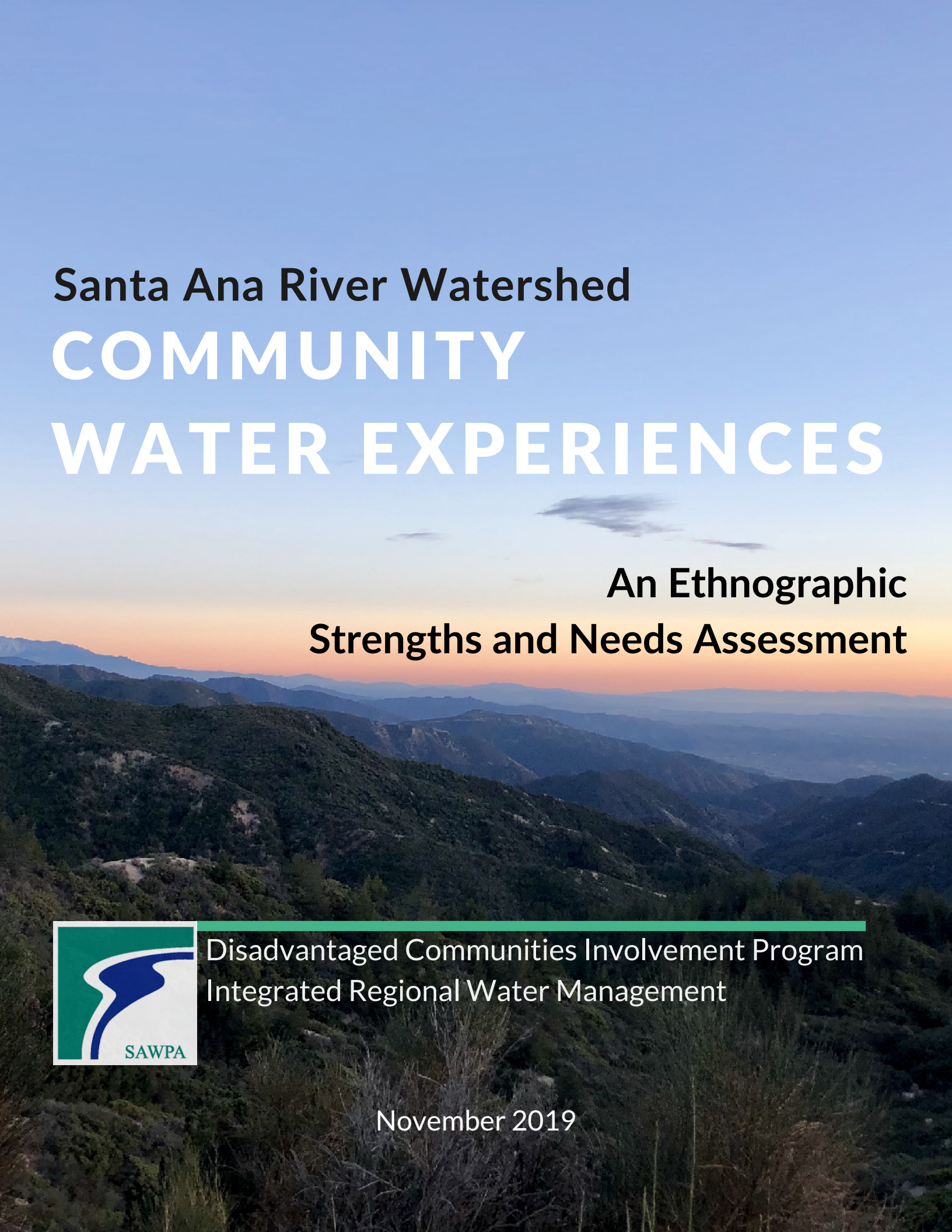

Santa Ana River Watershed
COMMUNITY WATER EXPERIENCES

An Ethnographic Strengths and Needs Assessment

Disadvantaged Communities Involvement Program
Integrated Regional Water Management

SAWPA

November 2019

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Santa Ana Watershed Project Authority
CivicSpark - AmeriCorps

California State University San Bernardino
California State University Fullerton
California State University Water Resources and Policy Initiatives

University of California Irvine

Leaders for Livable Communities
Local Government Commission

California Rural Water Association

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Integrated Regional Water Management
Disadvantaged Communities Involvement Grant Program

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Gift basket woven out of sweetgrass that includes tobacco, a Tongva necklace, chia seeds, sunflower seeds, and sage / *Provided by James Fenelon*

INDIGENOUS LAND AND WATER ACKNOWLEDGMENT

We acknowledge that the land on which we live, and the waters that pass through these lands, are the traditional and unceded territory of the Indigenous Peoples, the California Indian Nations, who have lived with good relations for thousands of years here – the San Manuel Band of Mission Indians, Yuhaaviatam (Yu-ha-vee-a-tom), Tongva peoples as traditional caretakers of Tovaangar (including lands of the Santa Ana River Watershed), the Cahuilla (many Tribal nations south and east of the Santa Ana River Watershed), the Luiseño (south of Santa Ana River), and the Acjachemen (aka Juaneño where the Santa Ana River meets the ocean, now Orange County). The authors of this report acknowledge the past erasures and exclusions enacted by the nation-state and in the spirit of collaboration and engagement, this acknowledgement recognizes Indigenous Nations who continue to resist, live, and uphold their sacred relations across our lands, from the mountain headwaters to where the River meets the ocean. We also pay respect to our elders past, present, and future and to those who have stewarded this land, and these waters, throughout the generations.

