

Meeting Logistics



Proposed Changes to the Cost Assessment Model

Needs Analysis Unit
Division of Drinking Water

August 8, 2022

Remote participation only





Water Board's Mission Statement

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.

Ways to Participate-

- 1. Watch ONLY:** Visit video.calepa.ca.gov
- 2. Email:** Submit a comment or ask a question that will be read aloud, send an email to: safer@waterboards.ca.gov
- 3. Q&A:** Submit a question using the Q&A feature at the bottom of your Zoom Screen. You can UPVOTE any question you would like answered.
- 4. Raise Hand:** Attendees will be given the opportunity to provide verbal comment or ask questions, if you're interested in this option, please raise your virtual hand when the time is right.

- Please wait for your name to be called.
- Public comments are 3 minutes each.

Agenda

- 1 COST ASSESSMENT BACKGROUND
- 2 OVERVIEW OF PROPOSED CHANGES
- 3 OVERVIEW OF MODELED SOLUTIONS
- 4 MODELED SOLUTION SELECTION CRITERIA & ASSUMPTIONS
- 5 NEXT STEPS



COST ASSESSMENT BACKGROUND

Kristyn Abhold
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Division of Drinking Water

Audience Poll Question 1

Did you participate on any past webinars about Cost Assessment Model or Needs Assessment?

- Yes
- No

View recordings and materials here: <https://bit.ly/3SnTmD2>

Provide a response to poll questions here: <https://bit.ly/3d6s97W>

Audience Poll Question 2

Have you read the White Paper: “Proposed Changes to the Cost Assessment Model”?

- Yes, I read the whole thing
- Yes, I skimmed it
- No, but I plan to
- No, I don't intend to read it

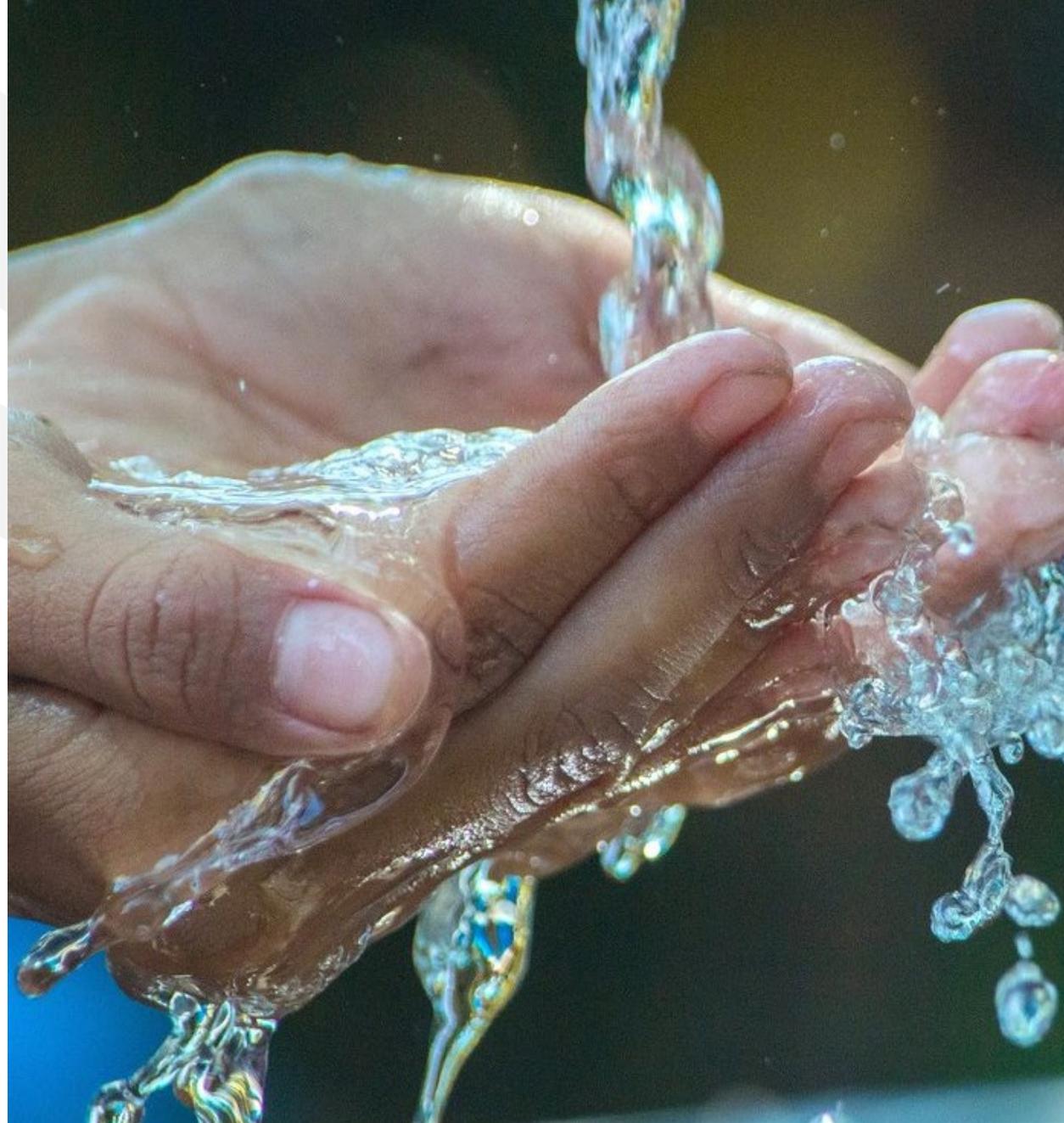
Access White Paper here: <https://bit.ly/3Qbcmn3>

Provide a response to poll questions here: <https://bit.ly/3d6s97W>

Safe and Affordable Drinking Water Fund

Up to \$130 million per year through 2030.

