

2022

DRINKING WATER **NEEDS ASSESSMENT** EXECUTIVE SUMMARY



Full report:

https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2022needsassessment.pdf



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Acknowledgements

Contributors

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DEFINITION OF TERMS

This report includes the following defined terms.

“Affordability Threshold” means the level, point, or value that delineates if a water system’s residential customer charges, designed to ensure the water systems can provide drinking water that meets state and federal standards, are unaffordable. For the purposes of the 2022 Affordability Assessment, the State Water Board employed affordability thresholds for the following indicators: Percent Median Household Income; Extreme Water Bill; Percent Residential Arrearages; and Residential Arrearage Burden. Learn more about current and future indicators and affordability thresholds in Appendix E.

“Adequate supply” means sufficient water to meet residents’ health and safety needs at all times. (Health & Saf. Code, § 116681, subd. (a).)

“Administrator” means 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 is competent to perform the administrative, technical, operational, legal, or managerial services required for purposes of 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” means the identification of any community water system that serves a disadvantaged community that must charge fees that exceed the affordability threshold established by the State Water Board in order to supply, treat, and distribute potable water that complies with federal and state drinking water standards. The Affordability Assessment evaluates several different affordability indicators to identify communities that may be experiencing affordability challenges. (Health & Saf. Code, § 116769, subd. (2)(B).)

“Arrearage” means debt accrued by a water system’s customers for failure to pay their water service bill(s) that are at least 60 days or more past due.

“At-Risk public water systems” or **“At-Risk PWS”** means community water systems with up to 30,000 service connections or 100,000 population served and K-12 schools that are 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.

“At-Risk state small water systems and domestic wells” or **“At-Risk SSWS and domestic wells”** means state small water systems and domestic wells that are located in areas where groundwater is at high-risk of containing contaminants that exceed safe drinking water standards. This definition may be expanded in future iterations of the Needs Assessment as more data on domestic wells and state small water systems becomes available.

“California Native American Tribe” means federally recognized California Native American Tribes, and non-federally recognized Native American Tribes 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 C.

“Community water system” or CWS means 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” means a failure to provide an adequate supply of safe drinking water. (Health & Saf. Code, § 116681, subd. (c).)

“Consolidation” means joining 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 document, consolidations may include voluntary or mandatory consolidations. (Health & Saf. Code, § 116681, subd. (e).)

“Constituents of emerging concern” means synthetic or naturally occurring chemicals or material that have been detected in water bodies, that cause public health impacts, and are not regulated under current primary or secondary maximum contaminant level (MCL). For purposes of the 2022 Risk Assessment, three chemicals: hexavalent chromium, 1,4-dioxane, and per- and polyfluoroalkyl substances (PFAS), were incorporated.

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

“Cost Assessment” means 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, the Cost Assessment estimates the costs related to the implementation of interim and/or emergency measures and longer-term solutions for HR2W list systems and At-Risk public water systems, 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. (Health & Saf. Code, § 116769.)

“Disadvantaged community” or “DAC” means 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” means 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 that has no more than four service connections. (Health & Saf. Code, § 116681, subd. (g).)

“Drinking Water Needs Assessment” or **“Needs Assessment”** means the comprehensive identification of California drinking water needs. The Needs Assessment consist of three core components: the Affordability Assessment, Risk Assessment, and Cost Assessment. The results of the Needs Assessment inform the State Water Board’s annual Fund Expenditure Plan for the Safe and Affordable Drinking Water Fund and the broader activities of the SAFER Program. (Health & Saf. Code, § 116769.)

“Electronic Annual Report” or **“EAR”** means is a survey of public water systems, currently required annually, to collect critical water system information intended to assess the status of compliance with specific regulatory requirements, provides updated contact and inventory information (such as population and number of service connections), and provides information that is used to assess the financial capacity of water systems, among other information reported.

“Fire flow” it is the amount of water designated to be used for firefighting purposes.

“Fund Expenditure Plan” or **“FEP”** means the plan that the State Water Board develops 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” means 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” or **“HR2W”** means 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).)

“Human Right to Water list” or **“Failing: HR2W list”** means the list 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 HR2W list criteria include Community Water Systems and Non-Community Water Systems that serve K-12 schools and daycares. The HR2W 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).)

“Intertie” means an interconnection allowing the passage of water between two or more water systems.

