cost Estimate Methodology.[190]

Long-Term Bottled Water: The Cost Assessment Model assumes bottled water is the long-term modeled solution for state small water systems and domestic wells where all other modeled long-term solutions are not feasible. This is considered by the State Water Board as a "worst-case" scenario and one that it seeks to avoid. However, there are communities where bottled water reliance may be the only feasible solution until a better solution becomes available. Long-term bottled water needs are not modeled for Failing or At-Risk public water systems in the Cost Assessment Model. Learn more in Supplemental Appendix: Additional Long-Term Modeled Solutions Cost Estimate Methodology.[191]

[187] Joining Systems: Commonly smaller public water systems, state small water systems, and domestic wells that are dissolved into an existing Receiving public water system and are no longer responsible for providing water to their own customers.

[188] Supplemental Appendix: Decentralized Treatment Cost Assessment Methodology https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024costassessment-decentralized-treatment.pdf

[189] Wells age was assumed based on historical water quality data. The State Water Board identified wells with water quality sample results more than 25 years old. The Cost Assessment Model assumes these wells are either nearing or past their useful life and need to be replaced.

[190] Supplemental Appendix: Additional Long-Term Modeled Solutions Cost Estimate Methodology https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024costassessment-add-longterm-solutions.pdf

[191] Supplemental Appendix: Additional Long-Term Modeled Solutions Cost Estimate Methodology https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024costassessment-add-longterm-solutions.pdf

Other Essential Infrastructure (OEI): Many Failing and At-Risk public water systems have aging infrastructure. Upgrading and replacing old infrastructure is essential to maintaining compliance with drinking water standards and ensuring system reliability. These Other Essential Infrastructure (OEI) needs are estimated to ensure the Cost Assessment Model's output is more holistic in estimating how much it may cost to ensure the water system is sustainable and resilient. In the Cost Assessment Model, OEI needs are estimated based on system and location-specific information. Many of the Cost Assessment Model's OEI solutions align with the SB 552 drought resiliency infrastructure requirements.[192]

OEI includes: service connection meters, back-up power, sounder to measure static groundwater levels, additional storage (water tank), SCADA, and electrical upgrades. Learn more in Supplemental Appendix: Additional Long-Term Modeled Solutions Cost Estimate Methodology.[193]

Technical Assistance: The Cost Assessment Model includes estimated technical assistance needs for small (less than 3,300 service connections), disadvantaged community (DAC) Failing and At-Risk public water systems. In many cases Technical Assistance (TA) does not eliminate the need for other capital improvements, but should increase the technical, managerial, and financial capacity of systems to address problems. Managerial support is designed to assist water systems in developing the financial and managerial structures to ensure a sustainable water system, including asset management plans, water rate studies, fiscal policies, drought plans, etc. Learn more in Supplemental Appendix: Additional Long-Term Modeled Solutions Cost Estimate Methodology.[194]

[192] Senate Bill No. 552
https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202120220SB552
[193] Supplemental Appendix: Additional Long-Term Modeled Solutions Cost Estimate Methodology
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024costassessment-add-longterm-solutions.pdf
[194] Supplemental Appendix: Additional Long-Term Modeled Solutions Cost Estimate Methodology
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024costassessment-add-longterm-solutions.pdf

Administrator Assistance: The appointment of an Administrator is an authority that the State Water Board considers when necessary to provide an adequate supply of affordable, safe drinking water.[195] Administrators generally act as a water system general manager, or may be assigned limited specific duties, such as managing an infrastructure improvement project on behalf of a designated water system. Administrators are named for a limited term to help a water system through a consolidation process or to otherwise come into compliance. The Cost Assessment Model includes estimated Administrator assistance needs for small[196] DAC Failing and At-Risk public water systems. Learn more in Supplemental Appendix: Additional Long-Term Modeled Solutions Cost Estimate Methodology.[197]

Interim Solutions

The goal of the SAFER program is to build local capacity to help Failing and At-Risk water systems operate sustainably and achieve the Human Right to Water. The State Water Board recognizes that it may take many months or years to implement long-term sustainable solutions in some cases. Planning and construction timelines can vary dramatically due to the complexity of a project, public participation requirements, funding availability, permitting schedules, labor, and material availability etc. Therefore, interim solutions may be needed to ensure communities have access to safe drinking water until a long-term solution can be implemented. The Cost Assessment Model includes estimated interim needs for DAC Failing public water systems, At-Risk public water systems, high-risk state small water systems and domestic wells. Learn more in Supplemental Appendix: Interim Solutions Cost Estimate Methodology.[198]

Interim Decentralized Treatment: POU and POE devices are included in the Cost Assessment Model as both a modeled long-term solution and interim solution option. DAC systems that have either physical consolidation or centralized treatment as their modeled long-term solution will be assessed for interim decentralized treatment. Available and modeled water quality data for these systems is used by the Cost Assessment Model to determine if decentralized treatment is viable. If

[195] State Water Board I Water System Administrators
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/administrator.html
[196] Failing systems less than 500 service connections and At-Risk public water systems with less than 200 service connections.
[197] Supplemental Appendix: Additional Long-Term Modeled Solutions Cost Estimate Methodology
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024costassessment-add-longterm-solutions.pdf
[198] Supplemental Appendix: Interim Solutions Cost Estimate Methodology
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024costassessment-Interim-solutions.pdf

water quality data indicates decentralized treatment may not be viable, the system is assessed for interim bottled water assistance.

Interim Bottled Water: In the Cost Assessment Model, interim bottled water needs are only estimated for DAC populations served by Failing public water systems and high *Water Quality* risk state small water systems and domestic wells where modeled decentralized interim solutions are not viable. High *Water Shortage* risk DAC state small water systems and domestic wells are assessed for interim bottled water assistance as well.

COST ASSESSMENT RESULTS FOR FAILING & AT-RISK PUBLIC WATER SYSTEMS

SUMMARY

The 2024 Cost Assessment estimates that the total long-term and interim cost needs for Failing and At-Risk public water systems is approximately **$5.4 billion** (Table 42). Compared to the 2021 Cost Assessment results, this estimated cost is $1.1 billion (26%) higher.

The following summarizes the results of the Cost Assessment. **A full breakdown of the results is detailed in the Appendix: 2024 Cost Assessment Results**.[199]

- Estimated long-term and interim cost needs for Failing and At-Risk public water systems in DACs only is approximately $3.7 billion (69%) of the total estimated need for Failing and At-Risk systems. The Cost Assessment estimates $1.75 billion for Failing DAC public systems and $1.97 billion for At-Risk DAC public water systems.
- Total estimated cost for long-term solutions for all Failing and At-Risk public water systems is $4.9 billion. This is approximately $1.5 billion (44%) higher than the 2021 Cost Assessment results.
- Total estimated cost for interim solutions for all Failing and At-Risk public water systems is $466 million. This is approximately $379 million (45%) lower than the 2021 Cost Assessment results.
- Four counties had over $350 million in estimated long-term and interim costs for Failing and At-Risk public water systems: Kern ($667 million), Fresno ($414 million), Tulare ($406 million), San Bernardino County ($355 million). Fresno ($95 million), Kern ($93 million), and Tulare County ($88 million) had the highest estimated interim assistance needs for the full five-year duration, while Kern ($576 million), San Bernardino ($335 million), and Fresno County ($319 million) have the largest total estimated long-term solution needs.

[199] Appendix: 2024 Cost Assessment Results https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024costassessment.pdf

- Failing public water systems with 0-100 service connections have much higher average estimated costs per service connection ($140,000[200]) when compared to Failing public water systems with 3,301-30,000 service connections ($2,600[201]). This illustrates the much higher per connection cost of bringing small systems into compliance, and highlights the cost advantages of economies of scale.

Figure 50: 2024 Cost Assessment Results for Failing & At-Risk Public Water Systems ($ in Millions)

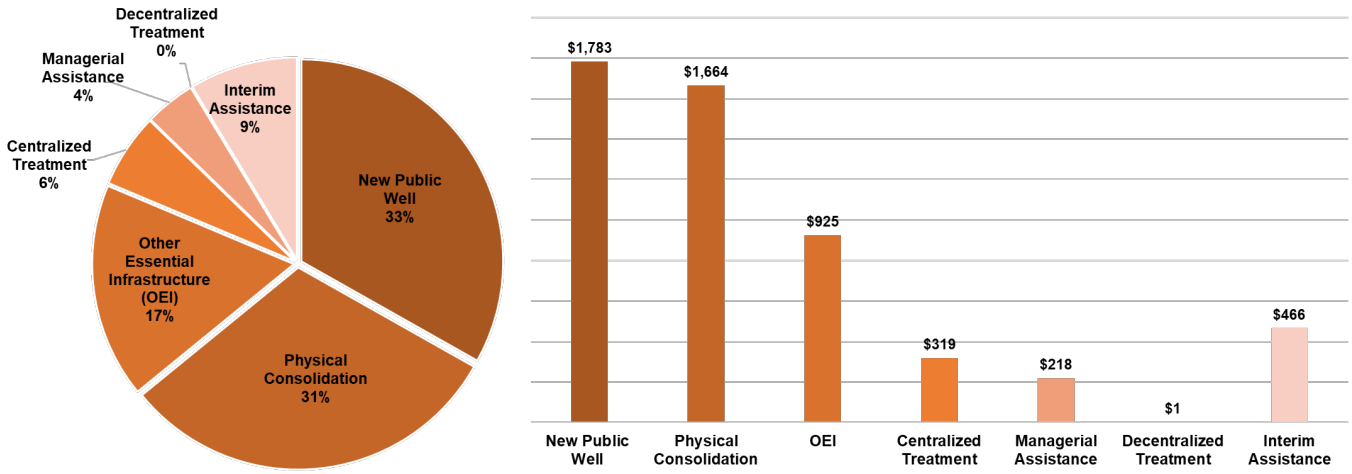


Table 42: 2024 Cost Assessment Results for Failing & At-Risk Public Water Systems ($ in Millions)

	Failing	At-Risk	Total (2024)	Total (2021)	Cost Change from 2021
# Systems	385	613	**998**	935	↑ 63 (7%)
Estimated Long-Term Solutions	$2,027	$2,883	**$4,910**	$3,414	↑ $1,496 (44%)
Estimated Interim Solutions[202]	$466	N/A	**$466**	$845	↓ $379 (45%)
TOTAL COST:	**$2,493**	**$2,883**	**$5,376**	**$4,259**	**↑ $1,118 (26%)**

[200] Average estimated long-term cost per connection for Failing public water systems with 0-100 service connections.
[201] Average estimated long-term cost per connection for Failing public water systems with 3,301-30,000 service connections.
[202] The modeled interim solution costs captured in this table represents the cost for the full duration of modeled interim assistance which is five years for public water systems.

COMPARISON BETWEEN 2024 & 2021 COST ASSESSMENT RESULTS

The 2024 Cost Assessment estimates for Failing and At-Risk public water systems is approximately $1.1 billion (26%) higher than the 2021 Cost Assessment results. The sections below summarize the drivers of these observed cost increases.

More Systems Included

The 2024 Cost Assessment includes 7% more public water systems compared to the 2021 Cost Assessment. The 2024 Cost Assessment now includes more Failing water systems, due to expanded Failing water system criteria, as well as medium-sized At-Risk public water systems. The additional public water systems included in the 2024 Cost Assessment account for $897 million (9%) of the statewide cost estimate and 82% of the estimated public water system cost increase between the 2021 and 2024 Cost Assessments.

Additional Failing Public Water Systems: The 2024 Cost Assessment includes 48 Failing systems from *E. coli* violation, treatment technique violation, and/or monitoring and reporting violation criteria.[203] These Failing criteria did not exist when the 2021 Cost Assessment was conducted. The inclusion of Failing water systems meeting the expanded Failing criteria accounts for $190 million of the 2024 Cost Assessment results.

Medium-Sized At-Risk Public Water Systems: Since the 2021 Cost Assessment was conducted, the inventory of community water systems assessed within the Risk Assessment has been expanded to include medium[204] sized systems. The addition of these systems (29 systems) to the 2024 Cost Assessment attributes $707 million to the total cost estimate.

New Long-Term Solutions

Compared to the 2021 Cost Assessment, the systems included in the 2024 Cost Assessment have a more diverse range of challenges that required modeled long-term solutions. The State Water Board expanded the 2024 Cost Assessment to include modeled Administrator assistance for public water systems.

At the time the 2021 Cost Assessment was conducted, the State Water Board had no cost data associated with Administrator assistance. Therefore, this modeled long-term solution was excluded from the analysis. Since then, the State Water Board has been implementing its Administrator assistance program and cost data has become available. The 2024 Cost Assessment estimates Administrator assistance at approximately $39 million (0.83%).

Sustainable vs. Lowest-Cost Modeled Solutions

The 2021 Cost Assessment selected modeled decentralized treatment for 35%, centralized treatment for 45%, and physical consolidation for 20% of Failing water systems. At the time of publication, the State Water Board recognized inherent limitations in the original 2021 Cost

[203] Failing Criteria for Community Water Systems & Schools https://www.waterboards.ca.gov/water_issues/programs/hr2w/docs/hr2w_expanded_criteria.pdf

[204] The 2021 Cost Assessment only included At-Risk public water systems with 3,300 service connections or less. The Risk Assessment expanded its inventory to include medium-sized systems (3,301 – 30,000 service connections; up to 100,000 population served), in 2022. The 2024 Cost Assessment includes 29 medium-sized At-Risk public water systems.

Assessment that led to the over-selection of decentralized treatment and under-selection of physical consolidation as the modeled long-term solution. These limitations were attributed to the lack of data availability and the inability of the 2021 Cost Assessment's design to account for the inherent risk and long-term maintenance challenges posed by decentralized treatment. Therefore, the 2021 Cost Assessment results did not fully reflect the SAFER program's core direction to promote physical consolidations where feasible and only advance decentralized treatment where no other long-term options are viable.

Based on stakeholder feedback and internal deliberations, the 2024 Cost Assessment was designed to select the most sustainable, rather than the lowest-cost, long-term modeled solutions. For example, the 2024 Cost Assessment selects physical consolidation and centralized treatment over decentralized treatment. Learn more in Appendix: Cost Assessment Methodology[205]

Figure 51: Least to Most Sustainable Modeled Long-Term Solutions

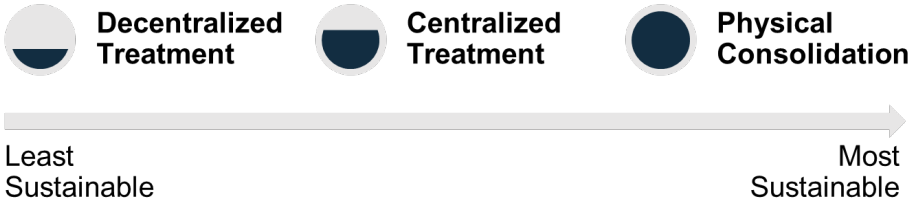


Table 46 summarizes the estimated cost ranges of modeled physical consolidation, centralized treatment, and decentralized treatment for the 2024 Cost Assessment. As illustrated, physical consolidation is significantly more expensive than decentralized treatment. Compared to the 2021 Cost Assessment results, there are 107 more Failing public water systems and 121 more At-Risk public water systems with physical consolidation modeled as their long-term solution in the 2024 Cost Assessment results.

Table 43: Estimated Cost Ranges for Modeled Long-Term Solutions ($ in Millions)

Modeled Long-Term Solution	Minimum Cost Estimate	Mean Cost Estimate	Maximum Cost Estimate
Physical Consolidation	$0.6	$3	$12.5
Centralized Treatment	$0.4	$1.9	$10
Decentralized Treatment	$0.05	$0.06	$0.07

To illustrate how enhancing the Cost Assessment Model to select more sustainable solutions over lower-cost solutions has driven up the total estimated cost in the 2024 Cost Assessment, the State Water Board analyzed a set of water systems where their modeled solutions changed from the 2021 Cost Assessment results. There were 78 Failing public water systems included in the 2021 Cost Assessment that had decentralized treatment modeled as their long-

[205] Appendix: Cost Assessment Methodology https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024costassessment-methodology.pdf

term solution. These same systems were also included in the 2024 Cost Assessment because they are still on the Failing list. The 2021 Cost Assessment estimated decentralized treatment costs for these systems at approximately $14 million. In the 2024 Cost Assessment, 7 (9%) of these systems had decentralized treatment, 38 (49%) had centralized treatment, and 33 (42%) had physical consolidation modeled as their long-term solution. For the systems with modeled centralized treatment in the 2024 Cost Assessment, the cost increased $23.9 million (252%) compared to the 2021 Cost Assessment results. For the systems with modeled physical consolidation in the 2024 Cost Assessment, the cost increased $116.2 million (2,641%) compared to the 2021 Cost Assessment results. Overall, for these 71 Failing public water systems that have more sustainable modeled long-term solutions, their estimated costs increased $140.1 million.

Differences in Modeled Solution Costs & Assumptions

Inflation and other drivers have increased costs since the 2021 Cost Assessment was conducted. Extensive research and stakeholder feedback led to increasing many modeled solution component costs in the 2024 Cost Assessment. Furthermore, based on stakeholder input, additional cost adjustment multipliers have been incorporated into the 2024 Cost Assessment to account for embedded construction costs not captured in the 2021 Cost Assessment. These additional cost adjustments include inflation, engineering services, overhead, permitting, planning and construction. These assumptions are detailed in the Appendix: Cost Assessment Methodology.[206]

Modeled Physical Consolidation Costs Increased

The unit component costs for physical consolidation in the 2024 Cost Assessment increased from the 2021 Cost Assessment. To illustrate the cost increases, the State Wate Board conducted an analysis of 48 Failing public water systems that had physical consolidation as their modeled long-term solution in both the 2021 and 2024 Cost Assessments. For these 48 Failing systems, modeled physical consolidation's average estimated cost per service connection increased from approximately $30,300 in the 2021 Cost Assessment to $46,500 in the 2024 Cost Assessment. Estimated physical consolidation costs for these 48 systems increased from $91 million total in the 2021 Cost Assessment to $146 million in the 2024 Cost Assessment. This is a 60% increase in estimated modeled physical consolidation cost. The methodology for estimating physical consolidation costs did not change between 2021 and 2024, therefore this cost increase is driven by estimated component costs increasing.