The annual **Fund Expenditure Plan** prioritizes projects for funding, documents past and planned expenditures, and is “based on data and analysis drawn from the drinking water **Needs Assessment**” (Health and Safety Code §116769).



Needs Assessment Components



Risk Assessment

Community and State Small Water Systems & Domestic Wells



Cost Assessment

Failing & At-Risk Water Systems & Domestic Wells



Affordability Assessment

Disadvantaged Community Water Systems

https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/needs.html

Purpose of the Cost Assessment

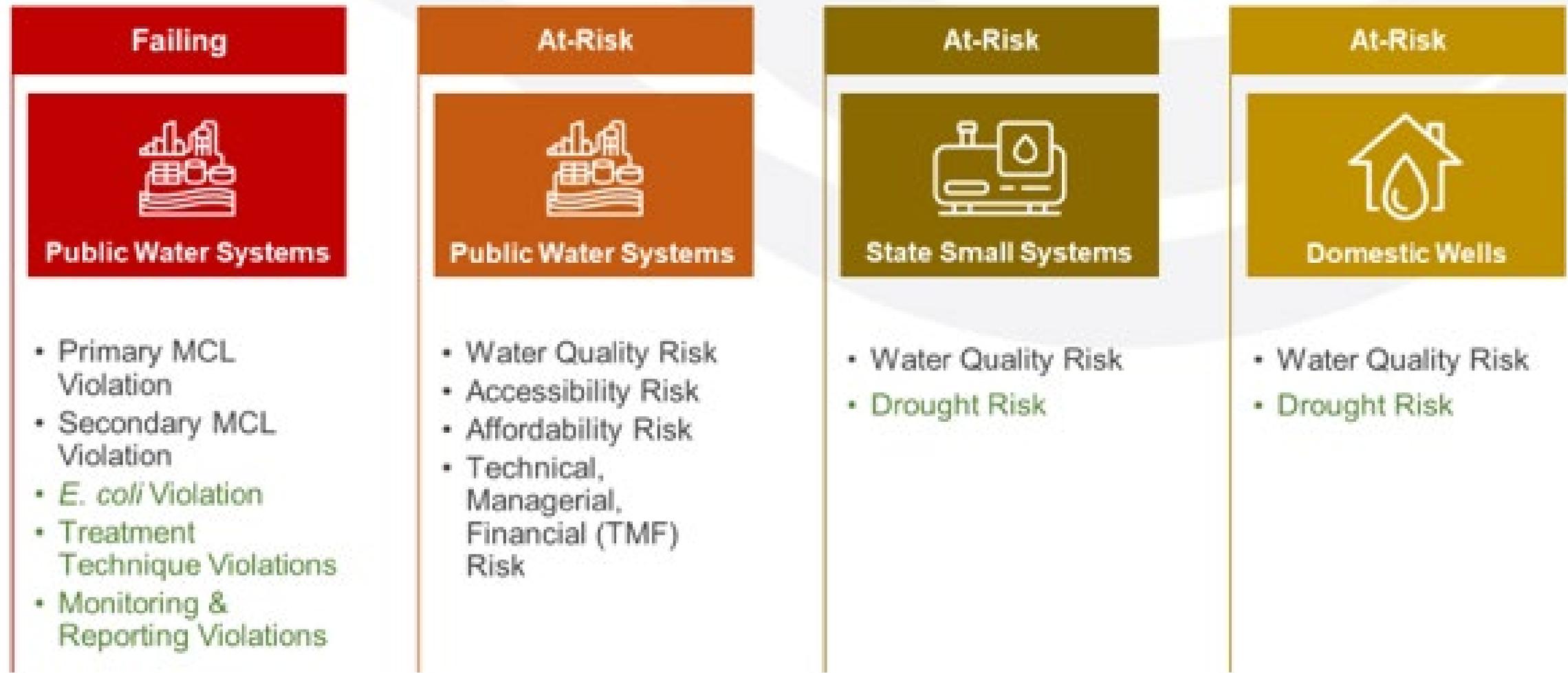


SB 200 directs the State Water Board to estimate “anticipated funding needs” related to the implementation of interim and/or emergency measures and longer-term solutions for Failing and At-Risk systems.

Results of the Cost Assessment are used to inform the prioritization of existing SAFER funding.

The Cost Assessment is NOT intended to inform local long-term decisions.

Systems Included in the Cost Assessment



OVERVIEW OF PROPOSED CHANGES

Past Workshops on the Cost Assessment

The State Water Board has hosted workshops on the development and refinement of the Cost Assessment Model.

NEEDS ASSESSMENT COMPONENTS	2019	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q3 2021	2022
Risk Assessment: Public Water Systems	■	■	■	■ ■	■		■
Risk Assessment: State Small Water Systems & Domestic Wells	■	■	■	■ ■	■		■
Cost Assessment	■	■	■	■	■ ■		■
Affordability Assessment		■	■ ■	■	■	■	■

2021 and 2022 Cost Assessment

The screenshot shows the California Water Boards website. At the top, there is a navigation bar with the CA.GOV logo, social media icons, and links for About Us, Contact Us, and Subscribe. Below this is a secondary navigation bar with icons for Board, Programs, Drinking Water, Water Quality, Water Rights, Notices, Water Boards, and Search. The main content area features a large banner for "SAFER DRINKING WATER" with the subtitle "SAFE AND AFFORDABLE FUNDING FOR EQUITY AND RESILIENCE". Below the banner is a breadcrumb trail: Home > Drinking Water > Certic > Drinkingwater > Needs. The main heading is "California Drinking Water Needs Assessment".