“Local Primacy Agency” or **“LPA”** means a 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. LPA is authorized by means of a local primacy delegation agreement if the local health officer demonstrates that it has 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).)

“Maximum Contaminant Level” or “MCL” means the maximum permissible level of a contaminant in water. (Health & Saf. Code, § 116275, subd. (f).)

“Median household income” or “MHI” means the household income that represents the median or middle value for the community. The methods utilized for calculating median household income are included in Appendix A and Appendix E. Median household incomes in this document are estimated values for the purposes of this statewide assessment. Median household income for determination of funding eligibility is completed on a system-by-system basis by the State Water Board’s Division of Financial Assistance.

“Medium Community Water Systems” means water systems that served up to 30,000 service connections or 100,000 population served.

“Non-Community Water System” means a public water system that is not a community water system. (Health & Saf. Code, § 116275, subd. (j).)

“Non-transient Non-Community Water System” means a public water system that is not a community water system and that 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” or “O&M” means the functions, duties and labor associated with the daily operations and normal repairs, replacement of parts and structural components, and other activities needed by a water system to preserve its capital assets so that they can continue to provide safe drinking water.

“Point-of-use” or “POU” means a water treatment device that treats water at the location of the back-end customer.

“Point-of-entry” or “POE” means a water treatment device that is located at the inlet to an entire building or facility.

“Potentially At-Risk” means community water systems with 30,000 service connections or less, or population served up to 100,000 and K-12 schools that are 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.

“Primary drinking water standard” means: (1) Maximum levels of contaminants that, in the judgment of the state board, 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) The 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” or “PWS” means a system for the provision to the public of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves 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” means 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” means the identification of public water systems, with a focus on community water systems and K-12 schools, that may be at risk of failing to provide an adequate supply of safe drinking water. It also includes an estimate of the number of households that are served by domestic wells or state small water systems in areas that are at high risk for groundwater contamination. Different Risk Assessment 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” means the quantifiable measurements of key data points that allow the State Water Board to assess the potential for a community water system or a 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” means 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.

“Sanitary survey” means a comprehensive inspection to evaluate water system potency to provide safe drinking water to their customers and to ensure compliance with the federal Safe Drinking Water Act (SDWA).

“Sounder” means a tool used to measure groundwater depth in a well.

“Significant Deficiencies” means identified deficiencies by State Water Board staff or LPA staff during a Sanitary Survey and other water system inspections. Significant Deficiencies include, but are not limited to, defects in the design, operation, or maintenance, or a failure or malfunction of the sources, treatment, storage, or distribution system that U.S. EPA determines to be causing or have the potential for causing the introduction of contamination into the water delivered to consumers.

“Safe and Affordable Drinking Water Fund” or **“SADWF”** means 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 requires the annual transfer of 5 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” or **“SAFER Program”** means a set of State Water Board tools, funding sources, and regulatory authorities designed

to meet the goals of ensuring safe, accessible, and affordable drinking water for all Californians.

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

“Safe drinking water” means water that meets all primary and secondary drinking water standards, as defined in Health and Safety Code section 116275.

“Score” means a standardized numerical value that is scaled between 0 and 1 for risk points across risk indicators. Standardized scores enable the evaluation and comparison of risk indicators.

“Secondary drinking water standards” means standards that specify maximum contaminant levels that, in the judgment of the State Water Board, are 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” means the point of connection between the customer’s piping or constructed conveyance, and the water 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” means a legislative law that enabled the State Water Board to establish the Safe and Affordable Funding for Equity and Resilience (SAFER) Program to advance the goals of the Human Right to Water. (Senate Bill No. 200, CHAPTER 120)

“Senate Bill No. 552” means a legislative law 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” or **“SDAC”** means the entire service area of a community water system in which the MHI is less than 60% of the statewide median household income. (See Water Code § 13476, subd. (j))

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

“Small community water system” means a CWS that serves no more than 3,300 service connections or a yearlong population of no more than 10,000 persons. (Health & Saf. Code, § 116275, subd. (z).)

“Small disadvantaged community” or **“small DAC”** or **“SDAC”** means the entire service area, or a community therein, of a community water system that serves no more than 3,300 service connections or a year-round population of no more than 10,000 in which the median household income is less than 80% of the statewide annual median household income.

