



# Proposed Changes to the Cost Assessment Model: Physical Consolidation

Needs Analysis Unit  
Division of Drinking Water

July 14, 2023  
*Remote participation only*



# Meeting Logistics



# 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](https://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](mailto: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 & SUMMARY OF PROPOSED CHANGES
- 2 OVERVIEW OF MODELED PHYSICAL CONSOLIDATION
- 3 PROPOSED UPDATES TO MODEL CRITERIA
- 4 PROPOSED UPDATES TO MODEL UNIT COST ASSUMPTIONS
- 5 NEXT STEPS



# COST ASSESSMENT BACKGROUND

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# Audience Poll Question 1

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

- Yes
- No

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

## Audience Poll Question 2

**Have you read the White Paper: “Proposed Drinking Water Cost Assessment Model Assumptions on Physical Consolidation”?**

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

Access the white paper online:

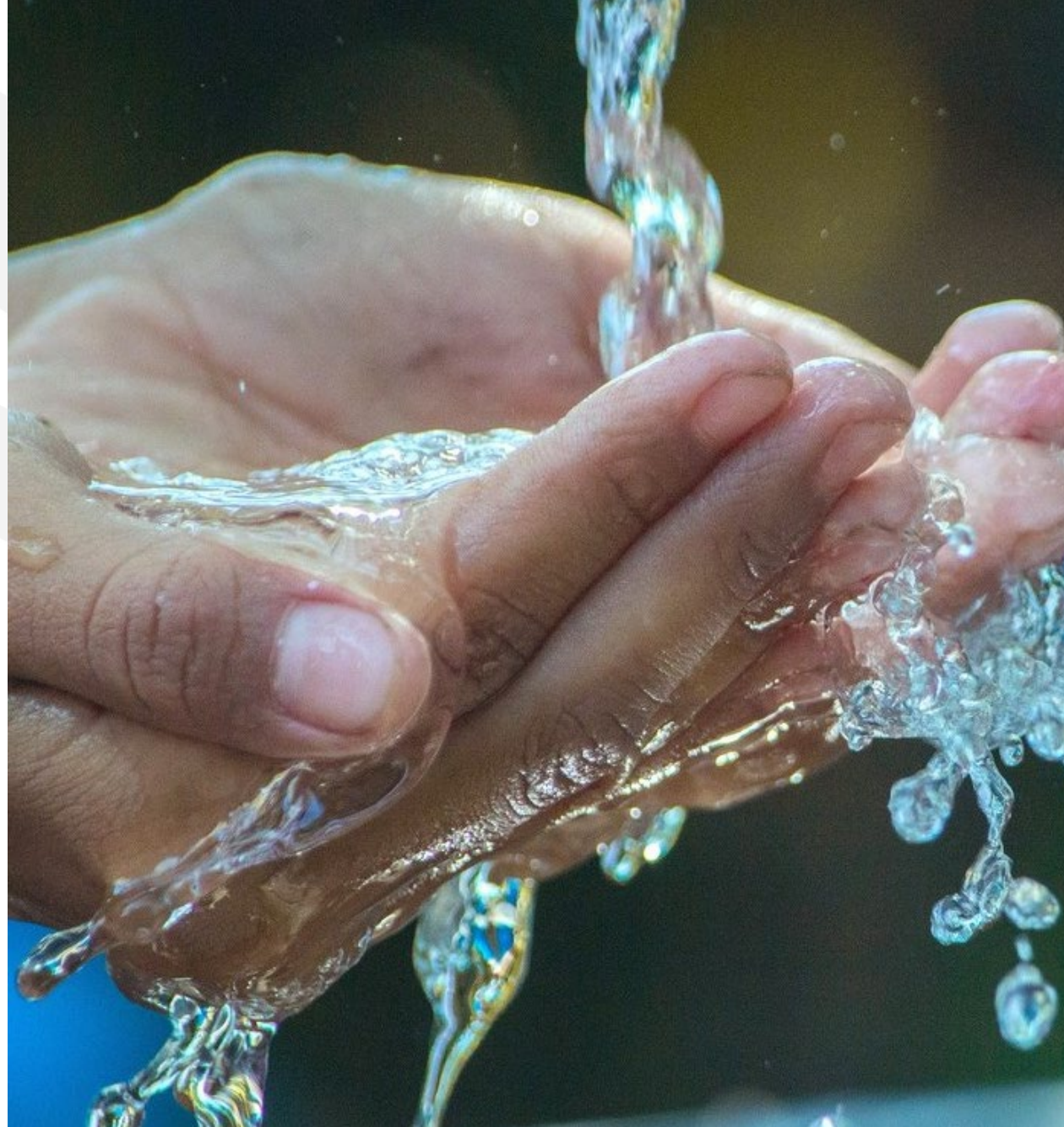
[https://www.waterboards.ca.gov/drinking\\_water/certlic/drinkingwater/docs/2023/20230714-final-cost-assessment-consolidation-white-paper.pdf](https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/docs/2023/20230714-final-cost-assessment-consolidation-white-paper.pdf)




