CALIFORNIA WASTEWATER NEEDS ASSESSMENT

BASELINE SURVEY

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JULY 2025

CALIFORNIA WASTEWATER NEEDS ASSESSMENT (WWNA): BASELINE SURVEY

The California Wastewater Needs Assessment (WWNA) is a four-year project (2023-2027) to provide information on California's sanitation system needs for wastewater in communities served by both, small and large wastewater systems. In the project's early phases, the University of California Agriculture and Natural Resources (UCANR) team, conducted a baseline survey of sanitation issues to provide a rapid assessment that illustrates the scope of challenges faced by communities across the state.

Overview

The WWNA team conducted outreach to understand community sanitation needs.

The outreach was divided into three parts. First, a survey collected information on sanitation issues and needs in communities. Survey responses were sought from government agencies, technical assistance providers, private sector companies, journalists, academics, university extension, non-governmental organizations, and community advocates.

Second, a spatial database of communities with increased vulnerability to inadequate wastewater services was compiled based on survey results. The database includes locations of mobile home and recreational vehicle (RV) parks, farmworker housing, federal and state campgrounds, disadvantaged communities, and tribal communities.

Third, a field campaign will visit sites identified by the survey and surrounding areas to provide more context to survey results and document first-hand accounts of known issues, these efforts will be described in a follow up report.

Part One. Survey Results

The WWNA project team sent the survey to 166 potential respondents and received 112 answers (response rate of 67%). Of the respondents, 71 offered information on specific communities where they know sanitation issues exist. From these, 36% said that they know of these issues because "they live or work" in the communities, and 34% said they have a "professional relationship or responsibility to the community," all demonstrating that survey results largely draw from first-hand experiences.

Importantly, survey results refined definitions* being used for two concepts:

*"**Sanitation** is the access to safe, functional, affordable, and dignified collection and disposal of wastewater from human uses; including adequate sanitation systems, practices, and wastewater treatment to protect public health and the environment."*

*"**Sanitation equity** is achieved when social, geographic, economic, cultural, and demographic attributes no longer predict people's access to or quality of sanitation."*

*The survey terms and definitions may differ from standard regulatory terms because the WWNA Team sought information beyond the Water Boards typical purview. Before launching the final survey, multiple iterations with volunteer participants helped refine wastewater-related terms for clarity and effectiveness. This ensured the questions were well understood and yielded meaningful responses, aligning with the survey's overall objective. As a result, these tailored terms and definitions are specific to this report and the Baseline Survey Analysis.

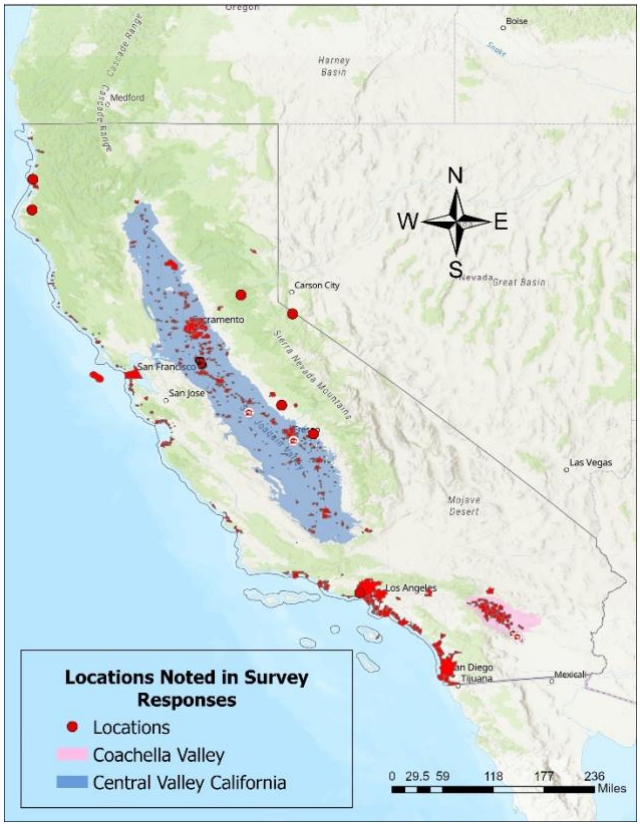
KEY FINDINGS FROM SURVEY

1. *Long-Lasting Issues*. Most respondents (79%) noted that they became aware of sanitation issues over 10 years ago.
2. *Housing Types*. Most sanitation issues occur in single-family (32%) or multi-family (12%) residences, followed by RVs (15%) and mobile home parks (15%).
3. *Sociodemographic Factors*. Respondents indicated that sanitation issues impact non-Hispanic white (34%), Latino (28%), and mixed-race (18%) communities.
4. *Disadvantaged Communities*. Most respondents (84%) mentioned that sanitation issues primarily occur in communities that meet statewide criteria as disadvantaged.
5. *Common Issues*. Respondents noted the most common sanitation issue is reliance on septic systems (38%), followed by no or intermittent water supply at home for sanitation (13%), and reliance on mobile toilets (12%).
6. *Septic Systems*. Lack of maintenance (67%) is the most frequently reported cause of septic system issues.
7. *Lack of Water Access*. Respondents indicated that some communities have "no or intermittent" water supply at home, especially in unhouse encampments.
8. *Mobile Toilets*. Respondents indicated that mobile toilets are primarily used either "frequently at work" (33%) or "at all locations" (33%), suggesting these communities lack access to permanent toilets at least part of the time.
9. *Mismanagement*. Few respondents know of locations where raw sewage is spilling into water bodies or land. When reported, this occurred at private family residences (80%), and a few respondents noted overflows inside buildings.
10. *No or Limited Access to Toilets*. Respondents noted that they knew of a few places with no or limited toilet access.
11. *No Indoor Sanitation Plumbing*. Respondents indicated that this issue is experienced primarily in communities facing unhoused and housing insecurity.
12. *Environmental and Public Health*. Residents are showing illness symptoms due to malfunctioning septic systems (10%), use of mobile home toilets (11%), and when indoor systems are not usable or not functioning (50%).
13. *Solution Assistance*. Communities are seeking technical (22%) and financial (21%) assistance. Respondents suggested that the most feasible solution could be septic systems; however, the communities face challenges from a lack of economic and technical resources. In this case, we believe that it is necessary to generate more information to determine what type of assistance is required in the different communities.

Part Two. Geospatial Analysis Results

Five categories of communities, housing types, or land uses were identified in survey results as having potentially higher vulnerability to inadequate sanitation services. These included mobile home parks, farmworker housing, federal and state campgrounds, disadvantaged communities, and tribal disadvantaged communities (HDS, 2004; CalEPA, 2024; CDPR, 2024). This doesn't mean that all these places have sanitation issues.

Communities noted in survey responses were mapped. Some responses were general (large areas or land use types) while other responses noted specific locations.



During the field campaign, Part 3, of the baseline survey, we will visit some places to learn more about the communities and their sanitation challenges.

The baseline survey was conducted by the California Institute for Water Resources (CIWR) within the University of California Agriculture and Natural Resources (UCANR). The WWNA team is led by the University of California, Los Angeles Luskin Center for Innovation. Also, it includes staff from the State Water Resources Control Board, the Office of Water Programs at Sacramento State, and the University of Massachusetts, Amherst. For more information please visit WWNA webpage or contact WWNA@waterboards.ca.gov.

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DEFINITIONS OF TERMS

Wastewater and Sanitation

Within the Baseline Survey Analysis and this report, survey terms and definitions may differ from regulatory terms, as the WWNA team gathered information beyond the California State Water Resources Control Board (State Water Board). Before launching the survey, multiple iterations with volunteer participants helped refine wastewater-related terms for clarity and effective communication for the targeted audience. This ensured the questions were well understood and yielded meaningful responses, aligning with the survey's overall objective. As a result, these tailored terms and definitions are specific to this report and the Baseline Survey Analysis.

In this report, wastewater is considered all drinking water, rain, fresh or saline water that has been used for domestic, industrial, commercial or agricultural purposes, and contains microbial loads and organic or inorganic solid wastes in levels that exceed municipal, state, national and/or international standards for acceptable water quality (Riffat & Husnain, 2022).

With the advent of sewer systems in industrializing cities during the nineteenth century, wastewater generated in cities was typically discharged to bodies of water or land through drainage systems (Rose, 2001; Tarr et al., 1984). By the late nineteenth century, however, the early sanitation movements of Europe and North America recognized that directly releasing wastewater to local watersheds affected human and environmental health. Cities began developing water treatment, and later wastewater treatment, systems to promote health and reduce public health impacts from disease and viruses caused by interacting with wastewater (Cutler & Miller, 2005; Tarr et al., 1984). Later in the twentieth century, regulations arose to require treatment of drinking water and wastewater, leading water utilities to institutionalize funding sources. The Federal and state governments supported development of municipal systems through loans and grants. The WWNA team refers to all aspects of wastewater management and treatment consistent with the definition provided above.

Defining *sanitation* and *sanitation equity* are important steps for evaluating the adequacy of sanitation systems. For purposes of this project, the WWNA team developed initial definitions based on existing literature and refined through input from the survey respondents, as described below. For purposes of the Baseline Survey, the WWNA assessment defines ***sanitation*** as *access to safe, functional, affordable, and dignified collection and disposal of wastewater from all human uses, including adequate sanitation systems, practices, and wastewater treatment to protect public health and the environment*. ***Sanitation equity*** *is achieved when social, geographic, economic, cultural, and demographic attributes no longer predict people's access to or quality of sanitation*. These definitions currently serve only the WWNA Survey and have no legislative or regulatory intent. Geographically isolated and marginalized communities are typically most susceptible to inadequate access to these services. These communities include communities of color, low-income communities in rural and urban areas, tribal communities, farmworker housing, and others (Roller et al., 2019).

For this portion of the larger WWNA study, the term community refers to a set of three or more households or buildings, which may be occupied on a permanent or temporary basis. Households or buildings may include single-family and multi-family dwellings, farmworker housing, mobile home complexes, and others. Sanitation and equity are further characterized by the following definitions of individual words:

Access: availability of wastewater systems at all times, including at home, at work, at school, in a public or community space, and during recreation.

Safe: sanitation systems and practices that uphold public health standards and protect the environment.

Functioning: sanitation systems that operate reliably and efficiently for the collection, treatment and disposal of wastewater without frequent breakdowns or failures, and with power backups during outages.

Affordable: the household costs associated with installing, using, and maintaining sanitation systems should be within the economic means of all community members.

Dignified: allows individuals to use sanitation facilities in privacy and safety, free from humiliation or discomfort. This is particularly important (but not exclusive) for individuals in population groups such as women, LGBTQIA2S+ identified individuals, farmworkers, elderly, low-income households, unhoused people, and people with disabilities.

Disposal: refers to the disposal of liquid and solid wastes from human uses.

Human uses: refers to disposal of wastewater from domestic, commercial and industrial uses. At the household level, it primarily considers the disposal of wastewater from fecal and urine disposal, hygiene (handwashing, showering, washing dishes and clothes), and cooking; although other uses can be included.

Adequate: on-site and off-site collection and disposal systems that protect public health and the environment.

Sanitation systems: systems that include indoor plumbing, laterals, sewer systems and plants, onsite septic tanks, mobile toilets, ventilated latrines, waste haulers, and others.

Equitable: when social, geographic, economic, and demographic attributes no longer predict people's access to or quality of sanitation.

INTRODUCTION

The California Wastewater Needs Assessment (WWNA) is a four-year project, begun in July 2023, to provide information on California's wastewater sanitation system needs. The WWNA is funded by the State Water Board and was authorized by Resolution No. 2022-0019, which recognized the equal and human right to sanitation for all Californians, and that safe wastewater management is critical to human and environmental health. Some of the goals of the WWNA also align with the Human Right to Water Resolution No. 2016-0010. The WWNA intends to provide:

- The first statewide analysis of wastewater infrastructure access gaps to inform decisions on regulatory and resource investment priorities in California, and
- A statewide list of wastewater infrastructure priority projects to address through future investments.

The WWNA team is led by the University of California, Los Angeles - Luskin Center for Innovation, the Office of Water Programs (OWP) at Sacramento State, the California Institute for Water Resources (CIWR) within University of California Agriculture and Natural Resources (UCANR), and the University of Massachusetts - Amherst. We are partnering with staff of the State Water Board, especially the Division of Water Quality, to carry out this work.

The present study is referred Phase 1B within the WWNA project in which the UCANR team conducted a baseline survey to assess community needs for sanitation across the state. This report details the approach, methods, and findings of that engagement.

BACKGROUND

Disparities in water and sanitation access occur across the globe. In 2010, the United Nations General Assembly adopted a landmark resolution recognizing "the right to safe and clean drinking water and sanitation as a human right that is essential for the full enjoyment of life and all human rights." In 2012, California became the first state in the U.S. to enact The Human Right to Water (HR2W), recognizing that "every human being has the right to safe, clean, affordable and accessible water"(State Water Board, 2024).

The HR2W extends to all Californians, including underrepresented communities in rural, suburban and urban areas. Building on the HR2W, California's official recognition of the Human Right to Sanitation added further to the environmental justice gaps that must be addressed to achieve policy goals. While federal, state, and local programs continue to support investments and technical

assistance to communities for improving infrastructure systems, communities without access to safe drinking water and sanitation still exists (Fernandez-Bou et al., 2023).

California residents rely on many types of systems for sanitation services to manage wastewater, including collection systems, treatment and reuse facilities, septic tanks, and other on-site or individual sanitation systems, commonly referred to as septic systems. Most residents are served through the 100,000 miles of sewer lines operated by more than 900 public agencies that provide sanitation services throughout California. Additionally, California is a national leader in the reuse of wastewater for non-potable uses such as irrigation and industrial needs, as well as indirect potable reuse when highly treated wastewater is released to an environmental buffer such as a groundwater basin that may later serve as a source of potable water. In December 2023, the State Water Board adopted regulations to allow direct potable reuse with treatment protocols that protect public health (State Water Board, 2024).

Given the diversity of sanitation infrastructure across communities in the state, there is a need to assess the adequacy of existing wastewater systems and evaluate how many Californians lack access to adequate sanitation. The 2023 American Housing Survey (AHS)[1] estimates that 11% of California households are reported as not connected to sewer systems, an increase from 6.4% in 2015.

DATA & METHODS

The present study is divided into three parts (Fig. 1). First, the UCANR team administered a survey to experts in government, academia, technical assistance providers, journalists, private sector, and non-profit organizations to collect a wide range of information on sanitation issues related to wastewater, focusing on community-based perspectives and needs that may not be captured through routine regulatory data of the wastewater sector. Second, we developed a database of types of communities noted in survey results as having increased vulnerability of inadequate wastewater services, including: Mobile Home (MH) and Recreational Vehicle (RV) Parks, farmworker housing, federal and state campgrounds, disadvantaged communities not captured through other data sources, and tribal communities (State Water Board, 2024; Cutler & Miller, 2005; Fernandez-Bou et al., 2023; Rodman et al., 2018; Rose, 2001). We collected geospatial data and conducted a cluster analysis to identify locations of potential vulnerable communities, which guided site selection for the field campaign (Part 3 of the Baseline Survey). In the field campaign, we will visit sites in vulnerable communities highlighted by survey results and other sources, to provide context and document first-hand accounts of known issues. This report details findings from Parts 1 and 2 of the Phase 1B Baseline Survey. Part 3 will be available in a follow-up report. The results of each of these steps are informing the broader statewide assessment of wastewater needs as the project continues through 2027.

[1] American Housing Survey (AHS) - AHS Table Creator

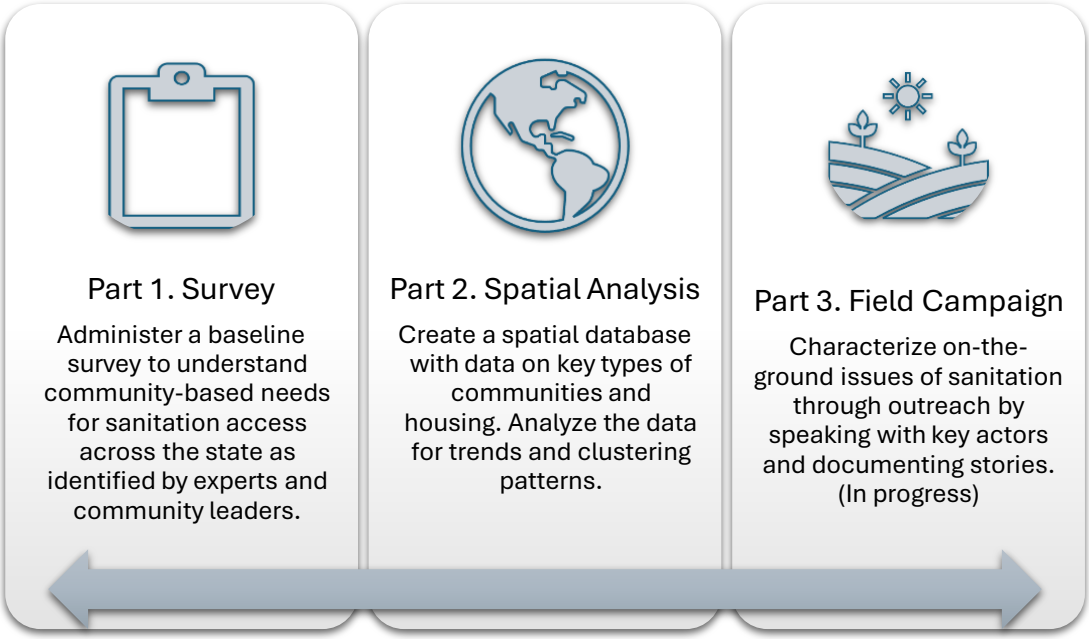


Figure 1. Phase 1B Baseline Survey Parts

PART 1. SURVEY

The survey contained a mix of open-ended and multiple-choice questions, which yielded both qualitative and quantitative information[2]. The survey collected perceptions and opinions of experts and community leaders with knowledge of communities experiencing challenges with sanitation access. This instrument uses the Likert Scale (Canto de Gante et al., 2020) to measure frequency and the perception of the population. It is considered a cross-sectional descriptive survey since it does not consider the temporality of the variables or their prevalence.