- James Fenelon (Dakota) with Julia Bogany (Tongva, Acjachemen) and Luke Madrigal (Cahuilla)

Big Bear / *Photo by Erica Fletcher*

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ACRONYMS AND ABBREVIATIONS

CRWA	California Rural Water Association
CSUSB	California State University San Bernardino
DCI	Disadvantaged Community Involvement Program
HOA	Homeowner's Association
IRWM	Integrated Regional Water Management
LGC	Local Government Commission
MAC	Municipal Advisory Committee
OWOW	One Water One Watershed
PTA	Parent Teacher Association
SAWPA	Santa Ana Watershed Project Authority
UCI	University of California, Irvine
VOC	Volatile Organic Compound
WRPI	Water Resources and Policy Initiatives

San Bernardino Mountains / *Photo by Marisa Perez-Reyes*

EXECUTIVE SUMMARY

***Authors*: SAWPA DCI Team**

Today, California communities face challenges that demand new ways of engaging local voices in decisions. New state government programs, plans, and policies are responding to this demand, including the Greenhouse Gas Reduction Fund, the Clean Drinking Water Program, and, most critically for this report, the Integrated Regional Water Management Program. Voters and agencies now require that public resource management, planning, and project implementation include community members.

Equitable planning processes reflect the needs of the communities being served. Historically, public resource agencies have claimed the "expert" role by seeing problems through the lens of their own missions and goals, engaging community members only after they determine needs and subsequent projects. This one-sided view fails to ensure adequate community consultation and transparent decision-making.

As a result, public planning processes are often disengaged from the communities they are supposed to impact. This disengagement can hamper growth, decrease civic involvement, reinforce social inequality, and confuse public groups about the motives of public agencies.

A growing body of social-science research suggests that agencies must build community involvement into the earliest phases of planning. By doing so, agencies can better serve the diverse communities that exist within their jurisdictions. By recognizing community members as local environmental experts, SAWPA and its project partners introduce **civic ethnography as a new way to mobilize local knowledges and regional resources.** Using this process, water agencies can design programs and policies that more accurately reflect community strengths and needs, thereby strengthening community sustainability and resilience.

How was this report created?

Integrated Regional Water Management (IRWM) is California's primary method for incentivizing water resource planning at the regional scale. The public benefits of integrated regional planning are well documented. When implemented with community input, IRWM can improve the safety, accessibility, and affordability of water, especially for members of designated "disadvantaged" or underrepresented communities.

The statewide Disadvantaged Communities Involvement (DCI) grant program was developed to involve economically burdened communities in IRWM decision making. In the Santa Ana Funding Region, the Santa Ana Watershed Project Authority chose to implement a DCI program using novel social scientific processes developed by the University of California Irvine and implemented in partnership with California State Universities San Bernardino and Fullerton, the Local Government Commission, and the California Rural Water Association.

This project's ethnographically-informed approach aims to innovate public administrative and water planning processes. It allowed project partners to listen to people talk about their water experiences in the civic contexts of their everyday lives. In addition, rather than conducting a traditional needs assessment centered on physical structural problems, project partners sought to understand both the **physical and sociocultural strengths and needs** that shape community experiences with water.

The project's listening-based method **focused on the lived experiences of people living in designated "disadvantaged" communities and the decision-makers that serve them** to create baseline data for analysis.

What this report includes

This report demonstrates how water systems are collectively understood—and misunderstood—by various groups in the watershed. Project partners conducted "listening sessions" with the following groups: Native and Tribal communities, other local communities, elected officials, water agencies, and mutual water companies. The report begins by explaining how listening sessions were designed and how data was collected. Next, it offers key findings gleaned through these processes. (Note: detailed session-specific findings can be found in Appendix 3: Listening Session Thematic Detail Tables).

The final Findings Section analysis elaborates on the data's top four strength and need themes—**Water Management, Water Rates and Cost, Communication, and Water Quality**—by comparing how different groups experience them. Showing how group perspectives converge and diverge can better inform IRWM planning and projects.

Lastly, the final two sections present next steps, key conclusions, and recommended starting points for water-related agencies and water decision-makers.