“State small water system” or **“SSWS”** means 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” means the State Water Resources Control Board.

“Static well level” means the resting state of the water level in a well under normal, no pumping conditions.

“Technical, Managerial and Financial capacity” or **“TMF capacity”** means the ability of a water system 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.

“Waterworks Standards” means 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” means the application of a multiplying value or weight to each risk indicator and risk category within the Risk Assessment, as certain risk indicators and categories may be deemed more critical than others.



EXECUTIVE SUMMARY

In 2016, the California State Water Resources Control Board (State Water Board) adopted a Human Right to Water Resolution¹ making the Human Right to Water (HR2W), as defined in Assembly Bill 685, a primary consideration and priority across all the state and regional boards' programs. 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 that the State Water Board harnesses through the SAFER Program to help struggling water systems sustainably and affordably provide safe drinking water.

The annual Drinking Water Needs Assessment (Needs Assessment) required to be carried out by the SAFER Program provides foundational information and recommendations to guide this work.² The Needs Assessment is comprised of Risk, Affordability, and Cost Assessment components. Enhancement of the 2022 Needs Assessment consisted of internal workgroup recommendations and a public workshop in February 2022, all of which were detailed in a publicly available white paper.³ The public feedback was incorporated into the final methodology and results.

Three different water system types: public water systems, state small water systems and domestic wells, are analyzed within the 2022 Needs Assessment. Different methodologies were developed for these system types based on data availability and reliability.

¹ [State Water Resources Control Board Resolution No. 2016-0010](https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2016/rs2016_0010.pdf)

https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2016/rs2016_0010.pdf

² California Health and Safety Code section 116769 (b) states "The fund expenditure plan shall be based on data and analysis drawn from the drinking water needs assessment..."

³ January 28, 2022 White Paper: [Proposed Changes for the 2022 Drinking Water Needs Assessment](https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/needs-assessment-white-paper-draft.pdf)

https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/needs-assessment-white-paper-draft.pdf

The results of the annual Needs Assessment are utilized by the State Water Board and the SAFER Advisory Group⁴ to inform the prioritization of available state funding and technical assistance within the Safe and Affordable Drinking Water Fund (SADWF) Fund Expenditure Plan (FEP).⁵ The State Water Board typically hosts a series of workshops throughout the year to inform the FEP.

The Needs Assessment is not a static analysis. The State Water Board annually updates the Needs Assessment, and it provides a valuable snapshot of the overall resources needed to bring failing systems into compliance with drinking water standards and prevent At-Risk water systems from failing. By incorporating this Needs Assessment into the SAFER Program and implementation of SADWF, the State Water Board will continue to lead on long-term drinking water solutions. At the same time, this Needs Assessment gives clarity to the work that must collectively be done by state, federal, local and stakeholder partners. Only together will we be successful in achieving the Human Right to Water goal for all Californians.

2021 RETROSPECTIVE

FAILING: HR2W LIST SYSTEMS

The State Water Board tracks community water systems and K-12 schools that meet the Failing: HR2W list criteria and when they are removed from the list. In 2021 there were 416 unique water systems on the Failing: HR2W list at one point throughout the year (Table 1). In 2021 there were 115 unique water systems that came onto the Failing: HR2W list, 38 of these systems were added in April 2021 due to the adoption of expanded Failing: HR2W list criteria. In 2021, 48 unique water systems were removed from the Failing: HR2W list.

Table 1: 2021 Failing: HR2W 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 Systems⁶	396 (95%)	305,303 (28%)	210	170
Medium Water Systems⁷	22 (5%)	779,639 (72%)	9,400	7
TOTAL:	416	1,084,942	689	177

⁴ [SAFER Advisory Group](https://www.waterboards.ca.gov/safer/advisory_group.html)

https://www.waterboards.ca.gov/safer/advisory_group.html

⁵ [Safe and Affordable Drinking Water Fund](https://www.waterboards.ca.gov/water_issues/programs/grants_loans/sustainable_water_solutions/safer.html)

https://www.waterboards.ca.gov/water_issues/programs/grants_loans/sustainable_water_solutions/safer.html

⁶ 3,000 service connections or less.

⁷ Greater than 3,000 service connections. No system with greater than 30,000 service connections has been on the Failing: HR2W list since September 2019.