Survey Design

The survey was divided into five general components:

1. Conceptual definitions of sanitation and equity.
2. General characterization of communities with known issues.
3. Selection and characterization of sanitation issues[3] related to: (a) access to sanitation, (b) access to sanitary plumbing, (c) non-functioning sanitary plumbing, (d) access and use of portable toilets, (e) sewage systems, (f) access to running water.
4. Identification of community or government actions taken to solve the problems.
5. Suggestions of other experts to survey and survey closure.

Throughout the survey, the term "water-related sanitation" and "water-related sanitation equity" were used to clarify for respondents that questions related only to wastewater and not refuse or other waste management. In this report, we describe results using only the term "sanitation."

[2] Qualitative research is an organized method of describing people's experiences, interpretations, opinions, and feelings (Naderifar, *etal.*, 2007)

[3] For each issue, survey questions were aimed to identify the size, persistence, impacts and exposure of health and environmental risks to the community.

The survey first asked respondents to identify communities they know of that are experiencing inadequate access to sanitation[4]. It then asked respondents to specify the types and frequency of issues faced by the community. Respondents could enter information on up to five communities. The survey had a response time of approximately 5 to 10 minutes to complete for a single community and it was specified that a respondent's participation was voluntary. A respondent could exit the survey at any time. The survey preamble noted that responses are confidential, and the respondent may choose to provide their contact information at the end of the survey. A respondent could also choose to complete the survey without identifying specific communities.

The survey included around 77 questions[5]; however, some were conditional questions, which meant that if the answer was "no," the respondent did not have to answer certain questions in that block. For instance, an early conditional question asked if respondents knew of communities in California that faced sanitation problems, such as access, affordability, availability, or other issues. If the answer was "yes," then the respondent could continue with the survey. If the answer was "no," the survey automatically ended (Fig. 2). Some recipients answered that they did not know of such communities because their area of expertise was focused on other aspects of the community.

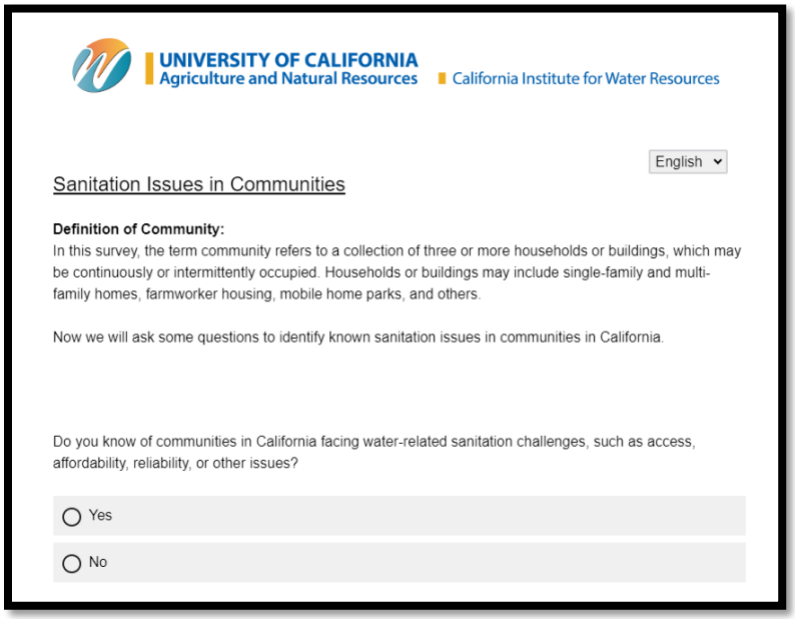


Figure 2. Example of a Conditional Survey Question

Another important conditional question is the type of problems faced by the communities. Respondents could select challenges from six identified sanitation issues (Fig. 3).

[4] Please see Appendix 1 for the full list of survey questions.

[5] The number of questions that respondents would answer depended on responses, with some questions being dependent on positive responses to prior questions.

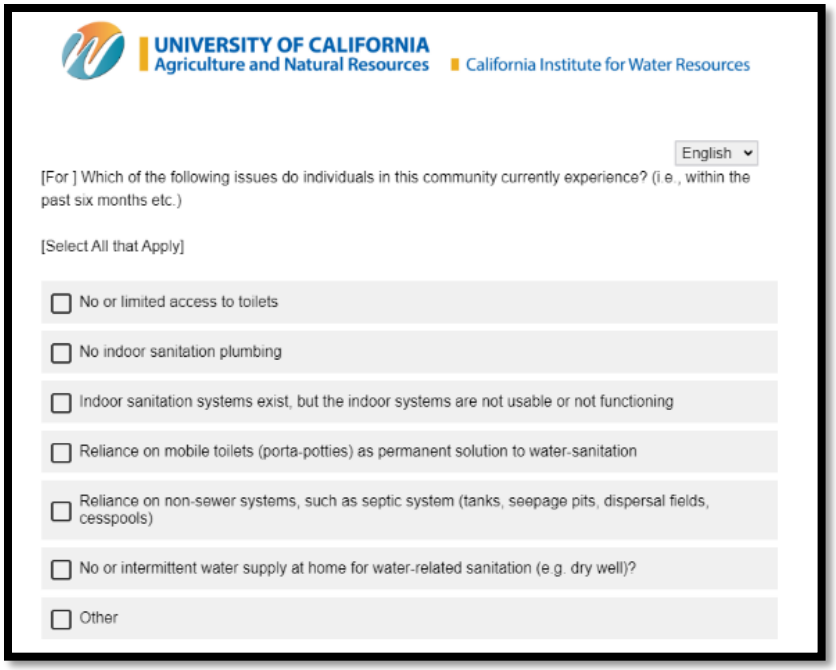


Figure 3. Sanitation Challenges for Wastewater

The survey was offered in English and Spanish. We piloted the Spanish version with bilingual technical experts for validation. A diagram of the survey and all the questions are available on Appendix 1 or online[6].

Survey Piloting and Validation

Survey validation is an important step to determine whether the survey is consistent, reliable, and accurate (Maul, 2017; O'Keefe & O'Leary, 1993). Survey validation is performed through a series of steps to ensure that the data collected are accurate and useful. These steps include:

- **Instrument or survey design analysis**: Evaluate the design of the instrument to ensure that it is designed in the best possible way to collect the desired data.
- **Content validity analysis**: Verify that the instrument's items, questions, and responses are relevant to the topic of the study.
- **Construct validity analysis**: Ensure that the instrument measures what it is supposed to measure.
- **Reliability testing**: Assess the accuracy of the data collected with the instrument.

The survey was designed in Qualtrics™[7] and first piloted with 34 colleagues that included WWNA team members and several external experts to evaluate language, writing style, question comprehension, question relevance, and survey structure. The initial survey version was iteratively modified several times, repeating the process of modifying and revising based on input, until the

[6] Wastewater Needs Assessment Baseline Survey of Household and Community Experiences in California

[7] *Qualtrics is an online survey platform/tool used to create, distribute, and analyze surveys. It was used to design and administer the baseline survey, gathering and managing responses.*

questions and responses were consistent. Twenty-one comments were addressed on the second version of the survey and thirteen from the third version, which helped improve the instrument.

Subsequently, the survey was administered to 10 experts to statistically validate the instrument using the Cronbach's alpha test (Tavakol & Dennick, 2011). A reliability coefficient of 0.9169 was obtained, which represents excellent internal consistency of the instrument (Fig. 4).

Cronbach's alpha	Internal consistency
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

Figure 4. Cronbach's Alpha Test

Sampling and Survey Implementation

The survey was administered online through exponential non-discriminative snowball sampling or chain sampling methodology, in which a group called a "seed" is surveyed and they can recommend other people to be surveyed. Snowball sampling is a gradual process, and time influences the selection of samples. Sampling usually continues until saturation of data or recipients (Naderifar et al., 2017; Taherdoost, 2016).

The first sampling effort was to identify the target population. We compiled the e-mail addresses of recipients in a database. We distributed the survey through emails and obtained the survey responses through Qualtrics™.

Target Population

The survey targeted stakeholders and experts from organizations in California with knowledge of sanitation issues. It focused particularly on communities that may lack sewer connections or are not covered by existing wastewater regulatory processes. We started with a list of 108 experts ("seed") from academia, university extension offices, non-profit and advocacy organizations, government agencies, technical service providers, private industry, and environmental journalists. This initial list of survey recipients was suggested by the project team because of their expertise in the sector. This list was expanded to 166 potential participants in total through additional research and the snowball distribution methodology. The potential participants, to whom the survey was distributed, were classified into relevant categories, as noted in Figure 5.

In total, we received responses[8] from 112 of the 166 potential respondents, equaling a response rate of 67%. Seventy-one respondents answered that they know of specific communities with challenges and 41 answered that they do not know of communities experiencing challenges. The saturation point was obtained after two rounds once the responses in relation to the communities and regions were repeated.

[8] We do not know exactly who answered the survey as it was anonymous by design.

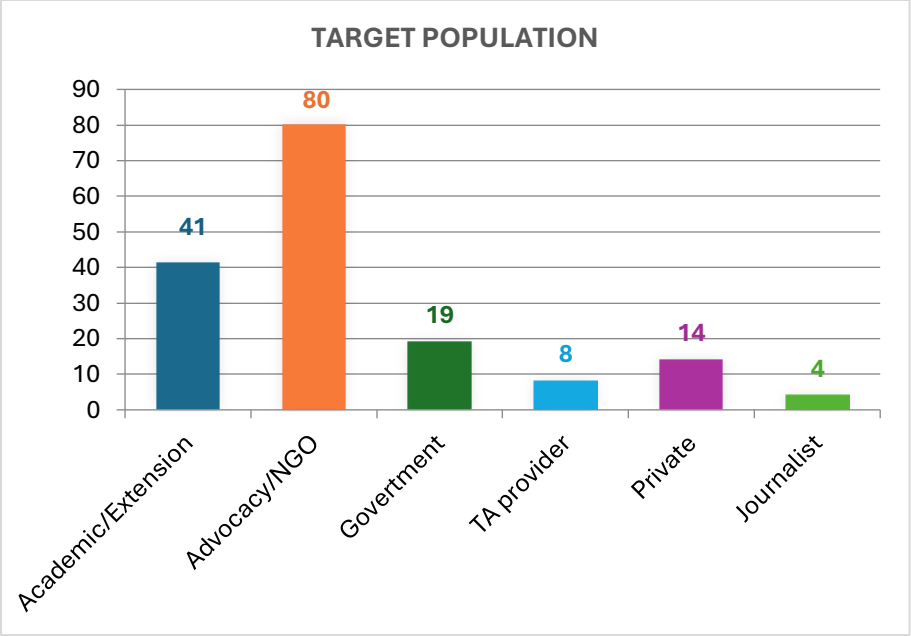


Figure 5. WWNA Survey 2024 Target Population

PART 2. SPATIAL ANALYSIS

In the second part of the study, we conducted a spatial analysis to understand the geographic extent of communities experiencing challenges with sanitation by mapping locations with sanitation issues noted through the survey results. Additionally, we compiled data on communities vulnerable to sanitation challenges noted in other surveys and literature (California Coalition for Rural Housing and Rural Community Assistance Corporation, 2019; Chandrasekaran, 2021; Deitz & Meehan, 2019; Medina et al., 2022; Meehan et al., 2020; Speer, 2016; SWB, 2024).

Through research and survey results, we identified five types of communities or land uses with potentially higher vulnerability to inadequate sanitation services, including: Mobile Home Parks (MHPs), farm housing, federal campgrounds and state campgrounds, disadvantaged communities (DACs) not captured through existing statewide reporting, and tribal communities. This geodatabase of vulnerable communities will be combined with the maps of wastewater facilities and unsewered communities, which are a focus of other analytical efforts of the WWNA project (Table 1).

We used digital platforms to obtain spatial datasets with information related to communities identified as having increased risk of sanitation challenges. We compiled the datasets into a geospatial database of potentially-affected communities based on data from the California Department of Housing and Community Development (HCD), California Department of Parks and Recreation, Recreation.gov, California Energy Commission, and California Environmental Protection Agency (CalEPA). The sections below describe data sources used to compile the figures in Table 1.

Table 1. Number of communities by key type.

Community Type	No. of Sites/Areas	Source
Mobile home/RV Parks	5,230	HCD (2024)
Disadvantaged Communities (DACs)	4,738	CalEPA (2022)
Tribal Disadvantaged Communities	2,431	CalEPA (2022), (2024)
Employee/Farm housing	1,497	HCD (2024)
Campgrounds (State Parks)	522	CDPR (2024)
Campgrounds (National Sites)	193	Recreation.gov (2024)

Mobile Home/RV Parks

According to data obtained from the California Department of Housing and Community Development (HCD) in 2024, there are **5,230 Active Mobile Home and RV Parks** totaling 453,810 lots in the State of California. Of those 453,810 lots, 363,594 are mobile home spaces (80%), 66,403 are RV lots with drains (15%), and 22,813 are RV lots without drains (5%).

Map: Figure 6a

Source: MobileHomeParkSearch (site.com)

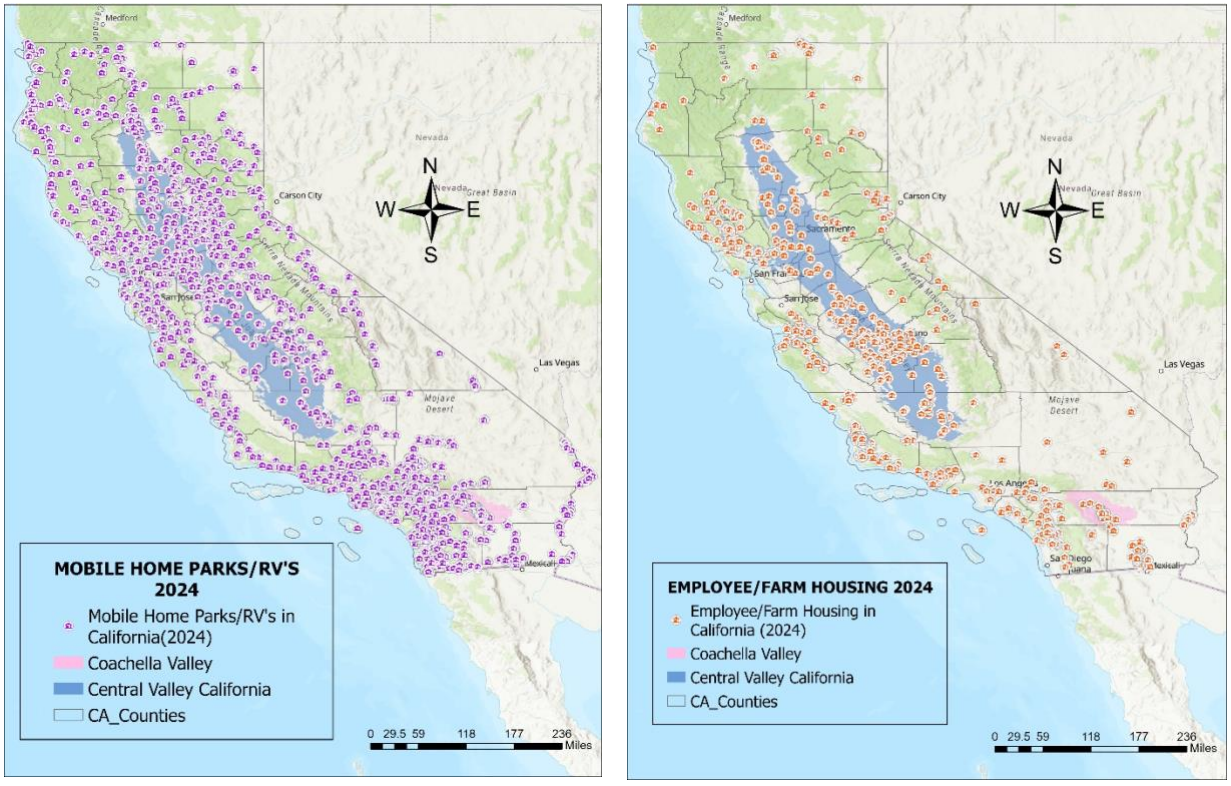


Figure 6. Mobile Home Parks and RV's (2024) (a) and Employee and Farm Housing (2024) (b)

Employee/Farm Housing

According to data obtained from the California Department of Housing and Community Development (HCD) in 2024, there are **1,497 employee housing** sites in California. Of those sites,

1,073 are farm housing (72%) where 38,753 documented migrant employees (H2B visa) reside. The rest of the houses are for any kind of employee housing (424 units, 28%).
Map: Figure 6b
Source: SearchEhParks (site.com)

Disadvantaged Communities (DACs)

The state of California publishes a spatial dataset of U.S. Census Tracts identified as Disadvantaged Communities (DACs), which are defined as "areas throughout California which most suffer from a combination of economic, health, and environmental burdens. These burdens include poverty, high unemployment, air and water pollution, presence of hazardous wastes as well as high incidence of asthma and heart disease[9]."