Under the heading, there is a section titled "Needs Assessment Core Components:" with three icons: "Risk Assessment" (a gauge), "Cost Assessment" (a dollar sign with arrows), and "Affordability Assessment" (a house with a dollar sign). Below this is a paragraph of text: "In 2019, to advance the goals of the Human Right to Water 'HR2W', California passed Senate Bill 200, which enabled the State Water Board to establish the Safe and Affordable Funding for Equity and Resilience (SAFER) Program. Foremost among the tools created for SAFER is the Safe and Affordable Drinking Water Fund. 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 annual Fund Expenditure Plan prioritizes projects for funding, documents past and planned expenditures, and is 'based on data and analysis drawn from the drinking water Needs Assessment.' For more information on SAFER, visit the Safe and Affordable Fund for Equity and Resilience (SAFER) website."

To the right of the main content is a "Dashboard" section titled "Explore the Dashboard". It contains a table with columns: "Rating", "At-Risk", "Potentially At-Risk", "Not At-Risk", and "Not Assessed". Below the table is a map of California with colored dots representing different water systems. To the right of the map is a "Drivers of Risk" section with a bar chart showing the "Number of Systems Exceeding Risk Indicator Thresholds" for various indicators like "Number of Systems Exceeding Risk Indicator Thresholds", "Number of Systems Exceeding Risk Indicator Thresholds", etc. At the bottom of the dashboard is a "News & Upcoming Events" section with a bullet point: "Public Webinar on SAFER: Overview of Proposed Updates to the Drinking Water Cost Assessment Model".

Access the **2021** report here: <https://bit.ly/3mAz2yK>

Access the **2022** report here: <https://bit.ly/3uJSUFH>

Learn more about the **Needs Assessment** here: <https://bit.ly/3vfSvtA>

2022 Drought Infrastructure Cost Assessment

In response to stakeholder feedback and the need to support SB 552 planning, the State Water Board has conducted a targeted **Drought Infrastructure Cost Assessment in 2022.**

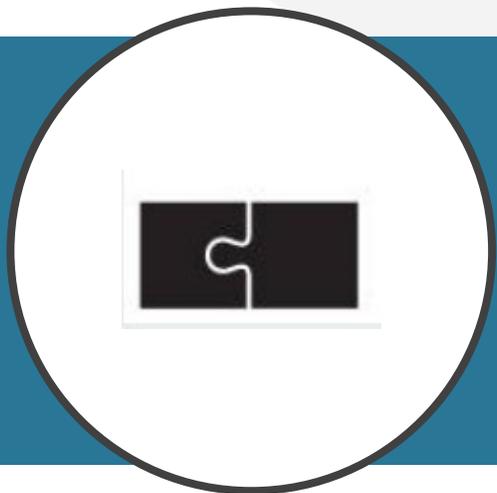
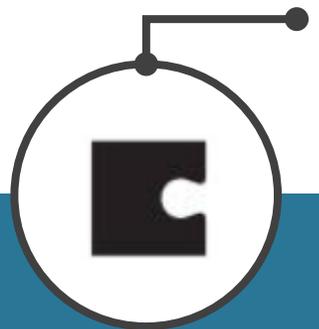
SB 522 requires small water suppliers (15 to 2,999 connections) and K-12 schools to:

- Detect production well groundwater levels - Jan 1, 2023
- Mutual aid organization membership - Jan 1, 2023
- Continuous operation during power failures Jan 1, 2024
- Have a backup source of water supply or a water system intertie by Jan 1, 2027
- Meter each service connection and monitor water loss by Jan 1, 2032
- Meet fire flow requirements by Jan 1, 2032 (*excluded from Assessment*)

Proposed Cost Assessment Refinement

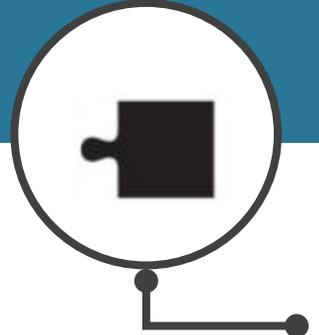
2021 Cost Assessment Model

Interim and long-term solutions for Failing public water systems, At-Risk systems, state small water systems, and domestic wells.



New Cost Assessment Model

- Long-term Solutions
 - Drought infrastructure
- Interim Solutions



2022 Drought Infrastructure Cost Assessment

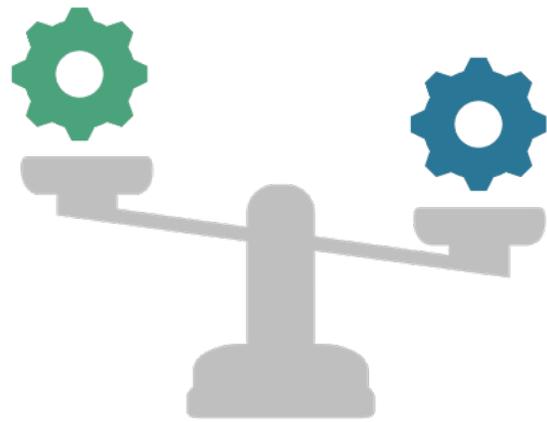
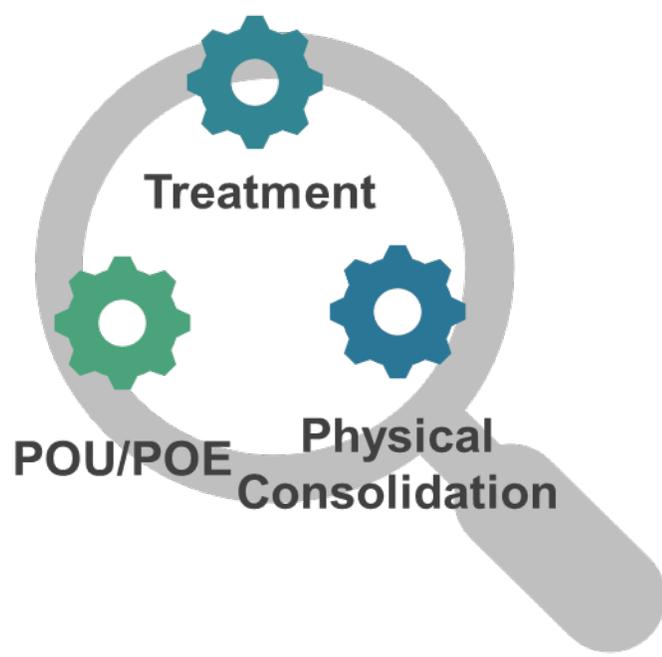
Cost assessment of SB 552 drought infrastructure requirements for small community water systems and K-12 schools.