Moving forward

The long-term goal of this effort is to **better distribute resources to alleviate needs and empower strengths by refining the project identification and development process**. This ethnographic strengths and needs assessment takes a step toward bridging the gap between technical resource management and the insights and priorities of structurally disempowered communities.

Further work is required, however, to apply the findings uncovered in this analysis. The concepts uncovered through the listening process are complex and unfamiliar to most resource agencies. In order for the findings to make tangible differences in the lives of the community members who voiced them, resource managers must continue to engage with the concepts uncovered and seek to "translate" them into actionable projects. This report takes the first step in linking community strengths and needs to technical assistance, but further thought and effort are required for long-term, meaningful impact. **It takes sustained effort to ensure that communities are equitably involved in planning decisions and the eventual evaluation of those decisions—there are no short-cuts.**

The Santa Ana Watershed DCI Team anticipates that the findings presented here will support work well beyond the funds provided by this grant alone. This team is eager to see how agencies and organizations respond to and build upon this program's efforts.

Cajon Creek / *Photo by SAWPA*

INTRODUCTION

From Integrated Planning to Inclusive Involvement

The Santa Ana River Watershed is the second largest watershed in Southern California. It is home to over six million people who inhabit 2,840 square miles of mountains, plains, and coastline. Water flows in and out of the watershed through natural and built structures, including rivers and aquifers as well as dams and pipes. This document supports ongoing collaborative efforts to adapt and strengthen these structures to make water accessible, safe, and affordable to all.

This report shows how watershed community experiences are shaped by two kinds of structures: sociocultural and physical. Structures are the strongly connected things and relations that shape our lives. Sociocultural structures are made up of combined social processes and cultural elements. These include community identity, group cohesion or differences, income and housing disparities, racism, and shared language or language barriers. Physical structures support social structures. These include rivers, aquifers, water distribution systems, treatment facilities, recharge areas, and flood-prone spaces, culminating in different levels of water quality. **Community water experiences happen at the junctures of these sociocultural and physical structures.**

> **"So in a nutshell, all of the social ills, in one way or another, impact the quality of clean, pristine water. All of them. I don't think there is one, whether it's industrial, whether it's the economy, whether it's existing, or pre-existing environmental concerns, whether there are or not, it's irrelevant . . . Everything impacts water, and water is life. It's that one drop of water [with which] we all either exist, or not."**
>
> **- Elected Official**

LISTENING BY THE NUMBERS

53 listening sessions held

346 people speaking about their watershed experiences

82 hours of conversation

Watershed communities are connected and disconnected by their diverse experiences with water structures. Our report centers on a sample of perspectives from communities that are not regularly consulted about their water needs. Communities like these are recognized by the Department of Water Resources as "disadvantaged" if significant numbers of households report incomes less than 80% of the state's median household income ($71,805 in 2017). This report uses the term "disadvantaged" when this official designation is relevant to its analysis, but project partners prefer to refer communities with economic and social burdens as historically underrepresented, overburdened, and structurally disempowered. Labels such as "disadvantaged" can impede relationship-building between agencies and communities.

This project goes beyond the "disadvantaged" label by identifying community strengths as well as needs. By attending to these different water experiences, our project

- Identifies key structural strengths and needs,
- Establishes new ways to solicit potential water projects, and
- Pilots sustainable evidence-based community involvement processes.

Programs to end community underrepresentation in planning and to support community strengths must address both social and physical structures. In 1968, water agencies in the Santa Ana Watershed began to coordinate water planning within the four counties through the Santa Ana Watershed Planning Agency. In 1972, the Planning Agency reformed as the Santa Ana Watershed Project Authority (SAWPA) with the purpose of planning and implementing projects that protect water quality and provide water resources throughout the watershed. Today, statewide Integrated Regional Water Management (IRWM) processes make it possible for agencies to coordinate the social and physical aspects of water planning efforts. In particular, SAWPA's IRWM plan, "One Water One Watershed (OWOW)," is redesigning the scope of watershed integration. The OWOW plan promotes the equitable management of physical watershed resources by encouraging agencies to directly engage communities, particularly those that have been historically underrepresented in decision-making.