Through Senate Bill (SB) 535[10], the California Environmental Protection Agency (CalEPA) identified DACs based on geographic, socioeconomic, public health, and environmental hazard criteria. CalEPA recognizes that such criteria may include but is not limited to: (a) areas disproportionately affected by environmental pollution and other hazards that may lead to adverse public health effects, exposure, or environmental degradation; and (b) areas with concentrations of people who have low incomes, high unemployment, low levels of homeownership, high rent burdens, or low levels of educational attainment. We also recognize that many of these communities may have disadvantages that are not captured through the state's criteria.
Map: Figure 7a
Source: Low-Income or Disadvantaged Communities Designated by California - Dataset - California Open Data

Tribal Communities

Recent data from the U.S. Census show that the poverty rate on California Tribal Lands is close to twice the statewide average. Studies have shown that many tribal communities have been historically marginalized and lack adequate infrastructure and services (Feinstein, 2018). The map of tribal communities that qualify as disadvantaged based on the State of California's definitions was updated this year by adding communities rather than subtracting them. At least 2,431 disadvantaged tribal communities have been identified in California.
Map: Figure 7b
Source: SB 535 Disadvantaged Communities | OEHHA (ca.gov)

[9] Disadvantaged Communities (ca.gov)

[10] SB 535 is a law that requires at least 25 percent of Cap-and-Trade funds to benefit disadvantaged communities in California. See: https://calepa.ca.gov/wp-content/uploads/sites/6/2022/05/Updated-Disadvantaged-Communities-Designation-DAC-May-2022-Eng.a.hp_-1.pdf

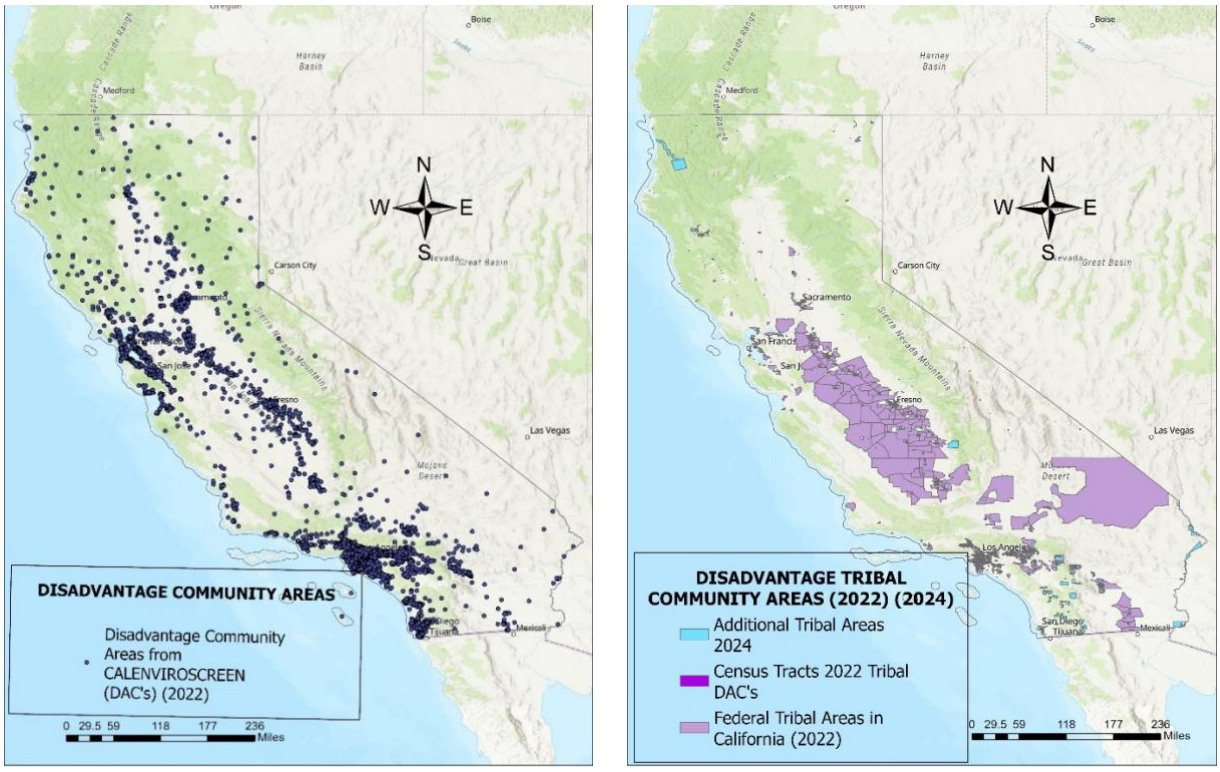


Figure 7. DAC'S (a) and Tribal DAC's (b)

National and State Campgrounds

Campgrounds in California may be public or private. Public campgrounds are managed by federal, state, and local government agencies. The use of these spaces is temporary and for short periods of time, considered as ecotourism and recreation zones. It is estimated that by 2023[11], more than 6.5 million people will have visited California's federal, state, and local parks, bringing in at least $3 billion dollars to the government and the ecotourism industry.

In national and state parks, there are different types of campgrounds, including Recreational Vehicles (RVs), tents, camper vans and trailers, and others, with RVs being the most used (44.8%) followed by tents (38.2%)[12]. Designated campgrounds typically have wastewater sanitation services, but the services vary. The kind of bathrooms that National and State Parks in California typically have include:

1. **Flush Toilets**: Many state parks, especially those with high visitor traffic or camping facilities, have flush toilets. These are similar to toilets found in conventional buildings and are typically maintained.
2. **Vault Toilets**: These are non-flush toilets that store waste in a large underground tank. They are common in more remote or less developed parks. Vault toilets are designed to be odor-free and are regularly serviced.

[11] 2023 Camping Report - Market Trends & Demographics - The Dyrt

[12] The Dyrt's 2023 Camping Report

3. **Chemical Toilets**: Often found in more temporary or seasonal locations, these toilets use chemicals to break down waste and control odors. They are similar to portable toilets used at events.

Map: Figure 8a - State Parks Campgrounds; and Figure 8b - National Parks Campsites
Source: Campgrounds - Dataset - California Open Data
Source: Search - Recreation.gov

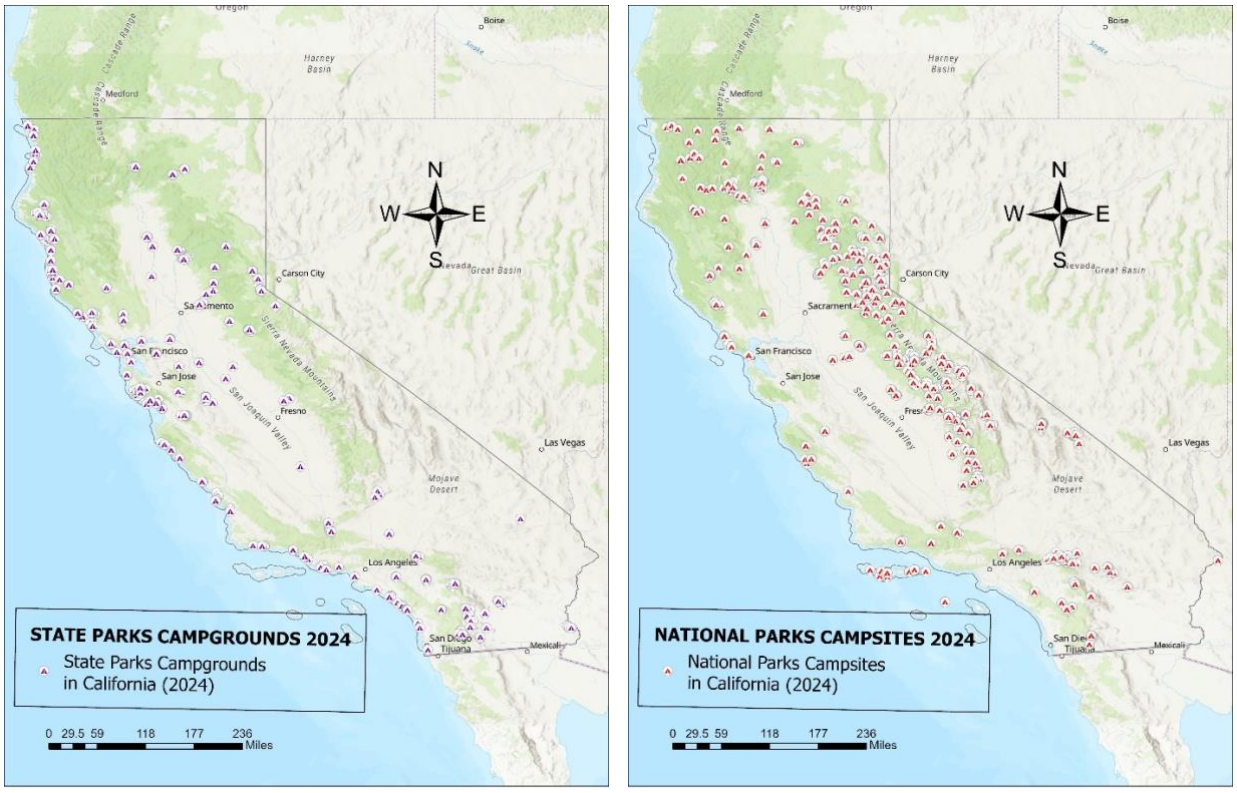


Figure 8. State Parks Campgrounds (a) and National Parks Campsites (b)

PART 3. FIELD CAMPAIGN

Quantitative and qualitative results of the baseline survey illustrate the types of challenges faced by communities with inadequate sanitation services, but the results do not provide a full picture of issues. As Part 3 we will engage with communities to gather stories and experiences from populations facing sanitation challenges. The objective of the field campaign is to understand conditions of regions related to the sanitation systems, speak with key actors, and document the stories that are happening in these places, and inform policies and funding of solutions for sanitation.

The origins or causes of inadequate sanitation services were also not clear from survey results. Such causes, which may result from historic marginalization, economic trends, public or private decisions, or other factors, may be further investigated through the field campaign. Engaging with communities, conducting site visits, and outreach offer the advantage of gathering firsthand, qualitative insights that complement survey data. These interactions help build a deeper understanding of the specific sanitation challenges communities face, highlighting gaps in

infrastructure, access, and resources. The field campaign will provide critical information on the needs and conditions of vulnerable communities, identify missing or inadequate sanitation infrastructure, and inform future state investments and policies.

During the field campaign, we will collaborate with project partners, such as local agencies, university extension offices, and community-based groups, to visit locations that are experiencing issues with sanitation identified in the survey and by project partners.

The field campaign will occur in 2025. The UCANR team will work with local project partners to arrange interviews and site visits in representative regions of the state. The WWNA team is notifying the nine regional water quality control boards (regional water boards) and county representatives about the site visits. Detailed information, including proposed locations, attending organizations, and timelines, will be shared with these regulatory entities.

Field visits will include multiple hydrologic regions throughout the state, including Colorado River, South Coast, Central Coast, North Coast, San Francisco Bay, Sacramento, San Joaquin, and Tulare. For each hydrologic region, the UCANR team will use local expertise of project partners to identify sites, define dates, coordinate the logistics and visit sites that are representative of the sanitation issues experienced in each hydrologic region. UCANR's Research and Extension Centers and county-based offices throughout the state (Fig. 9) will be used as basecamps during the field campaign.

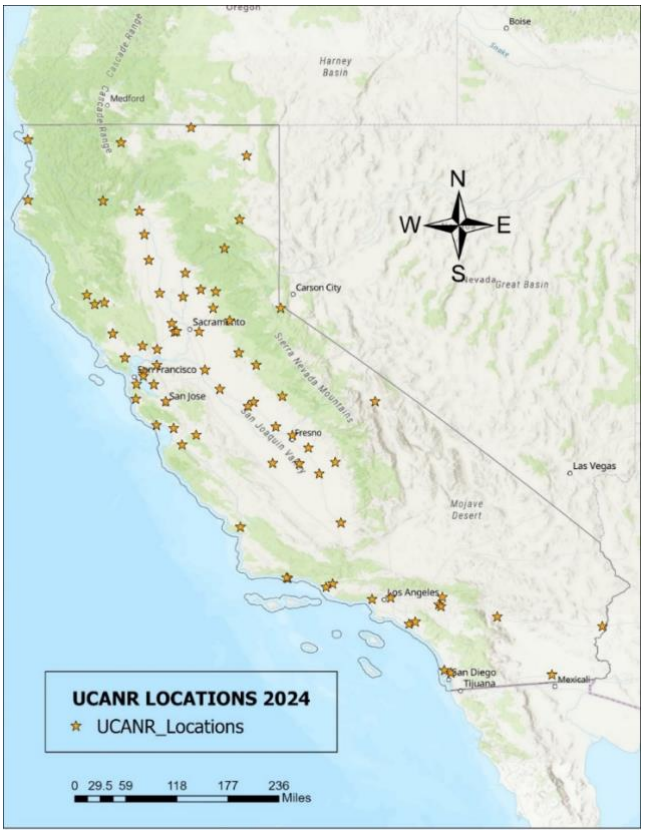


Figure 9. UCANR Research and Extension Centers

FINDINGS & ANALYSIS

The results obtained from the survey and analysis are based on responses from 71 experts on water and environmental justice in the state of California. The results are divided into two main sections: survey results and spatial data analysis.

SECTION 1. SURVEY RESULTS

Definitions

The definitions of sanitation and sanitation equity that are used in this report are a consensus of the ideas and feedback provided by the WWNA team and the survey respondents (Table 2). These definitions are a work in progress, may change by the end of the project, and do not at this point affect any policy changes by the State and Regional Water Boards (Water Boards) or the state of California.

Table 2. Table of definitions before and after the survey comments

Term	Original WWNA Team Definition	Modified After Survey's Comments
Sanitation	Access to safe, functional, affordable, and dignified collection and disposal of wastewater from fecal and urine disposal, hygiene, and cooking; including adequate sanitation systems, practices, and wastewater treatment to protect public health and the environment.	Access to safe, functional, affordable, and dignified collection and disposal of wastewater from human uses including adequate sanitation systems, practices, and wastewater treatment to protect public health and the environment.
Sanitation Equity	Sanitation equity is achieved when social, geographic, economic, and demographic attributes no longer predict people's access to or quality of sanitation.	Sanitation equity is achieved when social, geographic, economic, cultural, and demographic attributes no longer predict people's access to or quality of sanitation.

Sanitation

We asked survey respondents for feedback on initial definitions of sanitation and sanitation equity (using the term water-related sanitation and water-related sanitation equity to clarify for respondents). At the outset of the WWNA project, the WWNA team defined ***sanitation*** as:

"Access to safe, functional, affordable, and dignified collection and disposal of wastewater from fecal and urine disposal, hygiene, and cooking; including adequate sanitation systems, practices, and wastewater treatment to protect public health and the environment."

For this definition of ***sanitation***, 37% of the participants stated that they had no changes or suggestions to improve the definition of the concept of sanitation. The remaining 63% provided suggestions. After an analysis of the content using Atlas.Ti[13], respondents primarily suggested to change "fecal and urine disposal, hygiene, and cooking" to "human use." Another suggestion was to include references for industrial/commercial and household/domestic uses in the definition. Other suggestions include referencing concepts of stormwater systems, reuse, service, protect, and grey water, among others. Respondents also suggested including phrases such as treatment of wastewater, environment, and public health. We modified the definition to incorporate feedback from respondents and updated it to specifically mention "human uses."

"Access to safe, functional, affordable, and dignified collection and disposal of wastewater from human uses including adequate sanitation systems, practices, and wastewater treatment to protect public health and the environment."

Human uses: refers to disposal of wastewater from domestic, commercial and industrial uses. At the household level, it primarily considers the disposal of wastewater from fecal and urine disposal, hygiene (handwashing, showering, washing dishes and clothes), and cooking; although other uses can be included.

Sanitation Equity

At the outset of the WWNA assessment, the WWNA team proposed a definition of ***sanitation equity*** as:

"Sanitation equity is achieved when social, geographic, economic, and demographic attributes no longer predict people's access to or quality of sanitation."

From survey responses regarding input on this definition, 32% agreed with this definition and 68% suggested including cultural aspects such as religion, norms, language, rituals, and ceremonies. A small number of respondents suggested including concepts such as environmental impacts, cost and affordability, replace the word "equity" with "equality", replace the word "predict", and expand the concept to include geographic factors. We updated the working definition to include the cultural

[13] ATLAS.ti is a software that supports locating, coding/tagging, and annotating features within bodies of unstructured data.

aspect of sanitation equity noted below. Other suggestions were not incorporated as they were already included or noted by only a small number of respondents.

> *"Sanitation equity is achieved when social, geographic, economic, cultural, and demographic attributes no longer predict people's access to or quality of sanitation."*

Identified Communities of Concern

In the survey, communities were defined as "a set of three or more households or buildings, which may be occupied on a permanent or temporary basis. Households or buildings may include single-family and multi-family dwellings, farmworker housing, mobile home complexes, and others."