2021 Cost Assessment Modeled Long-Term Solution Selection Process for **Failing Systems**

STEP 1: All possible modeled solutions identified, and cost estimates developed.

STEP 2: Conduct Sustainability & Resiliency Assessment of all modeled solutions and compare top 2 solutions.

STEP 3: Select best model solution using cost and Step 2 score.



Proposed Cost Assessment Modeled Long-Term Solution Selection Process for **Failing Systems**

The proposed new Cost Assessment Model would assess modeled solutions in priority order, using clear selection and viability criteria.

STEP 1: Determine if physical consolidation is viable.



Physical Consolidation



STEP 2: If not, determine if treatment is viable.



Treatment



STEP 3: If not, determine is POU/POE is viable.



POU/POE



STEP 4: Worst case scenario when no other solution viable.



Bottled Water

Summary of Proposed Changes

-  **1** Physical consolidation is modeled first and selected by the model using funding eligibility criteria rather than comparing modeled costs to other modeled solutions.
-  **2** If consolidation is not viable, the Model will evaluate other long-term solutions, prioritizing more sustainable solutions like treatment first over POU/POE.
-  **3** The results of the Risk Assessment will be incorporated to better match long-term solutions to water systems and domestic wells.
-  **4** The Model will incorporate system-level drought infrastructure cost estimates into the total estimated costs. Technical Assistance and Administrator costs will be separated.
-  **5** The sustainability and resiliency assessment will be removed to allow for the new approach for identifying the best modeled solution per system – utilizing clear selection criteria.

Audience Poll Question 3

Do you support the proposed modifications to the Cost Assessment Model?

- Yes, they sound good
- Maybe, I need to learn more
- No, I think this is headed in the wrong direction
- Neutral

Access White Paper here: <https://bit.ly/3Qbcmn3>

Provide a written response to poll questions here: <https://bit.ly/3d6s97W>

Discussion Topic 1: Proposed Changes to Model Process

Q1: Do you agree with the proposed process changes for how the Cost Assessment Model selects long-term solutions for Failing systems?

Q2: Do you support adding the drought infrastructure cost estimates to the Model?

OVERVIEW OF MODELED SOLUTIONS

Mawj Khammas
Needs Analysis Unit
Division of Drinking Water

Modeled Solutions (1/2)

Physical Consolidation

The joining of the actual infrastructure of two water systems.

Long-Term

Point-of-Use / Point-of-Entry Devices

Treatment devices that can be used for the purpose of reducing contaminant levels in drinking water on the customer's property.

Interim

Long-Term

Treatment

Applying Best Available Technologies (BAT) to reduce contaminants concentration that exceeded water quality standards.

Long-Term

Bottled Water



Provision of bottled water to customers.

Interim

Long-Term

Modeled Solutions (2/2)

Other Essential Infrastructure

Infrastructure needs to improve public water system sustainability. This may include a new public supply well, generators, meters, etc.

Long-Term

Technical Assistance

Providing managerial support to water systems to enhance their technical, managerial, and financial capacity.

Long-Term

New Well

Drilling a new state small water system well or domestic well to address high drought risk.

Long-Term

Administrator

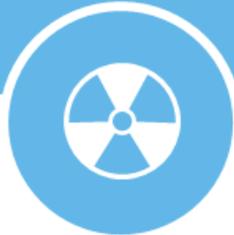
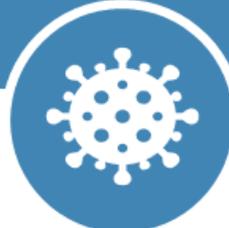
Appointment of an individual or entity with the necessary qualifications to carry out the operational and managerial responsibilities required for a designated water system.

Long-Term

Matching Long-Term Solutions to Failing Systems

	Primary or Secondary MCL Violations 	E.coli Violations 	Treatment Technique Violations 	Monitoring & Reporting Violations 
Physical Consolidation	✓	✓	✓	✓
Treatment	✓	✓	✓	
POU/POE	✓			
Other Essential Infrastructure	✓	✓	✓	✓
Technical Assistance	✓	✓	✓	✓
Administrator	✓	✓		
Long-Term O&M	✓	✓	✓	
Bottled Water	✓	✓		

Matching Short-Term Solutions to Failing Systems

	Primary MCL Violations	Secondary MCL Violations	E.coli Violations
			
POU/POE	✓	✓	
Short-Term O&M	✓	✓	
Bottled Water	✓		✓

Matching Long-Term Solutions to **At-Risk** Systems

		Water Quality Risk	Drought Risk
	Public Water Systems	State Small Water Systems & Domestic Wells	
		 	 
Physical Consolidation	✓	✓	✓
Other Essential Infrastructure	✓		
New SSWS/DW Well			✓
Technical Assistance	✓		
POU/POE		✓	
Bottled Water		✓	✓

Discussion Topic 2: Modeled Solutions

Q1: Do you agree with the addition of costing a new well for state small water systems and domestic wells that have high drought risk?