# 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



**Failing Water System List**

Community Water Systems & K-12 Schools



**Risk Assessment**

Small and Medium Community Water Systems; K-12 Schools; SSWS; & DWs



**Cost Assessment**

Failing & At-Risk Systems and Domestic Wells



**Affordability Assessment**

DAC/SDAC Community Water Systems

<https://bit.ly/SAFER-NA>

# Purpose of the Cost Assessment



Failing & At-Risk Water  
Systems & Domestic Wells

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 decisions

# Systems Included in the Cost Assessment

## Failing



- Primary MCL Violation
- Secondary MCL Violation
- *E. coli* Violation
- Treatment Technique Violations
- Monitoring & Reporting Violations

## At-Risk



- Water Quality Risk
- Accessibility Risk
- Affordability Risk
- Technical, Managerial, Financial (TMF) Risk

## At-Risk



- Water Quality Risk
- Drought Risk

## At-Risk



- Water Quality Risk
- Drought Risk

# 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
<b>Risk Assessment:</b> Public Water Systems	■	■	■	■ ■	■		■
<b>Risk Assessment:</b> State Small Water Systems & Domestic Wells	■	■	■	■ ■	■		■
<b>Cost Assessment</b>	■	■	■	■	■ ■		■
<b>Affordability Assessment</b>		■	■ ■	■	■	■	■

# 2021 and 2022 Cost Assessment

The screenshot shows the California Water Boards website. At the top is the navigation menu with icons for Board, Programs, Drinking Water, Water Quality, Water Rights, Notices, Water Boards, and Search. Below the navigation is a banner for "SAFER DRINKING WATER" with the tagline "SAFE AND AFFORDABLE FUNDING FOR EQUITY AND RESILIENCE". The main content area is titled "California Drinking Water Needs Assessment" and features a section for "Needs Assessment Core Components" with four icons: Failing Water System List, Risk Assessment, Cost Assessment, and Affordability Assessment. Below this is a paragraph of text explaining the program's goals and a link to the website. At the bottom left is a "2023 Needs Assessment" button. On the right side of the page, there are sections for "Subscribe directly to the SAFER Drinking Water Email List", "News & Upcoming Events" (listing a public webinar on proposed updates to the cost assessment model), and "Dashboards" (showing the SAFER Dashboard and Risk Assessment for State Small Water Systems and Domestic Wells Dashboard).