PROVIDING ASSISTANCE

The goal of the SAFER Program is to help address Failing and At-Risk systems – building local capacity through consolidations, administrators, technical assistance, and long-term solutions to ensure systems are able to operate sustainably and achieve the HR2W. The State Water Board utilizes a diverse set of programs and tools to help support water system capacity. The following summarizes how they were utilized in 2021 to support California water systems:

- 27 water systems, serving 13,651 population were consolidated.
- The State Water Board's sent out approximately 1,100 letters to water systems recommending consolidation and hosted 12 Water Partnership Training events across the state.
- There are approximately 170 active consolidations either in early stages of development or in the funding processes. Approximately 30% of water systems on the 2021 Failing: HR2W list are considering consolidation or in full development of the consolidation alternative and progressing forward.
- Since 2020, the State Water Board has designated 13 public water systems in need of an administrator and held public meetings for all the impacted communities. This represents approximately 3,300 people and 900 service connections in seven counties.
- In 2021, the SAFER Program provided short-term solutions, such as emergency well repairs, and bottled and hauled water provision to nearly 28,000 individuals. Long-term solutions, such as construction and consolidation, were completed for 81 communities, including nearly 200,000 individuals. Planning assistance (towards construction of long-term solutions) was provided to 171 communities, including over 135,000 individuals.
- The State Water Board provided approximately \$301 million to 871 water systems for residential and commercial COVID-19 arrearage relief to approximately 536,000 accounts customers.
- In 2021, the State Water funded approximately \$13 million for technical assistance to support 554 water systems.
- In 2021, the State Water Board and Local Primacy Agencies completed sanitary surveys for 886 community water systems and 909 non-community water systems. Identifying more than 20 significant deficiencies.

ENHANCEMENTS TO THE 2022 NEEDS ASSESSMENT

DROUGHT-RELATED ENHANCEMENTS

In response to stakeholder feedback after the release of the 2021 Needs Assessment, the State Water Board focused its refinement efforts on better identifying challenges and needs associated with drought, the risk assessment:

- Added new source capacity risk indicators to the Risk Assessment for public water systems: 'Source Capacity Violations' and 'Bottled or Hauled Water Reliance.'

- Worked in partnership with the Department of Water Resources (DWR) to develop a new combined Risk Assessment for state small water systems and domestic wells that utilizes both the Aquifer Risk Map (water quality risk) and DWR's Drought Risk Vulnerability Tool.
- Conducted a targeted drought infrastructure cost assessment for implementation of SB 552 requirements for small water systems.

ADDITIONAL ENHANCEMENTS

The State Water Board has made several other enhancements to all three components of the 2022 Needs Assessment:

- The Risk Assessment for public water systems was expanded to include medium-size community water systems with service connections between 3,300 and 30,000 or a population served up to 100,000. This expanded inventory aligns with the expanded State Water Board funding eligibilities for medium-size systems.
- The Risk Assessment for public water systems removed five risk indicators and added new indicators, including: 'Constituents of Emerging Concern,' 'Income,' 'Operating Ratio,' and 'Days Cash on Hand'.
- New Affordability indicators were added for the Risk Assessment and Affordability Assessment utilizing data from the 2021 Drinking Water Arrearage Payment Program: 'Percent Residential Arrearages' and 'Residential Arrearage Burden.'
- Socio-economic analyses related to the Risk and Affordability Assessments were performed. The State Water Board identified where Failing: HR2W list and At-Risk communities are experiencing high pollution burden or poverty and quantified the percent of non-white customers served.

2022 NEEDS ASSESSMENT RESULTS

RISK ASSESSMENT

The purpose of the Risk Assessment is to identify public water systems, and state small water systems and regions where domestic wells are at-risk of failing to sustainably provide a sufficient amount of safe and affordable drinking water. Approximately 70 new water systems are added to the Failing: HR2W system list each year.⁸ The identification of At-Risk water systems and domestic wells allows the State Water Board to proactively target technical assistance and funding towards communities to prevent systems from failing to achieve the goals of the HR2W.