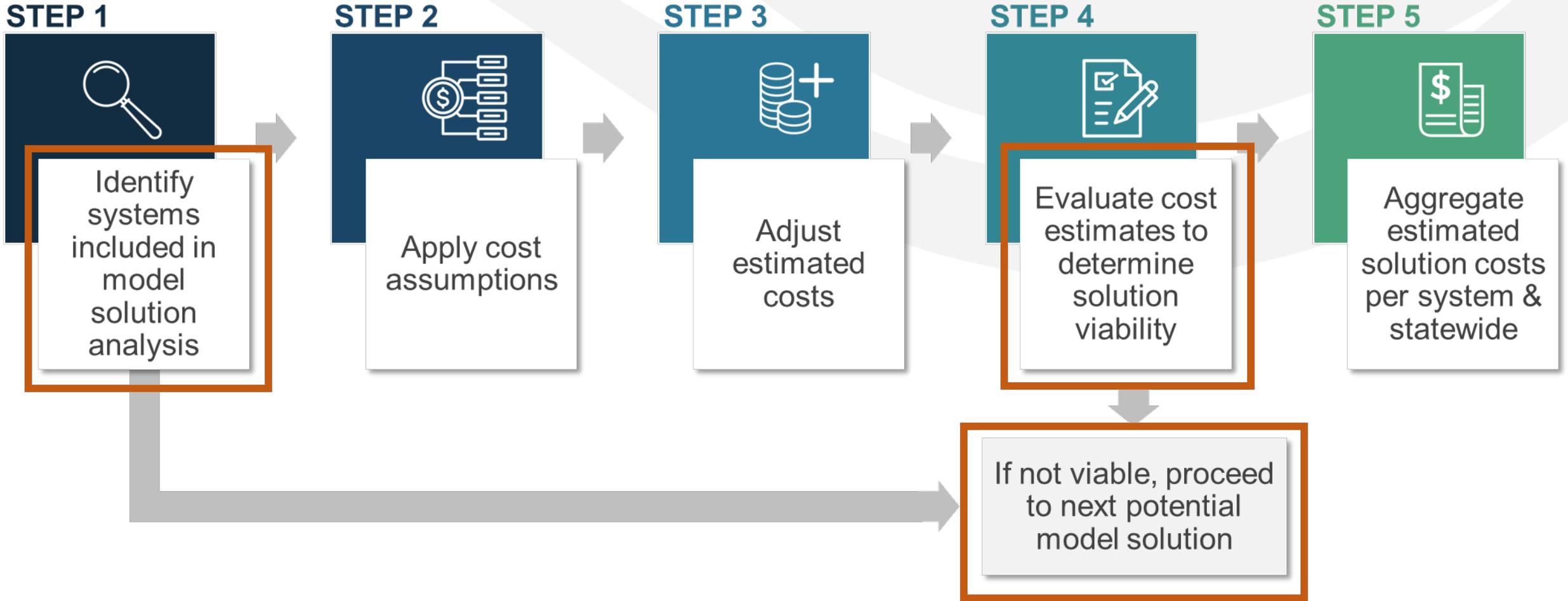
Q2: Are there any long-term or interim solutions that should be added or removed from the Model?

Q3: Should the Model include treatment costs for At-Risk public water systems that have high water quality risk?

MODELED SOLUTION SELECTION CRITERIA & ASSUMPTIONS

Modeled Solution Assessment Process

The following process will be applied to each modeled solution per system.



Criteria for Systems Included in the Physical Consolidation Analysis (1/2)

System Type	Identified Challenges	Additional Criteria
Failing Public Water Systems	<ul style="list-style-type: none"> • Primary MCL Violation • Secondary MCL Violation • <i>E. coli</i> Violation (NEW) • Treatment Technique Violation, 3 or more Treatment Technique Violations (NEW) • Monitoring & Reporting Violations (NEW) 	<ul style="list-style-type: none"> • Must be an intersect with a receiving system service area; or • Within 3 miles of a receiving system boundary.
At-Risk Public Water Systems	<ul style="list-style-type: none"> • Water Quality Risk • Accessibility Risk • Affordability Risk • TMF Capacity Risk 	<ul style="list-style-type: none"> • Must be an intersect with a receiving system service area; or • Within 3 miles of a receiving system boundary.

Criteria for Systems Included in the Physical Consolidation Analysis (2/2)

System Type	Identified Challenges	Additional Criteria
At-Risk State Small Water Systems and Domestic Wells	<ul style="list-style-type: none">• Water Quality Risk• Drought Risk (NEW)	<ul style="list-style-type: none">• Must be an intersect with a receiving system service area boundary; or• Within 0.25 miles of receiving system service area boundary (was 0.38 miles).

Physical Consolidation Assumptions

- One water system (joining systems) is dissolved into another existing water system (receiving system).
- Receiving systems must have **1,000 service connections or more (NEW)**.
- For joining systems intersecting a receiving system, assume a **pipeline** length of **1,000 ft** is needed. The Model assumes no additional pipeline length is needed for state small water systems and domestic wells.
- Treatment costs will be estimated for Failing receiving systems that are failing for water quality issues **(NEW)**.
- A cost estimate for an additional source will be included for receiving systems that have a single source **(NEW)**.

Physical Consolidation Viability Determination

Physical consolidation will **NOT** be considered a viable modeled solution if:

- There are no viable receiving water systems with at least **1,000 service connections** within **3 miles** of a Failing or At-Risk public water system's boundary; or within **0.25 miles** for At-Risk **state small water systems** and **domestic wells**; or
- The estimated physical consolidation costs exceed the thresholds below:
 - Cost per connection is **greater than \$80,000**; **(NEW) (was \$60 K)**. Or,
 - Total project capital cost is **greater than \$6 million** **(NEW) (was \$500 K)**.

