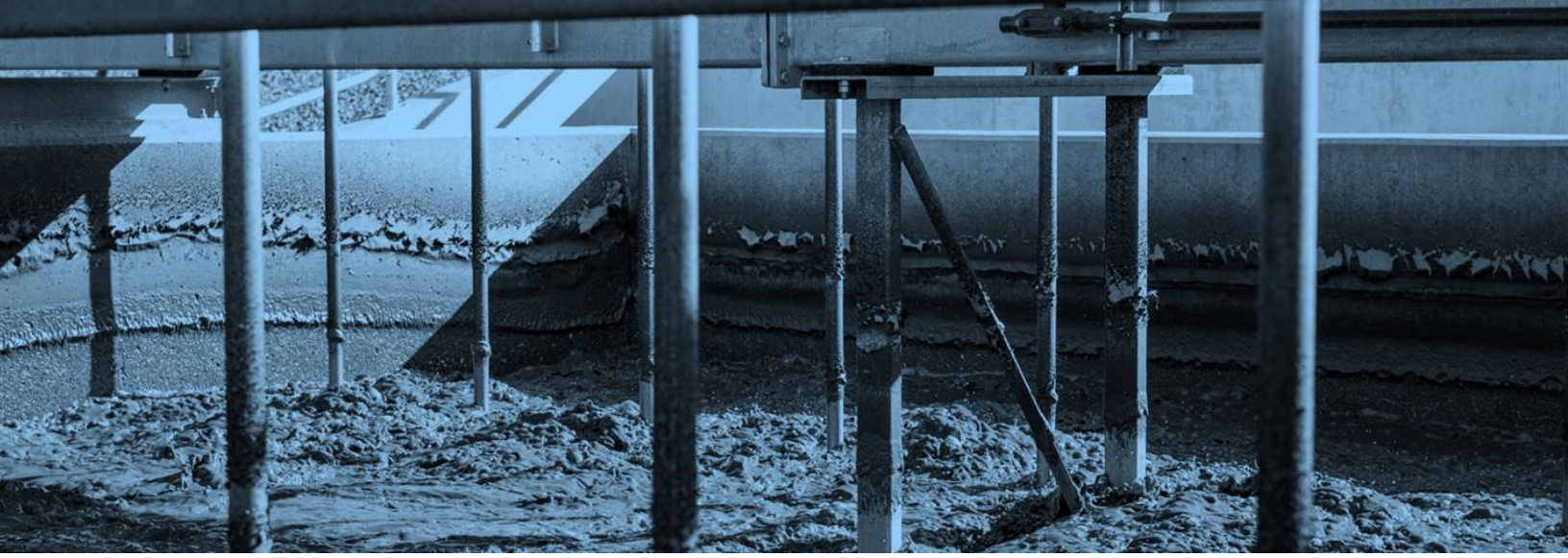


EXECUTIVE SUMMARY

DRAFT REPORT

JUNE 2025

CALIFORNIA Water Boards | State Water Resources Control Board

Division of Water Quality, State Water Resources Control Board

UCLA Luskin Center for Innovation

Prepared by UCLA Luskin Center

EXECUTIVE SUMMARY

Safe management of wastewater is crucial for ensuring human and environmental health. The State Water Resources Control Board (State Water Board) and Regional Water Quality Control Boards' (Regional Water Boards) vision is "a sustainable California made possible by clean water and water availability for both human uses and environmental resource protection." Safe management of human waste is crucial for ensuring human and environmental health. Wastewater sanitation systems that are poorly designed, installed, or managed can contaminate drinking water supplies and release harmful pollutants into the environment.

In response to its overarching vision and several pieces of recent legislation, the State Water Board and Regional Water Boards (collectively Water Boards) developed the concept of conducting a "Wastewater Needs Assessment" (WWNA) and, as specified in State Water Board Resolution No. 2022-0019. The overarching goal of the WWNA is to provide information on sanitation needs across California and develop strategies to address the state's water-related sanitation system needs. This effort aligns with the Water Boards' vision of clean, safe, and affordable water for human uses and environmental resource protection across California, with a particular focus on disadvantaged communities and decentralized systems. It is also aligned with the State Water Board's Racial Equity Action Plan and Climate Change Resolution.