Modeled Centralized Treatment Costs Decreased

Component costs for most modeled centralized treatment technologies increased in the 2024 Cost Assessment compared to the 2021 Cost Assessment. For example, modeled vessel costs for granular activated carbon (GAC) treatment increased by 16% in the 2024 Cost Assessment compared to the 2021 Cost Assessment. Modeled booster pump costs associated with GAC treatment also increased from 150% - 830% depending on estimated flow rates.

[206] Appendix: Cost Assessment Methodology
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024costassessment-methodology.pdf

Table 44 illustrates these GAC treatment component cost estimates by flow rate from the 2021 and 2024 Cost Assessments.

Table 44: GAC Treatment Component Cost Estimates 2021 vs. 2024 Cost Assessment[207]

Treatment Vessel			Booster Pump		
Flow Rate (gpm)	2021 Model	2024 Model	Flow Rate (gpm)	2021 Model[208]	2024 Model
1 – 250	$185,000	$214,000	200	$30,000	$75,000
251 – 425	$227,000	$263,000	400	$30,000	$106,000
426 – 875	$315,000	$365,000	750	$30,000	$161,000
876 – 1,750	$630,000	$730,000	1,500	$30,000	$279,000

However, total estimated centralized treatment costs have decreased in the 2024 Cost Assessment compared to the 2021 Cost Assessment results. This is because the 2024 Cost Assessment utilized a more sophisticated analysis to identify the count of impaired sources from which to assess modeled treatment. The 2021 Cost Assessment utilized broad assumptions which often led to the analysis assuming all sources required modeled treatment.

For example, the State Wate Board conducted an analysis of 74 Failing public water systems that had centralized treatment as their modeled long-term solution in both the 2021 and 2024 Cost Assessments. For these 74 Failing systems, modeled centralized treatment's average estimated cost per service connection decreased from approximately $14,000 in the 2021 Cost Assessment to $8,500 in the 2024 Cost Assessment. Estimated centralized treatment costs for these 74 systems decreased from $261 million total in the 2021 Cost Assessment to $142 million in the 2024 Cost Assessment, representing a 45% decrease in estimated modeled centralized treatment cost. This illustrates that, despite the component costs of centralized treatment increasing, the methodology enhancements made to modeling centralized treatment in the 2024 Cost Assessment have resulted in an aggregated decrease in the estimated costs of centralized treatment.

The decrease in total estimated centralized treatment cost between the 2021 and 2024 Cost Assessment results was also driven by enhanced engineering multipliers. In the 2021 Cost Assessment, most of the modeled centralized treatment costs had a 2.36 or 3.06 engineering multiplier[209] applied to the capital cost estimate. In the 2024 Cost Assessment, lower engineering multipliers were utilized to adjust modeled centralized treatment capital cost estimates. For example, estimated capital cost for coagulation filtration treatment in the 2024

[207] Cost comparison is based on equipment cost, excluding other cost adjustments.
[208] A flat cost, $30,000 was assumed in the 2021 Cost Assessment regardless of modeled flow rate.
[209] The engineering multiplier was used in the 2021 Cost Assessment to convert the estimated equipment cost to installation capital cost.

Cost Assessment decreased by approximately 17%[210] compared to the 2021 Cost Assessment.

Modeled Decentralized Treatment Costs Decreased
Modeled decentralized treatment costs in the 2024 Cost Assessment closely align with the estimated costs in the 2021 Cost Assessment. The cost assumptions for decentralized treatment in the 2024 Cost Assessment were modified from the 2021 Cost Assessment through the inclusion of additional cost adjustments. These modifications resulted in a slight decrease in estimated statewide modeled decentralized treatment costs. The average estimated cost per service connection decreased from $17,450 for 106 Failing public water systems in the 2021 Cost Assessment to $15,720 for 17 Failing public water systems in 2024 Cost Assessment.

Modeled New Well Costs Increased
Several unit component costs for a new public supply well in the 2024 Cost Assessment increased as compared to the 2021 Cost Assessment. For example, estimated well drilling costs[211] increased from $790,000 in the 2021 Cost Assessment to $900,000 in the 2024 Cost Assessment. The 2024 Cost Assessment also accounted for additional components that were otherwise excluded from the 2021 Cost Assessment, such as water quality sampling costs, well permitting fees, and additional cost adjustments. To illustrate the change, the State Water Board conducted an analysis of 59 Failing and At-Risk public water systems that had been modeled for a new well in both the 2021 and 2024 Cost Assessments. For these 59 systems, the estimated costs for a new public supply well increased from $93 million total in the 2021 Cost Assessment to $152 million in the 2024 Cost Assessment. This is a 63% increase in estimated modeled new well cost.

COST ASSESSMENT RESULTS FOR HIGH-RISK STATE SMALL WATER SYSTEMS & DOMESTIC WELLS

SUMMARY
The 2024 Cost Assessment estimates total long-term and interim cost needs for high-risk state small water systems and domestic wells to be approximately **$4.9 billion** (Table 45). Compared to the 2021 Cost Assessment results, this estimated cost is approximately $3.6 billion (264%) higher. The following summarizes the results of the Cost Assessment. **A full breakdown of the results is detailed in Appendix: 2024 Cost Assessment Results**.[212]

- Estimated long-term and interim cost needs for DAC-only high-risk state small water systems and domestic wells are approximately $1.6 billion (36%) of the total estimated need for high-risk state small water systems and domestic wells. The 2024 Cost

[210] This comparison is based on three Failing public water systems that were modeled coagulation filtration treatment as a long-term solution in both the 2021 and 2024 Cost Assessment.
[211] New public supply well is assumed to be 1,000 feet in the 2024 Cost Assessment.
[212] Appendix: 2024 Cost Assessment Results
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024costassessment.pdf

Assessment estimates approximately $97 million for high-risk DAC state small water systems and $1.5 billion for high-risk DAC domestic wells.

- Total estimated cost for long-term solutions for all high-risk state small water systems and domestic wells is approximately $4.8 billion. This is approximately $3.6 billion (315%) higher than the 2021 Cost Assessment results.
- Total estimated cost for interim solutions for all high-risk state small water systems and domestic wells is $146 million. This is approximately $55 million (27%) lower than the 2021 Cost Assessment results.
- Fresno county has the largest share of total estimated needs for high-risk state small water systems and domestic wells, with $688 million in estimated total costs, followed by Madera County with $318 million. Five counties have over $200 million in total estimated costs: San Diego ($254 million), Nevada ($250 million), Tulare ($228 million), Riverside ($226 million), and Mariposa ($203 million). Ten counties have over $100 million in total estimated costs: Monterey ($173 million), Sonoma ($155 million), Shasta ($150 million), Tehama ($136 million), Merced ($126 million), Siskiyou ($119 million), Butte ($119 million), Kern ($117 million), Stanislaus ($109 million), San Luis Obispo ($104 million), Tuolumne ($102 million), and San Bernadino ($102 million).
- The estimated average long-term capital cost per high-risk domestic well is approximately $36,100. This is $18,350 (103%) higher than the 2021 Cost Assessment's results.

Figure 52: 2024 Cost Assessment Results for High-Risk State Small Water Systems & Domestic Wells

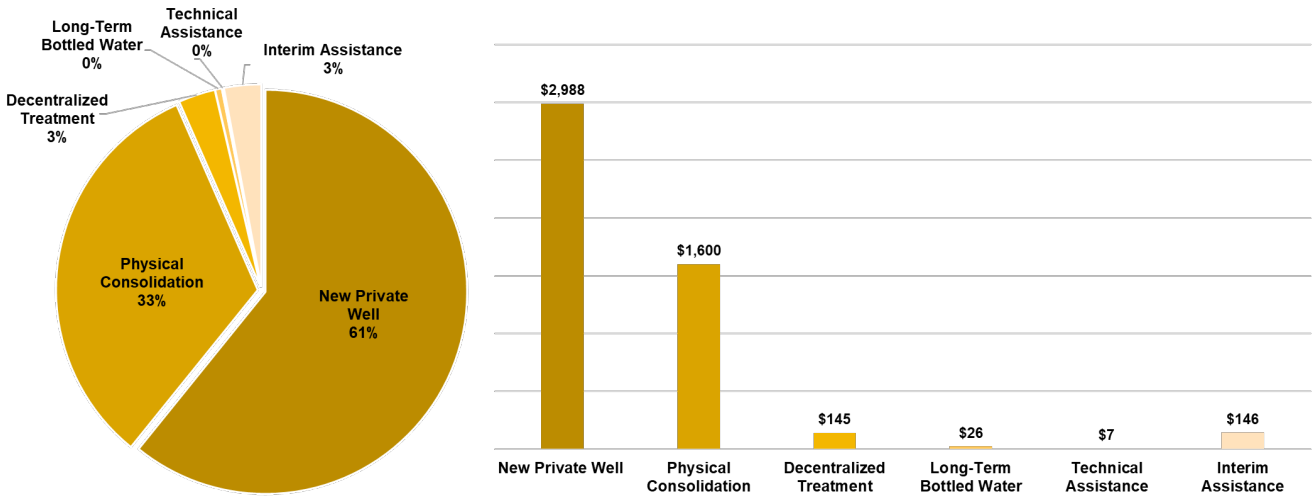


Table 45: 2024 Estimated Cost of Modeled Solutions for High-Risk State Small Water Systems & Domestic Wells ($ in Millions)

	State Small Water Systems	Domestic Wells	Total (2024)	Total (2021)	Cost Change from 2021
# Systems	727	143,663	**144,390**	63,062	↑ 81,328 (129%)

	State Small Water Systems	Domestic Wells	Total (2024)	Total (2021)	Cost Change from 2021
Estimated Long-Term Solutions	$316	$4,450	**$4,766**	$1,149	↑ $3,617 (315%)
Estimated Interim Solutions[213]	$13.6	$132	**$146**	$201	↓ $55 (27%)
TOTAL COST:	**$329.5**	**$4,582**	**$4,912**	**$1,350**	**↑ $3,562 (264%)**

COMPARISON BETWEEN 2024 & 2021 COST ASSESSMENT RESULTS

The 2024 Cost Assessment estimates for high-risk state small water systems and domestic wells is approximately $3.6 billion (264%) higher than the 2021 Cost Assessment results. The sections below summarize the drivers of these observed cost increases.

More Systems Included

The 2024 Cost Assessment includes 60% more state small water systems and 129% more domestic wells compared to the 2021 Cost Assessment. The 2021 Cost Assessment analyzed state small water systems and domestic wells that were high-risk for *Water Quality* only. Since then, in response to stakeholder feedback, the Risk Assessment for state small water systems and domestic wells was expanded to include additional risk categories like *Water Shortage*. In the 2024 Cost Assessment there are 130 state small water systems and 63,146 domestic wells that are high-risk for *Water Shortage* only; 133 state small water systems and 40,808 domestic wells that are high-risk for both *Water Quality* and *Water Shortage.* The addition of these new high *Water Shortage* risk state small water systems and domestic wells added $2.5 billion[214] to the statewide cost estimate. This cost represents 24% of the total statewide cost estimate and accounts for 53% of the cost increase from the 2021 Cost Assessment. High *Water Shortage* risk only state small water systems and domestic wells account for 56% of the total statewide estimated cost for state small water systems and domestic wells included in the analysis.

New Long-Term Solutions

Compared to the 2021 Cost Assessment, the systems included in the 2024 Cost Assessment have a more diverse range of challenges that required modeled long-term solutions. The State Water Board expanded the 2024 Cost Assessment to include modeling a new private well for high-risk state small water systems and domestic wells.

New private wells were added to the 2024 Cost Assessment as a potential modeled long-term solution for state small water systems and domestic wells that are high-risk in the Risk Assessment's *Water Shortage* category. The 2021 Cost Assessment did not include this

[213] The modeled interim solution costs captured in this table represents the cost for the full supply duration which is five years for state small water systems and two years for domestic wells.
[214] Physical consolidation: 49 state small water systems at $29 M and 24,013 domestic wells at $407 M; New private well: 81 state small water systems at $4.0 M and 39,133 domestic wells at $1,991 M; Interim needs: 63 state small water systems at $3.0 M and 19,744 domestic wells at $49 M.

modeled solution because, at the time the analysis was conducted, the Risk Assessment for state small water systems and domestic wells only assessed *Water Quality* risk. Constructing a new private well is more expensive than installing treatment. The inclusion of modeled new private wells added approximately $3 billion to the 2024 Cost Assessment results. This accounts for 83% of the cost increase for high-risk state small water systems and domestic wells compared to the 2021 Cost Assessment results.

Sustainable vs. Lowest-Cost Modeled Solutions

The 2021 Cost Assessment selected modeled decentralized treatment for 59% and physical consolidation for 41% of high-risk state small water systems and domestic wells. At the time of publication, the State Water Board recognized inherent limitations in the original 2021 Cost Assessment that led to the over-selection of decentralized treatment and under selection of physical consolidation as the modeled long-term solution. These limitations were attributed to the lack of data availability and the inability of the 2021 Cost Assessment's design to account for the inherent risk and long-term maintenance challenges posed by decentralized treatment. Therefore, the 2021 Cost Assessment's results did not fully reflect the SAFER program's objective to promote physical consolidations where feasible and only advance decentralized treatment where no other long-term options may be viable.

Based on stakeholder feedback and internal deliberations, the 2024 Cost Assessment was designed to select the most sustainable, rather than the lowest-cost, long-term modeled solution, for example physical consolidation over decentralized treatment (Figure 53). Learn more in Appendix: Cost Assessment Methodology.[215]

Figure 53: Least to Most Sustainable Modeled Long-Term Solutions

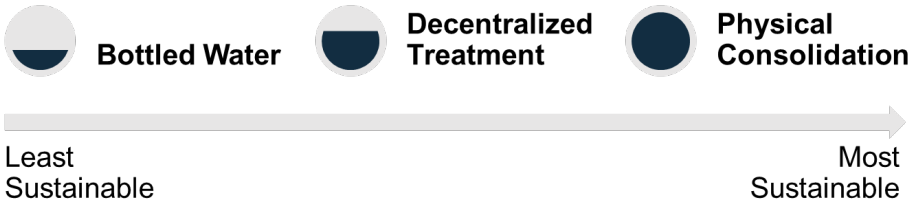


Table 46 summarizes the estimated cost ranges of modeled physical consolidation, centralized treatment, and decentralized treatment in the 2024 Cost Assessment. As illustrated, physical consolidation is significantly more expensive than decentralized treatment. Compared to the 2021 Cost Assessment results, 265 more high-risk state small water systems and 44,312 more high-risk domestic wells have physical consolidation modeled as their long-term solution in the 2024 Cost Assessment results.

[215] Appendix: Cost Assessment Methodology https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024costassessment-methodology.pdf

Table 46: Estimated Cost Ranges for State Small Water Systems Modeled Long-Term Solutions

Modeled Long-Term Solution	Minimum Cost Estimate	Mean Cost Estimate	Maximum Cost Estimate
Physical Consolidation	$70,000	$730,000	$1.6 M
Decentralized Treatment	$4,000	$40,000	$144,000

Table 47: Estimated Cost Ranges for Domestic Wells Modeled Long-Term Solutions

Modeled Long-Term Solution	Minimum Cost Estimate	Mean Cost Estimate	Maximum Cost Estimate
Physical Consolidation	$12,000	$220,000	$4 M
Decentralized Treatment	$3,000	$33,000	$1 M

Differences in Modeled Solution Costs & Assumptions

Inflation and other drivers have increased costs since the 2021 Cost Assessment was conducted. Extensive research and stakeholder feedback led to increasing many modeled solution component costs in the 2024 Cost Assessment. Furthermore, based on stakeholder input, additional cost adjustment multipliers have been incorporated into the 2024 Cost Assessment to account for embedded construction costs not captured in the 2021 Cost Assessment. These additional cost adjustments include inflation, engineering services, overhead, permitting, planning and construction. These assumptions are detailed in the Appendix: Cost Assessment Methodology.[216]

Modeled Physical Consolidation Costs Increased

The unit component costs for physical consolidation in the 2024 Cost Assessment increased from the 2021 Cost Assessment. To illustrate the cost increases, the State Wate Board conducted an analysis of physical consolidation cost per connection for high *Water Quality* risk state small water systems and domestic wells comparing the 2021 and 2024 Cost Assessments results. The average cost per connection for modeled physical consolidation for state small water systems increased from approximately $31,000 in the 2021 Cost Assessment to $103,000 in the 2024 Cost Assessment. The average cost for modeled physical consolidation per domestic well also increased from $32,000 in the 2021 Cost Assessment to $36,467 in the 2024 Cost Assessment.