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

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

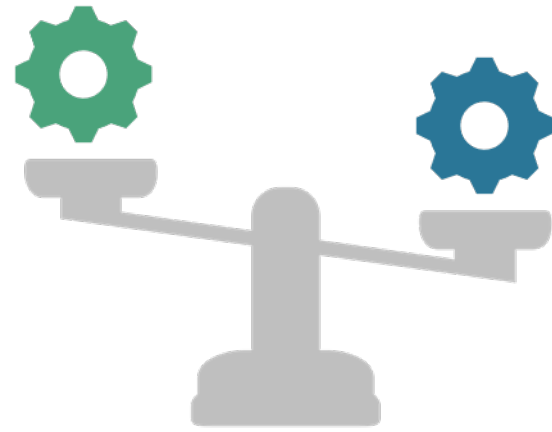
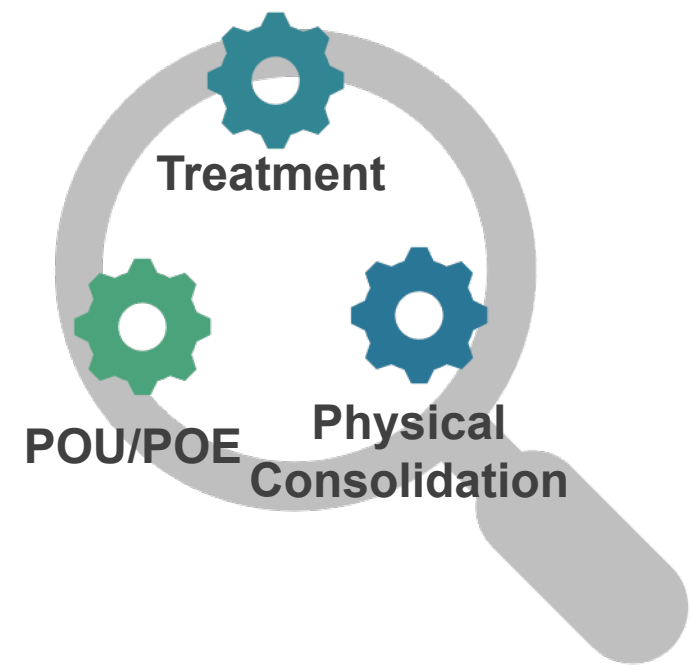
Learn more about the **Needs Assessment** here:  
<https://bit.ly/3vfSvtA>

# 2021 Cost Assessment Modeled Long-Term Solution Selection Process

**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.

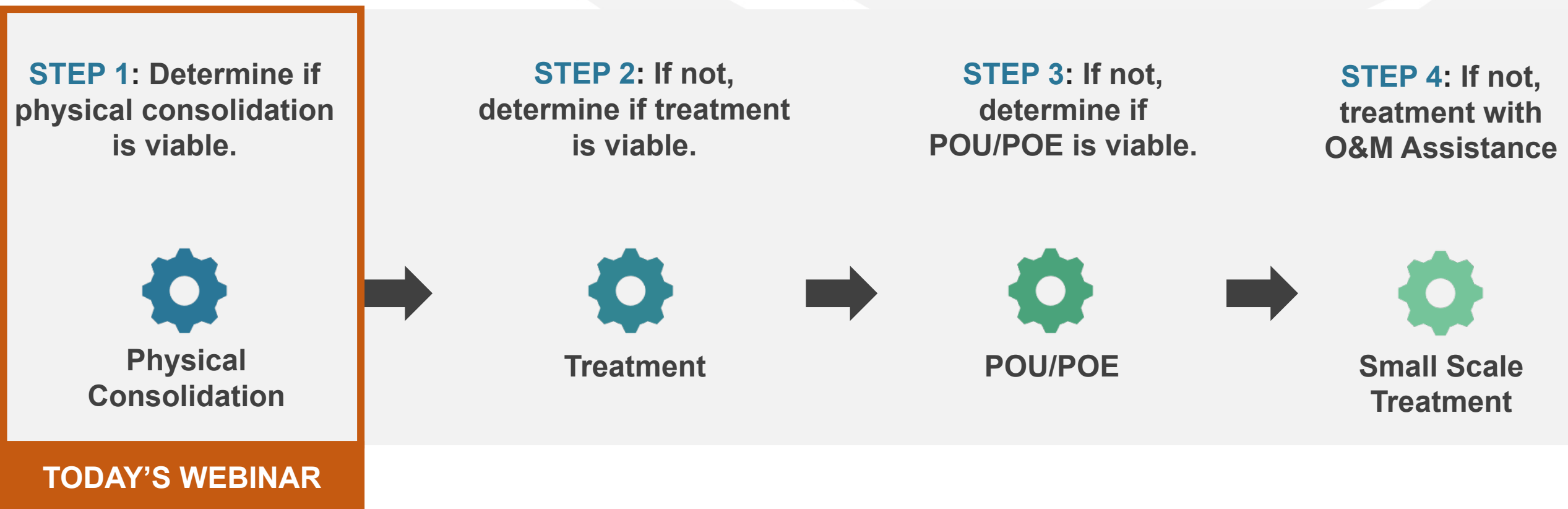
**STEP 3:** Select best model solution using cost and Step 2 score.