Big Bear/ *Photo by Erica Fletcher*

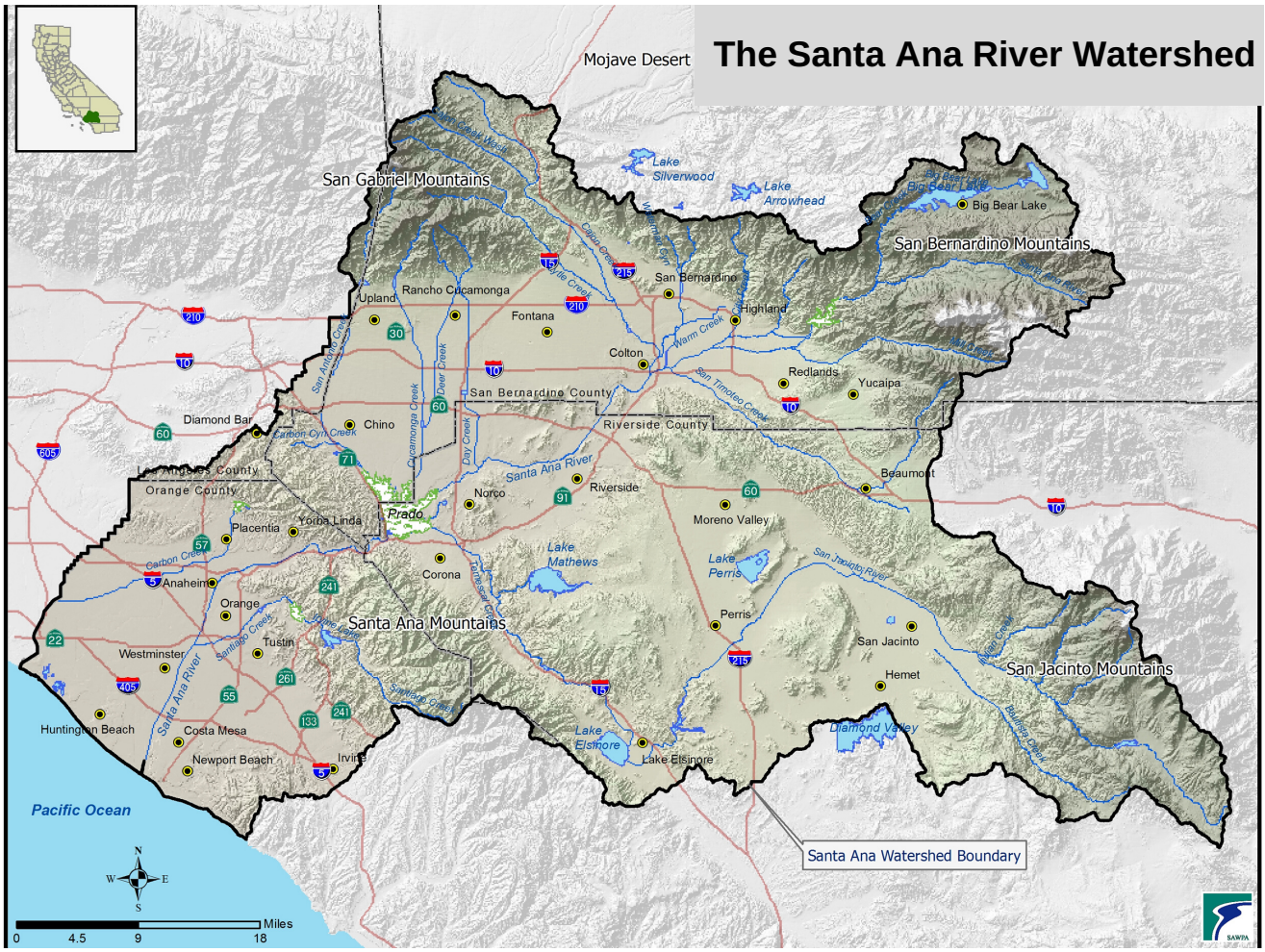
In 2017, SAWPA formed this strengths and needs assessment partnership to advance integrated and socially inclusive watershed planning. After passing in 2014, Proposition 1 provided grant funding for IRWM regions to assess community water needs and develop new ways to involve them in watershed planning. Within the Santa Ana watershed, 1.7 million people - or nearly 1 out of 3 residents - meet the economically "disadvantaged" category, but they experience other forms of structural inequality. For example, Native, Tribal, and indigenous people face ongoing exclusion from water access and delivery planning. People who are recent immigrants or who speak languages other than English can be similarly left out of water decision making. Despite these exclusionary experiences, underrepresented watershed communities remain vibrant with strengths and lead efforts to build healthy neighborhoods, conserve water, and create green spaces.

"We get along with our neighbors...We help each other."

- Santa Ana community member

This report puts "disadvantaged community" experiences into relationship with perspectives from decision makers and water providers. By highlighting how members of these groups have watershed experiences and perspectives that "connect" and/or "disconnect" from those in other groups, the report can offer new bridges of understanding and involvement. This supports the **methodological aim of the project: to integrate assessment with the next stages of involvement.**

The project's products and outcomes were achieved using ethnographic methods. Ethnography is a social science technique for gathering sociocultural information through open-ended listening in everyday spaces over extended periods of time. Asking community members to share their "water stories" validates place-based data collection and connects water managers and providers with the people they serve. Unlike survey research, ethnographic methods can cultivate new face-to-face partnerships and situate strengths and needs themes within broader social contexts.



This report illuminates diverse community water experiences. The report's thematic analyses and representative quotes provide direct evidence about what kinds of projects can support or assist diverse communities that make up the majority of our watershed's population.