Modeled Decentralized Treatment Costs Decreased

Modeled decentralized treatment costs in the 2024 Cost Assessment closely align with the estimated costs in the 2021 Cost Assessment. The 2024 Cost Assessment cost assumptions for decentralized treatment were modified from the 2021 Cost Assessment and additional cost adjustments were included. However, these modifications resulted in a decrease in estimated

[216] Appendix: Cost Assessment Methodology https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024costassessment-methodology.pdf

statewide modeled decentralized treatment costs. The average estimated cost per service connection decreased from $7,700 for 303 high water quality risk state small water systems in the 2021 Cost Assessment to $4,800 for 221 high *Water Quality* risk state small water systems in the 2024 Cost Assessment. The average estimated cost per well decreased from $8,200 for 36,911 high *Water Quality* risk domestic wells in the 2021 Cost Assessment to $4,200 for 32,509 high *Water Quality* risk domestic wells in the 2024 Cost Assessment.

FUNDING GAP ANALYSIS

OVERVIEW

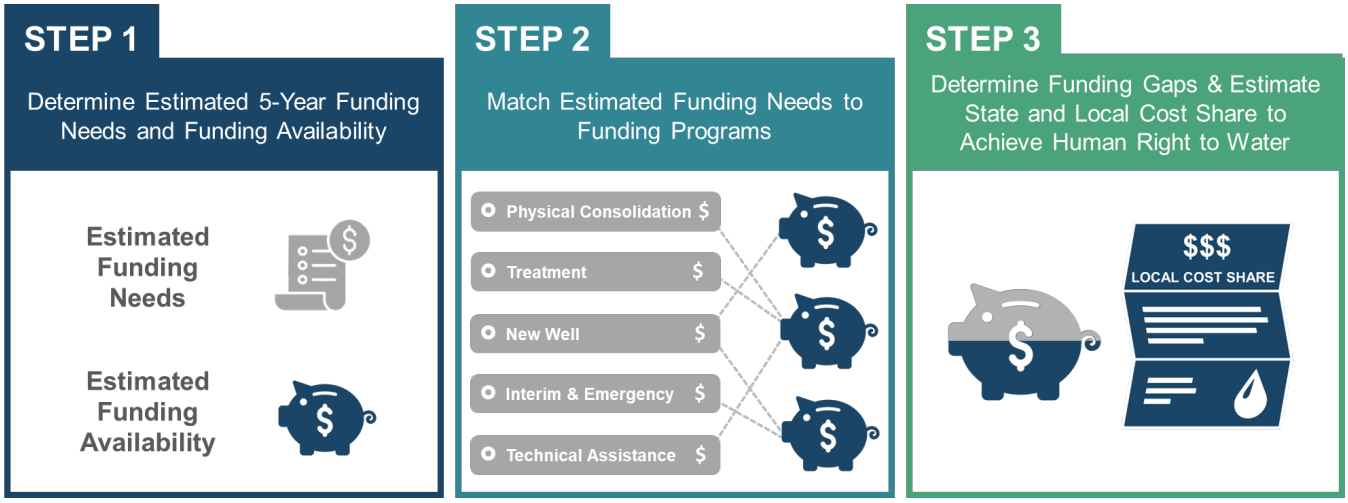
Meeting California's drinking water needs and achieving the Human Right to Water is a shared responsibility between the state, counties, water systems, and local communities. SAFER program funding is used to support these needs and plays a pivotal role in aiding small, disadvantaged communities that struggle the most. The Cost Assessment modeling process helps determine the estimated costs related to implementation of new interim and long-term solutions for Failing and At-Risk public water systems, high-risk state small water systems, and high-risk domestic wells. The Funding Gap Analysis is the final step within the Cost Assessment process. The results of the Funding Gap Analysis estimate projected funding needs over the next 5-years within the 10-year appropriation of the Safe and Affordable Drinking Water Fund (SADWF). It estimates the gap between potentially available funding and the estimated amount needed. The results of this analysis help the State Water Board determine the potential long-term cost share responsibilities between the State Water Board and local communities in achieving the Human Right to Water. This information helps the State Water Board budget and prioritize how best to utilize the amount of SAFER program funding that is available.

FUNDING GAP ANALYSIS METHODOLOGY

The first step in the Funding Gap Analysis focuses on refining estimated funding needs, modeled by the Cost Assessment, for implementation of interim and long-term solutions for current Failing and At-Risk public water systems, high-risk state small water systems, and domestic wells. The second step concentrates on identifying State Water Board funding sources that can be leveraged to support the modeled funding needs based on project and borrower eligibilities. Disadvantaged community (DAC) status and other system-level characteristics are utilized to refine this analysis. The third and final step uses the State Water Board's SAFER program funding priorities to determine the funding and financing gap for the refined estimated funding need. Together, this analysis estimates how much it may cost to achieve the Human Right to Water with existing and projected funding sources. However, it is important to highlight that other state, federal, and private funding and financing may be available to meet some of these estimated needs, and that large regionalization projects may

reduce estimated needs. Learn more about the Funding Gap Analysis in Appendix: Funding Gap Analysis Methodology.[217]

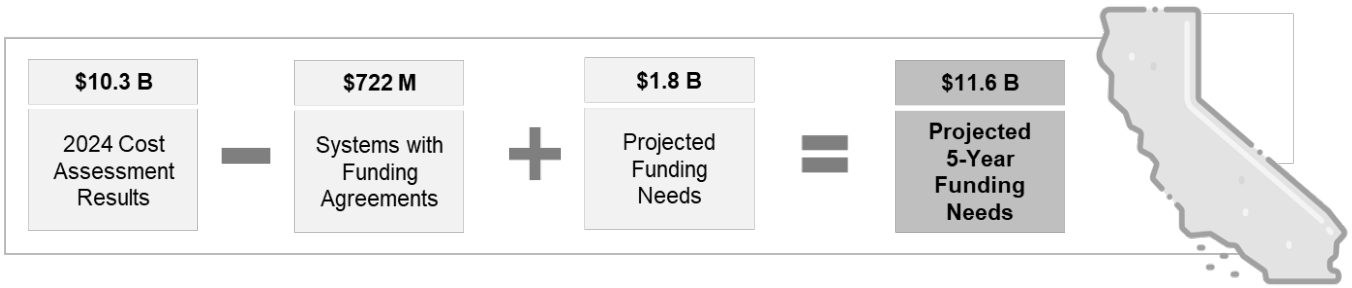
Figure 54: Funding Gap Analysis Methodology



ESTIMATED 5-YEAR FUNDING NEEDS

The first step of the Funding Gap Analysis methodology refines the modeled interim and long-term solution cost estimates produced by the Cost Assessment by: (1) removing the estimated costs for Failing public water systems, At-Risk public water systems, and high-risk state small water systems and domestic wells that have already received State Water Board funding assistance; (2) removing a portion of estimated costs that would be met by communities through local cost share; and (3) adding estimated new costs associated with projections for systems that will start to fail over the next five years. Together, these three refinement steps produce the estimated funding need utilized in the Funding Gap Analysis (Figure 55).

Figure 55: Refined Estimated 5-Year Funding Capital and Managerial Assistance Need[218]



[217] Appendix: Funding Gap Analysis Methodology
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024funding-gap-analysis-methodolgy.pdf

[218] Funding needs in this figure represent total refined long-term and interim needs for Failing public water systems, At-Risk public water systems, and high-risk state small water systems and domestic wells. Estimated long-term operations & maintenance needs are excluded here. Projected funding needs are estimated for anticipated new Failing systems for the next four years (288 systems).

The estimated funding needs in the analysis are based on the assumption that a portion of the total cost burden of modeled needs is borne by water systems, their ratepayers, and/or domestic well owners. Additionally, the State Water Board's funding sources are not the only external funding sources that may be available to water systems. Therefore, estimated funding needs for interim and long-term solutions were separated into three categories: costs that are State Water Board grant eligible, costs that are loan eligible, and capital costs that are not State Water Board loan or grant eligible. The criteria used to determine grant-eligible funding needs were generally adapted from the Drinking Water State Revolving Fund (DWSRF) Intended Use Plan (IUP) from Fiscal Year (FY) 2023-24 in Appendix E.[219] The results of this analysis are summarized below.

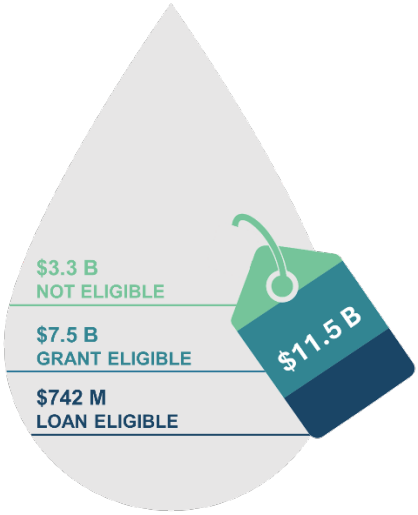
Note: Estimated financing costs (public and private interest payments) and estimated new modeled treatment O&M costs are excluded from the Funding Gap Analysis but included in the estimated Local Cost Share for communities (see Figure 57).

ESTIMATED 5-YEAR FUNDING NEEDS
Capital & Managerial Assistance Only

Grant Eligible Needs: portion of modeled long-term and interim estimated needs that are State Water Board grant eligible. Grant eligibility is based on system size, system type, DAC status, and affordability.

Loan Eligible Needs: portion of modeled interim and long-term estimated needs that are State Water Board loan eligible. Loan eligibility is based on system size, system type, DAC status, and affordability.

Non-State Water Board Funding Eligible Needs: portion of modeled interim and long-term capital needs that are neither State Water Board grant nor loan eligible.



Learn more in Appendix: Funding Gap Analysis Methodology.[220]

[219] FY 2023-24 Drinking Water State Revolving Fund Intended Use Plan https://www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/docs/2023/2023-24-dwsrf-iup.pdf
[220] Appendix: Funding Gap Analysis Methodology https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024funding-gap-analysis-methodolgy.pdf

Table 48: 5-Year Estimated Capital and Managerial Assistance Funding Needs for Failing & At-Risk Public Water Systems ($ in Millions)

System Type	Projected # of Systems with Need	Total Grant Eligible Need	Total Loan Eligible Need	Total Needs Not Funding Eligible	Total Estimated 5-Year Need[221]
Failing Public Water Systems	624	$3,425	$435	$0	**$3,860**
At-Risk Public Water Systems	569	$2,476	$307	$0	**$2,783**
TOTAL:	**1,193**	**$5,901**	**$742**	**$0**	**$6,643**

Table 49: 5-Year Estimated Capital and Managerial Assistance Funding Needs for High-Risk State Small Water Systems & Domestic Wells ($ in Millions)

System Type	Projected # of Systems with Need	Total Grant Eligible Need	Total Loan Eligible Need	Total Needs Not Funding Eligible	Total Estimated 5-Year Need[222]
High-Risk State Small Water Systems	727	$95	Not Eligible	$235	**$330**
High-Risk Domestic Wells	143,663	$1,479	Not Eligible	$3,103	**$4,582**
TOTAL:	**144,390**	**$1,574**	**$0**	**$3,338**	**$4,912**

ESTIMATED 5-YEAR FUNDING AVAILABILITY

While the SADWF is a unique fund that is wholly available to the SAFER program, the State Water Board has additional federal funding programs that can be utilized to advance the SAFER program's objectives. The Funding Gap Analysis considered the SADWF along with the other federal funding sources administered by the State Water Board. Table 50 provides a complete list of all State Water Board funds that are anticipated to be available to help meet SAFER program funding objectives in the next year and projected out five years.[223] The

[221] Excludes estimated financing costs (interest payments) and long-term O&M for new modeled treatment.
[222] Excludes estimated financing costs (interest payments) and long-term O&M for new modeled treatment.
[223] Note that anticipated funding available per state and federal source are estimates. These estimates are subject to various external factors such as state and federal budgeting and are also influenced by potential shifts in priorities year-to-year.

majority of projected funding availability is based on federal appropriations and priorities which may shift over time.

For the Funding Gap Analysis, all funding programs managed by the State Water Board were considered and included based on each funds' relevance to the SAFER program. Relevance was assessed using established fund eligibility criteria and their match to interim and long-term solutions modeled for the systems included in the analysis. However, it is important to highlight that other state, federal, and private funding may be available to meet some of these estimated needs.

Table 50 provides a summary of current State Water Board funds' capacity and estimated cumulative future fund sizes. It is important to highlight that, to conduct the Funding Gap Analysis, the methodology[224] assumes the total project's costs are allocated the full amount of funding needs within a year. This does not align with actual State Water Board capital and technical assistance funding practices, which often stretch the allocation of committed funding over a span of many years due to the actual implementation timeframes of projects.

Table 50: State Water Board Grant and Loan Estimated Availability ($ in Millions)

State Water Board Administered Funds	Yr. 1 Est. Fund Size	Projected Total 5-Yr. Fund Size
Safe and Affordable Drinking Water Fund (SADWF) (Grant State Funding)	$214[225]	**$670**
Drinking Water State Revolving Fund (DWSRF) (Grant Federal Funding)	$146	**$540**
DWSRF (Loan Federal Funding)	$300	**$1,500**
Emerging Contaminant Funding Program (e.g. 1,2,3-TCP, manganese, etc.) (Grant Federal Funding)	$523	**$770**
TOTAL:	**$1,183**	**$3,480**

UNACCOUNTED FUNDING SOURCES

To achieve the Human Right to Water, any estimated long-term and interim costs that are not eligible for State Water Board grant funding, and any eligible needs that are not met by projected available funds, would need to be met by other federal, state, local funding, and/or private sources. Other potential sources of funding include Federal infrastructure funding, funds derived from other utility fees and charges, local taxes, private settlements, or other

[224] Appendix: Funding Gap Analysis Methodology https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024funding-gap-analysis-methodolgy.pdf

[225] The Funding Gap Analysis assumes approximately $114 million in grant funding availability through 2030, which includes $130 million from SADWF appropriations, reduced by $16 million for State Water Board staff costs. The estimated amount available for year 1 (FY 2024-25) includes an amount of $100 million carried over from prior FYs.

mitigation efforts. In California this may include mitigation efforts from agriculture and related regulatory programs administered by the Regional Water Boards, as well as mitigation provided for by Groundwater Sustainability Plans (GSPs) under the Sustainable Groundwater Management Act (SGMA). There is also potential settlement money for specific water systems through past and ongoing lawsuits over contaminants such as 1,2,3 TCP and PFAS related chemicals.

The extent of the availability of this type of funding tends to be site specific and is unknown on an aggregated Statewide basis. Therefore, for the purposes of calculating this Funding Gap Analysis it was assumed that there is no contribution from litigation or regulatory programs.

FUNDING GAP ANALYSIS RESULTS

The purpose of the Funding Gap Analysis is to provide an opportunity for the State Water Board and the public to view the refined 5-year estimated funding and financing capital and managerial assistance needs from different perspectives. The results of the analysis will be utilized to inform the annual funding plan for the SADWF as well as the broader demands on State Water Board's drinking water funding programs. The following is a summary of the results:

- **Refined Statewide 5-Year Cost Estimate**: The total State Water Board estimated 5-year capital and managerial assistance needs is approximately $11.5 billion for Failing public water systems, At-Risk public water systems, high-risk state small water systems, and domestic wells. This estimate is $1.3 billion (13%) higher than the total estimated needs in the 2021 Funding Gap Analysis ($10.2 billion).
- **Grant Funding Gap**: The Funding Gap Analysis estimates a cumulative 5-year grant funding gap of $5.5 billion for estimated capital and managerial assistance needs.[226] This estimated 5-year grant funding gap is $3.45 billion (168%) greater than the results from the 2021 Funding Gap Analysis ($2.05 billion). This significant increase is attributed to project eligibility changes as defined in the annual DWSRF IUPs, meaning that more modeled needs are State Water Board grant eligible in 2024 compared to what was considered grant eligible in 2021.
- **Loan Funding Gap**: The Funding Gap Analysis indicates no projected loan/financing funding gap. All estimated 5-year loan eligible estimated capital needs are met by projected available loan capacity.[227] The analysis estimates $758 million in unused loan capacity. This result differs greatly from the 2021 Funding Gap Analysis that estimated a $2.55 billion loan gap. Changes in grant eligibilities since 2021 have expanded, resulting in more modeled needs being grant eligible rather than loan eligible.
- **The Growing Grant Gap**: Estimated additional new grant-eligible needs are expected to exceed the amount of grant funds available, in perpetuity. Therefore, without additional funds, the future grant funding and financing gaps are expected to grow. Other state, federal, and private funding and financing may be available to meet some of these needs.

[226] Grant Funding Gap is based on an analysis of applicable State Water Board grant programs only.
[227] Financing Gap is based on an analysis of the State Water Board's DWSRF only.

- **Local Cost Share:** The Funding Gap Analysis estimates that the projected needs of local cost share required is $13.9 billion. This is $11.4 billion (456%) higher than the results from the 2021 Funding Gap Analysis ($2.5 billion). This difference is attributed to the following:
    - The 2021 local cost share calculations did not include estimated State Water Board funding eligible needs that were projected to be unmet by estimated available funding.
    - The 2024 analysis includes a much larger estimate of non-DAC high-risk state small water systems and domestic wells that would not be eligible for State Water Board funding. Refer to the Cost Assessment section of this report for more information.

This analysis is for modeling purposes only. The projected 5-year funding needs do not reflect typical funding demand for the State Water Board's programs. Many water systems can self-finance their interim and/or long-term capital needs.

ACTUAL FUNDING DEMAND

Each year since 2019, the State Water Board has received approximately 100 applications from water systems requesting a total of approximately $766 million. About 87% of these applications are submitted by small and medium sized water systems for planning and construction projects requesting an average annual total of $460 million (60% of total funding demand). This indicates that while the modeled average annual State Water Board eligible funding demand projected by the Funding Gap Analysis is $1.6 billion, the actual demand in recent years is less. This could be due to a number of reasons, such as projects not being developed to a point where funding can be requested, a lack water system awareness about funding resources available, or lack of interest in receiving funding from or working with State government. State Water Board staff continue to engage with public water systems, particularly those on the Failing list, to ensure that they are aware of the funding resources available to address their compliance issues.