# Proposed Cost Assessment Modeled Long-Term Solution Selection Process

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



## Audience Poll Question 3

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

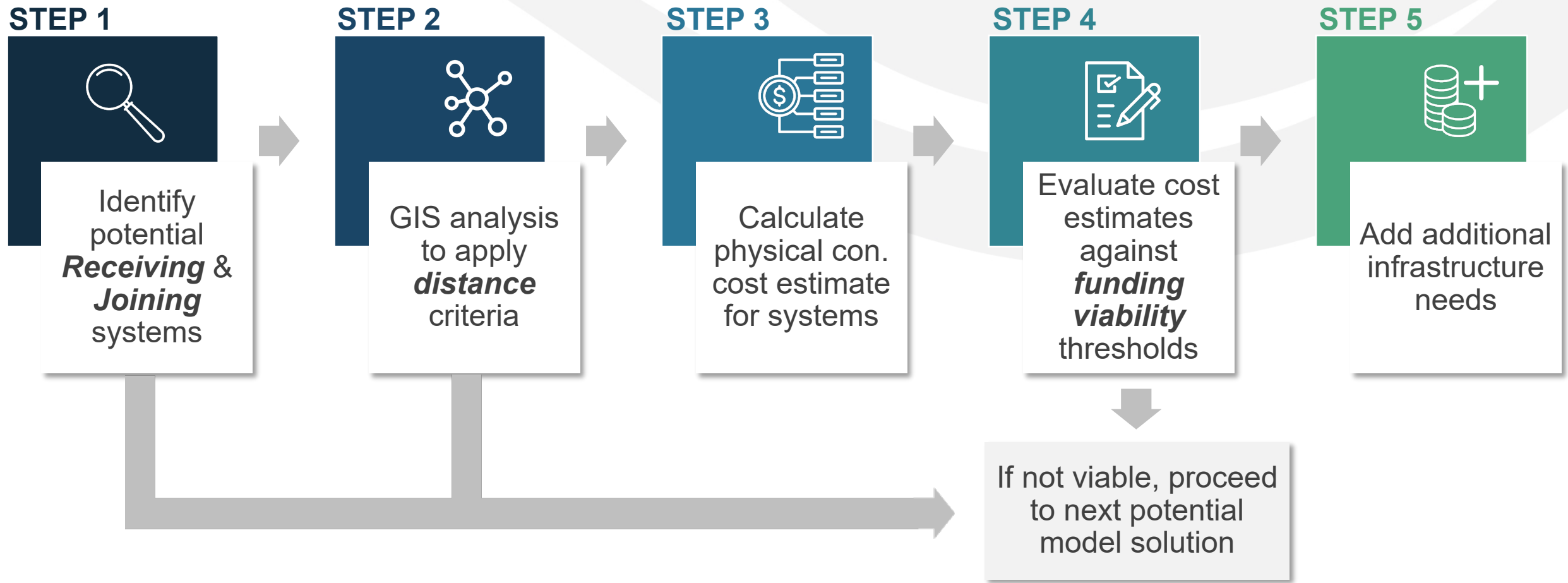
- Yes, they sound good
- Maybe, I need to learn more
- No, I think this is headed in the wrong direction
- Neutral