The State Water Board has developed two different Risk Assessment methodologies to identify At-Risk water systems and domestic wells. The first methodology is for community water systems with up to 30,000 service connections or 100,000 population served and K-12 schools. The second methodology identifies state small water systems and domestic wells that

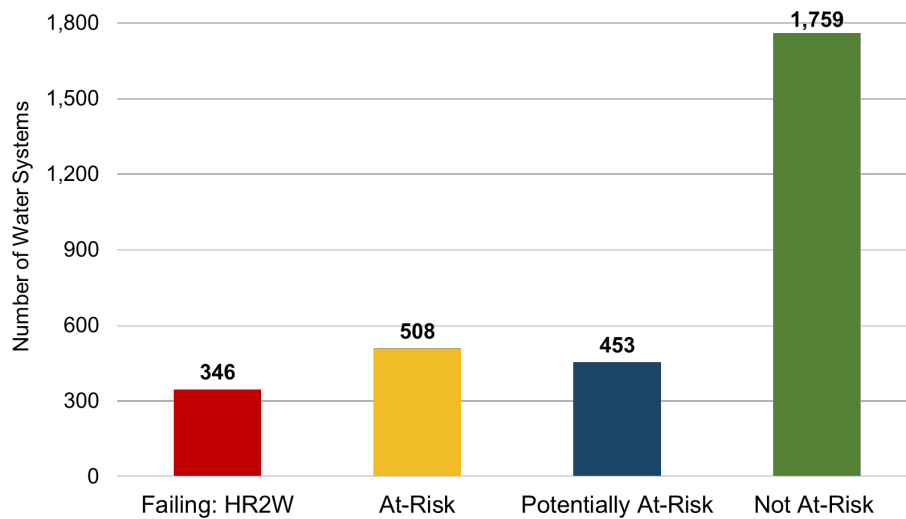
⁸ Average based on systems added to the Failing: HR2W list between 01.01.2017 through 12.31.2021.

are at a high risk of drought and/or accessing source water that may contain contaminants that exceed safe drinking water standards.

At-Risk Public Water Systems

Utilizing the new thresholds and after removing the 346 Failing: HR2W list systems, the 2022 Risk Assessment results identified 508 (19%) At-Risk water systems, 453 (17%) Potentially At-Risk water systems, and 1,759 (65%) Not At-Risk water systems (Figure 1).⁹ Compared to the 2021 Risk Assessment results, the 2022 Assessment identifies fewer At-Risk water systems, but maintains the same predictive power of identifying Failing: HR2W list systems as the 2021 Assessment.

Figure 1: Number of Community Water Systems and K-12 Schools At-Risk and Potentially At-Risk (n=3,066)



At-Risk State Small Water Systems & Domestic Wells

The Risk Assessment methodology developed for state small water systems and domestic wells is designed to identify areas where groundwater is likely to be at high risk of drought and/or containing contaminants that exceed safe drinking water standards. Statewide, the top contaminants that contributed to higher risk designations in domestic wells and state small water systems are nitrate, arsenic, gross alpha, 1,2,3-trichloropropane, uranium, and hexavalent chromium.

Table 2 shows the approximate counts of state small water systems statewide located in different risk areas based on data from the 2022 Needs Assessment. Based on the 2022 analysis there are 631 state small water systems At-Risk for water quality and 321 At-Risk for drought, respectively. There are 378 state small water systems that are at-risk for both water

⁹ 2022 Risk Assessment results for public water systems: [Attachment A1](https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2022risk.xlsx).
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2022risk.xlsx

quality and water shortage. These are the most vulnerable At-Risk state small water systems. An interactive map is available online.¹⁰

Table 2: State Small Water System Results (Statewide)

Assessment	At-Risk	Potentially At-Risk	Not At-Risk	Not Assessed
Water Quality Risk Only	631 (50%)	75 (6%)	426 (33%)	141 (11%)
Drought Risk Only	321 (25%)	411 (32%)	535 (42%)	6 (0%)
Combined Risk Assessment	378 (30%)	438 (34%)	455 (36%)	2 (0%)