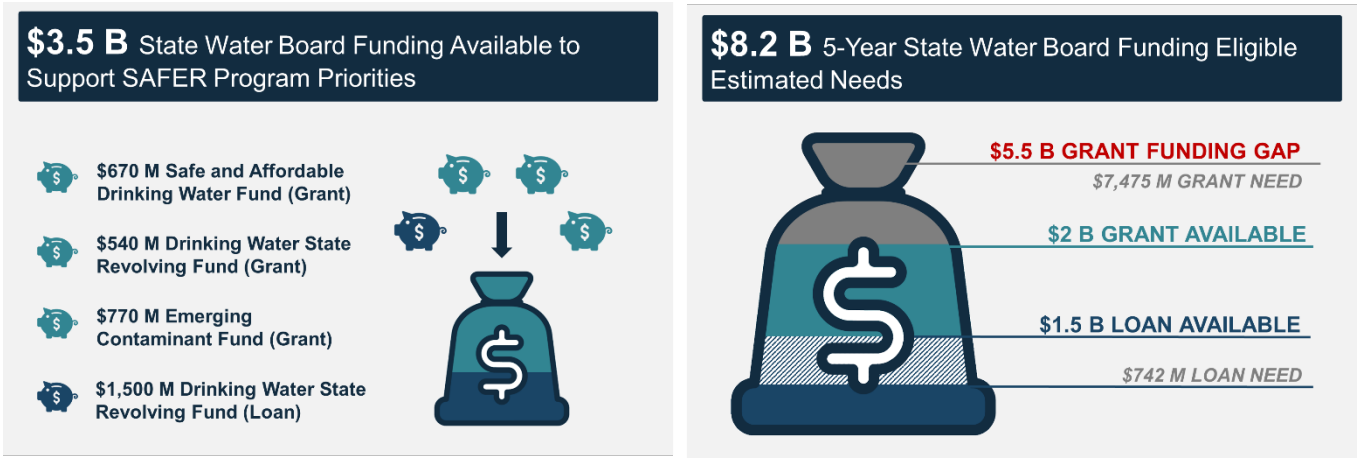
FUNDING GAP ANALYSIS OF ALL STATE WATER BOARD FUNDS

Anticipated available near-term funding sources across all State Water Board funding programs relevant to drinking water (Table 8) were analyzed and compared to the estimated total funding need. Anticipated available funding was distributed based on general funding priorities identified in the FY 2023-24 FEP's "General Funding Approach and Prioritization."

The total State Water Board estimated 5-year funding eligible need is $8.2 billion for Failing public water systems, At-Risk public water systems, high-risk state small water systems, and

domestic wells. Of this total estimated 5-year funding need, $7.5 billion is grant eligible and $742 million is loan eligible. The State Water Board has a projected $3.5 billion in 5-year funding availability: $2 billion for grants and $1.5 billion for loans. Therefore, the estimated 5-year funding gap is $5.5 billion for grant eligible needs. All estimated 5-year loan eligible needs are met by projected available loan capacity.[228] The State Water Board estimates $758 million in loan capacity that could be utilized for projects serving larger, potentially non-DAC systems.

Figure 56: 5-Year Funding Gap Analysis Results for Estimated Capital & Managerial Assistance Needs



The following sub-sections evaluate the funding gap in various ways, including SAFER status, DAC status, using a tiered funding prioritization scheme, and considering the SADWF only for certain solution types.

Failing & At-Risk Public Water Systems Only

The total State Water Board estimated 5-year funding eligible needs is $6.6 billion for Failing ($3.8 billion) and At-Risk ($2.8 billion) public water systems. If the State Water Board were to prioritize funding for Failing and At-Risk public water systems only, excluding high-risk state small water systems and domestic wells, the estimated 5-year funding gap is $3.9 billion for grant eligible needs. All estimated 5-year loan eligible needs are met by projected available loan capacity. The State Water Board estimates that $758 million in loan capacity could be utilized for projects serving larger, potentially non-DAC systems.

DAC/SDAC Failing & A-Risk Public Water Systems Only

The total State Water Board estimated 5-year funding eligible needs is $4.1 billion for **DAC/SDAC-only** Failing ($2.4 billion) and At-Risk ($1.7 billion) public water systems. If the State Water Board were to prioritize funding for Failing and At-Risk public water systems only, excluding high-risk state small water systems and domestic wells, the estimated 5-year funding gap is $2.1 billion for grant eligible needs. All estimated 5-year loan eligible needs are met by

[228] The evaluation of loan eligible need does not factor each individual system's ability to take on a State Water Board administered repayable loan. This is evaluated by State Water Board staff based on several items including revenue to debt service ratio, available reserves, and TMF capacity.

projected available loan capacity. After meeting all estimated 5-year loan eligible needs for DAC-only Failing and At-Risk public water systems, the State Water Board estimates $1.2 billion in remaining loan capacity that could be utilized for projects serving larger, potentially non-DAC systems.

DAC/SDAC High-Risk State Small Water Systems & Domestic Wells Only

The total State Water Board estimated 5-year funding eligible needs is $3.1 billion for high-risk state small water systems and domestic wells, including $1.6 billion (52%) for **DAC/SDAC-only** high-risk state small water systems ($95 million) and domestic wells ($1.5 billion). If the State Water Board were to prioritize only funding DAC/SDAC-only high-risk state small water systems and domestic wells, excluding public water systems, the estimated 5-year grant eligible needs are met by projected available grants ($2 billion). None of the estimated state small water systems and domestic well funding needs are State Water Board loan eligible.

Tier 1 Priorities Only

For the purposes of the 2024 Funding Gap Analysis, and due to more limited funding from complementary sources than in previous years, a possible tiered prioritization scheme was evaluated. In this scenario, Tier 1 funding priorities are:

1. Failing systems with a primary MCL violation.
2. Consolidations that include Failing and At-Risk public water systems.
3. Interim water supplies and emergency repairs for Failing systems.
4. Interim and long-term solutions for DAC/SDAC high-risk state small water systems and domestic well communities.

The total State Water Board estimated 5-year funding eligible needs is $7.4 billion for communities meeting the Tier 1 priorities summarized above. If the State Water Board were to limit funding to these priority systems and projects, the estimated 5-year funding gap would be $4.8 billion for grant eligible needs. All estimated 5-year loan eligible needs are met by projected available loan capacity. Under this scenario (i.e. Tier 1 Priorities only), the State Water Board estimates $841 million in remaining loan capacity that could be utilized for projects serving larger, potentially non-DAC systems. Learn more in the Appendix: Funding Gap Analysis Methodology.[229]

SADWF ONLY

The SADWF is a unique funding program with one of the most diverse sets of funding eligibilities. $7.5 billion (91%) of the projected 5-year funding need is eligible for SADWF funding. However, based on projected 5-year SADWF funding availability ($670 million), the projected funding gap for the SADWF program alone would be $6.85 billion.

[229] Appendix: Funding Gap Analysis Methodology https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024funding-gap-analysis-methodolgy.pdf

Narrowly considering SADWF's unique eligibilities, the Funding Gap Analysis evaluated whether projected available SADWF funding could cover the following modeled needs (excluding all other needs):

Interim Needs Only: Interim and emergency funding needs for DAC/SDAC Failing public water systems and DAC/SDAC high-risk state small water systems and domestic wells are eligible for SADWF funding. The estimated 5-year interim needs are $726 million, including $594 million for DAC/SDAC Failing public water systems and $132 million for DAC/SDAC high-risk state small water systems and domestic wells. The estimated 5-year SADWF funding gap is $56 million.

Long-Term O&M Needs Only: Thirty-year O&M needs for DAC/SDAC Failing public water systems and DAC/SDAC high-risk state small water systems and domestic wells are eligible for SADWF funding. The estimated long-term O&M needs are $547 million, including $426 million for DAC/SDAC Failing public water systems and $121 million for DAC/SDAC high-risk state small water systems and domestic wells with modeled long-term decentralized treatment. The estimated 5-year SADWF funding ($670 million) would be capable of covering all modeled O&M needs for DAC/SDAC Failing public systems and DAC/SDAC high-risk state small water systems and domestic wells with $123 million remaining in unused grant capacity.

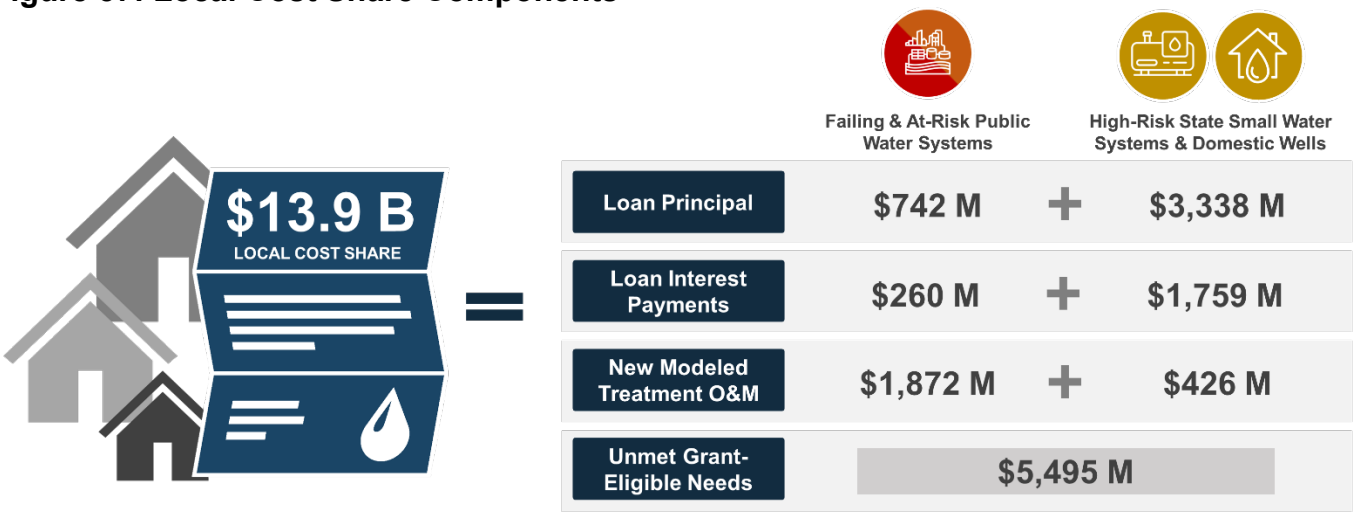
LOCAL COST SHARE

The responsibility of paying for the interim and long-term drinking water solutions to achieve the Human Right to Water can be borne by federal, state, local funding, and/or private funding sources. For the purposes of this analysis, only State Water Board funding was included as mentioned above.[230] Any costs not covered by grant dollars would ultimately be covered by local communities and homeowners through rates, fees, savings, reserve, etc. These costs are referred to as "Local Cost Share."

Local cost share includes the principal of private/State Water Board loans, long-term financing costs (interest payments), long-term O&M costs associated with new modeled treatment, and estimated grant eligible needs not covered by available 5-year State Water Board grant funding.

[230] Refer to "*Unaccounted Funding Sources*."

Figure 57: Local Cost Share Components

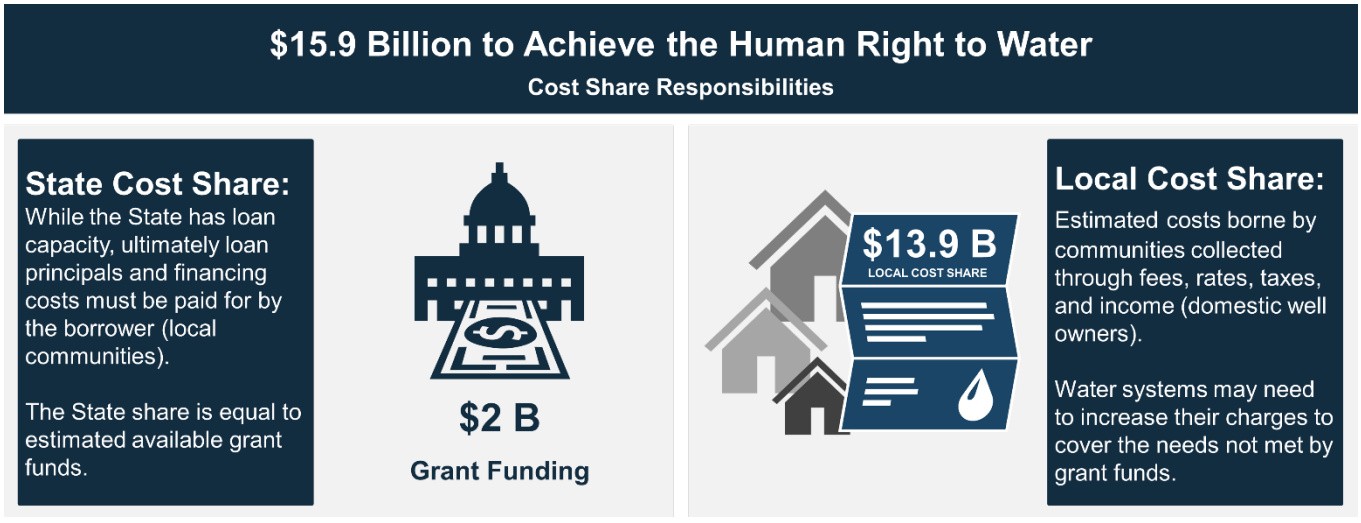


Local Cost Share ($13,892 M) = Private Loan Principal ($3,338 M) + State Water Board Loan Principal ($742 M) + Financing Costs ($2,019 M) + Long-Term O&M for New Modeled Treatment ($2,298 M) + Unmet Grant-Eligible Needs ($5,495 M)

ACHIEVING THE HUMAN RIGHT TO WATER

The total estimated cost of achieving the Human Right to Water is $15.9 for communities currently served by Failing public water systems, At-Risk public water systems, high-risk state small water systems and domestic wells, and projected new Failing public water systems. The State Water Board's available grant funding can meet $2 billion of this cost, and local communities would need to fund $13.9 billion.

Figure 58: Human Right to Water Cost Share



AFFORDABILITY ASSESSMENT RESULTS

OVERVIEW

Ensuring that drinking water is affordable is crucial to meeting California's Human Right to Water mandate.[231] The COVID-related economic crisis magnified the need to address drinking water affordability for households as well as drinking water systems that require financial viability to provide a safe and reliable drinking water supply.[232]

The purpose of the Affordability Assessment is to identify disadvantaged community water systems and non-transient non-community water systems that serve K-12 schools and have instituted customer charges that exceed the "Affordability Threshold" established by the State Water Board to meet state and federal standards.[233] Legislation does not define what the Affordability Threshold should be. Nor is there specific guidance on the perspective in which the State Water Board should be assessing the Affordability Threshold.

WHY MEASURING AFFORDABILITY MATTERS

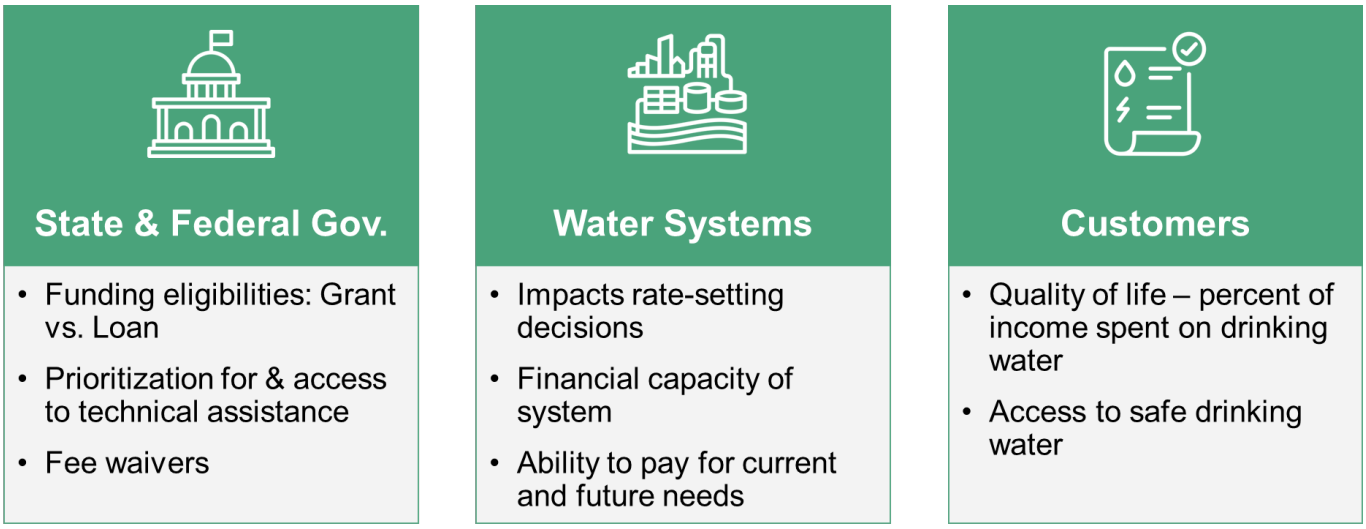
Drinking water affordability is difficult to measure. Different terms and metrics have been used to describe and measure affordability in the water sector, and have been used to influence important decisions. For instance, affordability metrics are used to determine which water systems are eligible for state and federal assistance. Water systems meeting certain affordability thresholds qualify for more grants (as opposed to loan funding) for infrastructure projects and are frequently prioritized for state and federal technical assistance.