The respondents mentioned fifty distinct communities. These ranged from specific properties (parcels of land) to broad groups of communities or land use types. Frequently mentioned communities included: Imperial Bay, Monte Rio, San Mateo County Coastal areas, and communities in the Central Valley. Many responses could be mapped and identified, but some responses could not, and a few responses were highly generalized (Appendix 2).

Given the number of participants and response rates in the survey, we consider the noted communities as specific examples of communities across the state that are at higher risk of sanitation challenges, but not a comprehensive list of communities with inadequate sanitation services and all communities at risk due to water -related sanitation issues. The origins or causes of inadequate sanitation services were also not clear from survey results. Such causes, which may result from historic marginalization, economic trends, public or private decisions, or other factors, may be further investigated through the field campaign.

Characterizing Communities

Of the respondents:

- 70% of the respondents have first-hand experience in the sanitation issues that the communities are experiencing because: 36% live or work there, and 34% have a professional relationship or responsibility to the community, such as a serving as a county government official, having active research, or involved in community projects (Fig. 11),
- 13% heard or read about these problems from third parties,
- 11% know someone who lives in the community, and
- 84% agree that the communities noted are considered Disadvantaged Communities based on definitions by the State of California.

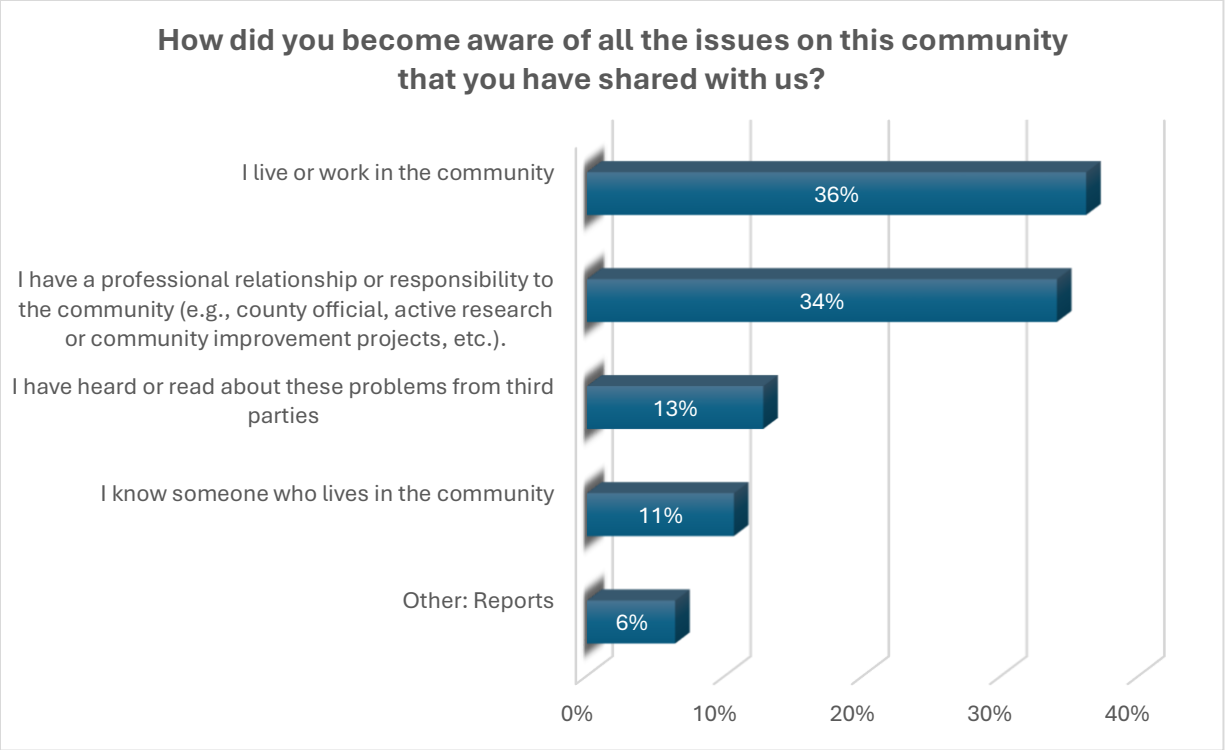


Figure 10. How people are aware of sanitation issues

Many respondents noted that sanitation related issues had been occurring for an extended period: 79% of respondents said that the issues began more than 10 years ago, 13% noted that issues began 5 years ago, and 6% responded that issues began 3 years ago. Regarding the affected populations, 48% said they were communities of more than 1,000 people and 35% said they were communities of between 100 and 1,000 people.

In response to how many people are affected within the community (Fig. 11a):

- 27% reported the entire population was affected (> 90% of the community),
- 22% indicated a few members were affected (<29% of the community),
- 18% noted some of the community was affected (30%-49%),
- 18% stated half of the community was affected (50%- 69%), and
- 16% mentioned most of the community was affected (70% - 89%).

According to survey respondents, 32% of the communities experiencing sanitation issues live in single-family residences, 12% in multi-family residences, 15% living in mobile manufactured homes and 15% living in homes located in mobile home parks (Fig. 11b). For reference, California's housing stock has the following distribution: 65% of California residents live in single-family housing, 31% live in multi-family housing, 4% live in mobile manufactured home facilities, and less than 1% live in mobile home parks (California Department of Housing and Community Development, 2018) While the survey results are not comprehensive, the difference in the distribution suggest that sanitation issues may occur more frequently in certain types of housing structures (e.g., mobile manufactured homes or mobile home parks). Similarly, 84% of survey respondents mentioned that sanitation issues occur in Disadvantaged Communities, while these communities represent between 30% and

60% of the state population[14]. While the survey results are not comprehensive, this difference in the frequency suggest that sanitation issues may occur more frequently in disadvantaged communities.

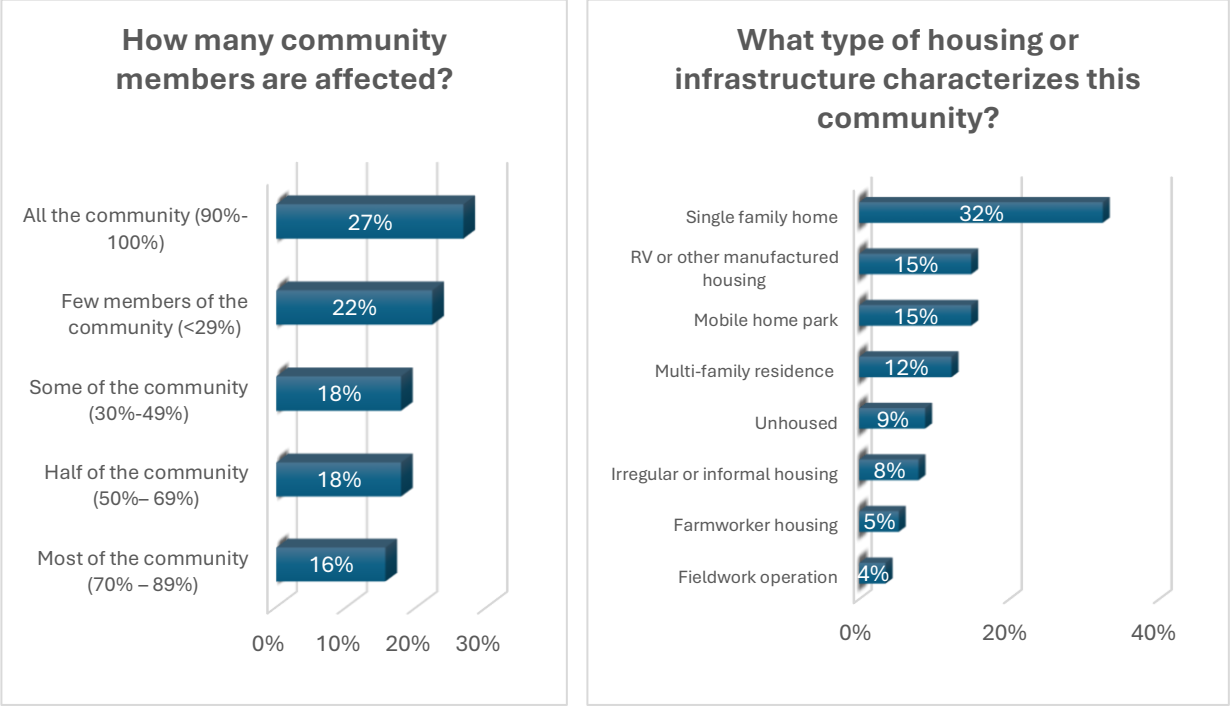


Figure 11. Members affected (a), type of housing of communities experiencing sanitation challenges (b)

In terms of race/ethnicity, the respondents indicated in the survey that the people living in these communities are characterized as primarily non-Hispanic white (34%), followed by Latinos (28%), and mixed (18%) (Fig. 12a). Many are mobile home park dwellers (26%), followed by farmworkers (19%) and populations with housing insecurity, or "unhoused" (19%) (Fig. 12b).

[14] Disadvantaged Communities (DACs) per CalEnviroScreen estimate 30-35%. DACs + Low-Income Communities (Justice40) estimate 60%.

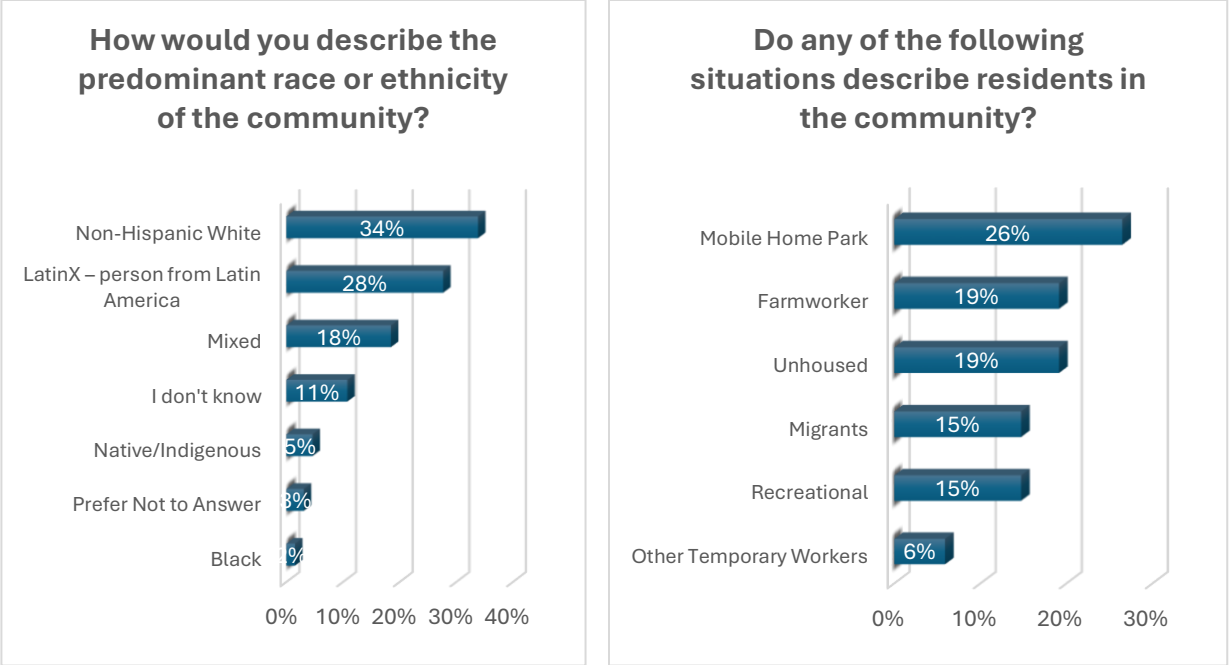


Figure 12. Residents race/ethnicity (a) and situations of residents experiencing sanitation challenges (b)

Water-Related Sanitation Issues

The survey also asked about the primary sanitation challenges in various communities (Fig. 13). Respondents noted that:

- 38% of communities relying on unsewered systems, such as septic systems, faced the greatest number of issues with sanitation.
- 17% provided comments under "other types of sanitation systems."
- 13% reported issues from no or intermittent water supply at home.
- 12% noted issues for communities relying on mobile toilets.
- 7% experienced unusable or non-functioning indoor systems, 7% had no or limited access to toilets, and 5% lacked indoor sanitation plumbing.

A few of the respondents did not note a specific sanitation issue. Many of the 71 respondents knew of communities with challenges and provided information for more than one community. Of 100 answers, there are 82 specific cases and 18 general answers that are noted in in Appendix 2.

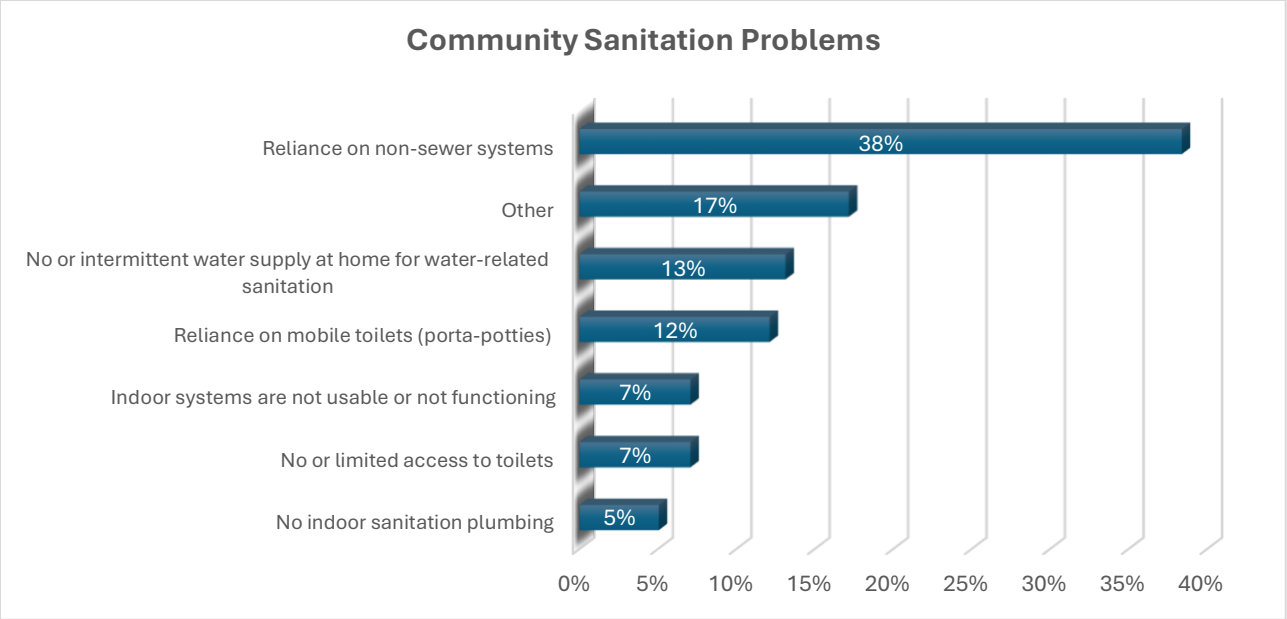


Figure 13. Community Sanitation Problems

1. Reliance on Non-Sewer Systems (38%, n = 38)

Onsite Wastewater Treatment Systems (OWTS), (e.g. septic systems), primarily treat domestic wastewater and employ subsurface disposal. According to the State Water Board, it is estimated that there are over 1.2 million OWTS in California (State Water Board, 2012).

Reliance on non-sewer systems was the most frequently mentioned water sanitation issue:

- 97% of respondents indicated these communities rely entirely on septic systems.
- Water-related sanitation issues occur primarily at home (61%) and at both home and work (39%) (Fig. 14).

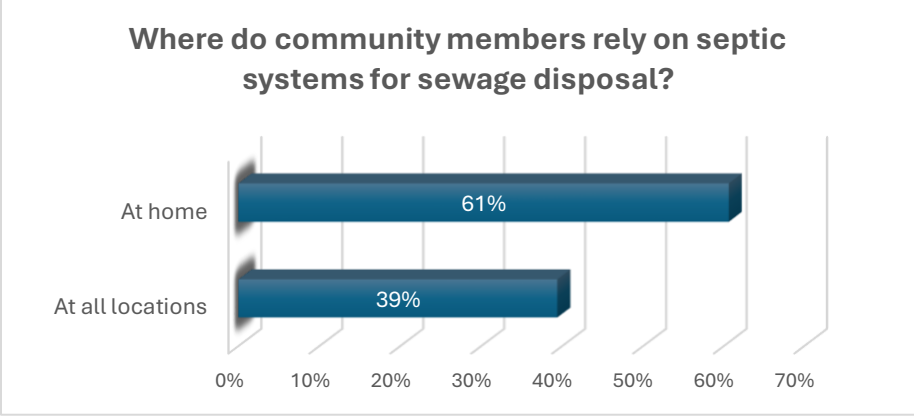


Figure 14. Locations of reliance on Septic Systems

- 67% said septic systems are occasionally maintained, while 17% reported they are never maintained (Fig. 15).

- 21% noted septic systems are near freshwater sources, and 10% indicated the population relying on these systems experiences illness due to inadequate disposal.