As described further in this report, the assessment involves developing a comprehensive analytical framework and tracking specific systems to prioritize infrastructure investments to promote equity in sanitation as part of achieving the Human Right to Water. This is a first-time effort for the state, and for that matter, for any state or territory in the U.S. Given the scale and novelty of this undertaking, the State Water Board is partnering with practitioners under contract to conduct the first WWNA from July 1, 2023, until June 30, 2027. The University of California Los Angeles (UCLA) Luskin Center for Innovation is serving as the lead contractor for the WWNA. UCLA is working in close partnership with the Office of Water Programs (OWP) at California State University, Sacramento, the California Institute for Water Resources (CIWR) within the University of California Agriculture and Natural Resources system (UC ANR), and the University of Massachusetts Amherst (UMASS) in this effort (collectively referred to as the WWNA project team).

While it was not part of the contracted WWNA scope, UCLA recommended the formation of a WWNA Advisory Group to obtain diverse engagement outside of the project team and the Water Boards. The project team established a stakeholder advisory group of 30 members and has led the engagement of the group, initially quarterly but now monthly, with the project team and Water Boards (See Figure 1). The WWNA Advisory Group participants advise on project development and draft analyses, inform the WWNA project team on wastewater data and information, and provide other key areas of expertise and perspectives.

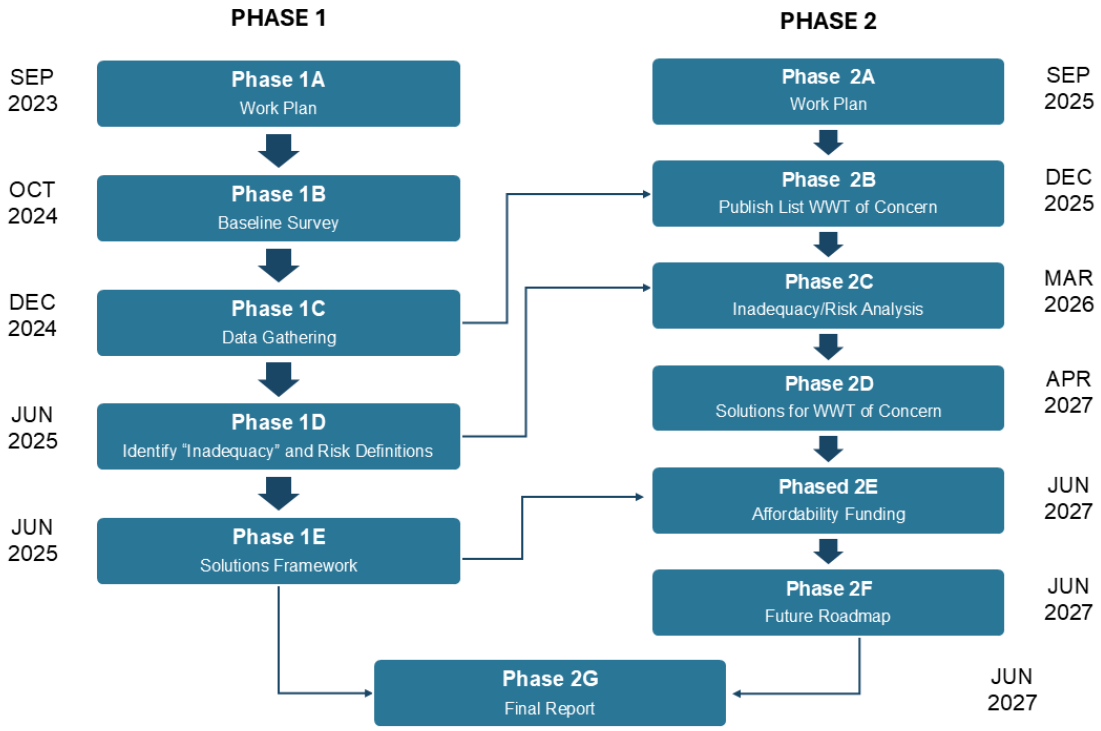
Figure 1 Advisory Group Engagement Efforts

PHASE 1 OF THE WWNA

The initial contracted WWNA lasts for four years and is conducted in sequential 2-year phases, which in turn are divided into discrete tasks (see Figure 2 below). Through the first phase of WWNA (July 2023-June 2025), the project team has evaluated the baseline conditions of

wastewater infrastructure services in California. This phase involves developing a process for collecting, compiling, and assessing data to inform the second phase of research, which will implement the process, including identification of wastewater systems of concern, potential solutions, and relevant costs and funding opportunities. A summary of the Phase 1 work was also presented at a State Water Board meeting on July 16, 2025.