Affordability metrics are often used by water systems when exploring possible rate changes. Systems serving communities with affordability challenges often struggle to raise their rates, affecting their long-term financial capacity. Customers unable to pay for water services may experience challenges in accessing a reliable source of safe drinking water.

---

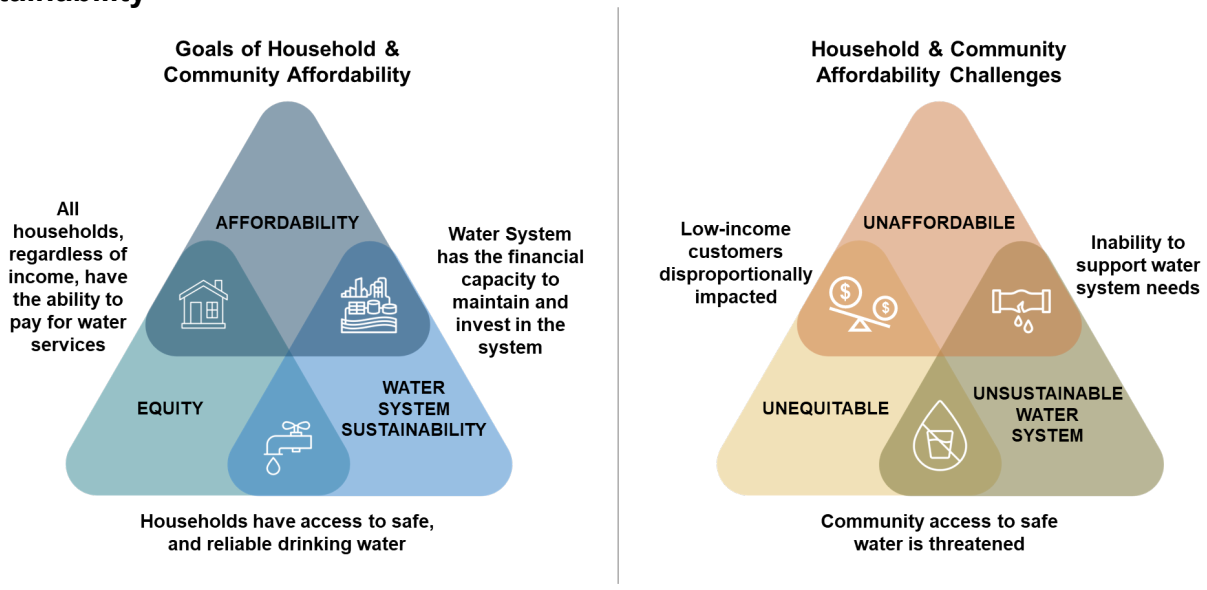
[231] State Water Board Resolution No. 2016-0010
https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2016/rs2016_0010.pdf
[232] Drinking Water COVID-19 Financial Impacts Survey | California State Water Resources Control Board
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/covid-19watersystemsurvey.html
[233] California Health and Safety Code, section 116769, subd. (a)(2)(B)

Figure 59: Why Measuring Affordability Matters



It is important to assess the affordability of drinking water services because issues surrounding equity and water system sustainability overlap various aspects of addressing affordability challenges to ensure that all Californians have access to safe drinking water. Figure 60 illustrates this relationship and the potential consequences of inaction.

Figure 60: The Relationship Between Affordability, Equity and Water System Sustainability



DEFINING AFFORDABILITY

To better navigate the different metrics and approaches used to measure affordability, Figure 61 (below) illustrates the nexus between types of affordability.

Figure 61: Nexus of Affordability Definitions

(1) Household Affordability: The ability of individual households to pay for an adequate supply of water. Metrics to measure household affordability are not included in either the Affordability Assessment and Risk Assessment due to limited data availability.

(2) Community Affordability: The ability of households within a community to pay for water services with the effect of financially supporting a resilient water system. Metrics to measure community affordability are included in both the Affordability Assessment and Risk Assessment.

(3) & (4) Water System Financial Capacity: The ability of a water system to financially meet current and future operational and infrastructure needs in order to deliver safe drinking water. The financial capacity of water systems affects future rate increases, impacting households. A water system's inability to provide adequate services may require households served by the system to rely on expensive alternatives such as bottled water. Metrics measuring the financial capacity of water systems are included in the Risk Assessment only.

DISADVANTAGED COMMUNITIES & THE AFFORDABILITY ASSESSMENT

The purpose of the Affordability Assessment is to identify **disadvantaged community** water systems that have instituted customer charges that exceed the Affordability Threshold. The State Water Board distinguishes two types of disadvantaged communities:

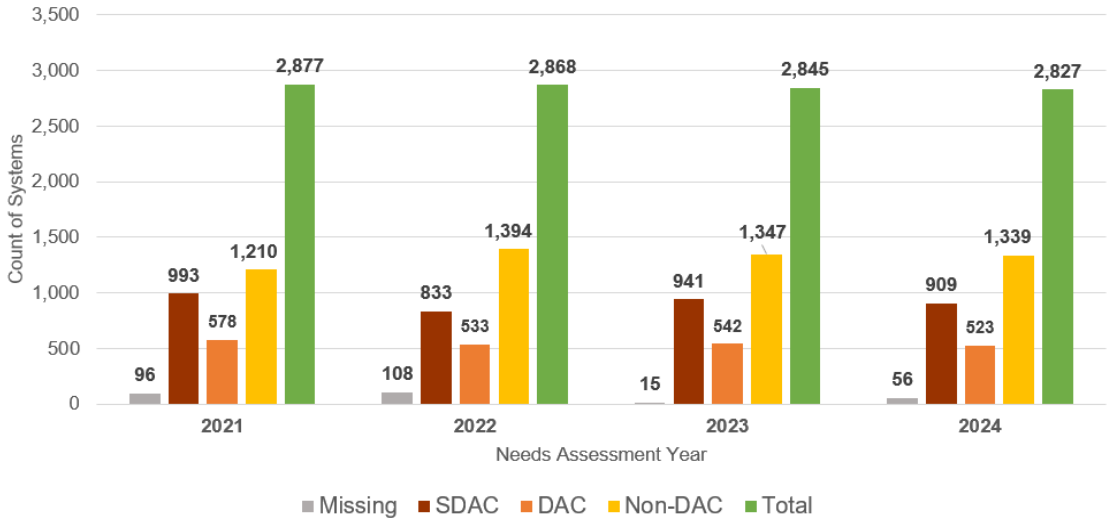
> **Disadvantaged Community (DAC):** the entire service area of a community water system, or a community therein, in which the median household income is less than 80% ($73,524) of the statewide annual median household income level.[234]
>
> **Severely Disadvantaged Community** (**SDAC):** the categorization of an entire water system- service area where the median household income is less than 60% ($55,143) of the statewide median household income.[235]

[234] Health & Saf. Code, § 116275, subd. (aa).
[235] Water Code § 13476, subd. (j)

DAC status is determined by comparing a system's median household income (MHI) to California's average median income.[236] The methodology for deriving a system's MHI is described in Appendix: Affordability Assessment Methodology.[237] In general, MHI is calculated by intersecting California block group[238] boundaries joined with American census derived MHI data, with the service area boundaries[239] of water systems across the state.

Through previous iterations of the Needs Assessment (2019, 2020, 2021, 2022), the total number of DAC/SDAC systems has remained fairly consistent. Over the last four years, the average change in the number of community water systems is 24 DAC systems per year, and 66 SDAC systems per year. Non-DAC community water systems have the greatest difference, averaging 80 non-DAC systems per year.

Figure 62: Count of Community Water System by DAC Status (2019 – 2022)[240]



For the purposes of the Affordability Assessment, the analysis in this section highlights and compares affordability challenges for DAC/SDAC water systems as well as non-DAC systems.

[236] $91,905, based on 2018-2022 ACS data, U.S. Census Bureau Quick Facts: California https://www.census.gov/quickfacts/fact/table/CA/INC110222

[237] Appendix: Affordability Assessment Methodology https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024affordabilityassessment-metodology.pdf

[238] A block group is the smallest unit for which the U.S. Census Bureau reports a full range of demographic statistics.

[239] Geographic area that a water system physically delivers drinking water and provides drinking water services too.

[240] DAC status is based on median household income from the American community Survey (ACS); Each year of the Needs Assessment utilized the most up to date ACS data set at the time: 2021 DAC determinations were based on 2019 5 Year Estimate MHI ACS data, 2022 based on 2020 ACS 5-year estimates, 2023 based on 2021 ACS 5-year estimates, and 2024 is based on 2022 5 year ACS estimates.

DRINKING WATER CUSTOMER CHARGES

Measuring affordability includes an analysis of the ability of households and communities to pay for current and future water service charges. Therefore, it is important to consider the average monthly customer charges for the same volume of water (6 hundred cubic feet [HCF]).

The State Water Board began requiring the submission of average monthly residential customer charges for 6 HCF in the 2019 Electronic Annual Report (eAR).[241] Figure 63 illustrates the trends in customer charges since this requirement went into effect. It is important to note that many water systems struggled to submit customer charges data for the 2020 reporting year, which may have contributed to the difference between average charges data from 2019 to 2020.

Table 51 summarizes 2022 average residential customer charges by system size. On average, smaller community water systems charge more for the same volume of water when compared to medium and large community water systems, and when compared to the statewide average (Figure 63). In general, there was a steady increase in drinking water customer charges for all system sizes between 2020 and 2022. Small community water system drinking water charges have been increasing at an average rate of $2.08 per year. Medium community water system drinking water charges decreased $0.47 between 2020 and 2021, and increased by $5.32 between 2021 and 2022. Large system drinking water customer charges increased by $4.09 between 2020 and 2021, then increased again by $0.17 in 2022. Statewide average drinking water customer charges have been steadily increasing at an average rate of $2.39 per year since 2020.

[241] Electronic Annual Report I State Water Board
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/ear.html

Figure 63: Average Monthly Residential Customer Charges for 6 HCF (2019 – 2022)

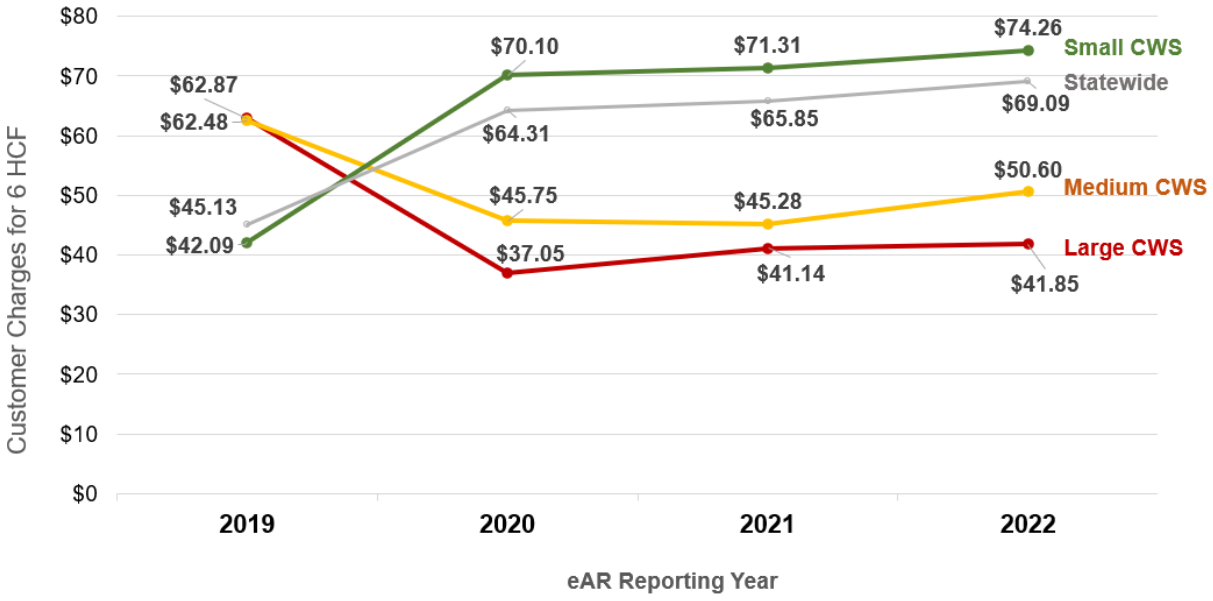


Table 51: 2022 Average Monthly Residential Customer Charges for 6 HCF by System Size

System Size	Total Systems	Average Customer Charges for 6 HCF
Large Community Water Systems[242]	91	$41.85
Medium Community Water Systems[243]	334	$50.60
Small Community Water Systems[244]	2,412	$74.23
STATEWIDE:	**3,202**	**$69.09**
K-12 schools and systems that do not charge for water or missing charge data	*1,268*	

Table 52 and Table 53 summarize the 2022 average customer charges collected from water systems statewide in 2023.[245] Since 2020, when the State Water Board began requiring the annual reporting of this data, drinking water customer charges have been increasing annually (Figure 64). On average non-DAC systems have higher drinking water customer charges than DAC/SDAC systems, as well as the statewide average. Non-DAC systems have been increasing their drinking water customer charges for 6 HCF by $4.04 per year since 2020.

[242] Greater than 30,000 service connects or those that serve a population of 100,000 or more.
[243] 3,001 - 30,000 service connections or those that serve a population of less than 100,000.
[244] 3,000 service connections or less.
[245] Collected in the 2022 reporting year eAR.

DAC/SDAC water systems drinking water charges for 6 HCF have been increasing by $1.14 per year since 2020. The statewide average has also seen an increase from 2020 to 2022 of approximately $2.39 per year.

Figure 64: Average Monthly Residential Customer Charges for 6 HCF Over Time by DAC Status (2019 – 2022)

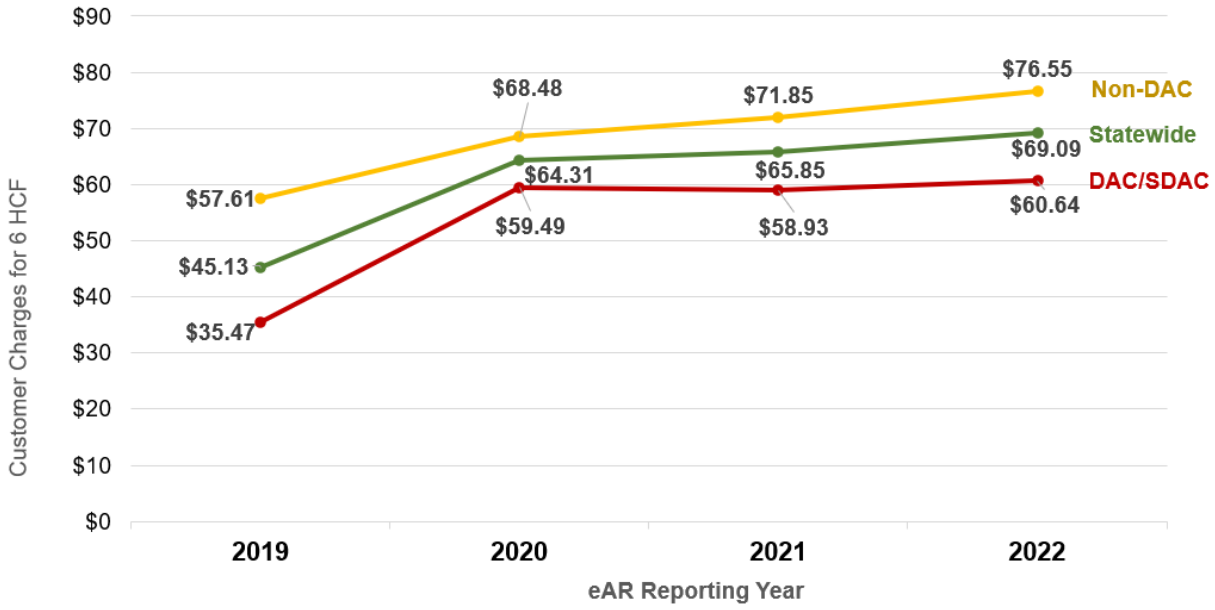


Table 52: 2022 Average Monthly Residential Customer Charges for 6 HCF by DAC/SDAC Status

Community Status	Total Systems	Average Customer Charges for 6 HCF
DAC/SDAC	1,635	$60.36
Non-DAC	1,505	$76.65
Missing DAC Status[246]	62	$70.08
STATEWIDE:	**3,202**	**$69.09**
Community water systems & K-12 schools that do not charge for water or missing charge data	*1,268*	--

[246] Missing DAC Status refers to the list of systems that were included in the affordability assessment but lacked data necessary to calculate their MHI to determine their DAC status.

Table 53: 2022 Average Monthly Residential Customer Charges for 6 HCF by SAFER Status

SAFER Program Status[247]	Total Systems	Average Customer Charges for 6 HCF
Failing Systems	**384**	**$75.09**
Failing DAC/SDAC	234	$68.71
At-Risk Systems	**612**	**$89.66**
At-Risk DAC/SDAC	421	$77.70
Potentially At-Risk Systems	**440**	**$76.97**
Potentially At-Risk DAC/SDAC	264	$59.48
Not At-Risk System	**1,615**	**$62.36**
Not At-Risk System DAC/SDAC	678	$51.18
Not Assessed	**151**	**$45.54**
Not Assessed System DAC/SDAC	38	$44.81
STATEWIDE:	**3,202**	**$69.09**
Community water systems & K-12 schools that Do Not Charge for Water or Missing Charge Data	*1,268*	--

AFFORDABILITY ASSESSMENT METHODOLOGY

WATER SYSTEMS ASSESSED

In previous years the Affordability Assessment was conducted annually for only community water systems, and, while there is some overlap, the systems included in the Affordability Assessment differed from the list of water systems analyzed in the Risk Assessment for public water systems.