Criteria for Systems Included in the Treatment Analysis

System Type	Identified Challenges	Additional Criteria
Failing Public Water Systems	<ul style="list-style-type: none"> • Primary MCL Violation • Secondary MCL Violation • <i>E. coli</i> Violation (NEW) • Treatment Technique Violation, 3 or more Treatment Technique Violations (NEW) 	<ul style="list-style-type: none"> • Exclude systems only meeting the Monitoring & Reporting Violations criteria (NEW).
At-Risk Public Water Systems At-Risk State Small Water Systems and Domestic Wells	<i>Excluded</i>	<i>N/A</i>

Treatment Assumptions

- Due to the lack of pre-constructed treatment systems data, assume new treatment is needed.
- Assume treatment capacity for the contaminated source is equal to the system capacity multiplied by the fraction number of active sources **(NEW)**.
- Capital costs will be updated and adjusted with an inflation multiplier **(NEW)**.
- O&M Costs:
 - Will be estimated depending on the technology used and will account for (consumables, waste disposal, electricity, and operator salary).
 - Will be calibrated using Division of Financial Assistance project data **(NEW)**.

Treatment Viability Determination

Modeled treatment will **NOT** be provided for small water systems with service connections less than 200 due to operational and maintenance complexity.

State Water Board is exploring if there are cost thresholds for centralized treatment viability.

Criteria for Systems Included in the POU/POE Analysis

System Type	Identified Challenges	Additional Criteria
Failing Public Water Systems	<ul style="list-style-type: none"> • Primary MCL Violation • Secondary MCL Violation 	<ul style="list-style-type: none"> • When physical consolidation and new treatment is not viable. • Small water systems with ≤ 200 service connections. • Nitrate levels ≤ 25 mg/L as nitrogen (NEW)
At-Risk Public Water Systems	<i>Excluded</i>	<i>N/A</i>
At-Risk State Small Water Systems and At-Risk Domestic Wells	<ul style="list-style-type: none"> • Water Quality Risk 	<ul style="list-style-type: none"> • Nitrate levels ≤ 25 mg/L as nitrogen (NEW)

POU/POE Assumptions

- POU treatment for most commonly occurring inorganic contaminants.
- POE treatment for 1,2,3-TCP and other volatile organic compounds.
- Full replacement of the POU or POE treatment unit at 10 years.

POU/POE Viability Determination

From a treatment standpoint, POU/POE is not a technically viable modeled solution where nitrate levels exceed 25 mg/L as nitrogen. **In this case, bottled water will be considered.**

State Water Board is exploring if there are cost thresholds for POU/POE viability.

Criteria for Systems Included in the Bottled Water Analysis (1/2)

System Type	Identified Challenges	Additional Criteria
Failing Public Water Systems*	<ul style="list-style-type: none"> • Primary MCL Violation • <i>E. coli</i> Violation (NEW) 	<ul style="list-style-type: none"> • Modeled solution considered when POU/POE is not technically viable. • Where nitrate level > 25 mg/L as nitrogen.
At-Risk Public Water Systems	<i>Excluded</i>	N/A

*Failing Public Water Systems – Long-Term **(NEW)** and Interim

Criteria for Systems Included in the Bottled Water Analysis (2/2)

System Type	Identified Challenges	Additional Criteria
At-Risk State Small Water Systems and Domestic Wells**	<ul style="list-style-type: none"> • High Water Quality Risk • High Drought Risk (NEW) 	<ul style="list-style-type: none"> • Modeled solution considered when POU/POE is not technically viable. • Where nitrate level > 25 mg/L as nitrogen. • Where drilling a new well may not be viable (NEW).

At-Risk State Small Water Systems and Domestic Wells – Long-Term **(Interim is Excluded)

Bottled Water Assumptions

- Based on Division of Financial Assistance guidelines, assume to allocate the following quantity of bottled water:
 - Public Water System – 60 gallons per month per connection
 - School Populations – 0.25 gallons per school day per person
- For the purpose of calculating cost, assume the following service connections:
 - State small water systems – 8 connections when connection data is not available for them.
 - Each domestic well – an individual connection

Criteria for Systems Included in the Other Essential Infrastructure Analysis

System Type	Identified Challenges	Additional Criteria
Failing Public Water Systems	<ul style="list-style-type: none"> • Primary MCL Violation • Secondary MCL Violation • <i>E. coli</i> Violation (NEW) • Treatment Technique Violation, 3 or more Treatment Technique Violations (NEW) • Monitoring & Reporting Violations (NEW) 	None
At-Risk Public Water Systems	<ul style="list-style-type: none"> • Water Quality Risk • Accessibility Risk • Affordability Risk • TMF Capacity Risk 	None
At-Risk State Small Water Systems and Domestic Wells	<i>Excluded</i>	N/A

Other Essential Infrastructure Assumptions

Apply all cost assumptions as adapted in the 2022 Drought Infrastructure Cost Assessment and adjust for recent inflation.

- No well modification is needed to measure static well level.
- Estimated cost for (back-up source: new well or intertie, backup generator, meters, storage tank) relies on calculating estimated Maximum Day Demand per water system.
- Back-up source analysis will first determine the feasibility of an intertie, and if is not potentially feasible then a cost estimate for a new well is calculated.
- New well cost estimate will only be estimated for systems with a single well source:
 - Exclude systems with a single source that is either surface water or an intertie.