The next section describes the project's methods. Its ethnographic approach is not meant to replace other forms of assessment, but to better inform quantitative processes such as survey research or systems studies. The ethnographic approach can, for example, reveal why communities don't "trust" tap water or why non-water related problems, like housing and education, might best be addressed in tandem with water problems.

(L) Community listening session (R) Data analysis with WRPI Interns
Provided by The Newkirk Center for Science & Society

METHODS

Integrating Involvement and Research

Ethnography for Planning and Policy: Gathering "Water Stories"

Ethnography is a qualitative method that produces holistic analyses of social experiences. Ethnographers spend extended periods of time in communities, listening to local people and participating in their everyday activities. Unlike survey research, ethnographic research analyzes whole narratives within their social contexts. U.S. public agencies have begun to adopt field-based methods like ethnography to better inform their processes. **Ethnography has the potential to remake public servants' and companies' relationships with communities.**

A "civic ethnography" process enables partners within government, local organizations, and academia to listen and respond to community water stories. Process benefits include face-to-face community interactions and collaborative data gathering. Its drawbacks are that it is time-consuming and that it requires hands-on interpretive analysis. All of these features, even the drawbacks, are strengths within the Proposition 1 assessment environment. **When people involved in water policy implementation conduct civic ethnography, responsive data collection can become a form of community engagement.**

To put civic ethnography into action, we conducted a two-year strengths and needs assessment. This ethnographically-informed process consisted of four activities: **engagement, listening, analysis, and community conversation report-backs.** Social groups know that water agencies usually assess water systems themselves and decide what communities need; **our engagement and listening processes reverses one-sided flows through knowledge-sharing.**

Engagement: Community Inreach vs. Outreach

During both project years, partners used network sampling methods to engage five social groups: Native communities, other diverse local communities, elected officials, water agencies, and mutual water companies. In addition to gathering water stories from these groups, partners aimed to develop or strengthen relationships between residents of designated "disadvantaged" communities and the institutions that serve them (e.g. government agencies, elected officials, water agencies, and mutual water companies).

To prepare for these sessions, the UCI Anthropology team trained project partners to conduct ethnographic interviews using an interview protocol (see Appendix 1: Listening Protocol). In addition, project partners learned how to: describe the project to participants, facilitate and audio-record meetings, ask open-ended questions, record whole responses, and take field notes about what happened in each meeting. As we describe in the Evolving Involvement section, water-related agency personnel will be trained to conduct a version of this process.

Sessions with elected officials, water agencies, and mutual water companies occurred only in the first year and were done one-on-one or in small groups. During both years, Native and local community listening sessions took place as large focus-group-style conversations. Partners engaged participants in all four counties of the Santa Ana River Watershed, but less than 45 square miles of Los Angeles County fall within it. Therefore, most data comes from three main counties: Orange, Riverside, and San Bernardino. Project partners used existing contacts and GIS information about "disadvantaged community" areas (see Appendix 4: GIS Tool) to locate appropriately situated community-based organizations who agreed to host these events. These host groups serve people who qualify as economically "disadvantaged," as well as those belonging to social groups considered underrepresented in water planning processes. Such groups included but were not limited to: non-English-speaking people, people of color, women, immigrants and undocumented people, people experiencing homelessness, and seniors.

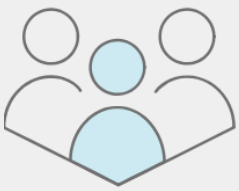
Core Tenants of Community Engagement

Listen

Respectful listening fosters community "inreach" and knowledge sharing as opposed to uni-directional "outreach"

Value Local Expertise

People are experts on their own communities and experience(s)



Understand Belonging

Each person is a member of multiple communities. These communities are defined by shared experiences, values, and perspectives, not simply by geographic boundaries

Listening Sessions

Project Year	Participant Group	Facilitators	Number of Sessions	Total Participants
1 and 2	Native, Tribal, and Indigenous Peoples	CSU San Bernardino	4 formal (6 supplementary)	66+ formal (200+ total)
1	Local Communities	CSU San Bernardino CSU Fullerton UC Irvine Department of Anthropology	7	68
1	Elected Officials	Local Government Commission	11	13
1	Mutual Water Companies	California Rural Water Association	8	12
1	Water Agencies	SAWPA and UC Irvine Department of Anthropology	11	16
2	Local Communities	UCI Newkirk Center for Science and Society	12	171
		Total	**53**	**346**

The first year community listening session efforts organized by CSU Fullerton and CSU San Bernardino used a variety of existing contacts and GIS information to identify sites and groups that would invite "disadvantaged" community involvement. These methodologies are part of a larger effort by the CSU San Bernardino partners to innovate the identification of "disadvantaged" communities in order to make outreach more inclusive and effective (see Appendix 4: GIS Tool).

The participants in the local community sessions for both years of the project are not a statistically representative sample of designated "disadvantaged" communities in the watershed, but instead represent key segments of these populations. These sessions ranged in size from two to fifty people and lasted between one and two hours.