This year the Affordability Assessment includes all community water systems (including those above 30,000 service connections) as well as non-transient, non-community water systems that serve K-12 schools. Table 54 provides an overview of the systems included in the Affordability Assessment compared to the Risk Assessment. The Affordability Assessment's inventory now only differs from the Risk Assessment's in that it does not exclude large community water systems.

[247] Water systems that are not DAC/SDAC or are missing DAC status designations are excluded from sub-categories within this table.

Table 54: Systems Included in the Affordability Assessment

SAFER Program Status	Risk Assessment	Affordability Assessment	DAC/SDAC Systems Included in the Affordability Assessment
Large Community Water Systems[248]	0	91	8
Medium Community Water Systems[249]	334	334	106
Small Community Water Systems[250]	2,356	2,412[251]	1,323
Non-Transient, Non-Community K-12 Schools	365	365	198
TOTAL:	**3,055**	**3,202**	**1,635**

AFFORDABILITY ASSESSMENT METHODOLOGY

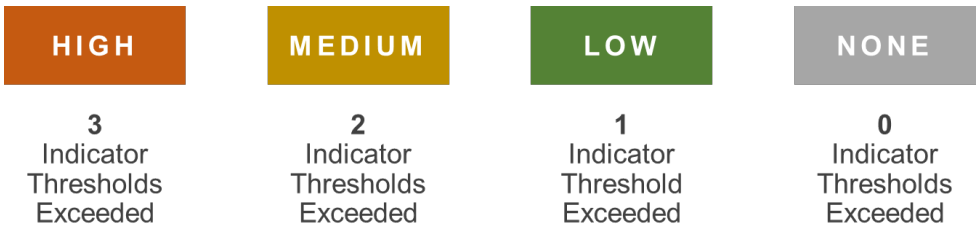
The Affordability Assessment methodology has developed though a phased public process since January 2019. Public workshops have been hosted to solicit public feedback to help refine the Assessment over time. The Affordability Assessment methodology relies on two core elements which are utilized to identify water systems serving communities that may be experiencing drinking water affordability challenges:

> **Affordability Indicators**: quantifiable measurements of key data points that allow the State Water Board to assess drinking water affordability challenges.
>
> **Affordability Indicator Thresholds**: the levels, points, or values associated with an individual affordability indicator that delineates when a water system's customers may be experiencing affordability challenges.

The Affordability Assessment identifies "High," "Medium," "Low" Affordability Burden communities. The designation is based on the number of Affordability Indicator thresholds met by each water system. The higher the count, the higher the Affordability Burden designation. See Appendix: Affordability Assessment Methodology[252] for more information.

[248] Greater than 30,000 service connects or those that serve a population of 100,000 or more.
[249] 3,001 - 30,000 service connections or those that serve a population of less than 100,000.
[250] 3,000 service connections or less.
[251] The Affordability Assessment includes 47 community water system wholesalers that are excluded from the Risk Assessment. It also includes 9 small water systems that were active at the time the Affordability Assessment was determined and later deactivated when the Risk Assessment inventory was determined.
[252] Appendix: Affordability Assessment Methodology https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024affordabilityassessment-metodology.pdf

Figure 65: Illustration of the Affordability Assessment Methodology



No changes have been made to the Affordability Assessment methodology when compared to the methodology used in the 2023 Affordability Assessment. The underlying data used to conduct the Affordability Assessment has been refreshed with the most recent and available data.

AFFORDABILITY INDICATORS

In 2020, 23 potential affordability indicators were identified and evaluated through public workshops for inclusion in both the Affordability Assessment and Risk Assessment.[253] Through multiple public workshops, stakeholders identified a series of indicators that could be incorporated into the Affordability Assessment immediately and some that needed to be further developed and refined. Since 2020, the State Water Board and its partners have hosted workshops to further refine and update the indicators used in the Affordability Assessment as data has become available or not available. Affordability indicators can be categorized based on the following attributes:

Household vs. Community Affordability Indicators

- **Household** affordability indicators measure the ability of individual households to pay for an adequate supply of water. Indicators measuring affordability at this scale often include a count or measurement of the number of customers within a service area of a water system that may be struggling now or in the future to pay for water services. *Currently, the Affordability Assessment has no household affordability indicators.*

- **Community** affordability indicators measure the ability of a water system's entire service area to pay for water services to financially support a resilient water system. Metrics measuring community level affordability often include data that spans all customers served by the water system.

Where there may be some households struggling to pay for water services, if the whole community is not struggling, then community level affordability may not be a concern. The State Water Board recognizes the importance of considering household and community affordability together; however, currently there is insufficient statewide data to include household affordability indicators in the Affordability Assessment.

[253] Supplemental Appendix: Potential Affordability Risk Indicator Evaluations https://www.waterboards.ca.gov/safer/docs/safer_supp_appxd3_101320.pdf

Rates-Based vs. Non-Rates-Based Affordability Indicators

- **Rates-based** affordability indicators rely on data that is either directly or indirectly related to a water system directly charging for water. Rates-based indicators typically assess the proportion of a customer's income spent on water services or non-payment of water bills.

- **Non-rates-based** affordability indicators do not rely on a water system directly charging their customers for water services. These indicators may include income-based data or other data points that can assess ability to access drinking water services. These types of indictors are important for measuring affordability challenges for customers who do not receive a water bill. Examples include mobile home park residents who pay for services in their rent.

Table 55: Affordability Indicators (2021 – 2024)

Indicators	Household / Community	Rates-Based?	2021	2022	2023-24
Percent of Median Household Income (%MHI)	Community	Yes	✓	✓	✓
Extreme Water Bill	Community	Yes	✓	✓	✓
% Shut-Offs (Removed 2022)[254]	Household	Yes	✓		
Percentage of Residential Arrearages (Removed 2023)[255]	Household	Yes		✓	
Residential Arrearage Burden (Removed 2023)[256]	Community	Yes		✓	
Household Socioeconomic Burden	Community	No			✓

The following are brief descriptions of the affordability indicators utilized in the 2024 Affordability Assessment. Additional details on data sources, calculation methodologies, and thresholds are detailed in Appendix: Affordability Assessment Methodology.[257]

% MHI: This indicator measures annual system-wide average residential customer charges for six Hundred Cubic Feet (HCF) per month relative to the annual MHI within a water system's service area. Six HCF indoor water usage per month is roughly equivalent to 50 gallons per person per day for a three-person household for 30 days.

%MHI is commonly used by state and federal regulatory agencies and by water industry stakeholders for assessing community-wide water charges affordability for decades. The State

[254] Data no longer collected since 2020.
[255] Data was previously collected during a one-time survey; no updated data has been available since 2022.
[256] Data was previously collected during a one-time survey; no updated data has been available since 2022.
[257] Appendix: Affordability Assessment Methodology
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024affordabilityassessment-metodology.pdf

Water Board uses MHI to determine DAC status[258] and has for some time used the 1.5% MHI threshold in the Drinking Water State Revolving Fund (DWSRF) program as a metric for determining whether a small DAC will receive repayable (loan) or non-repayable (e.g., grant or non-repayable) funding.

Extreme Water Bill: This indicator measures drinking water customer charges that meet or exceed 150% ($103.64) and 200% ($138.18) of statewide average drinking water customer charges at the six HCF level of consumption ($69.09). The affordability thresholds utilized for this indicator are 150% and 200% of the state average drinking water bill for six HCF.

Household Socioeconomic Burden: The purpose of this risk indicator is to identify water systems that serve communities that have both high levels of poverty and high housing costs for low-income households. These communities may be struggling to pay their current water bill and may have a difficult time shouldering future customer charge increases when their limited disposable income is constrained by high housing costs. This indicator is a composite indicator of two data points: Poverty Prevalence and Housing Burden.

- **Poverty Prevalence** measures the percent of the population living below two times the federal poverty level and can be represented reliably at the census block group, tract, and county level.
- **Housing Burden Indicator** measures the percent of households in a census tract that are both low income (making less than 80% of the Housing and Urban Development (HUD) Area Median Family Income) and severely burdened by housing costs (paying greater than 50% of their income to housing costs).

AFFORDABILITY ASSESSMENT RESULTS

AFFORDABILITY RESULTS BY COMMUNITY ECONOMIC STATUS

For the 2024 Affordability Assessment, State Water Board staff analyzed 2,837 community water systems and 365 non-transient, non-community K-12 schools, of which approximately 5 water systems lacked the data necessary to calculate any of the three affordability indicators.[259] Water systems that had partial data for some, but not all, of the affordability indicators were included in the analysis and are summarized in Table 56.

Overall, comparing the three affordability indicators in cases where data was available, more water systems exceed the affordability threshold for ‘Household Socioeconomic Burden’ (56%) than the affordability threshold for ‘%MHI’ (13%). Of those that exceeded the affordability threshold for ‘Household Socioeconomic Burden, most of them are DAC/SDAC water systems (79%). Table 56 summarizes the number of water systems, by their community economic status, that exceeded the minimum affordability threshold for each indicator assessed.

[258] It is important to note that the estimated designation of community economic status is for the purposes of the Affordability Assessment only and will not be used by the State Water Board’s Division of Financial Assistance (DFA) to make funding decisions. Further MHI analysis on a per system basis will be conducted by DFA when a system seeks State Water Board assistance.

[259] Attachment: Affordability Assessment Results Spreadsheet
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024affordability.xlsx

Table 56: Total Number of Systems Meeting Affordability Threshold

Community Status	Total Systems	%MHI	Extreme Water Bill	Household Socioeconomic Burden
DAC/SDAC	1,635	325 (20%)	84 (5%)	1,295 (79%)
Non-DAC	1,505	98 (7%)	197 (13%)	448 (30%)
Missing DAC Status[260]	62	0 (0%)	3 (5%)	42 (68%)
TOTAL:	**3,202**	**423 (13%)**	**284 (9%)**	**1,785 (56%)**
Missing Data[261]		*593 (19%)*	567 (18%)	6 (1%)
Not Applicable[262]		702 (22%)	702 (22%)	0 (0%)

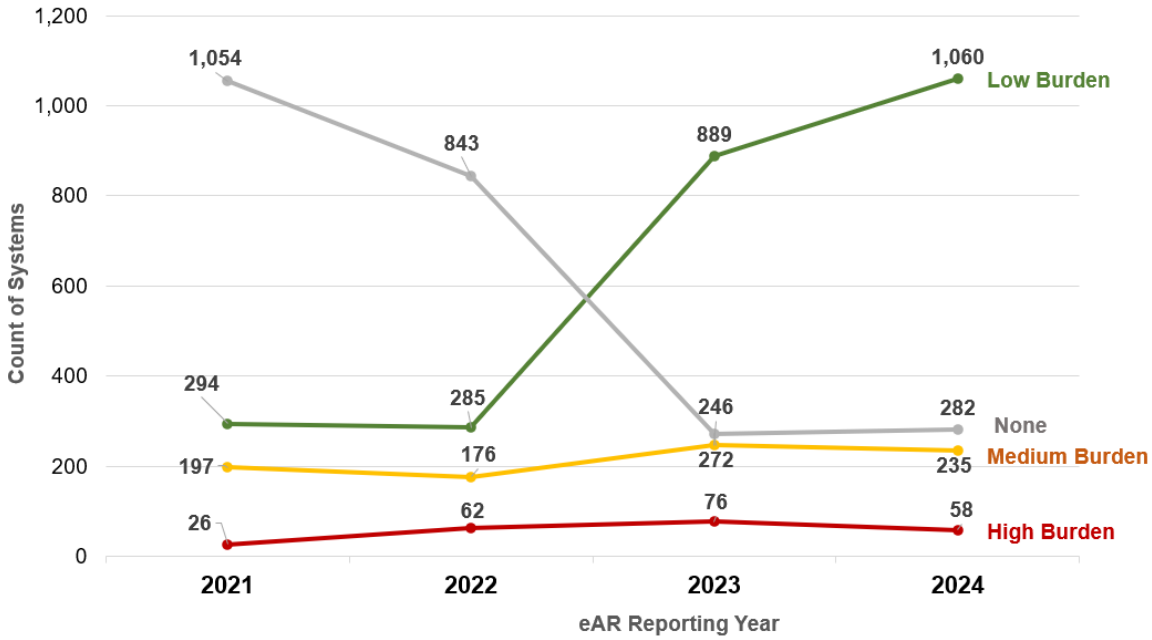
To assess which systems may be facing the greatest affordability burden, the State Water Board further analyzed how many water systems exceeded thresholds for multiple affordability indicators. Affordability burden is ranked from low (only one affordability indicator threshold exceeded), medium (two affordability indicator thresholds exceeded), or high (three affordability indicator thresholds exceeded) (Table 57). Of the 3,202 community water systems and non-transient, non-community K-12 schools that were analyzed, most resulted in a low affordability burden (50%) followed by a medium affordability burden (10%) and a high affordability burden (%). Overall, there is a higher proportion of DAC/SDAC systems that have a high or medium affordability burden compared to non-DAC and missing DAC status systems.

Table 57: 2024 Affordability Assessment Results

Community Status	Total Systems Assessed	High Affordability Burden[263]	Medium Affordability Burden[264]	Low Affordability Burden[265]	None
DAC/SDAC	1,635	58 (4%)	235 (14%)	1,060 (65%)	282 (17%)
Non-DAC	1,505	36 (2%)	73 (5%)	489 (32%)	907 (60%)
Missing DAC Status	62	0 (0%)	3 (5%)	39 (63%)	20 (32%)
TOTAL:	**3,202**	**94 (3%)**	**311 (10%)**	**1,588 (50%)**	**1,209 (38%)**

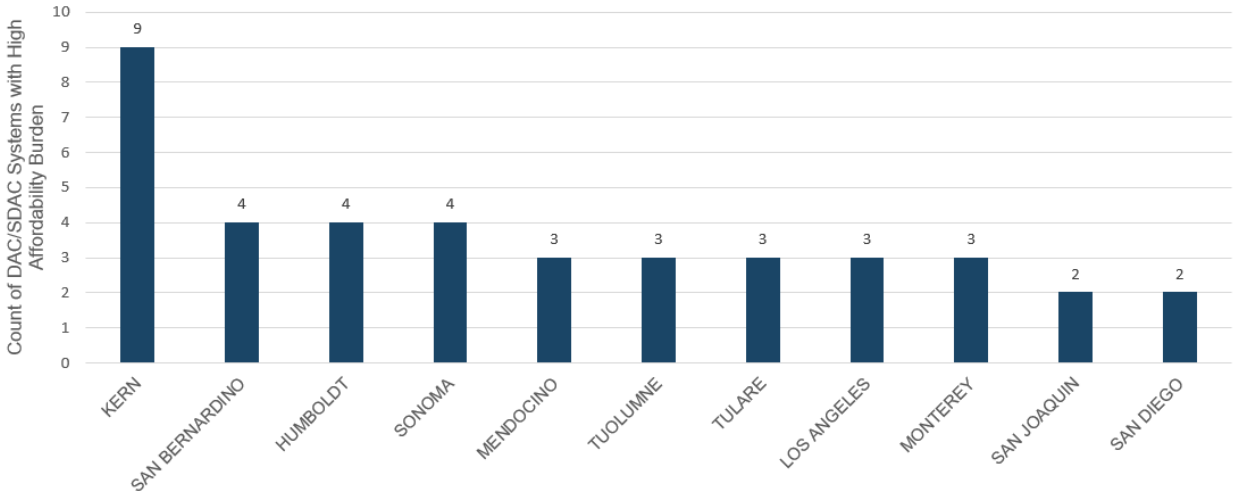
[260] Missing DAC Status refers to the list of systems that were included in the affordability assessment but lacked data necessary to calculate their MHI to determine their DAC status.
[261] Missing data: %MHI; lacked water rates data, lacked data to calculate MHI; Extreme Water Rates, lacked data on water rate charges, water rate was outside of $5-$500 range.
[262] Not applicable refers to systems who did not qualify to meet an indicator threshold: % MHI, systems who did not charge for water; Extreme Water Bill, systems that did not charge for water.
[263] Community water system met the minimum threshold for 3 of the affordability indicators.
[264] Community water system met the minimum threshold for 2 of the affordability indicators.
[265] Community water system met the minimum threshold for 1 of the affordability indicators.

Figure 66: Affordability Assessment Results for DAC Systems (2021 – 2024)[266]



AFFORDABILITY RESULTS BY COUNTY

Figure 67: Top Eleven Counties with the Most "High Affordability Burden" DAC/SDAC Systems



[266] In 2023, the State Water Board added Household Socioeconomic Burden to the Affordability Assessment. The inclusion of this new affordability indicator helped measure affordability for systems in previous years that had no data because they do not charge customers directly for water. Therefore, more systems went from "None" to "Low Burden."

Table 58: Affordability Assessment Results for Top Eleven Counties with High Affordability DAC/SDAC Systems

County	Total DAC Systems Assessed	High Affordability Burden[267]	Medium Affordability Burden[268]	Low Affordability Burden[269]	None
Kern	125	9	47	57	12
San Bernardino	103	4	18	70	11
Humboldt	44	4	10	21	9
Sonoma	38	4	5	22	7
Mendocino	46	3	8	27	8
Tuolumne	37	3	5	15	14
Tulare	96	3	17	71	5
Los Angeles	84	3	7	69	5
Monterey	45	3	3	30	9
San Joaquin	54	2	4	38	10
San Diego	32	2	4	22	4
TOTAL:	**704**	**40**	**128**	**442**	**94**

AFFORDABILITY RESULTS BY WATER SYSTEM SAFER PROGRAM STATUS

While SB 200 only mandates the identification of DAC/SDAC water systems that have customer charges that exceed affordability thresholds, the 2024 Affordability Assessment also identified the number of Failing and At-Risk public water systems exceeding affordability thresholds as well. Table 59 and the section below summarizes the number of Failing and At-Risk water systems, by their community economic status, that exceeded the minimum affordability threshold for each affordability indicator assessed.