Figure 2 WWNA Project Phases



At a high level, Phase 1 of the project establishes methodologies, develops a survey, collects initial data, assesses data gaps, and provides potential means for filling them. It also establishes key definitions of risk and inadequacy for sewage collection systems, sewage treatment plants, and onsite wastewater systems, as well as a set of methods for modeling potential solutions to address them, their associated costs, and potential funding sources. Phase 1A laid out a work plan for the rest of Phase 1.

Phase 1B sets a baseline of understanding for the rest of the WWNA project. This work enables the WWNA project team and the broader public to better understand the landscape of wastewater needs and existing data sources and research efforts in California. It also aims to potentially motivate investment in the needs assessment process itself beyond the initial WWNA effort. This effort was two-fold. The first and larger portion was led by UC ANR. This effort consisted of a statewide survey of community needs (with 112 unique responses), mapping of potentially vulnerable housing types, and a Field Campaign which remains ongoing. Although the Field Campaign was not part of the original contract scope, it was

important to include it to ground-truth the information collected through the survey. It also provides valuable context by capturing photos and conversations that helped illustrate and humanize the data—essentially bringing the stories behind the survey results to life. The UCLA portion of the baseline study consists of a review of previously-published studies and data sources, most of them generated outside the State Water Board, potentially relevant to the WWNA. It reveals a relative dearth of foundational data and methodologies to conduct the WWNA, underlining its novelty.

Phase 1C exhaustively surveys the breadth, depth, and quality of publicly available data for subsequent analysis in the WWNA. In this effort, led by OWP with support from UCLA, there is a special but not exclusive focus on Water Boards' datasets. Through a novel and iterative process using data from the Water Boards' California Integrated Water Quality System (CIWQS) database, it identifies the three major facility and system types as well as the 2,657 specific systems to be included in different parts of the WWNA analysis (called "The Facilities and Systems List"). It also outlines a number of data gaps, some of which are able to be filled in the course of the WWNA, and others which serve as recommendations to be filled via future efforts by the State Water Board and its partners.

Phase 1D then provides novel methodologies for defining and quantifying the inadequacy and the risk of-becoming inadequate for all 2,657 wastewater facilities and systems identified in Phase 1C. Given the unique way in which the three major wastewater system types operate and are regulated, the methods for assessing inadequacy, and to some degree risk, are necessarily differentiated by facility and system type. This chapter identifies both the framework for defining inadequacy and risk, as well as specific factors to be included, while noting that some potentially useful indicators to characterize inadequacy and risk are excluded due to a lack of available data. This effort was led by UCLA and included consultation with the entire WWNA project team, as well as a designated working group of Water Boards' staff focused on relevant regulation development and compliance aspects.

Phase 1E builds on prior phases of the WWNA effort to develop methodologies for assigning potential technical solutions to the issues causing wastewater facilities and systems to be deemed inadequate. These solutions include but are not limited to infrastructure repairs and replacement, operational and managerial oversight enhancements, and interconnection between systems. This chapter also develops methods to provide high-level estimates of the cost of these solutions, which can inform state and local community funding needs estimates and potential eligibility for funding programs. This effort was led by OWP, with support from the broader WWNA project team.

Finally, while the WWNA contract did not originally scope an advisory group component, the project team in consultation with the State Water Board integrated an Advisory Group (Phase 1F) into the work plan and broader effort based on its interest in expanding public engagement, incorporating the fullest range of expertise in this novel effort, and expressed broader interest in the project. Phase 1F (Chapter X) outlines the formation of the WWNA

Advisory Group, its quarterly meetings, and additional engagement opportunities throughout Phase 1. These efforts allowed the team to gather valuable feedback and suggestions from wastewater professionals and community representatives at key stages of the WWNA.