During the second year, the UCI Newkirk Center team used the lessons learned from the first year and applied research-based community engagement best practices to conduct 12 additional local community listening sessions. The team used criteria to identify host community groups that were similar to those used in the first year and further refined them.

"I think that there's a lot of diversity within different communities that we come from...but also traditional cultural knowledges are still here and still fighting to be acknowledged..."

- Santa Ana community leader

The team's aim was to put relationships first in order to counter the well-documented history of institutions engaging in extractive rather than responsive interactions with designated "disadvantaged" people.

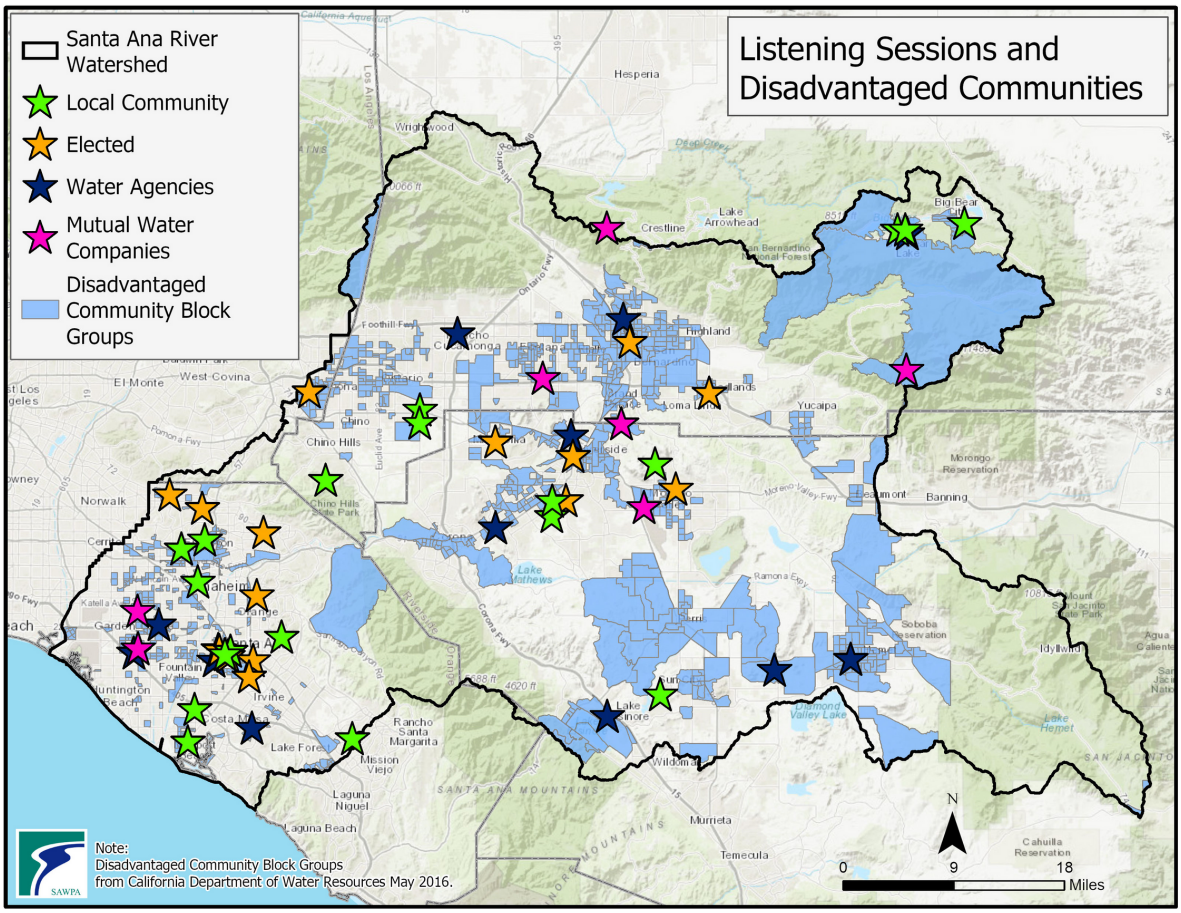
The Newkirk Center team's intensive outreach strategy included emailing, multiple telephone calls, and in-person planning meetings with community-based organizations, nonprofits, and public service providers. They worked with host organizations to determine the best days and times for each session and plan for additional needs such as childcare or language translation requirements. This process ensured that the listening sessions would occur in a "warm" and welcoming social environment.

During the sessions, facilitators encouraged inclusive and conversational interactions. They also solicited feedback in the form of comment cards, which, when warranted, were also coded as strengths and needs data in case participants were not comfortable engaging verbally. Half of the second year sessions were conducted in Spanish, as Spanish speakers comprise nearly half (46%) of the watershed's designated "disadvantaged" communities.