According to the analysis, At-Risk DAC/SDAC systems had the highest percentage of systems exceeding %MHI affordability threshold compared to any other category at 27%. For Extreme Water Bill, At-Risk systems were the highest at 13%. Finally for Household Socioeconomic Burden, At-Risk DAC/SDAC systems had the highest again at 86%.

[267] Community water system met the minimum threshold for 3 of the affordability indicators.
[268] Community water system met the minimum threshold for 2 of the affordability indicators.
[269] Community water system met the minimum threshold for 1 of the affordability indicators.

Table 59: Aggregated Affordability Assessment Results by Water System SAFER Program Status

SAFER Program Status[270]	Total Systems	%MHI	Extreme Water Bill	Household Socioeconomic Burden
Failing Systems	**384**	**68 (18%)**	**37 (10%)**	**236 (61%)**
DAC/SDAC	234	60 (26%)	16 (7%)	191 (82%)
At-Risk Systems	**612**	**148 (24%)**	**80 (13%)**	**455 (74%)**
DAC/SDAC	421	113 (27%)	35 (8%)	364 (86%)
Potentially At-Risk Systems	**440**	**90 (20%)**	**42 (10%)**	**293 (67%)**
DAC/SDAC	264	67 (25%)	13 (5%)	225 (85%)
Not At-Risk System	**1,615**	**114 (7%)**	**122 (8%)**	**716 (44%)**
DAC/SDAC	678	83 (12%)	19 (3%)	485 (71%)
Not Assessed	**151**	**3 (2%)**	**3 (2%)**	**85 (56%)**
DAC/SDAC	39	2 (5%)	1 (3%)	30 (79%)
TOTAL:	**3,202**	**423 (13%)**	**284 (9%)**	**1,785 (57%)**
Missing Data		*593 (19%)*	*567 (18%)*	*6 (1%)*
Not Applicable		*702 (22%)*	*702 (22%)*	*0 (0%)*

To assess which systems may be facing the greatest affordability burden, the State Water Board further analyzed how water systems, by SAFER status, exceeded thresholds for multiple affordability indicators. Affordability burden is ranked from low (only one affordability indicator threshold exceeded), medium, (two affordability indicator thresholds exceeded), or high (three affordability indicator thresholds exceeded). As summarized in Table 60, At-Risk systems had the largest percentage of High Affordability Burden systems at 7%, At-Risk DAC/SDAC and Potentially At-Risk DAC/SDAC had the same percentage of systems with Medium Affordability Burden at 20%. Not Assessed DAC/SDAC systems had the highest proportion of Low Affordability Burden at 74%.

Table 60: Affordability Assessment Results by SAFER Program Status

SAFER Program Status	Total Systems Assessed	High Affordability Burden[271]	Medium Affordability Burden[272]	Low Affordability Burden[273]	None
Failing Systems	**384**	**12 (3%)**	**50 (13%)**	**205 (53%)**	**117 (30%)**
DAC/SDAC	234	8 (3%)	45 (19%)	153 (65%)	28 (12%)

[270] Water systems that are not DAC/SDAC or are missing DAC status designations are excluded from sub-categories within this table.
[271] Community water system met the affordability threshold for 3 affordability indicators.
[272] Community water system met the affordability threshold for 2 of the affordability indicators.
[273] Community water system met the affordability threshold for 1 of the affordability indicators.

SAFER Program Status	Total Systems Assessed	High Affordability Burden[271]	Medium Affordability Burden[272]	Low Affordability Burden[273]	None
At-Risk Systems	**612**	**41 (7%)**	**103 (17%)**	**354 (58%)**	**114 (19%)**
DAC/SDAC	421	25 (6%)	83 (20%)	271 (64%)	42 (10%)
Potentially At-Risk Systems	**440**	**21 (5%)**	**63 (14%)**	**236 (54%)**	**120 (27%)**
DAC/SDAC	264	10 (4%)	52 (20%)	171 (65%)	31 (12%)
Not At-Risk System	**1,615**	**18 (1%)**	**94 (2%)**	**710 (44%)**	**793 (49%)**
DAC/SDAC	678	14 (2%)	54 (8%)	437 (64%)	173 (26%)
Not Assessed System	**151**	**2 (1%)**	**1 (1%)**	**83 (55%)**	**65 (43%)**
DAC/SDAC	38	1 (3%)	1 (3%)	28 (74%)	8 (21%)
TOTAL:	**3,202**	**94 (3%)**	**311 (10%)**	**1,588 (50%)**	**1,209 (38%)**

WATER SYSTEM FINANCIAL CAPACITY & COMMUNITY AFFORDABILITY DASHBOARD

In 2023, the State Water Board released a new Water System Financial Capacity & Community Affordability Dashboard.[274] The purpose of this dashboard is to allow users to explore the relationships between water system financial capacity and affordability. The dashboard displays and auto-calculates averages of the financial capacity and affordability risk indicators for community water systems used in the Risk Assessment and Affordability Assessment. Users can filter the water systems and data displayed in the dashboard to better understand how water system characteristics, customer affordability challenges, and water system financial capacity are related. Learn more in Appendix: Water System Financial Capacity & Affordability Dashboard User Guide.[275]

DEMOGRAPHIC ANALYSIS OF COMMUNITY WATER SYSTEMS

Results for the 2024 Affordability Assessment for community water systems can be combined with demographic data to better understand the populations most at-risk. However, there are several limitations to this demographic analysis. Demographic data is collected at the census block group or census tract level, and current census surveys do not indicate household drinking water source type. Therefore, the demographic information presented in the tables

[274] Water System Financial Capacity & Community Affordability Dashboard
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/afforddashboard.html
[275] Appendix: Water System Financial Capacity & Affordability Dashboard User Guide
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/financial-cap-affordability-dash.pdf

below may not represent the actual population served by public water systems. Any interpretation of these results should keep in mind the limitations of the analysis.

Demographic data (household size, linguistic isolation, poverty, median household income, and race/ethnicity) was taken from the 2021 American Community Survey. CalEnviroScreen 4.0 data is from OEHHA.[276] The CalEnviroScreen 4.0 data is displayed as percentiles, with higher percentiles indicating areas that are most affected by pollution and where people are especially vulnerable to the effects of pollution. The socioeconomic analysis was calculated using water service area boundaries, area-weighted census tract data where appropriate, and calculating weighted averages. This methodology means that there may be a bias towards demographic data from larger, rural tracts/block groups as these areas are often larger than smaller, urban tracts/block groups.

When compared with Non-DAC/SDAC water systems, DAC/SDAC water system service areas tend to have higher CalEnviroScreen scores, a higher percentage of households in poverty, a higher percentage of limited English-speaking households, communities of color. Systems with low affordability burden have higher CalEnviroScreen scores, population characteristic percentile, pollution burden percentile, linguistic isolation, average household size, and the largest percentage of communities of color compared to medium and high affordability burden systems. Systems with high affordability burden have similar rates of customers below two times the federal poverty level as systems with medium or low affordability. High affordability systems also scored the lowest percentile for overall CalEnviroScreen 4.0 scores compared to low and medium burden systems.

[276] OEHHA CalEnviroScreen
https://oehha.ca.gov/calenviroscreen

Table 61: Affordability Assessment Results Demographic Analysis[277]

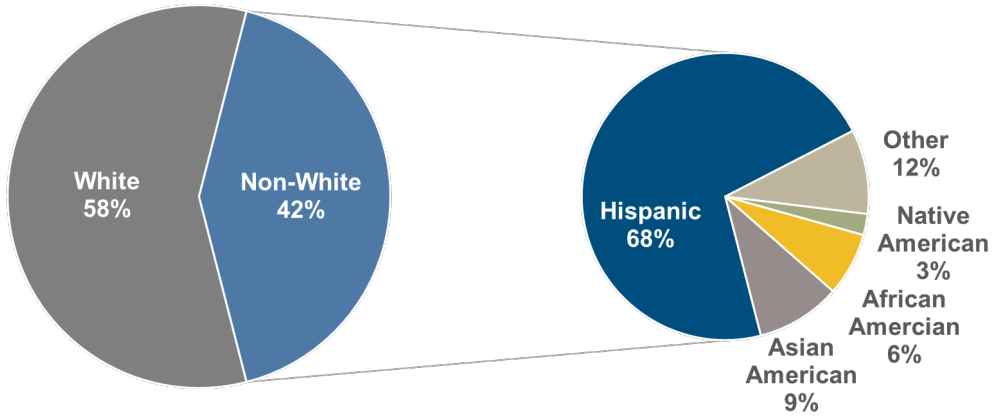
	Statewide (all CWS + K-12)	Non-DAC/SDAC	DAC/SDAC	No Afford. Burden	Low Afford. Burden	Medium Afford. Burden	High Afford. Burden
Total Count of Systems	**3,202[278]**	**1,505**	**1,635**	**1,209**	**1,588**	**311**	**94**
Average CalEnviroScreen 4.0 Percentile	43rd	34th	52nd	34th	50th	44th	42nd
Average CalEnviroScreen 4.0 Population Characteristics Percentile	44th	32nd	55th	33rd	52nd	49th	44th
Average CalEnviroScreen 4.0 Pollution Burden Percentile	43rd	42nd	45th	40th	47th	38th	39th
Average percentage of households 2x below federal poverty	30%	19%	41%	17%	38%	39%	39%
Average percentage of households with limited English speaking	6%	5%	8%	4%	8%	6%	6%

[277] CalEnviroScreen 4.0 data is available per census tract. Combined risk status for domestic wells is available per square mile section. To determine the CalEnviroScreen 4.0 percentile score average per combined risk category, each section was assigned the CalEnviroScreen 4.0 percentile score based on the tract that contains the centroid of the section. Some census tracts do not contain any section centroid and therefore do not contribute to the averages even if they overlap a section with a domestic well. The square mile sections are grouped by their combined risk status to determine the average score percentile using a weighted average approach. It is important to factor in the geographic relationship between tracts and sections. Without considering a weighting approach for averaging scores within each combined risk categories, scores of large census tracts would contribute more to the risk category average compared to small census tracts. For example, a tract with 600 sections contributes 600 of the same percentile scores while a tract with 20 sections only contributes 20 percentile scores. Instead, to reduce bias towards large rural areas, each section was assigned a weight of the inverse number of sections in the census tract. For example, a tract with 10 sections would be given a weight of 0.10. A one-way analysis of variance (ANOVA) showed a statistically significant difference in average scores between combined risk categories for CalEnviroScreen 4.0 percentile, Population Characteristics, Pollution Burden, Poverty, Average percentage of households with limited English speaking, and Household Size ($p<0.0001$).

[278] 62 systems lacked enough data to determine DAC status.

	Statewide (all CWS + K-12)	Non-DAC/SDAC	DAC/SDAC	No Afford. Burden	Low Afford. Burden	Medium Afford. Burden	High Afford. Burden
Average household size	2.8	2.8	2.8	2.8	2.9	2.7	2.7
Percent of communities of color served	44%	41%	47%	37%	50%	39%	42%

Figure 68: Distribution of High Affordability Burden Community Water Systems and K-12 Schools by Majority Race/Ethnicity Census Tract



TRIBAL NEEDS ASSESSMENT

Meaningful engagement with California Native American Tribes is fundamental to the mission of the State Water Board. The State Water Board recognizes the sovereignty of California Native American tribes and understands that tribes face unique challenges to providing safe and affordable drinking water to their communities. Although tribal water systems located on tribal land are regulated by United States Environmental Protection Agency (U.S. EPA) and not by the State Water Board, there are federal funding gaps that the SAFER program can support.

Over the last several years the State Water Board has been working collaboratively with the U.S. EPA, Indian Health Service (IHS), and the Department of Water Resources (DWR) to better understand what gaps exist and what role the SAFER program can play in advancing comprehensive tribal drinking water solutions. The State Water Board continues to work with tribes to fund emergency services, planning, construction, treatment of both drinking and wastewater and provide technical assistance. In the coming years, the State Water Board hopes to expand these efforts as the SAFER program works collaboratively to pursue the State's joint sovereign interest with tribes to achieve safe drinking water for all tribal communities in California.

BACKGROUND

U.S. EPA, Region 9 and Navajo Nation Environmental Protection Agency, which together encompass multiple southwestern states, collectively regulate approximately 365 tribal community water systems and 115 non-community water systems. Navajo Nation Environmental Protection Agency is the only Tribe that has primacy for the Public Water System Supervision Program meaning they have the authority to set and enforce drinking water standards. Federally regulated tribal water systems are not required to sample all contaminants regulated in California. Therefore, it is expected that there may also be tribal water systems with California specific contaminant violations that are not captured in this list.

According to the 2024 data managed by U.S. EPA of federally recognized tribes, in California, there are approximately 148 tribal water systems, comprised of 112 tribal community water systems, 23 non-transient non-community water systems, and 13 transient water systems that are regulated by U.S. EPA. These water systems may be owned and operated by the tribe or

managed by non-tribal members or the federal government. (e.g., Bureau of Indians Affairs and U.S. Customs and Border Protection).

TRIBAL COMMUNITIES NOT SERVED BY WATER SYSTEMS REGULATED BY U.S. EPA

There are 49 federally recognized tribes in California that do not have water systems regulated by U.S. EPA because they do not meet the federal definition of a public water system. For these 49 tribal communities, drinking water may be accessed through 1) domestic wells that serve fewer than 15 service connections or 25 people, 2) decentralized surface water diversions, or 3) through public water systems that are not located on tribal land and that are regulated by the State Water Board.

Tribal communities that rely on domestic wells that serve fewer than 15 connections or 25 people are faced with similar challenges experienced by well owners throughout California including drought related supply issues, lack of regular water quality testing, water quality health impacts, and operation and maintenance issues. There is very limited federal technical assistance funding available to support solutions for domestic wells on and off tribal land. More information is required to better understand the unique needs of these 49 tribes. Engagement with these tribes is a top priority for SAFER program staff.

Tribal communities may also be served by public or privately-owned water systems over which they have limited or no influence or management. These water systems, not located on federal lands, are regulated by entities other than U.S. EPA, such as the State Water Board or California Public Utilities Commission. At times, tribal members may serve on the boards of these water systems. Oftentimes, these public water systems provide drinking water to predominantly tribal households but are not governed by the local tribal government and whose board does not include direct representation of tribal members.

Due to the lack of data available, the scope of analysis of tribal water systems not regulated by the U.S. EPA is limited.

FAILING EQUIVALENT TRIBAL WATER SYSTEMS

State Water Board staff worked with U.S. EPA tribal drinking water staff to apply the Failing public water system criteria to the 148 tribal water systems that U.S. EPA regulates. It is important to note that in comparison to the federal government, California has a stricter criterion for maximum contaminant levels and an expanded list of contaminants that are monitored, such as 1,2,3-Trichloropropane (1,2,3 TCP). *For the purposes of this assessment, the results of U.S. EPA's assessment below utilize the federal government's list of contaminants and maximum contaminant levels (MCL).*

Table 62: Criteria for Failing Public Water Systems

Criteria
Primary MCL Violation with an open Enforcement Action

Criteria
Secondary MCL Violation with an open Enforcement Action
***E. coli* Violation with an open Enforcement Action**
Treatment Technique Violations: • One or more Treatment Technique violations (in lieu of an MCL), related to a primary contaminant, with an open enforcement action; and/or • Three or more Treatment Technique violations (in lieu of an MCL), related to a primary contaminant, within the last three years.
Monitoring and Reporting Violations: • Three Monitoring and Reporting violations (related to an MCL) within the last three years where at least one violation has been open for 15 months or greater.

Results of tribal drinking water assessment were:

- Of the 148 tribal water systems, 17 tribal community water systems met the criteria for a Failing water system.
- Of the 17 tribal community water systems, two had primary MCL violation enforcement actions for arsenic contamination. One of these water systems is receiving bottled water through the SAFER program and one has been granted operation and maintenance (O&M) funding to support their point of use treatment from the State Water Board, while IHS funds a long-term solution.
- One tribal community water system had an open *E. coli* violation. This system has been offered technical assistance through the SAFER program and is being supported by IHS for infrastructure improvements.
- Thirteen tribal community water systems had treatment technique violations, which includes failure to address a significant deficiency under the groundwater rule as defined by U.S. EPA, among other failures. Five of these water systems are receiving support from the State Water Board and the rest may benefit from operations and maintenance funding or technical assistance.
- Four tribal community water systems had multiple monitoring and reporting violations. It is believed that these violations are due to a mix of O&M funding gaps, communication and reporting and/or a lack of a certified operator. This may be an area where the SAFER program could support.
- Of the 17 tribal community water systems that met the criteria for a failing water system, 15 had fewer than 100 connections and the remaining two systems had connections ranging from 115 - 352 connections.

AT-RISK EQUIVALENT TRIBAL WATER SYSTEMS

Currently not enough data is available to identify At-Risk tribal water systems. The State Water Board, in partnership with U.S. EPA, will continue to explore options for developing a Risk Assessment methodology for tribal water systems.

TRIBAL WATER COST ASSESSMENT

The State Water Board utilized the list of Failing equivalent tribal water systems and conducted a Cost Assessment to estimate long-term and interim solution needs. The Cost Assessment methodology utilized for public water systems was modified to accommodate missing data, refer to citations in the table below. The component cost assumptions used for the public water system Cost Assessment were utilized for this analysis.