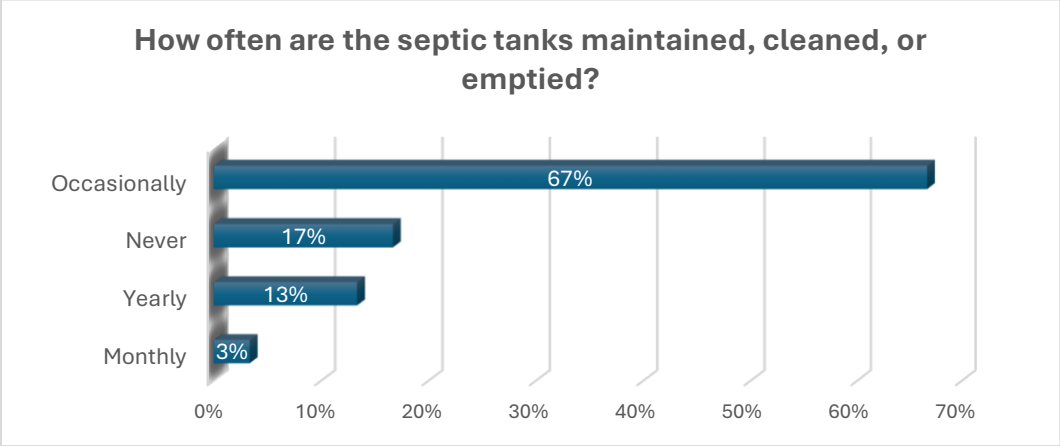


Figure 15. Frequency of maintenance of Septic Systems on the mention communities

Results indicate that while septic systems can be a suitable system for adequate disposal of wastewater, there are issues related to poor maintenance, these issues occur at home and work, and while minor or unknown, Environmental and Public Health may be impacted. The issues related to septic systems should be further explored to understand if the lack of maintenance is because of lack of awareness, financial burden, or both.

2. No or Intermittent Water Supply at Home for Sanitation (13%, n =13)

The problem of no or intermittent water supply at home for sanitation was noted by 13% of respondents. Respondents indicated that:

- This issue occurs mainly in unhoused encampments (50%), followed by homes (25%) and at all localities (25%) (Fig. 16a), and
- This is a long-lasting issue; 70% of respondents mentioned this issue has occurred for 10 years or more (Fig. 16b).

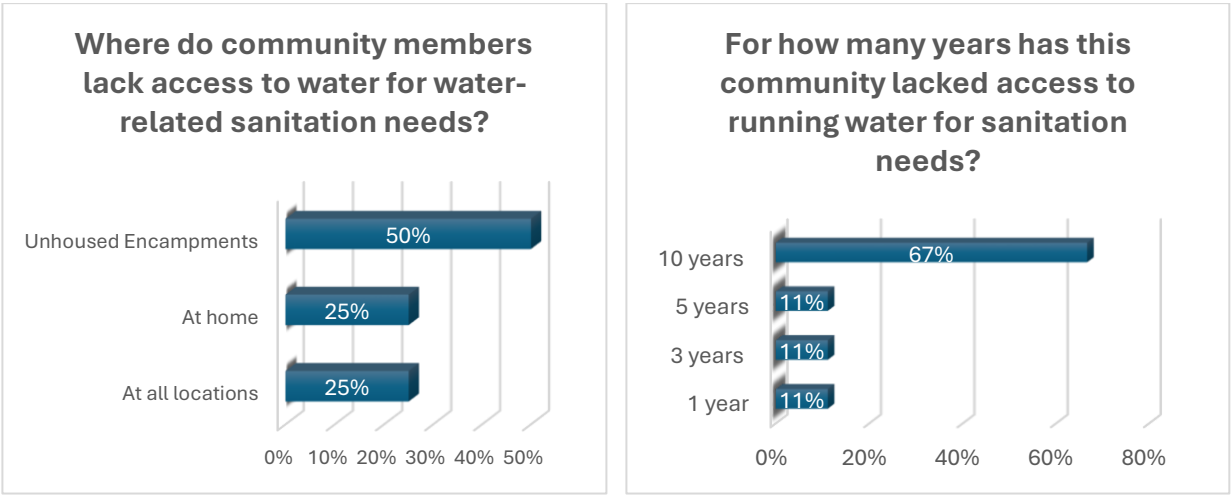


Figure 16. Locations with lack access to water (a) and problem frequency (b)

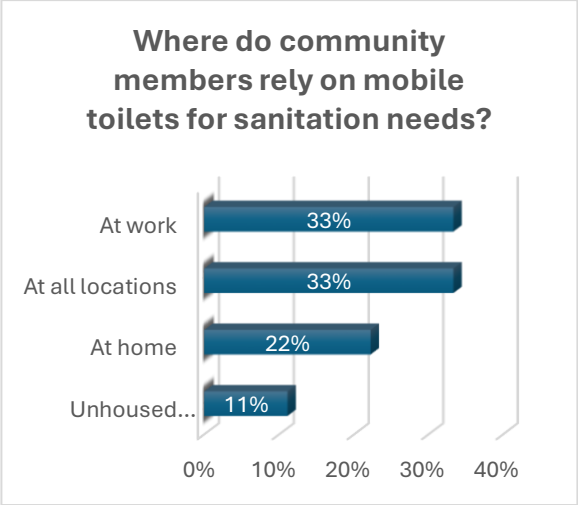
The responses reveal how no water access leads to no sanitation access. This is not a surprise; however, responses bring light to two different issues: (1) the lack of water and sanitation access to unhoused communities and (2) that there are people at home and work who lack or have intermittent access to water and sanitation. This could be people, for instance, with domestic or community wells whose well has run dry and they are unable to flush their toilets or wash hands, or in general use water for potable needs.

Reliance on Mobile Toilets (12%, n = 12)

The survey also asked about where and how frequently individuals or communities rely on mobile toilets to meet their sanitation needs (e.g., farmworkers in crop fields). Respondents indicated that:

- Reliance on mobile toilets primarily occurs at work (33%) or in all locations (33%) (Fig. 17a),
- 56% of the respondents mentioned these communities rely very frequently (70% to 89% of the time) on mobile toilets (Fig. 17b),
- 44% of the respondents mentioned that mobile toilets are maintained weekly (Fig. 18a), but 100% of the respondents do not know how the waste is disposed,
- Respondents noted that individuals may be at physical risk when using mobile toilets, with risk occurring in all locations based on a majority of responses to the question (67%) (Fig. 18b).

In summary, there are communities relying on mobile toilets most of their time (at work or in all places), maintenance of mobile toilets is not well known, there are members of the community experiencing illness because of this disposal method, and mobile toilets may pose a physical threat to the people or communities using them. For instance, a farmworker using a mobile toilet in the peak of summer (110 °F or more) or a person late at night or early in the morning going out of their home to use the mobile toilet may be conditions of perceived threats.



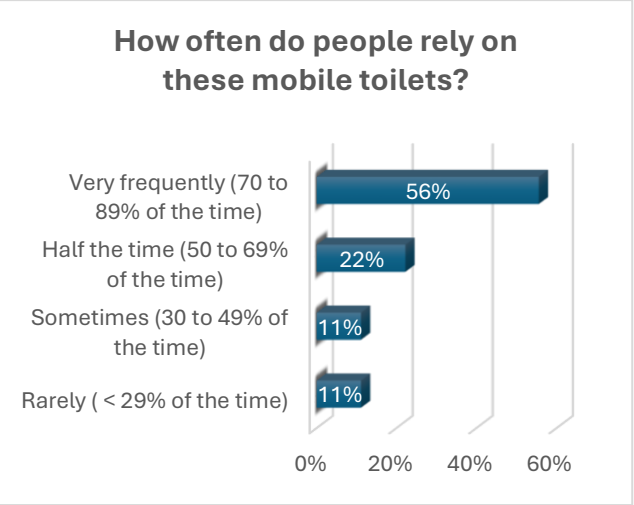


Figure 17. Reliance on mobile toilets (a) reliance frequency (b)

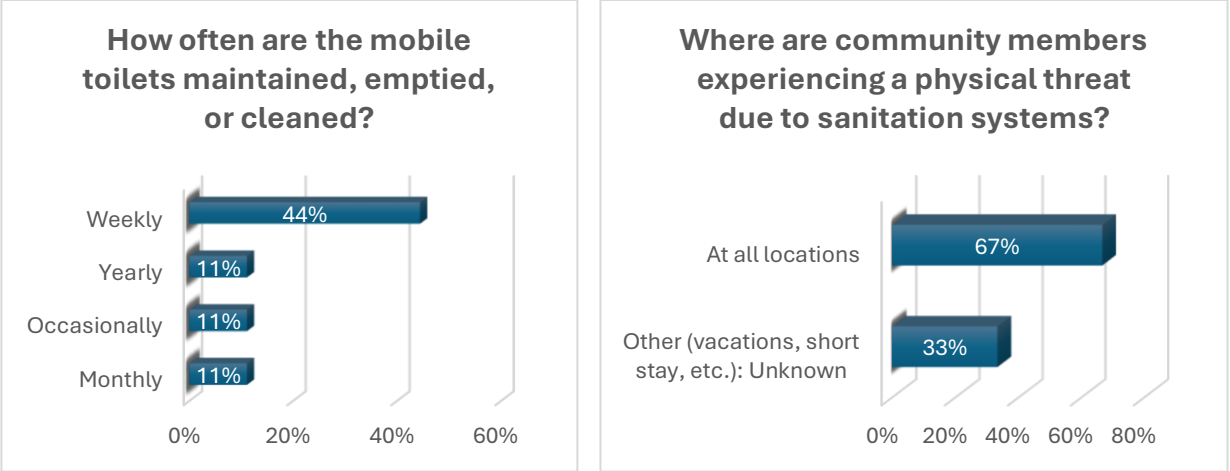


Figure 18. Mobile toilets maintenance (a) and sanitation system physical threats (b)

3. Indoor systems are not usable or not functioning (7%, n = 7)

Respondents noted that there are communities with "indoor systems that are not usable or not functioning."

- 100% reported raw sewage is discharged into water bodies or on land when indoor systems are unusable or non-functioning.
- 80% indicated raw sewage discharge occurs at home (Fig. 19a).
- 40% noted people rarely use waterways, water bodies or land where raw sewage is disposed, with an additional 20% reporting this happens always or very frequently and another 20% sometimes (Fig. 19b). 67% said people have direct contact with open sewage sometimes, while 33% reported very frequent contact (Fig. 20b).
- 33% stated open sewage[15] is located nearby or within the community, such as in streets or backyards.
- 75% reported sewage backup or overflow into buildings, with 75% indicating people are sometimes exposed to this overflow (Fig. 20a).
- 60% mentioned an oppressive smell, primarily at home (67%), with 65% reporting occasional exposure to this smell (Fig. 21a and 21b).
- 20% noted people struggle to pay for sewer services, and 50% mentioned health impacts or illness related to sewage exposure.

In summary, few respondents reported unusable or non-functioning indoor systems, but when this occurs, raw sewage is discharged near homes or within communities. This leads to high exposure to raw sewage, sewage backups, oppressive odors, and health issues. Though infrequent, this issue poses significant risks to human health and the environment.

[15] Open sewage refers to the deposition of sewage where people can directly contact the liquid, such as open ditch, puddles, or wet spots.

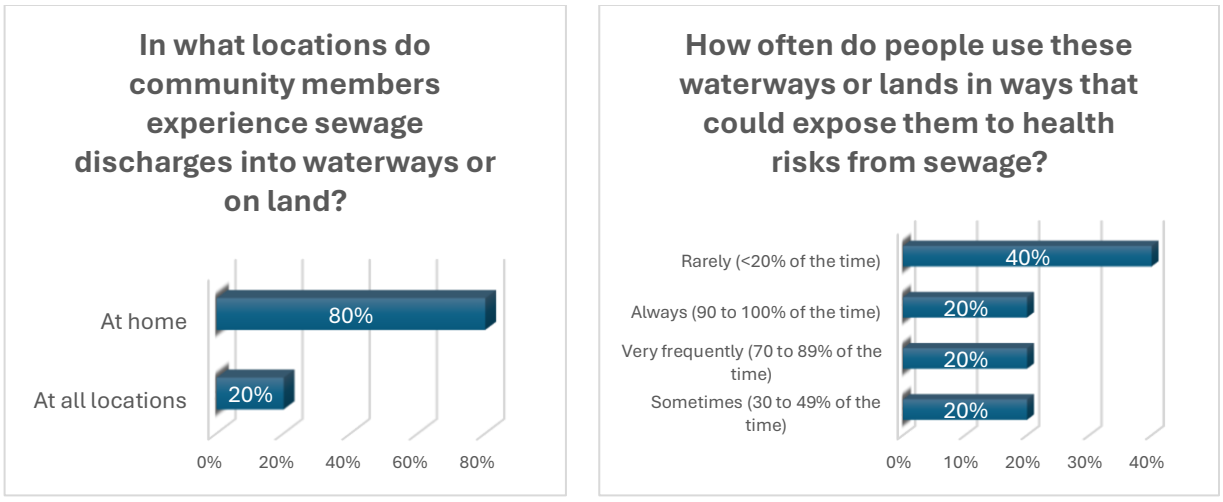


Figure 19. Locations where the communities encounter sewage discharges (a) and frequency of use (a)

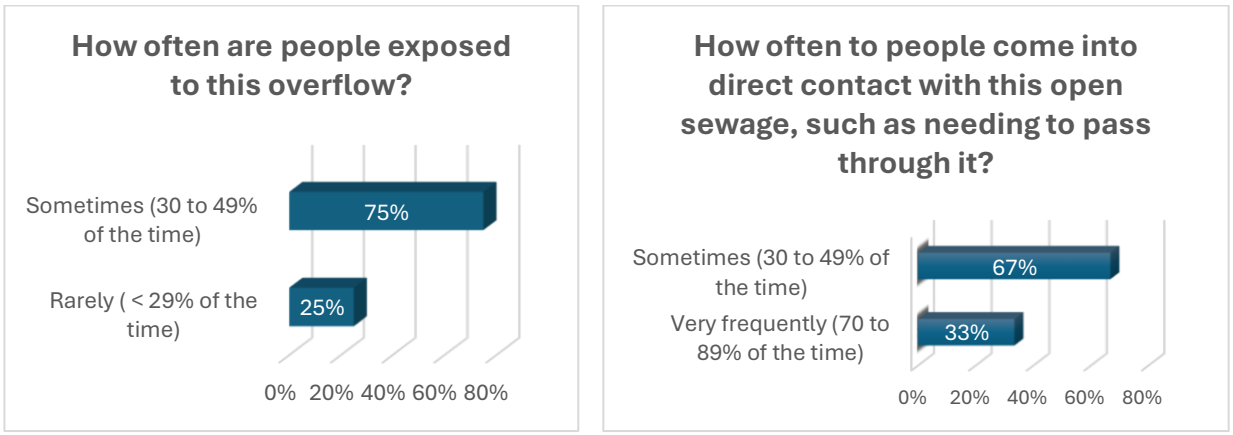


Figure 20. Exposure to sewage overflows (a) and frequency of contact with open sewage (b)

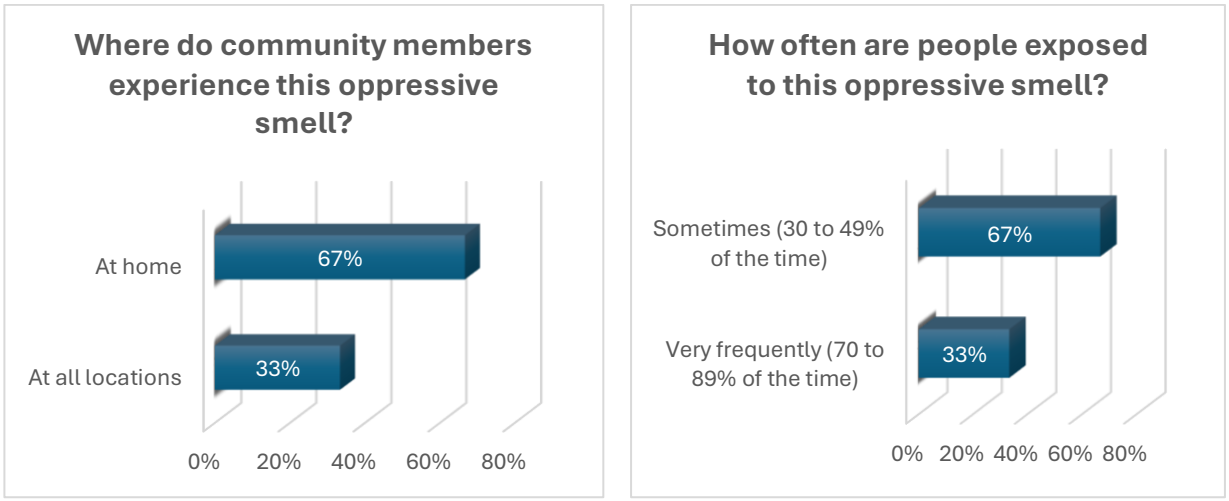


Figure 21. Oppressive smell locations (a) and frequency of issues (b)

4. No or limited access to toilets (7%, n = 7)

Survey respondents noted that some people experiencing unhoused in California may have no or limited access to toilets. In 2024, the U.S. Department of Housing and Urban Development reported 187,084 individuals without housing in California, up from 181,399 in 2023 (Fig. 22). Studies have found that people facing housing insecurity face challenges related to access to drinking water and sanitation services (De Sousa et al., 2023; Deitz & Meehan, 2019; Feinstein, 2018; Meehan et al., 2020). Of survey respondents who did report this problem:

- 60% stated the problem is always present.
- 80% reported it has persisted for over 10 years in the communities they are familiar with.