In order to facilitate further interactions between water agencies and communities, the Newkirk Center team made "report back" commitments to their host groups and participants. They initiated arrangements for return visits in each county. In each session, they informed community members that they would return with water agency personnel to answer questions as well as to report the project's general and relevant local findings.

As the listening sessions were conducted, the UCI Anthropology team transcribed and translated (or had SAWPA translation services transcribe/translate) audio recordings. Concurrently with this process, the CSUSB Native listening session team conducted and analyzed their listening session data. Their analysis is the first one presented in the Findings Section. Following this are the UCI Anthropology team's summary analyses of all local community, elected official, water-related agency, and mutual water company session data.

The UCI team created 54 thematic codes to conduct its strengths and needs analysis. These codes were derived from topics that listening session participants voiced and in consultation with SAWPA managers. Many of these codes are water planning concepts vital to state and local water planning, such as "water quality," "flooding," "septic and sewer," and "infrastructure," but others reflect themes important to session participants such as "public and green spaces" and "housing." These codes are listed and described in Appendix 2: Data Analysis Theme Codebook.

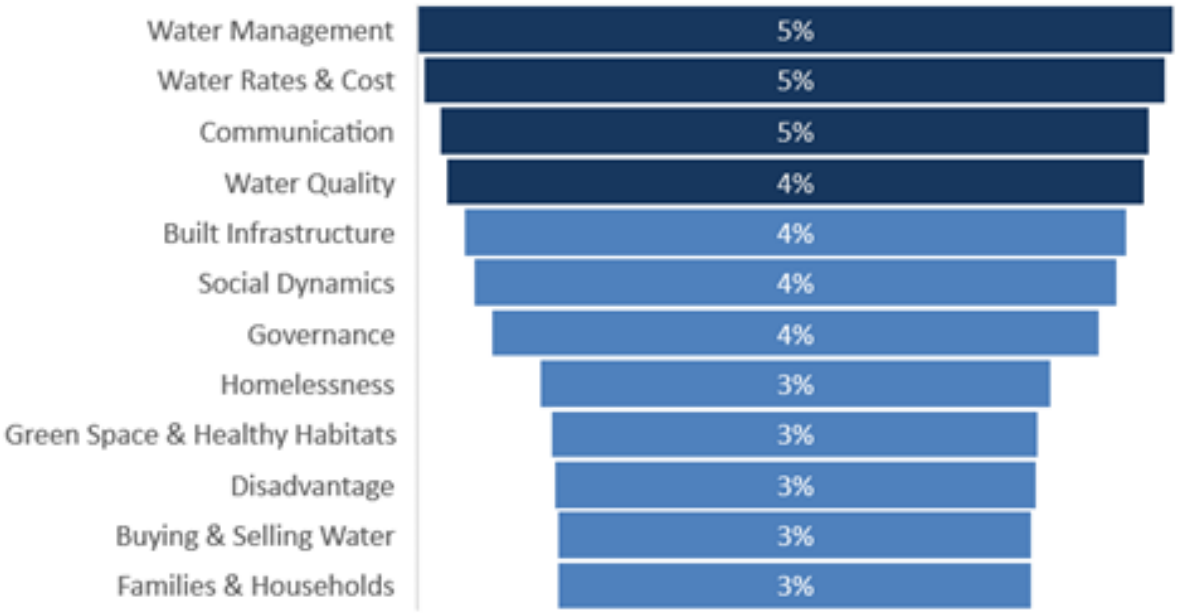


The team coded listening session data by hand and using a qualitative software program, but coding can also be done in any word processing software. These coding processes allowed the teams to identify key discussion themes, then count strengths and needs voiced within each theme. **It also brings to light how themes cluster in people's narratives and in different locales, revealing potential water projects.** As described in the Evolving Involvement section, this process is informing a variety of vital new processes and activities.

The Findings section, below, presents high-level thematic analyses by discussing the top four to six themes that emerged from each participant group's data. Depending on the group, these top themes account for between 25% and 50% of all thematic coding. The more detailed thematic breakdowns in the Listening Session Thematic Detail Tables section (Appendix 3) also display, in percentages, the proportion of strengths and needs for each theme. For example, when participants speak about "water quality," some refer to it as a strength in their community whereas others spoke of it as a need. Sometimes people spoke of themes as both strengths and needs, therefore, in some cases, the percentages add up to greater or less than 100%.

The Listening Session Thematic Detail Tables Appendix provides a more comprehensive display of strength and needs themes for all participant groups. The first tables provide a categorical analysis for the two Native listening sessions. These are followed by detail tables for each of the 19 local community sessions.