# PROPOSED PHYSICAL CONSOLIDATION ANALYSIS

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Needs Analysis Unit  
Division of Drinking Water

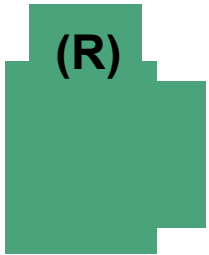
# Summary of Modeled Physical Consolidation Process

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

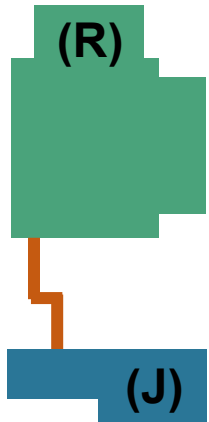




## STEP 1: Identify Potential *Receiving* & *Joining* Systems



**Receiving Systems:** Commonly larger public water systems that expand to subsume Joining systems and provide water supply to both of their customers.



**Joining Systems:** Commonly smaller public water systems, state small water systems, and domestic wells that are dissolved into existing receiving public water systems and are no longer responsible for providing water to their own customers.



## STEP 1: Identify Potential *Receiving* Systems

	Old Criteria	# Systems		Recommended Updated Criteria	# Systems
<b>Failing PWS</b>	<i>Excluded</i>	<i>N/A</i>		<i>Largest System &gt; 1,000 service connections</i>	36
<b>At-Risk PWS</b>	<i>Excluded</i>	<i>N/A</i>		<i>Largest System &gt; 500 service connections</i>	68
<b>Non-Failing or At-Risk PWS</b>	Population > 3,300	578		<i>Largest System &gt; 500 service connections</i>	697
<b>State Smalls</b>	<i>Excluded</i>	<i>N/A</i>		<i>Excluded</i>	<i>N/A</i>
<b>Domestic Wells</b>	<i>Excluded</i>	<i>N/A</i>		<i>Excluded</i>	<i>N/A</i>
<b>TOTAL:</b>		<b>578</b>			<b>801</b>

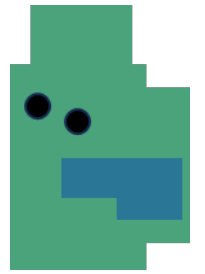


## STEP 1: Identify Potential *Joining* Systems

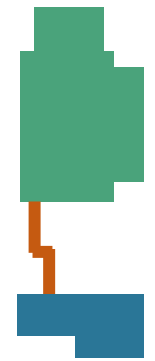
	Old Criteria	# Systems		Recommended Updated Criteria	# Systems
<b>Failing PWS</b>	Population $\leq$ 3,300	346		$\leq$ 1,000 service connections	345
<b>At-Risk PWS</b>	Population $\leq$ 3,300	463		$\leq$ 500 service connections	444
<b>Non-Failing or At-Risk PWS</b>	<i>Excluded</i>	<i>N/A</i>		<i>Excluded</i>	<i>N/A</i>
<b>State Smalls</b>	At-Risk for water quality only	699		Combined At-Risk	245
<b>Domestic Wells</b>	At-Risk for water quality only	99,814		Combined At-Risk	81,596
<b>TOTAL:</b>		<b>101,322</b>			<b>82,630</b>



# STEP 2: GIS Analysis to Apply *Distance Criteria*



**Intersect:** Where the Joining system or domestic well is physically located within the service area boundary of a potential Receiving system.



## Route:

- **Public Water System or State Small Water System:** Where the Joining system is physically located within a maximum distance from the service area boundary of a potential Receiving system.