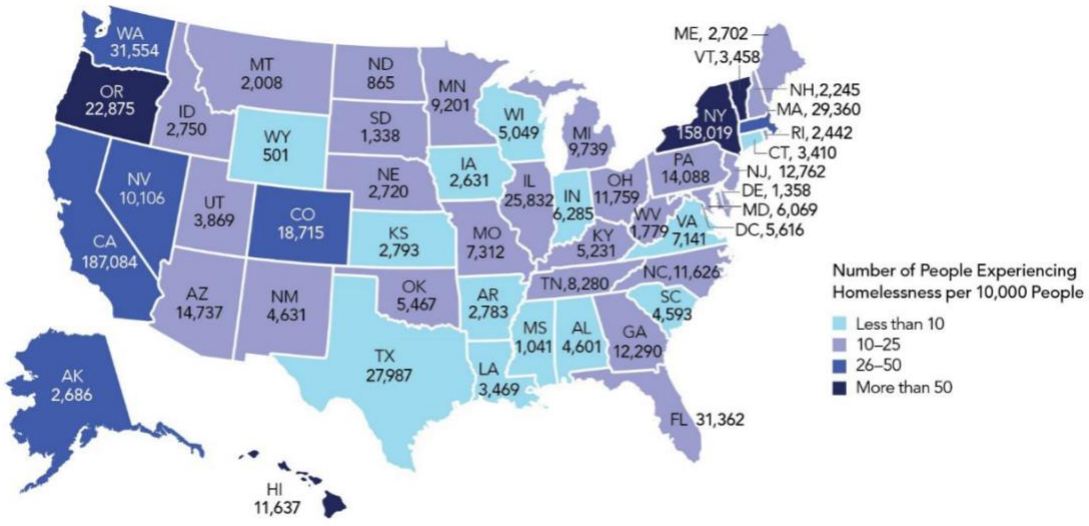


Figure 22. Number of People in unhoused situation in USA
(U.S. Department of Housing and Urban Development, 2024)

5. No indoor sanitation plumbing (5%, n = 5)

A few respondents noted awareness of communities lacking indoor sanitation plumbing, often associated with unhoused. In some cases, individuals reside in tents or RVs without access to sewer connections, leading to wastewater being discharged directly onto streets or surrounding areas (Speer, 2016) (Fig. 23). From the responses,

- This issue may occur in locations or just in unhoused camps,
- All the respondents noted that raw sewage from RVs was being discharged into water bodies or on land like roads and streets.

Community or Government Actions to Address Challenges

The survey also asked respondents if they knew of efforts by the community to seek assistance for sanitation issues:

- 22% of the respondents mentioned that the communities they knew of have received technical assistance, 21% financial assistance, 20% know that the community have had

discussions with relevant government agencies, and that the community had received media coverage (8%) (Fig. 23),

- Respondents mentioned there are communities that have not received any type of assistance or been in contact with agency representatives (5%) or that they are not sure if there have been actions taken (10%),
- When asked about solutions to sanitation issues, 50% of the respondents mentioned septic systems, 40% mentioned other disposal systems such as mobile toilets, composting toilets, bucket toilets and municipal cleanup, and 10% did not mention a solution at all.

We also asked if there has been a response to community concerns. Answers provided by survey respondents are included in Appendix 2.

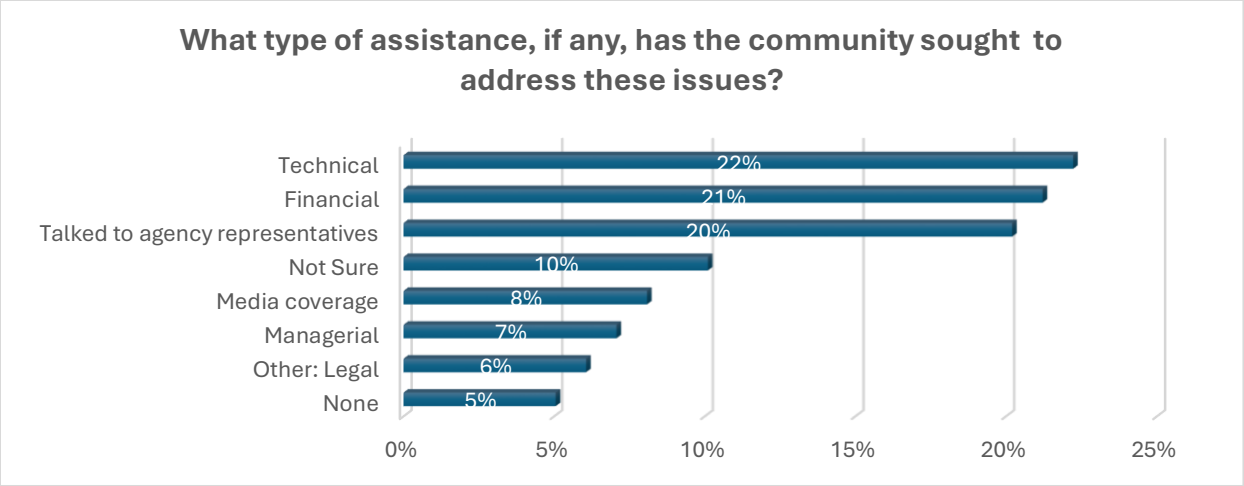


Figure 23. Types of assistance sought to address community sanitation issues

Summary of Survey Responses

For purposes of Phase 1b, the final definitions of sanitation and sanitation equity are:

> ***Sanitation*** *is access to safe, functional, affordable, and dignified collection and disposal of wastewater from all human uses, including adequate sanitation systems, practices, and wastewater treatment to protect public health and the environment*.
>
> ***Sanitation equity*** *is achieved when social, geographic, economic, cultural, and demographic attributes no longer predict people's access to or quality of sanitation*.

At the outset of the WWNA, the definitions were based on a synthesis of literature. Definitions were then updated to reflect input from survey respondents and State Water Board staff and members. The final terms and definitions reflect terminology used commonly in California and historically in North America. Early water and wastewater services in U.S. cities grew through the movement for so-called "sanitary" cities. This included many types of sanitation, but in time, became particularly aligned with the growth of public water and wastewater services. In California today, many public districts that provide wastewater services are termed sanitation agencies.

Survey responses indicate that sanitation access gaps are not widespread but do exist and are particularly focused on specific types of properties and infrastructure. These include mobile home

parks, farmworker housing, and employee housing. A large majority (84%) agreed that the affected communities would be considered Disadvantaged based on State of California definitions.

A significant percentage of respondents (38%) noted that communities experiencing issues with adequate sanitation services relied on unsewered systems, such as septic systems. The majority (80%) of issues also occurred in homes and the septic systems may only be occasionally maintained.

A smaller number of respondents (13%) noted that communities have inconsistent access to sanitation services, with the issue occurring mainly in unhoused encampments (50%), followed by in homes (25%). While a small number, the issues are persistent. Seventy-nine percent noted that the issues have persisted in the community for 10 years or more. A similar percentage of respondents (12%) noted that sanitation issues were associated with needing to use mobile toilets, which most often happened at work.

Small numbers of respondents noted that communities that experience sanitation challenges had no access to toilets, or the available indoor systems were not functional. When sanitation systems were not available, respondents noted raw sewage being dumped to land, local water bodies, or in stormwater systems.

PART 2. SPATIAL ANALYSIS

This section focuses on the spatial display of the communities experiencing sanitation issues noted by the survey respondent (see Appendix 2 for a comprehensive list). The main objective of this section is to provide the spatial context of the communities mentioned by survey respondents. Based on survey responses, we compiled a spatial database with data on the types of communities that may be at heightened risk of sanitation challenges. We mapped locations indicated by respondents as “Noted Communities of Concern.” Survey respondents mentioned: (a) broad regions, such as all communities within 5 miles of the coastline, disadvantaged communities in the San Joaquin Valley or Coachella Valley, (b) more specific areas, such as mobile home parks around the Salton Sea, Stockton DAC's and (c) some specific locations, such as specific properties with noted public histories of wastewater challenges. The communities mentioned by the participants are shown in Fig. 24.

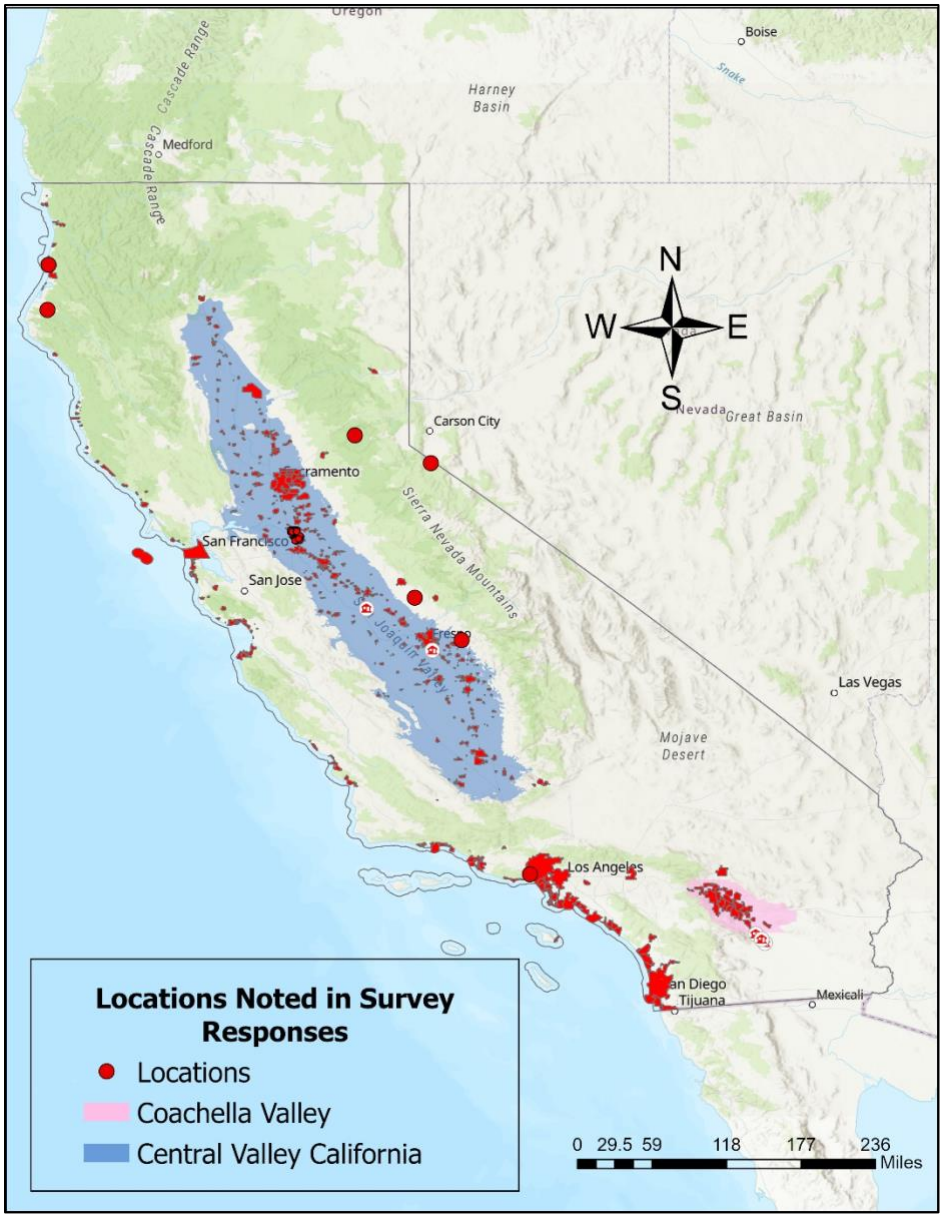


Figure 24. Locations of communities noted by survey respondents with sanitation issues

Northern California

Northern California is well known for its rugged terrain, forest, mountains and hard access to places. Survey respondents noted that coastal and inland communities are experiencing sanitation challenges (Fig. 25). For instance, one noted location hosts hundreds of families and animals communally owned and managed in structures made using recycled materials. In another, the small village is an unincorporated community outside of city boundaries. Of the locations noted in the survey responses, many in rural areas reported use of septic tanks; some respondents report the use of latrines in communal housing.

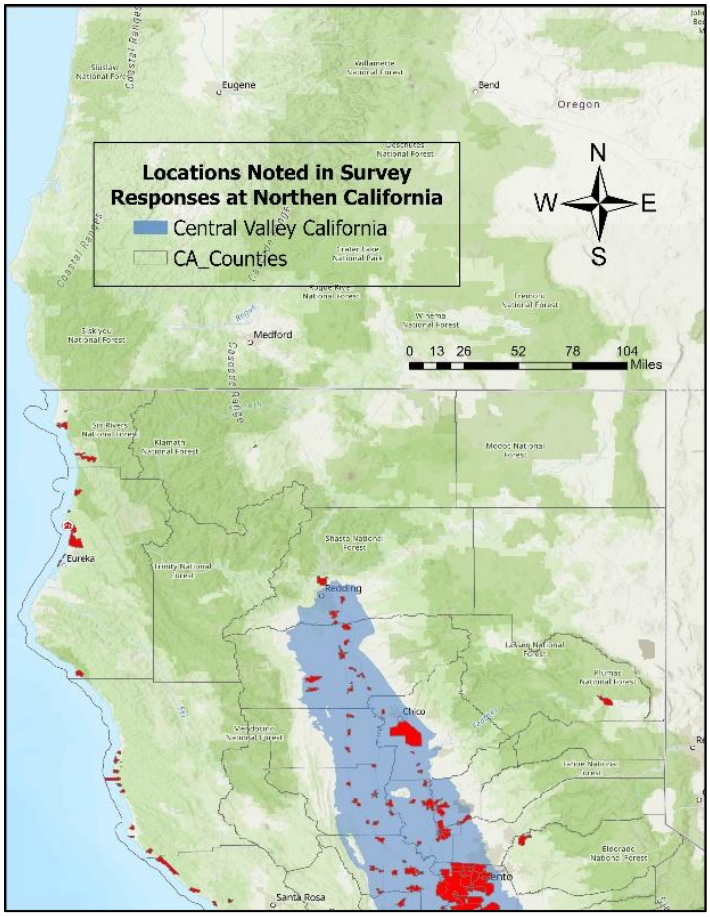


Figure 25. Geographic locations of communities experiencing sanitation issues noted by survey respondents in Northern California

Central Valley

The Central Valley is home to several disadvantaged communities, many of whom work and depend on this agriculture industry (Fernandez-Bou et al., 2023; Gold et al., 2022; Medina et al., 2022). Survey respondents mentioned that disadvantaged communities have sanitation issues, some of the problems related to this region of California from the respondents are the "reliance on non-sewer systems", "reliance on mobile toilets" and "no or intermittent water supply at home for sanitation" (Fig. 26). Some places mentioned are Tivy Valley, Raymond, and Stockton, among others (see Appendix 2).

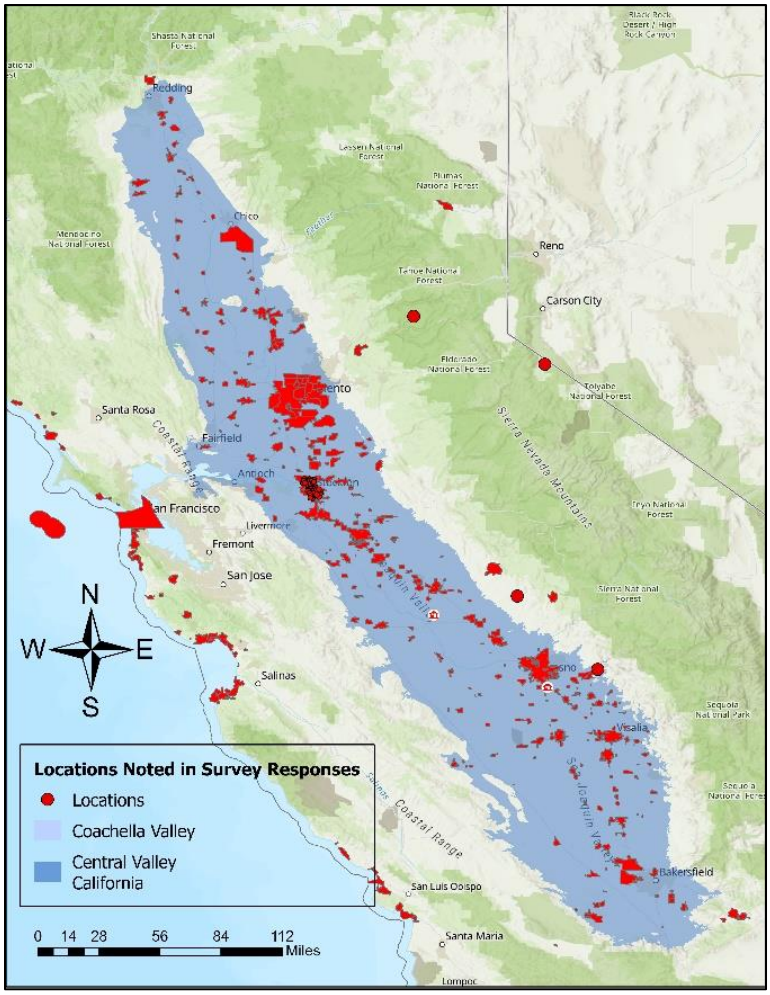


Figure 26. Geographic locations of communities experiencing sanitation issues noted by survey respondents for the Central Valley

Southern California

In Southern California, respondents mentioned several communities with issues (Fig. 27), including coastal communities with low-income housing, communities in the Coachella Valley, and mobile home parks around the Salton Sea. One community that was most mentioned is Imperial Beach, which is a disadvantaged community where the Tijuana River passes through carrying raw sewage. Communities experiencing housing insecurity and unhoused have particularly acute challenges for sanitation access. Some respondents relate this problem with "Indoor systems are not usable or not functioning", "no or limited access to toilets" and "no indoor sanitation plumbing".