Criteria for Systems Included in the New Domestic Well Analysis (NEW)

System Type	Identified Challenges	Additional Criteria
Failing Public Water Systems At-Risk Public Water Systems	<i>Excluded (included in OEI estimate where appropriate)</i>	N/A
At-Risk State Small Water Systems	High Drought Risk (NEW)	Systems that have only one source of water supply (NEW)
At-Risk Domestic Wells	High Drought Risk (NEW)	None

New Well Assumptions (NEW)

The State Water Board is developing cost assumptions for new wells for state small water systems and domestic well properties with high drought risk in consultation with the internal and external stakeholders.

Criteria for Systems Included in the Technical Assistance Analysis (1/2)

System Type	Identified Challenges	Additional Criteria
Failing Public Water Systems	<ul style="list-style-type: none"> • Primary MCL Violation • Secondary MCL Violation • <i>E. coli</i> Violation • Treatment Technique Violations, 3 or more Treatment Technique Violations • Monitoring and Reporting Violations 	<ul style="list-style-type: none"> • Only for small systems: 15 - 3,300 service connections; and expanded small water systems up to 6,600 service connections. (NEW) • Planning and consolidation (if model-selected) assistance is only provided to (NEW): <ul style="list-style-type: none"> • DAC or SDAC systems; and • Non-DAC up to 150% Statewide Median Household Income (MHI).
At-Risk Public Water Systems	<ul style="list-style-type: none"> • Water Quality Risk • Accessibility Risk • Affordability Risk • TMF Capacity Risk 	

Criteria for Systems Included in the Technical Assistance Analysis (2/2)

System Type	Identified Challenges	Additional Criteria
At-Risk State Small Water Systems		
At-Risk Domestic Wells	<i>Excluded</i>	N/A

Technical Assistance Assumptions

- Technical Assistance will be modeled for systems that are included in the Administrator analysis (**NEW**).
- Failing systems are considered as “**High Need**” systems and At-Risk systems are considered as “**Low Need**” systems.
 - High Needs systems: \$60,000 annually for 5 years (\$300,000)
 - Low Needs systems: \$12,000 annually for 5 years (\$60,000)

Criteria for Systems Included in the Administrator Analysis (NEW)

System Type	Identified Challenges	Additional Criteria
Failing Public Water Systems	<ul style="list-style-type: none"> • Primary MCL Violation • Secondary MCL Violation • <i>E. coli</i> Violation 	<ul style="list-style-type: none"> • Disadvantaged communities (DAC) or severely disadvantaged communities (SDAC); and • Small water systems with ≤ 500 service connections; and • High TMF Capacity Risk Score.
At-Risk Public Water Systems	High TMF Capacity Risk Score	<ul style="list-style-type: none"> • DAC or SDAC; and • Small water systems with ≤ 200 service connections.
At-Risk State Small Water Systems and Domestic Wells	<i>Excluded</i>	N/A

Administrator Assumptions (NEW)

Administrator service time is assumed to be a 3-year contract.

Discussion Topic 3: Selection Criteria and Assumptions

Q1: Do you have any recommendations on the selection criteria and assumptions for any of the modeled solutions?

Next Steps

Feedback Requested

The State Water Board is seeking stakeholder feedback on the proposed Cost Assessment Model changes, model solution selection criteria, and assumptions.

Access the white paper here: <https://bit.ly/3Qbcmn3>

Complete the online survey about discussion topics discussed today: <https://bit.ly/3d6s97W>

Submit feedback to: SAFER@waterboards.ca.gov

Public Feedback due September 8, 2022

Next Cost Assessment Model Workshop

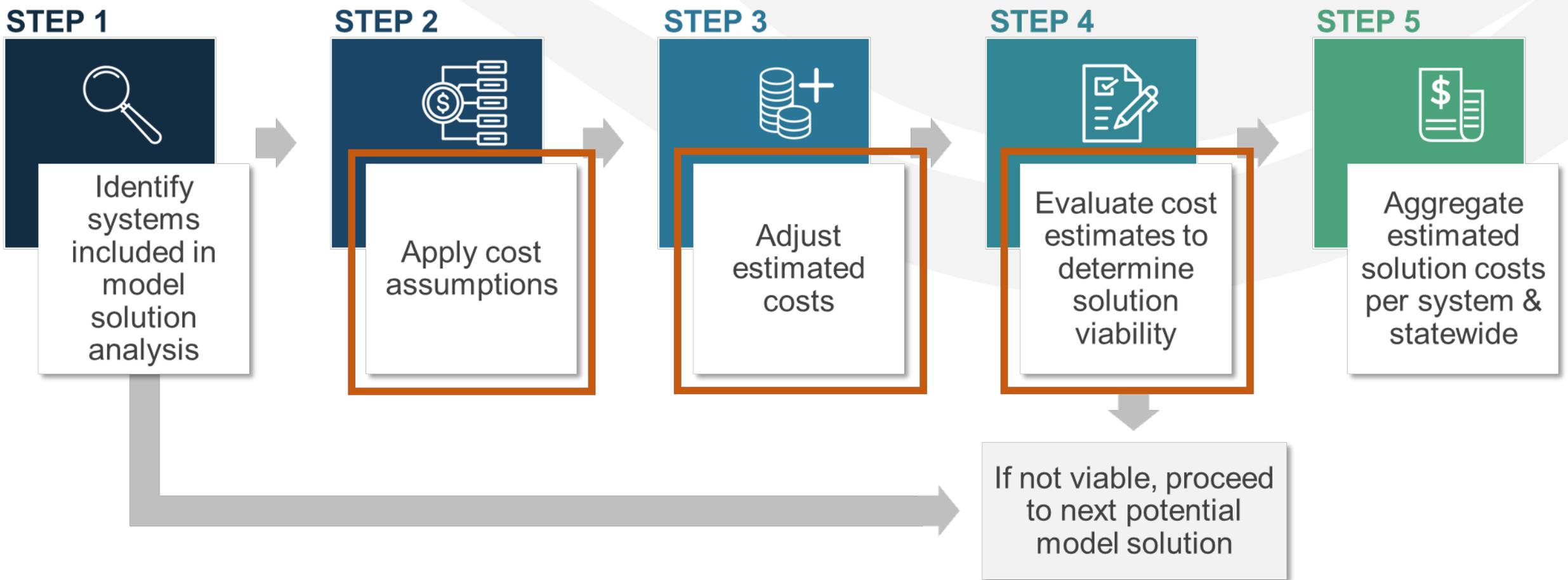
The next webinar workshop will incorporate received feedback on the proposed changes and apply modifications as needed on the Cost Assessment Model assumptions.