- **Domestic Well:** Where the Joining domestic well is either along the modeled route of a potential public water system physical consolidation (route-intersect); or within a maximum distance from the boundary of a potential Receiving system.





# STEP 2: GIS Analysis *Route* Distance Criteria

	Old Criteria	Recommended Updated Criteria
<b>Public Water Systems (PWS)</b>	Maximum route distance = <b>3 miles</b>	Maximum route distance = <b>3 miles</b>
<b>State Smalls</b>	Maximum route distance = <b>0.38 miles</b>	Maximum route distance = <b>0.25 miles</b>
<b>Domestic Wells</b>	<b>Route-Intersect:</b> along the modeled route of a potential public water system modeled physical consolidation	<b>Route-Intersect:</b> along the modeled route of a potential public water system modeled physical consolidation  Maximum route distance = <b>0.25 miles</b>

Appendix A for GIS Methodology & Datasets



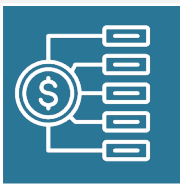
## STEP 2: Potential *Receiving* Systems Meeting *Distance* Criteria

	OLD Criteria # Systems	Recommended Updated Criteria # Systems
<b>Failing PWS</b>	N/A	26 (32%)
<b>At-Risk PWS</b>	N/A	32 (89%)
<b>Non-Failing or At-Risk PWS</b>	341 (59%)	320 (46%)
<b>State Smalls</b>	N/A	N/A
<b>Domestic Wells</b>	N/A	N/A
<b>TOTAL:</b>	<b>341 (59%)</b>	<b>378 (47%)</b>



## STEP 2: Potential *Joining* Systems Meeting *Distance* Criteria

	OLD Criteria # Systems	Recommended Updated Criteria # Systems
<b>Failing PWS</b>	138 (40%)	173 (45%)
<b>At-Risk PWS</b>	193 (42%)	250 (49%)
<b>Non-Failing or At-Risk PWS</b>	N/A	N/A
<b>State Smalls</b>	231 (33%)	118 (48%)
<b>Domestic Wells</b>	35,057 (35%)	25,634 (31%)
<b>TOTAL:</b>	<b>35,619 (35%)</b>	<b>26,175 (32%)</b>



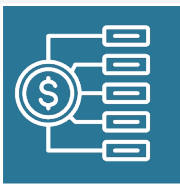
## STEP 3: Calculate Estimated Physical Consolidation *Project Costs*

State Water Board staff conducted rigorous research and outreach to update the Cost Model's physical consolidation cost component assumptions.

Efforts included:

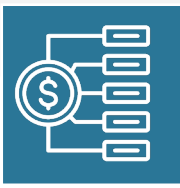
- Review of State Water Board funded projects.
- Consultations with California vendors and engineering consulting firms.
- Outreach to small and medium sized water systems.

[Appendix B](#) for Recommendations on Cost Component Updates



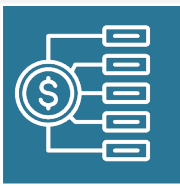
## STEP 3: Recommend Updates to Modeled *Component Costs* (1/3)

	Old Model	Cost \$		Recommended Update	Cost \$
<b>Pipeline (\$/Lf)</b>	Included	\$155		Included	\$220
<b>Connection Fees (\$/Joining system service connection)</b>	Averaging connection fees for systems with service connection $\geq$ 3,000	\$6,200		Averaging connection fees for receiving systems	<b>PWS</b> = \$5,250 <b>SSWS</b> = \$5,438 <b>DW</b> = \$4,230
<b>Service Line Cost</b>	Included for intersect Joining systems. Excluded for route Joining systems	\$5,000		Included for both intersect and route joining systems	\$6,200
<b>Administrative Cost (\$/Project)</b>	Excluded for SSWSs, DWs, and systems with service connection < 15	\$100,000		Included for all Failing and At-Risk systems, except At-Risk Domestic wells	15% of total construction cost.