Table 63: 2024 Cost Assessment Results for Failing Equivalent Tribal Water Systems ($ in Millions)

	# of Systems	2024 Cost Estimate
# Systems	17	
Modeled Long-Term Needs		
Centralized Treatment	17	$4.5
Service Connection Meters[279]	9	$42.3
Back-Up Power[280]	7	$0.84
Additional Storage[281]	4	$2.7
New Public Supply Well[282]	12	$61.2
Sounder to Measure Static Well Levels[283]	11	$0.024
Technical Assistance[284]	17	$7.2
TOTAL:		***$119***
Modeled Interim Needs		
Interim Bottled Water	17	$5.7

[279] Includes modeled meters for tribal water systems with “No” or “Unknown” meters in their 2022 sanitary survey.
[280] Includes generators for tribal water systems with “No,” “Unknown,” or “Partial – Treatment Only” in their 2022 sanitary survey section on assets.
[281] Includes new storage tank for tribal water systems that either reported no information on storage tank (blank) or reported storage tank age that exceeded EPA’s typical life expectation for water supply equipment of 30 years. https://www.epa.gov/system/files/documents/2022-06/FINAL%20Taking%20Stock%20of%20Inventory%20STEP%20Guide_508.pdf
[282] Includes a new public supply well for tribal water systems with a single source that is a well and a replacement well if their existing well is nearing the end of their useful life.
[283] Includes sounders for tribal water systems with groundwater sources that did not report a static depth as per 2022 sanitary survey.
[284] Includes all tribal water systems included in the analysis.

	# of Systems	2024 Cost Estimate
TOTAL:		**$125**

It is worth noting that IHS, Division of Sanitation Facilities Construction conducts an annual tribal infrastructure needs survey. The results for the 2023 fiscal year can found on their website.[285]

TRIBAL WATER SYSTEM AFFORDABILITY ASSESSMENT

Currently not enough data is available to identify tribal water systems with drinking water affordability challenges. The State Water Board, in partnership with U.S. EPA and other stakeholders, will continue to explore options for developing an Affordability Assessment methodology for tribal water systems.

FINANCIAL ASSISTANCE AVAILABLE FOR TRIBES

There are several state and federal sources, in addition to the SAFER program, available to California Native American tribes to address their water infrastructure and drinking water needs.

U.S. EPA Region 9 funds drinking water and sanitation infrastructure projects through its Drinking Water Tribal Set Aside (DWTSA) and Clean Water Indian Set Aside (CWISA) programs. DWTSA eligibility is limited to projects that address health deficiencies at community water systems and non-profit, non-community water systems that serve tribal communities. Eligibility for CWISA funding is linked to projects that are included in Indian Health Service's sanitation deficiency systems (SDS) list. U.S. EPA also provides onsite Safe Drinking Water Act technical assistance through its contractor, Rural Community Assistance Corporation, to public water systems on tribal land in Region 9.

Indian Health Service (IHS) is a federal agency dedicated to raising the health status of the American Indian and Alaska Native people to the highest possible level. IHS is divided into 12 regional areas throughout the country, one being the California Area.

The IHS Division of Sanitation Facilities Construction (SFC) works with Tribal communities through Public Law 86-121, legislation that authorizes the creation of the SFC Program within the IHS. The SFC Program provides technical assistance and funding for American Indian and Alaska Native homes and communities to plan, design and construct essential water supply, sewage disposal, and solid waste disposal facilities. IHS funds are prioritized for existing health deficiencies and homes must meet certain eligibility requirements. Tribal commercial

[285] Indian Health Services, FY 2023 Annual Report of Sanitation Deficiency Levels https://www.ihs.gov/sites/dsfc/themes/responsive2017/display_objects/documents/FY_2023_Appendix_Project_Listing.pdf

enterprises are ineligible for IHS funding. The Infrastructure and Investment Jobs Act (IIJA), signed by the President on

November 15, 2021, provides $3.5 billion to the IHS SFC, with $700 million being allocated a year over 5 years beginning in fiscal year 2022. This is an unprecedented infusion of funds into the SFC program and presents many challenges in managing existing resources, expanding the capacity of internal and external resources, and partnering with other Federal and State agencies to ensure successful completion of the IIJA funded projects.

Department of Water Resources (DWR) is a state agency that provides financial and TA to communities across California to build water and climate resilience and administers grant programs that have designated targets/set asides for Tribes and underrepresented communities[1]. Eligible Tribes include Federally recognized California Native American Tribes and Non-federally recognized Native American Tribes on the contact list maintained by the Native American Heritage Commission (NAHC) for the purposes of Chapter 905 of the Statutes of 2004. DWR offers government-to- government consultation as needed through the Office of Tribal Policy Advisor in the Executive Division, to address issues such as sovereign immunity and confidentiality.

DWR's major funding programs currently have no available funding, but there is a small amount of funding remaining through the Small Community Drought Relied Program[286] for emergency projects (Including water hauling) and some technical assistance available to help tribes identify their needs, risks, and vulnerabilities related to the implementation of the Sustainable Groundwater Management Act, through the Underrepresented Community Technical Assistance Program.[287] Also, about every five years, DWR hosts a Tribal Water Summit to discuss water issues with California Native American Tribes; the last one was held in Sacramento in April 2023. Finally, DWR is proud to be working with Tribes to develop Tribal graphic novels for children which are being narrated by Native Americans.[2]

FUNDING CHALLENGES

Through the State Water Boards' on-going collaboration with U.S. EPA, IHS, and DWR, the group has collectively identified several areas of need that are currently not being met. These identified areas are needs that the SAFER program could prioritize to address funding gaps and support safe and affordable drinking water for tribal communities.

Funding shortfall: Due to the rising cost of construction, IHS has a number of approved tribal water projects that will suffer a funding gap between what was budgeted and approved for a project and the actual cost of construction. As of April 2024, IHS identified 31 projects scheduled to be in construction through 2025. IHS is in the process of evaluating these projects and determining how much, if any additional funds will be needed to meet the rising costs of construction.

---

[286] Small Community Drought Relief I California Department of Water Resources
https://water.ca.gov/Water-Basics/Drought/Drought-Funding/Small-Community-Drought-Relief
[287] Underrepresented Communities Technical Assistance Program I California Department of Water Resources
https://water.ca.gov/urctaprogram

Funding projects that serve communities with both tribal and non-tribal households: IHS can only fund projects for tribal homes. If a proposed project serves a community with both Indian and non-Indian households, IHS funding can only fund the percentage that is proportionate to the number of Indian homes. In addition, U.S. EPA regulates several water systems on tribal land that do not serve tribal communities and could benefit from SAFER assistance. By collaborating with IHS and U.S. EPA on these projects, the State Water Board can support funding the remaining project costs that are proportionate to the percentage of non-Indian households in order to jointly fund a comprehensive drinking water solution for these communities. As of April 2024, IHS identified 31 projects scheduled to be in construction through 2025. The estimated ineligible costs for those projects are approximately $6 million.

Emergency/urgent needs: The SAFER program is uniquely poised to address emergency drinking water needs affecting tribal communities. Federal agencies do not have funding available to provide bottled or hauled water for emergency needs and do not have established programs to deploy these resources in an expedited manner required to address public health concerns. The SAFER program will continue to evaluate urgent drinking water requests from tribes for bottled and hauled water.

O&M needs: Currently, there do not exist any federal funding sources that are able to fund costs associated with O&M. The majority of tribal water systems that meet the criteria of a failing water system have less than 500 connections. These small systems often lack the economies of scale to address O&M costs. In addition, some tribal water systems have unique funding structures that do not rely on individual rate payers to support the financial needs of the system.

Staffing: Tribal water systems, similar to small water systems, often struggle with limited or part-time staff and limited funding to address repairs or treatment costs. High staff turnover rates, lack of certified water operators, and technical, managerial and financial capacity issues are all challenges facing these water systems. In addition, many tribes do not have dedicated staff or the capacity to pursue and manage grant funding. The State Water Board's Safe and Affordable Drinking Water Fund is the only funding source currently available to address these unique needs that also includes technical assistance to support the planning and application processes.

TRIBAL ENGAGEMENT MOVING FORWARD

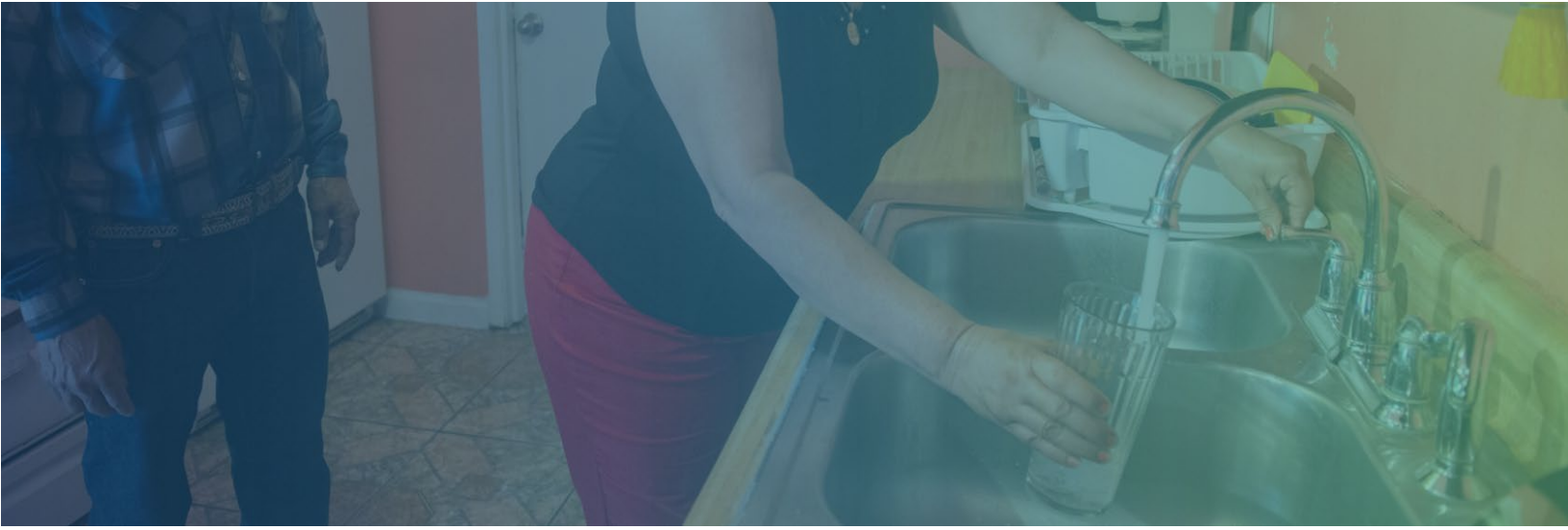
As indicated in this tribal chapter, there exist several challenges and opportunities related to advancing safe drinking water for all tribal communities. The State Water Board is committed to working alongside California tribes and other state and federal partners to proactively develop comprehensive and sustainable solutions. The Office of Public Participation (OPP) is the State Water Board office responsible for implementing and overseeing the Water Boards tribal affairs program and works to lead the tribal drinking water efforts of the SAFER program[3]. State Water Board staff will implement the following approaches beginning in FY 2023-24 to further advance and support tribal drinking water efforts:

1. **Proactive outreach to tribal communities that do not own or operate public water systems regulated by U.S. EPA.** In order to identify and support collaborative water

solutions for tribal communities not regulated by U.S. EPA, the State Water Board hosts monthly coordination meetings of IHS, DWR and U.S. EPA. OPP will send hardcopy letters, email, and direct phone calls to offer opportunities to discuss the tribes' drinking water needs funding and technical assistance support to tribal communities that do not own or operate public water systems regulated by U.S. EPA. Due to the fact that these tribal communities are not regulated by U.S. EPA, there is limited data and understanding around their tribal water systems and needs. The first step OPP will take in outreach will be to build trust and relationships with the tribes, followed by information gathering and potential solutions.

2. **Support collaborative, interagency joint-funding opportunities.** Each agency funding tribal water systems has a unique set of funding criteria and limitations. As such, it has proven useful to advance water solutions by providing a collaborative, interagency joint-funding approach to water projects. The State Water Board will continue to support this collaborative funding approach in 2024.
3. **Identify potential technical assistance providers to support expanding our tribal drinking water work.** Staff have identified the need for a technical assistance provider dedicated to tribal water needs that understands the unique challenges that tribal water systems face. In collaboration with agency partners, State Water Board staff will work to identify dedicated technical assistance provider(s) to serve tribal water systems throughout the state.
4. **Development of a tribal drinking water webpage.** State Water Board staff will develop a tribal drinking water webpage that will highlight funding opportunities for tribes, the process for applying for funding, how to contact the State Water Board for inquiries, and a summary of SAFER funding awarded to tribes.
5. **Continue responding to direct requests for assistance submitted by tribes.** As part of the State Water Boards ongoing efforts, staff will continue to work with tribes requesting assistance with their drinking water and wastewater needs. These requests come through various divisions and offices of the State Water Board and are coordinated by OPP.
6. **Continue raising awareness of SAFER funding opportunities at events, conferences, meetings, or other tribal-specific gatherings.** State Water Board staff have presented at a number of tribal events including the U.S. EPA Region 9 annual conference, DWR Tribal Summit and the California Tribal Nations Summit and will continue to identify venues to share SAFER funding opportunities.

In conclusion, the State Water Board recognizes the sovereignty of California Native American tribes and understands that tribes face unique challenges to providing clean, safe, and affordable drinking water to their communities. State Water Board staff will continue to expand its collaborative efforts to pursue the state's joint sovereign interest with tribes to achieve safe drinking water for all tribal communities in California.



CONCLUSIONS

NEEDS ASSESSMENT NEXT STEPS

The State Water Board conducts the Needs Assessment annually to support implementation of the SAFER program. The results of the Needs Assessment will be used to:

- prioritize public water systems, tribal water systems, state small water systems, and domestic wells for funding in each year's Safe and Affordable Drinking Water Fund Expenditure Plan;
- inform State Water Board technical assistance;
- develop strategies for implementing interim and long-term solutions; and
- targeted outreach on engagement and partnership activities.

The Needs Assessment methodology will be refined over time to incorporate additional and better-quality data, experience gained from implementing the SAFER program, and further input from the public and SAFER Advisory Group.

WATER SYSTEM REQUESTS FOR DATA UPDATES

The State Water Board is accepting inquiries related to underlying data change requests for the 2024 Needs Assessment. The data used for both the Risk and Affordability Assessments are drawn from multiple sources and are detailed in the Appendices (see links at end of document). Water systems are encouraged to reach out via the online webform below:

Water System Data Change Request Webform: https://forms.office.com/g/aPvUCEQt1m

As new data becomes available, the State Water Board will update the Risk Assessment results in the SAFER Dashboard.[288] Therefore, the list of water systems designated as Failing, At-Risk, Potentially At-Risk, Not At-Risk, and Not Assessed will evolve over time from the aggregated assessment results summarized in this report.

[288] SAFER Dashboard
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/saferdashboard.html

2024-25 SAFE AND AFFORDABLE DRINKING WATER FUND EXPENDITURE PLAN

The results of the 2024 Needs Assessment will be utilized by the State Water Board and SAFER Advisory Group[289] to inform the prioritization of funding and technical assistance within the Safe and Affordable Drinking Water Fund Expenditure Plan.[290] The SAFER Advisory Group is composed of up to 20 appointed members that represent public water systems, technical assistance providers, local agencies, nongovernmental organizations, California Native American tribes, the public and residents served by community water systems in disadvantaged communities, state small water systems, and domestic wells.

The SAFER Advisory Group meets at least four times a year to provide opportunities for public and community input, utilizing the Needs Assessment to inform the Fund Expenditure Plan.

[289] SAFER Advisory Group
https://www.waterboards.ca.gov/safer/advisory_group.html
[290] Safe and Affordable Drinking Water Fund
https://www.waterboards.ca.gov/water_issues/programs/grants_loans/sustainable_water_solutions/safer.html

APPENDICES & ATTACHMENTS

SAFER Program Progress & Updates

- Appendix: New Legislation Related to the SAFER Program and Capacity Development Strategy
- Appendix: County State Small Water System & Domestic Well Data Reporting

Failing Water Systems

- Appendix: Failing Water System Criteria
- Attachment: Failing Systems (2017 – 2023)

Risk Assessment for Public Water Systems

- Appendix: GIS Methodology for Calculating Data
- Appendix: Risk Assessment for Public Water System Methodology
- Attachment: Risk Assessment Results Spreadsheet

Risk Assessment for State Small Water Systems & Domestic Wells

- Appendix: Risk Assessment Methodology for State Small Water Systems & Domestic Wells
- Appendix: State Small Water Systems & Domestic Wells Risk Assessment Dashboard User Guide

Cost Assessment & Funding Gap Analysis

- Appendix: 2024 Cost Assessment Results
- Appendix: Cost Assessment Methodology
    - Supplemental Appendix: Cost Assessment Physical Consolidation Methodology
    - Supplemental Appendix: Cost Assessment Centralized Treatment Methodology
    - Supplemental Appendix: Cost Assessment Decentralized Treatment Methodology
    - Supplemental Appendix: Cost Assessment Additional Long-Term Solutions Methodology
    - Supplemental Appendix: Cost Assessment Interim Solutions Methodology
- Appendix: Funding Gap Analysis Methodology

Affordability Assessment

- Appendix: Affordability Assessment Methodology
- Appendix: Median Household Income (MHI) Calculation Methodology
- Attachment: Affordability Assessment Results Spreadsheet
- Appendix: Water System Financial Capacity & Affordability Dashboard User Guide

Additional Appendixes

- Appendix: New Public Water Systems 3-Years
- Appendix: SAFER Dashboard User Guide
- SAFER Data.ca.gov Published Data
- Appendix: Data Dictionary