Figure 2: At-Risk State Small Water Systems

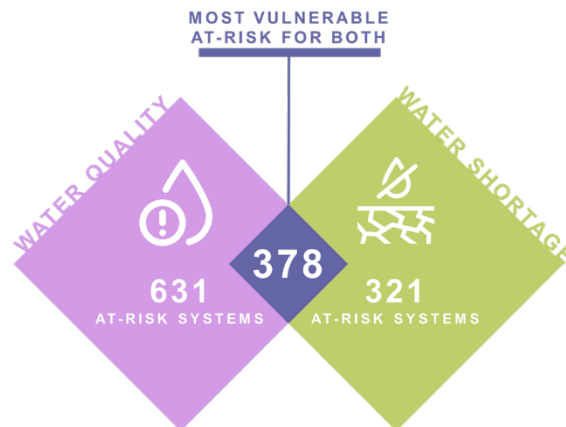


Table 3 shows the approximate counts of At-Risk domestic wells¹¹ statewide located in different risk areas based on data from the 2022 Needs Assessment. Based on the 2022 analysis there are approximately 92,635 domestic wells At-Risk for water quality and 90,974 At-Risk for drought respectively. When analyzed, using the Combined Risk Assessment method, there approximately 64,176 domestic wells that are At-Risk for both water quality and drought risk. These domestic wells can be viewed as the most vulnerable of the At-Risk wells identified.

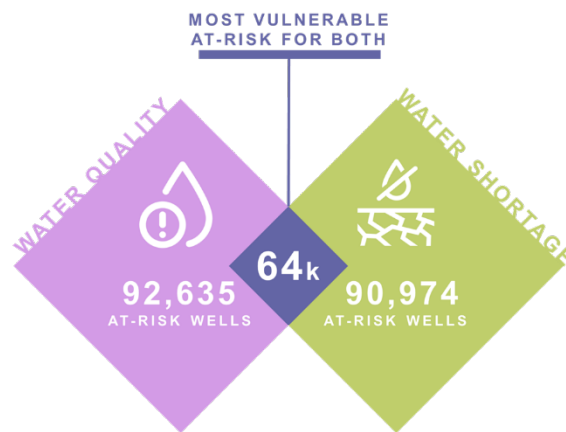
¹⁰ [Combined Risk for State Small Water Systems and Domestic Wells \(Needs Assessment\)](https://gispublic.waterboards.ca.gov/portal/apps/webappviewer/index.html?id=122823a570424891986ff72846b37b83)
<https://gispublic.waterboards.ca.gov/portal/apps/webappviewer/index.html?id=122823a570424891986ff72846b37b83>

¹¹ Domestic well locations are approximated using the OSWCR domestic well completion records. Learn more in Appendix B.

Table 3: Domestic Well Results (Statewide)

Assessment	At-Risk	Potentially At-Risk	Not At-Risk	Not Assessed
Water Quality Risk Only	92,635 (30%)	17,078 (5%)	134,282 (43%)	68,192 (22%)
Drought Risk Only	90,974 (29%)	88,340 (28%)	132,709 (43%)	164 (0%)
Combined Risk Assessment	64,176 (21%)	90,840 (29%)	157,146 (50%)	25 (0%)

Figure 3: At-Risk Domestic Wells



DROUGHT INFRASTRUCTURE COST ASSESSMENT

The State Water Board has conducted a targeted Drought Cost Assessment. The Drought Infrastructure Cost Assessment estimates the costs associated with drought infrastructure requirements for small community water systems (15 – 2,999 service connections) in accordance with Senate Bill 552’s addition of section 10609.62 to the California Water Code. The Drought Cost Assessment utilizes some cost assumptions from the 2021 Cost Assessment Model as well as new cost data derived from internal and external discussions, public feedback and vendor pricing. Table 4 summarizes the Drought Infrastructure Cost Assessment results for small community water systems (CWS) and K-12 schools.¹²

Table 4: Drought Infrastructure Cost Assessment Results

Drought Requirement	# Small CWS	Point Est. Total ¹³	Range Total in \$ Millions
Monitor Static Well Levels	1,213 (46%)	\$2,450,000	\$1- \$5

¹² Drought Infrastructure Cost Assessment Data and Results. [Attachment C1](https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2022cost.xlsx).
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2022cost.xlsx

¹³ All point estimate totals have been rounded to the nearest ten thousand digits.