## STEP 3: Recommend Updates to Modeled *Component Costs* (2/3)

	Old Model	Cost \$		Recommended Update	Cost \$
<b>CEQA Cost (\$/Project)</b>	Excluded for SSWSs, DWs, and systems with service connection < 15	\$85,000		Included for all Failing and At-Risk systems, except At-Risk DWs	<b>Intersect</b> systems = \$25,000 <b>Route</b> systems = \$100,000
<b>Contingency</b>	Included	20% Total Estimated Cost		Included for all Failing and At-Risk systems, except At-Risk DWs	20% Total cost
<b>Inflation</b>	Not Included	N/A		Included for all systems regardless of size and type	3% Total cost
<b>Planning &amp; Construction</b>	Not Included	N/A		Included for all systems regardless of size and type	10% Total cost



## STEP 3: Recommend Updates to Modeled *Component Costs* (3/3)

	Old Model	Cost \$		Recommended Update	Cost \$
<b>Regional Multiplier</b>	Not Included	N/A		Included for all systems regardless of size and type	Rural Counties (0%) Urban Counties (+32%) Suburban Counties (+30%)



# STEP 4: Evaluate Estimated Physical Consolidation Against Funding Viability Thresholds

	Old Model		Updated 2022-23 Intended Use Plan	Recommended Updated Thresholds
<b>PWS &gt; 75 service con.</b>	<ul style="list-style-type: none"> <li>Total Capital Cost &lt; \$500,000</li> <li>Cost Per Connection &lt; \$60,000</li> </ul>		Cost per Connection < \$80,000	<b>Cost per Connection &lt; \$96,000</b> <i>(20% IUP adjustment)</i>
<b>PWS &lt; 75 service con.</b>			Total Capital Cost < \$6 M	<b>Total Capital Cost &lt; \$7.2 M</b> <i>(20% IUP adjustment)</i>
<b>State Smalls</b>	N/A		N/A	<b>&lt; \$2 M</b>
<b>Domestic Wells</b>	N/A		N/A	<b>Cost per Domestic Well &lt; \$150,000</b>

**For Cost Model ONLY – State Water Board funding decisions are based on project-level costs addressing clusters of households**





## STEP 4: Estimated # of Systems Meeting *Funding Viability* Thresholds

	Old Model # Systems	Cost Estimate w/ Updated Costs		Recommended Updates # Systems	Cost Estimate w/ Updated Costs
<b>Failing PWS</b>	134 (39%)	\$407 M		169 (49%)	<b>\$550 M</b>
<b>At-Risk PWS</b>	190 (41%)	\$727 M		248 (56%)	<b>\$900 M</b>
<b>State Smalls</b>	231 (33%)	\$103 M		118 (48%)	<b>\$78 M</b>
<b>Domestic Wells</b>	35,040 (35%)	\$722 M		25,480 (31%)	<b>\$520 M</b>
<b>TOTAL:</b>	<b>35,595 (35%)</b>	<b>\$1,959 M</b>		<b>26,015 (31%)</b>	<b>\$2,048 M</b>

**2021 Cost Estimate w/ Old Cost Components = \$1,256 M for 26,044 systems (PWS, SSWS, & DWs)**  
 These are preliminary estimates – a full statewide Cost Assessment will be published in 2024.



# STEP 5: Model *Additional Infrastructure/Admin Needs*

	Old Model	Cost Method		Recommended Update	Cost Method
<b>Treatment Cost</b>	Not Included	N/A		Included for Failing Receiving systems due to water quality issues	Apply BAT Capital and O&M per failing analyte.
<b>Additional Source</b>	Not Included	N/A		Included for Receiving systems with single source of water supply.	Additional cost for well or intertie if system relies on one source.
<b>Other Essential Infrastructure</b>	Included	Based on statewide percentage estimates		Included	Based on system and location-specific information
<b>Admin, Technical Assistance, etc.</b>	Included	Based on statewide percentage estimates		Included	Based on system and location-specific information

To be explored in more detail in future 2023 workshops.