The next workshop will dive deeper to further explore the solution-matching criteria and the detailed cost assumptions used for each modeled solution.

Subscribe to get notified – SAFER email: <https://bit.ly/3cRD7Os>

Next Workshop: Modeled Solution Assessment Process

The following process will be applied to each modeled solution per system.



2022-23 Affordability Assessment Workshops

8/11/2022 **Workshop 1: Overview of Drinking Water Affordability**

- Register: <https://bit.ly/3OLw7jt>

9/20/2022 **Workshop 2: Potential Affordability Indicators**

- Register: <https://bit.ly/3cQOt5j>

11/01/2022 **Workshop 3: Affordability Assessment Methodology & Threshold Setting**

- Register: <https://bit.ly/3zhwtbQ>

TBD **Workshop 4: 2023 Needs Assessment Workshop**

Discussion Topic 4: Open Discussion

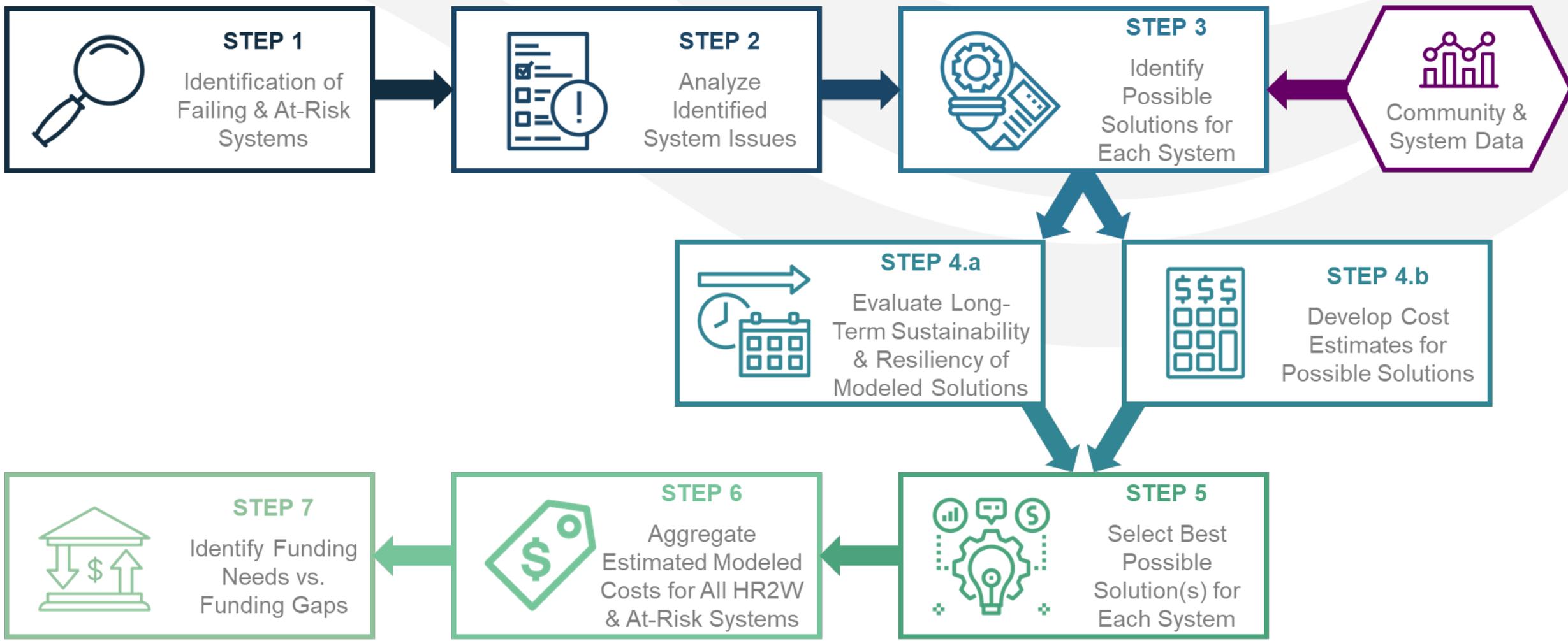


Thank You

CALIFORNIA WATER BOARDS

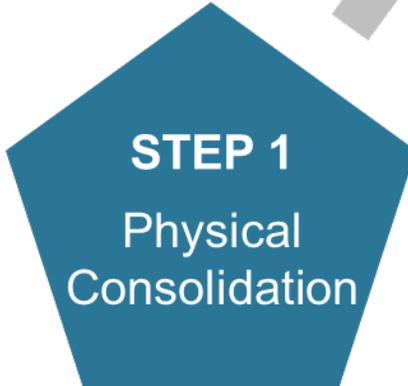
SAFER PROGRAM

2021 Cost Assessment Model Process



Proposed Cost Assessment Process

If physical consolidation is not viable, analyze failing and risk drivers.



Assess physical consolidation viability for all systems.



Analyze identified issues and select best modeled solutions.



Calculate capital and operation & maintenance cost estimates for selected modeled solutions.



Treatment Cost Components



**Operational Cost =
media
replacement +
chemicals**



**Operator
labor cost**



Electricity



Waste disposal