Drought Requirement	# Small CWS	Point Est. Total ¹³	Range Total in \$ Millions
Membership CalWARN / Mutual Aid	2,634 (100%)	\$0	\$0
Back-up electrical supply	1,872 (71%)	\$244,940,000	\$122 - \$490
Back-up source: new well or intertie	895 (34%)	\$1,911,590,000	\$956-\$3,823
Meter all service connections	1,275 (48%)	\$245,330,000	\$123 - \$491
TOTAL:	2,634	\$2,404,320,000	\$1,202-\$4,809

AFFORDABILITY ASSESSMENT

The Affordability Assessment identifies community water systems that serve disadvantaged communities (DAC/SDAC) that must charge their customers' fees which exceed the affordability threshold established by the State Water Board to provide adequate safe drinking water. The 2022 Affordability indicators include:

- **%MHI:** average residential customer charges for 6 hundred cubic feet (HCF) per month meet or exceed 1.5% of the annual Median Household Income (MHI) within a water system's service area.
- **Extreme Water Bill:** customer charges that meet or exceed 150% and 200% of statewide average drinking water customer charges at the 6 HCF level.
- **Percent of Residential Arrearages:** high percentage of their residential customers that have not paid their water bill and are at least 60 days or more past due.
- **Residential Arrearage Burden:** measures how high the residential arrearage is if it were distributed across the total residential rate base.

To assess which systems may be facing the greatest affordability burden, 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 or four affordability indicator thresholds exceeded). Of the 2,868 community water systems analyzed, most resulted in a low affordability burden (21%) followed by a medium affordability burden (11%) and a high affordability burden (3%). It is worth noting, there are no clear trends across community economic status and affordability burdens.¹⁴

The State Water Board identified 69 (5%) DAC/SDAC water systems that have a high affordability burden, 175 (12%) with a medium affordability burden, and 311 (22%) with a low affordability burden (Table 5). When analyzing the results of the Affordability Assessment with

¹⁴ 2022 Affordability Assessment Data and Results. [Attachment D1](#).

https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2022affordability.xlsx

the results of the 2022 Risk Assessment, there are 53 Failing: HR2W list and At-Risk DAC/SDAC systems that have a high affordability burden (Table 6).

Table 5: Affordability Assessment Results

Community Status	Total Systems Assessed	High Affordability Burden ¹⁵	Medium Affordability Burden ¹⁶	Low Affordability Burden ¹⁷
DAC/SDAC	1,408	69 (5%)	175 (12%)	311 (22%)
Non-DAC	1,287	20 (2%)	142 (11%)	315 (23%)
Missing DAC Status	173	0 (0%)	6 (3%)	7 (10%)
TOTAL:	2,868	89 (3%)	323 (11%)	633 (21%)

Table 6: Affordability Assessment Results by 2022 SAFER Program Status

SAFER Program Status	Total Systems Assessed	High Affordability Burden	Medium Affordability Burden	Low Affordability Burden
HR2W DAC/SDAC	184	20 (11%)	34 (18%)	48 (26%)
At-Risk DAC/SDAC	276	33 (12%)	46 (17%)	55 (20%)
TOTAL:	460	53 (12%)	80 (17%)	103 (22%)

The State Water Board recognizes the need to refine affordability indicators utilized in the Affordability Assessment and enhance the methodology to better identify communities that may be facing affordability challenges. The State Water Board will begin conducting additional research and stakeholder engagement needed to develop new affordability indicators and the appropriate affordability thresholds necessary for inclusion in the Risk and Affordability Assessments.

SOCIO-ECONOMIC ANALYSIS OF NEEDS ASSESSMENT RESULTS

For the first time, the State Water Board has compared the results of the Risk and Affordability Assessments to socio-economic data to better understand the communities most in need. The results of this analysis are summarized below:

- Failing: HR2W list systems and At-Risk public water systems, state small water systems, and domestic wells areas have higher pollution burdens, are typically located in areas with higher poverty, greater linguistic isolation, and serve a greater proportion of non-white households than systems and domestic well locations that are Not At-Risk.

¹⁵ Community water system met the minimum threshold for 3 or 4 of the affordability indicators.

¹⁶ Community water system met the minimum threshold for 2 of the affordability indicators.

¹⁷ Community water system met the minimum threshold for 1 of the affordability indicators.

- When compared with Non-DAC/SDAC water systems, DAC/SDAC water system service areas tend to have higher pollution burdens, a higher percentage of households in poverty, a higher percentage of limited English-speaking households, and are likely to serve a greater proportion of non-white communities.
- Systems with a high affordability burden have higher pollution burdens, percentages of households that are less than two times the federal poverty level, and greater linguistic isolation than medium and low affordability burden systems.