## **Discussion Topic 1: Proposed Changes to the Physical Consolidation Analysis in the Cost Model**

Q1: Do you agree with the proposed methodology for physical consolidation in the Cost Model?

Q2: Do you have any suggestions or feedback on the updates to the physical consolidation component cost assumptions?

## Discussion Topic 2: Additions to the Cost Model's Physical Consolidation Analysis

Q1: Should the Model include elevation different cost adjustments for modeled physical consolidation?

# Feedback Requested

The State Water Board is seeking stakeholder feedback on the proposed Cost Assessment Model changes for physical consolidation.

Access the white paper online:

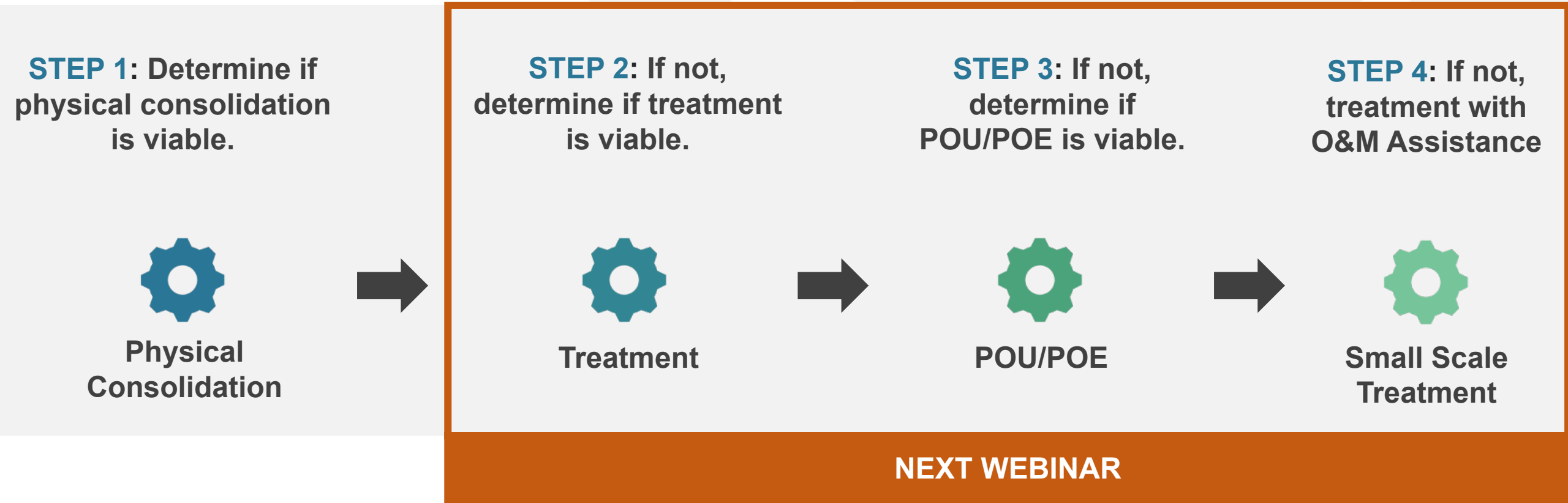
[https://www.waterboards.ca.gov/drinking\\_water/certlic/drinkingwater/docs/2023/20230714-final-cost-assessment-consolidation-white-paper.pdf](https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/docs/2023/20230714-final-cost-assessment-consolidation-white-paper.pdf)

Submit feedback to: [SAFER@waterboards.ca.gov](mailto:SAFER@waterboards.ca.gov)

**Public Feedback due August 14, 2023**

# Next Workshop: Modeled Treatment

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





# Thank You

**CALIFORNIA WATER BOARDS**

**SAFER PROGRAM**