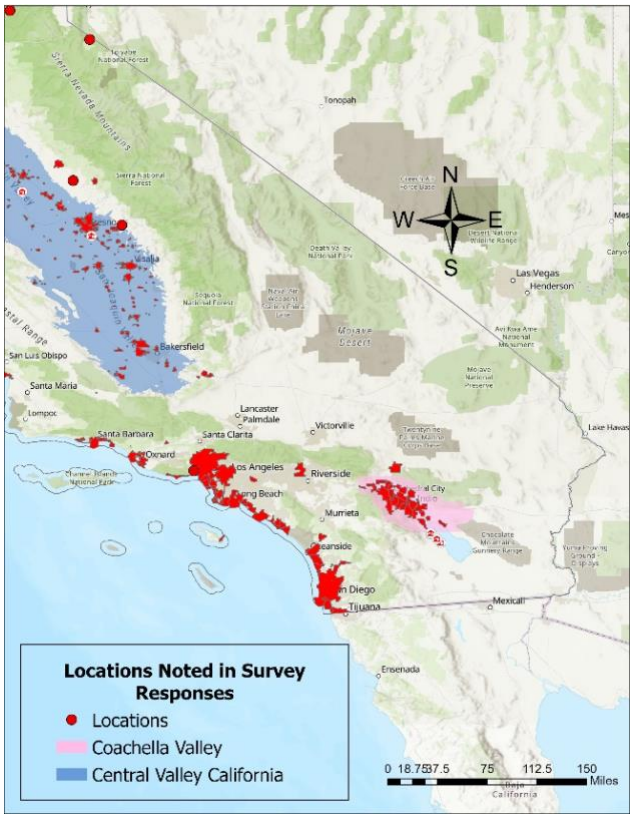


Figure 27. Geographic locations of communities experiencing sanitation issues noted by survey respondents in Southern California

Summarizing Results of Spatial Analysis

The types of communities experiencing sanitation issues noted by respondents occur throughout the state. However, spatial analysis does indicate some trends. In Northern California, septic systems and on-site wastewater systems, noted by respondents generally as the infrastructure for the community they knew of experiencing challenges, are prominent. The region has relatively fewer metropolitan areas and large expanses of rural land with low population densities that are not close to centralized systems. In the rural and ex-urban parts of the Central Valley mobile home parks and transient housing sites for farmworkers and employees are more prominent. In the Central Coast, survey respondents noted that sanitation challenges were associated with properties relying on septic systems. If such septic systems fail, they can have significant effects on both freshwater and oceanic ecosystems depending on geography. Finally, in Southern California, septic systems are prominent in rural areas inland. California's disadvantaged communities are concentrated in the southern part of the state while large homeless communities exist in major urban areas.

CONCLUSIONS AND RECOMENDATIONS

Approximately 90% of Californians are served by centralized sewer and wastewater treatment systems, most of which operate adequately and in compliance with regulatory standards. Current regulatory systems have established data collection and monitoring to assess the relative performance of these systems, such as the quality of water discharged to local watersheds and the financial performance of public and municipal systems. During the next phase of the project of the

WWNA, the project team will evaluate the technical and/or investment needs to address water quality and planning challenges in these systems.

Outside the sphere of larger and centralized systems, on-site wastewater treatment systems (OWTS), like septic systems, provide sanitation needs in small, rural, and off-the-grid communities. For instance, California has an estimated more than 1 million septic systems that serve communities and properties not connected to centralized wastewater systems. For such systems, Assembly Bill 885[16], adopted in 2000, required the State Water Board to develop statewide water quality regulations for permitting and operating OWTS. A statewide policy was implemented in 2013 (updated every five years) and implemented a risk-based framework to evaluate the need for monitoring or upgrades of existing OWTS (Department of Water Resources, 2023).

As part of Phase 1 of the WWNA, this effort implemented a community-based survey and analysis to identify the scope of potential sanitation access issues faced by communities that likely (but not necessarily) do not rely on centralized systems. Survey results identified challenges faced by communities, including lack of access to functioning wastewater systems, exposure to raw sewage, the types with issues, and more. Generally, critical gaps in service are limited, with extremely severe issues reported by small percentages of expert respondents. The respondents also noted specific types of wastewater solutions that merit consideration and further work that could be done to characterize challenges as California seeks to meet to achieve goals related to the human right to sanitation, including California Water Code Section 106.3 (State Water Board Resolution 2016-0010) recognizing that "every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes" and State Water Board Resolution 2022-2019 that noted the need to prioritize needs and investments. In particular:

- Septic systems require technical and financial assistance, and an educational component to make sure that maintenance is provided to these systems. The lack of maintenance should be further explored to determine if it is because of lack of awareness, financial burden, or both.
- Mobile toilets should not be considered as a permanent solution. They can help as a temporary solution; however, they may pose risks to community members using them.
- Some communities lack indoor sanitation plumbing or have malfunctioning systems, often due to inadequate maintenance or landlords failing to provide proper facilities.
- California's unhoused communities may experience some issues noted by respondents in this survey, like the lack of access to toilet and indoor sanitation plumbing.

This effort compliments the rest of the project, which largely focuses on analysis of existing data, and regulatory compliance issues pertaining to sanitation outcomes. The survey questions focused on assessing issues of minimal sanitation access. Most survey responses addressed issues that small and rural systems experience. This effort did not identify many examples of inadequate wastewater access in large systems or communities. The smaller communities noted in responses may have limited contact with regulatory or monitoring programs due to their small size or remoteness. Such communities are likely facing multiple challenges. Addressing issues in one sector, like wastewater,

[16] Link to Assembly Bill 885 (1999-2000)

must be considered in the context of broader systemic local issues including access to resources and technical needs.

A working definition of sanitation and sanitation equity was developed with feedback from experts to be used during the project and shape the scope and criteria used to evaluate inadequacy and risk of wastewater systems. The survey focused on experts who have first-hand experience on sanitation issues in several communities. To better understand challenges, we recommend further outreach with community members affected by these issues to understand the issues and potential solutions. For instance, the California Department of Housing and Community Development and the UC Davis Western Center for Agricultural health and Safety are performing a Farmworker Housing study to provide data to inform farmworker housing policy. Also, in 2018 the California Coalition for Rural Housing and the Rural Community Assistance Corporation developed a study of the California tribal housing needs and opportunities: A vision forward (California Coalition for Rural Housing and Rural Community Assistance Corporation, 2019). Another important document related is "The 2024 Annual Homelessness Assessment Report (AHAR) to Congress" published on December 2024. These are only three studies of the five types of communities that are at risk of suffering sanitation issues.

Finally, while the survey focused on community-based needs, it is important to recognize the original purpose and historical development of wastewater systems. Public health and environmental health are closely linked. There are communities discharging raw sewage into water bodies and land. These types of non-functional and inadequate systems, while less common, have the potential for larger impacts and should be further explored. Communities with inadequate infrastructure may be subject to illness due to the inadequate wastewater disposal systems. Case studies of communities with failing wastewater infrastructure can shed light on how the situation arose, the types of funding and technical assistance that would be needed, and if gaps in regulatory enforcement exist that contributed to the situation.

Environmental and public health impacts of inadequate sanitation access are cross-cutting topics that involve infrastructure, community development, and environmental management. While most Californians have access to adequate wastewater systems, the survey identified that there are communities that do not. Addressing these in small and rural communities is a critical component of implementing the human right to sanitation in California.

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APPENDIX 1. SURVEY

Link of the Survey: https://ucanr.co1.qualtrics.com/jfe/form/SV_8ifH7ayfnUpIMxE

The baseline survey followthe following structure, that includes the number of questions within each section. The total number of questions was variable, since many respondents provided information for a different number of cummunities and challenges.

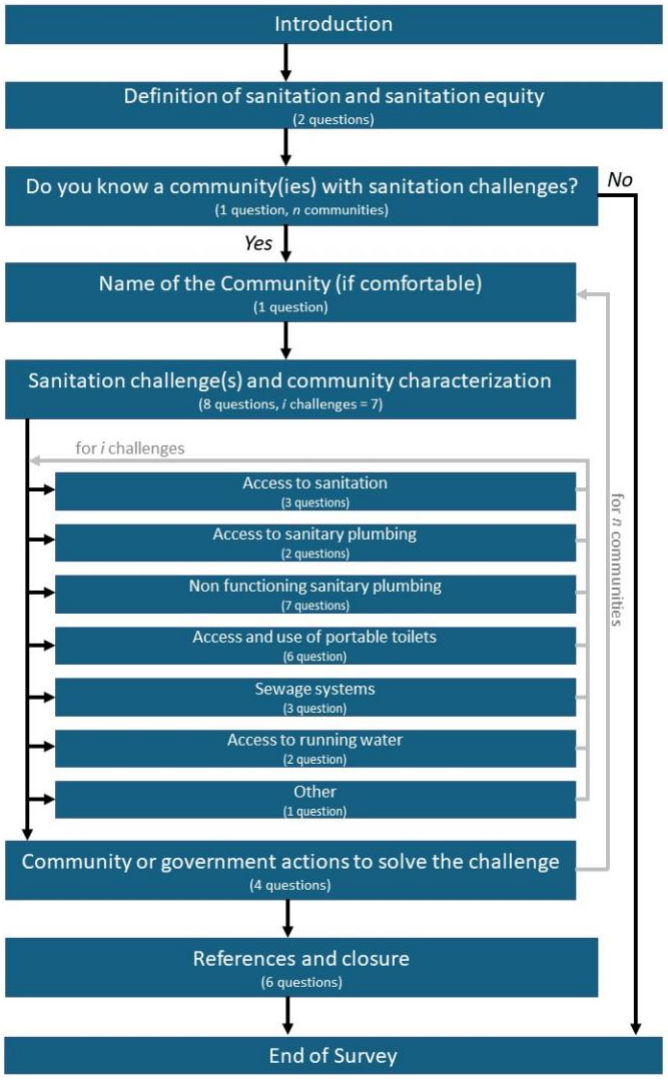

Figure #. Diagram of the survey

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English

Survey Pre-Amble

Survey to Understand Current Water-Related Sanitation Needs in California

Project Purpose & Focus:
The California Wastewater Needs Assessment is a 4-year project (2023-2027) to evaluate California's water-related sanitation needs. In 2022 and 2016, the State Water Resources Control Board adopted Resolution No. 2022-0019 and Resolution No. 2016-0010, which recognized Californians' equal and human right to sanitation and that safe wastewater management is critical to human and environmental health. The Wastewater Needs Assessment does not impose any permitting requirements, consolidation projects, or fees for regulatory or governing agencies, businesses, or people of the public.

The full scope of the California Wastewater Needs Assessment will evaluate wastewater needs for municipal, community, and household systems.

Survey Purpose and Scope:
This survey is an initial effort to gather information on water-related sanitation needs, focused on household and community experiences. The survey will inform an assessment of baseline needs and conditions in combination with other sources of information.

The survey first asks you to identify communities you know of that are experiencing inadequate access to water-related sanitation. It then asks you to describe the types of issues faced in that community. You will have the opportunity to enter information about multiple communities.

Survey Length:

The survey will take approximately 5-10 minutes to complete for one community. You can choose to provide information on up to five communities. Your participation in this survey is voluntary and you may exit the survey at any time.

Confidentiality:
Survey responses will remain confidential. You may choose to provide your contact information at the end of the survey. You can also choose to complete the survey without identifying specific communities.

Definition of Community:
In this survey, the term community refers to a collection of three or more households or buildings, which may be continuously or intermittently occupied. Households or buildings may include single-family and multi-family house, farmworker housing, mobile home parks, and others.

Block A

Defining Water-Related Sanitation

The Wastewater Needs Assessment in California will be guided by definitions for "water-related sanitation" and "water-related sanitation equity", which are developed with broad input.

Here is a proposed **definition** of **water-related sanitation**:
Water-related sanitation is access to safe, functioning, affordable, and dignified collection and disposal of wastewater resulting from human waste, hygiene, and cooking; including adequate sanitation systems, practices, and treatment to protect public health and the environment.

Do you have suggestions to improve the definition of water-related sanitation?

Here is a proposed **definition** of **water-related sanitation <u>equity</u>**:
Water-related sanitation equity is achieved when social, geographic, economic, and demographic attributes no longer predict the availability and adequacy of water-related sanitation services.

Do you have suggestions to define when and how water-related sanitation equity can be achieved?

<u>Sanitation Issues in Communities</u>

Definition of Community:
In this survey, the term community refers to a collection of three or more households or buildings, which may be continuously or intermittently occupied. Households or buildings may include single-family and multi-family homes, farmworker housing, mobile home parks, and others.

Now we will ask some questions to identify known sanitation issues in communities in California.

Do you know of communities in California facing water-related sanitation challenges, such as access, affordability, reliability, or other issues?

- ○ Yes
- ○ No

How many communities do you know of that are affected by water-related sanitation issues, such as lack of access, intermittent access, and others? (Please enter a numerical value)

If you are aware of individuals within a community struggling with sanitation issues, you may include the community name even if the entire community is not affected.

Are you comfortable providing the name and locations of these communities?

- ○ Yes
- ○ No

Sanitation Issues in Communities

What are the names of the communities with known sanitation issues? (If you do not wish to identify the community, please leave these options blank.)

	Name	Representative Address (if known)
Community 1		
Community 2		
Community 3		
Community 4		

	Name	Representative Address (if known)
Community 5		

Community Qs 1

[For ${q://QID116/ChoiceTextEntryValue/2/1}] Which of the following issues do individuals in this community currently experience? (i.e., within the past six months etc.)

[Select All that Apply]

- [ ] No or limited access to toilets
- [ ] No indoor sanitation plumbing
- [ ] Indoor sanitation systems exist, but the indoor systems are not usable or not functioning
- [ ] Reliance on mobile toilets (porta-potties) as permanent solution to water-sanitation
- [ ] Reliance on non-sewer systems, such as septic system (tanks, seepage pits, dispersal fields, cesspools)
- [ ] No or intermittent water supply at home for water-related sanitation (e.g. dry well)?
- [ ] Other

Please answer the following questions to the best of your knowledge.

When did the concern(s) first begin? Please provide your best estimate.

- ○ 1 year or less

- ◯ 3 years ago
- ◯ 5 years ago
- ◯ > 10 years ago

What is the population of the community? Please provide your best estimate.

- ◯ < 10 people
- ◯ 10 to 50
- ◯ 50 - 100
- ◯ 100 - 1,000
- ◯ > 1,000

How many community members are affected? Please provide your best estimate.

- ◯ Few members of the community (<29%)
- ◯ Some of the community (30%-49%)
- ◯ Half of the community (50%– 69%)
- ◯ Most of the community (70% – 89%)
- ◯ All the community (90%-100%)

Is this considered an economically disadvantaged community?

- ◯ Yes
- ◯ No
- ◯ I don't know
- ◯ Prefer Not to Answer

What type of housing or infrastructure characterizes this community? (check all that apply)

- [ ] Single family home
- [ ] Multi-family residence (apartments, duplexes, triplexes, etc.)
- [ ] Mobile home park, RV or other manufactured housing
- [ ] Irregular or informal housing
- [ ] Farmworker housing
- [ ] Fieldwork operation
- [ ] Unhoused

Do any of the following terms describe residents in the community?

- [ ] Unhoused
- [ ] Farmworkers
- [ ] Migrants
- [ ] Mobile home park
- [ ] Other temporary workers
- [ ] Recreational (e.g. campgrounds)

How would you describe the predominant race or ethnicity of the community? (check all that apply)

- [ ] Non-Hispanic White
- [ ] LatinX – person from Latin America
- [ ] Black
- [ ] Native/Indigenous
- [ ] Asian
- [ ] Mixed
- [ ] I don't know
- [ ] _____ Other BIPOC
- [ ] Prefer Not to Answer

[${q://QID116/ChoiceTextEntryValue/2/1}] For the people or communities that you know of with no access to toilets, please answer the following questions to the best of your ability.

How often does this community lack access to functioning toilets? Please provide your best estimate.

- ◯ Rarely (< 29% of the time)
- ◯ Sometimes (30 to 49% of the time)
- ◯ Half the time (50 to 69% of the time)
- ◯ Very frequently (70 to 89% of the time)
- ◯ Always (90 to 100% of the time)

For how many years has this community lacked access to functioning toilets? Please provide your best estimate.

- ◯ 1 year or less
- ◯ 3 years
- ◯ 5 years
- ◯ > 10 years

How many community members are affected? Please provide your best estimate.

- ◯ < 10 people
- ◯ 10 to 50
- ◯ 50 - 100
- ◯ 100 - 1,000

○ > 1,000

[${q://QID116/ChoiceTextEntryValue/2/1}] For the people or communities that you know of with no access to indoor sanitation plumbing, please answer the questions below to the best of your ability.

Where do community members lack indoor plumbing?

○ At home
○ At work
○ At all locations
○ Other (vacations, short stay, etc.): [ ]

Do community members rely on ventilated latrines?

○ Yes
○ No
○ Not Sure

How often do people rely on these latrines? Please provide your best estimate.

○ Rarely (< 29% of the time)
○ Sometimes (30 to 49% of the time)
○ Half the time (50 to 69% of the time)
○ Very frequently (70 to 89% of the time)
○ Always (90 to 100% of the time)

How often are the latrines maintained or emptied? Please provide your best estimate.

- ◯ Weekly
- ◯ Monthly
- ◯ Yearly
- ◯ Occasionally
- ◯ Never

Are any of the individuals that rely on latrines showing symptoms of illness (rash, nausea, frequent diarrhea) or other observed health impacts (respiratory diseases) due to sewage exposure?

- ◯ Yes
- ◯ No
- ◯ I don't know

How often do people get sick? Please provide your best estimate.

- ◯ Rarely (< 29% of the time)
- ◯ Sometimes (30 to 49% of the time)
- ◯ Half the time (50 to 69% of the time)
- ◯ Very frequently (70 to 89% of the time)
- ◯ Always (90 to 100% of the time)

[${q://QID116/ChoiceTextEntryValue/2/1}] For the people or communities that you know of that have indoor sanitation, but the indoor systems are not usable or not functioning, please answer the

following questions to the best of your ability. Issues may include malfunctioning local sewer collection or treatment systems.

There is raw sewage discharged into water bodies (river, ditch, canal, ocean) or on land (ag. road, empty land).

- ◯ Yes
- ◯ No

In what locations do community members experience sewage discharges into waterways or on land?

- ◯ At home
- ◯ At work
- ◯ At all locations
- ◯ Other (vacations, short stay, etc.): [ ]

How often do people use these waterways or lands in ways that could expose them to health risks from sewage? Please provide your best estimate.

- ◯ Rarely (< 29% of the time)
- ◯ Sometimes (30 to 49% of the time)
- ◯ Half of the time (50 to 69% of the time)
- ◯ Very frequently (70 to 89% of the time)
- ◯ Always (90 to 100% of the time)

There is open sewage outside and nearby or within the community (in streets, in backyards). (Open sewage refers to the disposition of sewage where people can directly contact the liquid, such as open ditch, puddles, or wet spots).

- ◯ Yes
- ◯ No

Where are community members experiencing open sewage?

- ◯ At home
- ◯ At work
- ◯ At all locations
- ◯ [ ] Other (vacations, short stay, etc.):

How often to people come into direct contact with this open sewage, such as needing to pass through it? Please provide your best estimate.

- ◯ Rarely (< 29% of the time)
- ◯ Sometimes (30 to 49% of the time)
- ◯ Half of the time (50 to 69% of the time)
- ◯ Very frequently (70 to 89% of the time)
- ◯ Always (90 to 100% of the time)

Is there a sewage back up or overflow inside buildings (e.g. homes, work place, etc.)?

- ◯ Yes
- ◯ No

At what locations do community members experience sewage back ups or overflows inside of buildings?

- ◯ At home
- ◯ At work
- ◯ At all locations
- ◯ Other (vacations, short stay, etc.): [ ]

How often are people exposed to this overflow? Please provide your best estimate.

- ◯ Rarely (< 29% of the time)
- ◯ Sometimes (30 to 49% of the time)
- ◯ Half the time (50 to 69% of the time)
- ◯ Very frequently (70 to 89% of the time)
- ◯ Always (90 to 100% of the time)

Is there an oppressive smell from improperly managed sewage?

- ◯ Yes
- ◯ No

Where do community members experience this oppresive smell?

- ◯ At home
- ◯ At work
- ◯ At all locations

○ [ ] Other (vacations, short stay, etc.):

How often are people exposed to this oppressive smell? Please provide your best estimate.

○ Rarely (< 29% of the time)
○ Sometimes (30 to 49% of the time)
○ Half the time (50 to 69% of the time)
○ Very frequently (70 to 89% of the time)
○ Always (90 to 100% of the time)

Are people who use the building struggling to pay for sewer service?

○ Yes
○ No
○ I don't know

Has the sewer service been suspended?

○ Yes
○ No
○ I don't know

Does the institution managing the sewer system face financial concerns or lack the technical capacity or managerial resources necessary to maintain service?

○ Yes
○ No

- ◯ I don't know

Are there suspected or reported health impacts or illness related to sewage exposure? Examples include rash, nausea, diarrhea and respiratory diseases.

- ◯ Yes
- ◯ No
- ◯ I don't know

How often do people get sick? Please provide your best estimate. Please provide your best estimate.

- ◯ Rarely (< 29% of the time)
- ◯ Sometimes (30 to 49% of the time)
- ◯ Half the time (50 to 69% of the time)
- ◯ Very frequently (70 to 89% of the time)
- ◯ Always (90 to 100% of the time)

Are there people or communities with sanitation systems that pose a physical threat to them? For instance: infrastructure is broken and puts them in danger, threat of violence or an undignified condition within the sanitation system.

- ◯ Yes
- ◯ No
- ◯ I don't know

Where are community members experiencing a physical threat due to sanitation systems?

- ◯ At home
- ◯ At work
- ◯ At all locations
- ◯ Other (vacations, short stay, etc.): ☐

How often are people exposed to these risks? Please provide your best estimate.

- ◯ Rarely (< 29% of the time)
- ◯ Sometimes (30 to 49% of the time)
- ◯ Half of the time (50 to 69% of the time)
- ◯ Very frequently (70 to 89% of the time)
- ◯ Always (90 to 100% of the time)

[${q://QID116/ChoiceTextEntryValue/2/1}] For the people or communities you know of that rely on mobile toilets for sanitation, please answer the following questions to the best of your ability.

Where do community members rely on mobile toilets for sanitation needs?

- ◯ At home
- ◯ At work
- ◯ At all locations
- ◯ Other (vacations, short stay, etc.): ☐

How often do people rely on these mobile toilets? Please provide your best estimate.

- ◯ Rarely (< 29% of the time)
- ◯ Sometimes (30 to 49% of the time)
- ◯ Half the time (50 to 69% of the time)
- ◯ Very frequently (70 to 89% of the time)
- ◯ Always (90 to 100% of the time)

How often are the mobile toilets maintained, emptied, or cleaned? Please provide your best estimate.

- ◯ Weekly
- ◯ Monthly
- ◯ Yearly
- ◯ Occasionally
- ◯ Never

Do you know how waste in the mobile toilets is disposed?

- ◯ Yes
- ◯ No

Is the waste disposed by ...

- ◯ Certified hauler or truck
- ◯ Uncertified company or individual county service
- ◯ Dumped into the land or a water body
- ◯ Dumped into an existing wastewater treatment system
- ◯ Other [ ]

- ◯ Not Sure

Are any of the individuals relying on mobile toilets showing symptoms of illness (rash, nausea, frequent diarrhea) or other observed health impacts (respiratory diseases) due to sewage exposure?

- ◯ Yes
- ◯ No

How often do people get sick? Please provide your best estimate.

- ◯ Rarely (< 29% of the time)
- ◯ Sometimes (30 to 49% of the time)
- ◯ Half the time (50 to 69% of the time)
- ◯ Very frequently (70 to 89% of the time)
- ◯ Always (90 to 100% of the time)

Are there people or communities whose sanitation systems pose a physical threat to them? For instance: infrastructure is broken and put them in danger, threat of violence or an undignified condition within the sanitation system.

- ◯ Yes
- ◯ No

Where are community members experiencing a physical threat due to sanitation systems?

- ◯ At home
- ◯ At work

- ◯ At all locations
- ◯ Other (vacations, short stay, etc.): _____

How often are people exposed to risk? Please provide your best estimate.

- ◯ Rarely (< 29% of the time)
- ◯ Sometimes (30 to 49% of the time)
- ◯ Half the time (50 to 69% of the time)
- ◯ Very frequently (70 to 89% of the time)
- ◯ Always (90 to 100% of the time)

[${q://QID116/ChoiceTextEntryValue/2/1}] For the people or communities that you know of who rely on non-sewered systems for water-related sanitation, please answer the following questions to the best of your ability. Non-sewered systems may include various types of septic systems (tanks, seepage pits, dispersal fields, cesspools) and other on-site disposal systems.

Does this community (or do these communities) rely on septic systems for sewage disposal?

- ◯ Yes
- ◯ No

Please describe what, if any, wastewater services are used in this community in lieu of septic systems or centralized sewer systems.

Where do community members rely on septic systems for sewage disposal?

- ◯ At home
- ◯ At work
- ◯ At all locations
- ◯ Other (vacations, short stay, etc.):

How often are the septic tanks maintained, cleaned, or emptied? Please provide your best estimate.

- ◯ Weekly
- ◯ Monthly
- ◯ Yearly
- ◯ Occasionally
- ◯ Never

Do you know if any septic systems are close to drinking water wells (< 100 ft)?

- ◯ Yes
- ◯ No

How close is the septic tank to the well? Please provide your best estimate.

- ◯ < 100 feet

- ◯ 100 to 500 feet
- ◯ 500 to 1000 feet
- ◯ > 1,000 feet

Are any of the individuals from the community relying on septic tanks showing symptoms of illness (rash, nausea, frequent diarrhea) or other observed health impacts (respiratory diseases) due to sewage exposure?

- ◯ Yes
- ◯ No
- ◯ I don't know

How often do people get sick? Please provide your best estimate.

- ◯ Rarely (< 29% of the time)
- ◯ Sometimes (30 to 49% of the time)
- ◯ Half the time (50 to 69% of the time)
- ◯ Very frequently (70 to 89% of the time)
- ◯ Always (90 to 100% of the time)

[${q://QID116/ChoiceTextEntryValue/2/1}] For the people or communities that you know of who do not have access to running water for water-related sanitation, please answer the following questions to the best of your ability.

Where do community members lack access to water for water-related sanitation needs?

- ◯ At home

- ◯ At work
- ◯ At all locations
- ◯ Other (vacations, short stay, etc.): _____

For how many years has this community lacked access to running water for sanitation needs? Please provide your best estimate.

- ◯ less than 1 year
- ◯ 1 year
- ◯ 3 years
- ◯ 5 years
- ◯ 10 years

[For ${q://QID116/ChoiceTextEntryValue/2/1}] How did you become aware of all the issues on this community that you have shared with us?

- ◯ I live or work in the community
- ◯ I know someone who lives in the community
- ◯ I have heard or read about these problems from third parties
- ◯ I have a professional relationship or responsibility to the community (e.g., county official, active research or community improvement projects, etc.).
- ◯ Other: _____

What, if any, types of sanitation solutions are currently used in the community?

What type of assistance, if any, has the community sought to address these issues? (Check all that apply)

- [ ] None
- [ ] Technical
- [ ] Financial
- [ ] Managerial
- [ ] Media coverage
- [ ] Talked to agency representatives
- [ ] Other
- [ ] Not Sure

Has there been a response to the community's concerns? If so, please describe.

End Questions

Are you aware of any studies or work to evaluate water-related sanitation needs in California?

- ◯ Yes
- ◯ No

Can you provide a title, reference, URL, or contact organization for this work?

Would you be willing to participate in a 15-20 Zoom interview to discuss these issues further? Any responses included in our state report would be anonymous.

- ◯ Yes
- ◯ No

What is an email address where we can contact you about a Zoom interview?

Could you refer us to anyone else we should speak to regarding these issues?

- ○ Yes
- ○ No

What is contact information for others we can speak to regarding these issues?

Could you refer us to anyone else we should send this survey?

- ○ Yes
- ○ No

What is their contact information?

Are there any sources of information or data that you would recommend for review to understand local sanitation needs?

Would you like to provide your contact information for this survey?

- ○ Yes
- ○ No

Please write down your contact information.

	Name	Email	Phone number
Your Information			

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APPENDIX 2. SURVEY RESPONSES

Q. Other problems related to water sanitation

These are all issues. However, the challenge is very community specific. Rural and remote areas are more susceptible to these challenges. In more urban/suburban areas, homeowners can experience dry wells.
Costs to upgrade systems
Raw sewage in the Tijuana River
Poor infrastructure results in fairly common backups
Lack of water quality data availability and transparency
Extremely old on-site wastewater facility that is failing, causing serious problems to community.

Communities Mentioned by the Survey Respondents

TYPE	COMMUNITY NAME
COMM	All communities within 5 miles of seashores and below 200ft elevation, but with Median Household Incomes less of $100K
COMM	Allensworth
COMM	Alton, CA
COMM	Auburn Lake Trails
COMM	Beckwourth
COMM	Boulder Creek
COMM	Catheys Valley
COMM	Coarsegold
COMM	Easton California
MHP	El Nido Mobile Home Park
COMM	Fallbrook Rural Areas
COMM	Fillmore, CA
COMM	Fontana in San Bernardino County
COMM	Fort Jones
COMM	Freeport (in Unincorporated Sacramento County, CA)
COMM	Golden Hills
COMM	Hacienda Heights
MHP	Hidden Creek RV Park in Trinidad, CA
COMM	Hung A Lel Ti Washoe Community
COMM	Imperial Beach
COMM	Last Chance Community
COMM	Loma Mar
COMM	Malibu
COMM	Matheny, CA, Tulare County
COMM	Mendocino
COMM	Monte Rio
COMM	New Cuyama

COMM	Over 129 communities in the eastern Coachella Valley
COMM	Pajaro
COMM	Palo Verde in Imperial County
COMM	Pescadero
COMM	Pinto Lake area
COMM	Portola Valley Town
COMM	Raisin City
COMM	Rancho Calaveras
COMM	Raymond
COMM	San Mateo County Coastside
COMM	San Ysidro, CA
MHP	Shady Lakes Mobilehome Park
COMM	Shasta Lake
FarmH	Small communities in the Central Valley
COMM	Stockton Disadvantaged Communities
COMM	Tehachapi
COMM	Tivy Valley
COMM	Topanga Canyon
MHP	Virtually any Mobile home community surrounding the Salton sea
FarmH	Virtually any unincorporated community of farmworkers
COMM	West Park, Fresno County
OTHER	Yee Haw Ranch in Trinidad, CA
COMM	Yucca Valley, CA
OTHER	The entire UNHOUSED community has sanitation issues.

Q. Has there been a response to the community's concerns?

*"Once complaints were filed with HCD in the mobile hom**e** parks, the issues were addressed, but not by replacing aging infrastructure, more through band-aid solutions. At the commune there has been media coverage when the Planning Department tried to close the housing down and fined the property owner, so the Planning Department backed down, but the problems still exist. The Planning Commission (Humboldt) has had one meeting recently to hear suggestions regarding Tiny Homes and the commune tried to include themselves, but there was no resolution or solution."*

"I believe someone from Leadership Counsel for Justice and Authority (LCJA) has helped in the past, but I'm unsure if the process is still happening."

"The city of Fresno has tried to develop a community (hookup) to the Easton Area without success. The Tivy Valley Area I am not disposed to connect but multiple county officials seem to be turning their blind eye to the situation."

"Unknown. They are served by the county of Monterey"

"The overall problem is that the CSD is tiny, with not enough human or financial resources. They have successfully applied for funding for arsenic abatement for the clean water, and other technical support. The challenge they see moving forward is to respond to county plans to develop housing in the townsite of new Cuyama. They may need to double their capacity for both clean water and wastewater."

"For decentralized systems, no funding is available. These systems are vital for communities in remote agricultural areas. For sewer consolidation there is funding available. However, very specific areas meet the minimum financial threshold requirements (i.e. project cost vs. number of households to be benefited)."
"Residents have been attempting to obtain extraterritorial wastewater services from the City of Fresno, located .3 mile away, for years. A dispute between the City and the County regarding who would run the facility has resulted in neither jurisdiction being willing to seek funding for the system improvements, even when State resources were available and the project was a good fit. Residents have had multiple meetings with government officials on the issue but the dispute between the County/City has prevented progress."
"In many cases, yes. Unfortunately, not in many others."
"Not that I know of"
"Not by the County agencies responsible"
"Nothing useful just more burdensome regulations"
"Yes, there is a study underway"
"The State Waterboard should treat all unhoused camps as violations of the Clean Water Act since sewage is disposed in the open, above ground, and in creeks and streams directly, with no treatment. If a City sewer system has an overflow of sewage, the City faces fines and is obligated to restore the environment and correct the problem."
"No"
"I have attended a several area CSD meetings where the concerns were addressed. But, nothing to my knowledge has been done to resolve the septic hot spot issues as well as issues with a small wastewater package plant and a wastewater facility."
"Federal and state agencies are not resolving the issue."
"They feel the response is slow."
"No a good one"
"Sonoma County is investigating West County sewer connections"
"EPA has requested FOIA documentation request"
"Farm labor housing has gotten a response."
"Not sure."
"The County of Sonoma has hired a consultant who is studying wastewater issues. The study is not complete but it appears that solutions will be very expensive and the community will need grants to make it affordable."
"I believe the City of Trinidad provided financial assistance for replacement when the septic system failed previously, approximately six years ago. Local health agency is periodically visiting site to document status of sewage overflows and require septic tanks to be pumped as necessary until a permanent fix can be completed."
"Local health department has been in contact with property owner to advise on acceptable means of wastewater disposal."
"Unsure"
"Yes, public outreach, cleanups, enforcement and many other programs the City offers."
"Funding is available, but additional studies are needed that the funding source cannot pay for. They also require technical assistance to get the project over the finish line."

"The community is currently seeking funding for a project to connect the mobilehome park to the Malaga wastewater system but the project is slow going and has not yet succeeded."
"Some county supervisors have expressed concerns."