Top 50% of All Themes in the Listening Sessions Dataset
All Sessions, All Participants

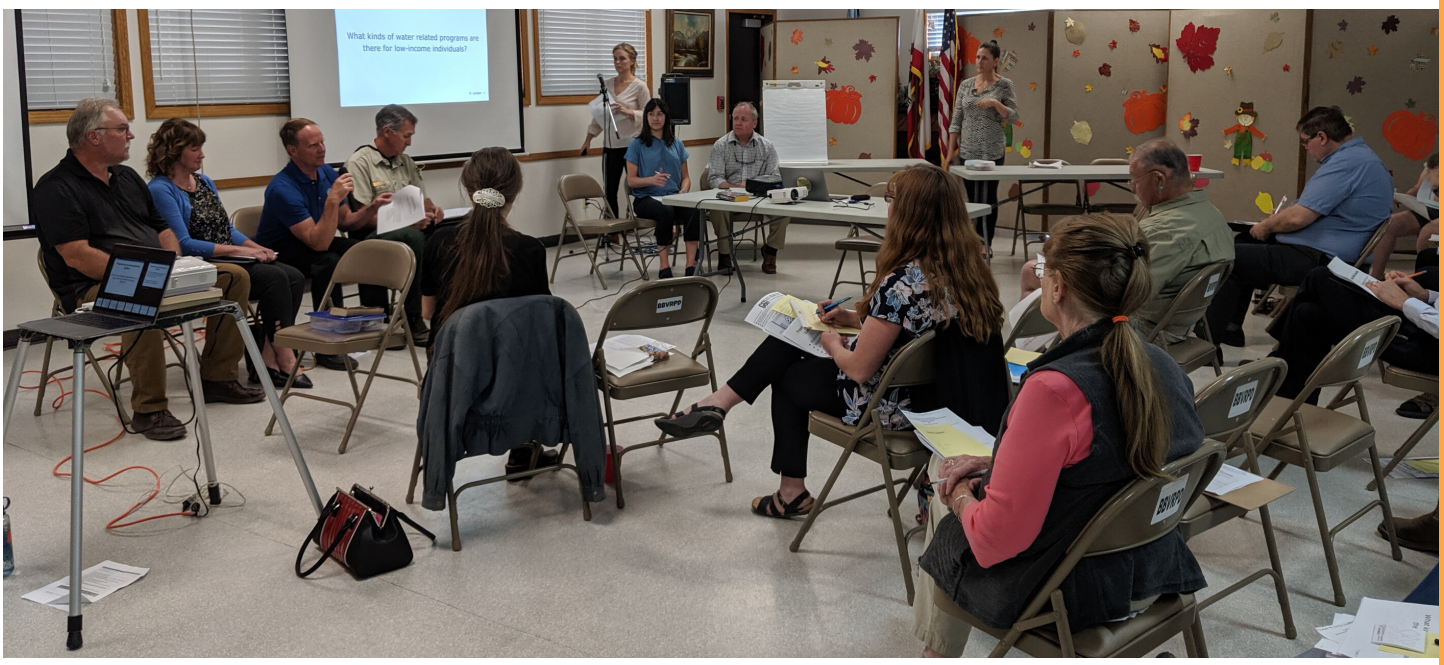


Theme counts rendered into rounded percentages

The **top four themes** above - **Water Management, Water Rates and Cost, Communication, and Water Quality** - are discussed in further detail in the Connections and Disconnections analysis, p 39.

Next come tables for elected officials (grouped by county), then those for water agencies and mutual water companies (each grouped by watershed management area). In these tables, quotes illustrate each top theme's strengths (S) and needs (N). **These quotes reveal vital contextual information about communities' different experiences and perspectives.** In some cases, quotes have been edited or redacted to improve clarity or protect places and identities. Note: some readers may object to terms or opinions expressed, but these terms and opinions are those of the speakers and may not reflect those of the authors or SAWPA.

The last feature in the Findings section is **Connections and Disconnections**, which compares participant perspectives on the top four themes: water management, water rates and cost, communication, and water quality. These comparative analyses are intended to stimulate conversations about how and why different social groups may view watershed structures differently. We recommend such comparative analyses as models for making sense of variations in strengths and needs assessments. Such comparisons can inform next-steps, planning processes, and community dialogues.



Community Conversation Report-Back in Big Bear
Provided by The Newkirk Center for Science & Society

Community Conversation Report-Backs: Establishing Involved Dialogues

The final phase of the ethnographic process is dialogue-based: bringing assessment findings and water agency personnel into communities. In the fall of 2019, the Newkirk team designed three community conversations (one in each major watershed county) to present data and invite community members to respond to the results. Facilitators of these report-back sessions displayed the top themes derived from the analysis for communities in the watershed as a whole, then presented county- or community-level snapshots. The process showed attendees how the strengths and needs assessment information can be used and communicated the impact of their participation. Attendees were solicited for their feedback in real time, which provided an additional layer of assessment information.

The Community Conversations also included water agency personnel, who answered questions and shared information about SAWPA's Disadvantaged Communities Involvement and Technical Assistance programs. Project partners also provided information on how the report is being and will be used and how it will be made accessible, such as via Spanish translation. This can help to counter public perceptions that government agencies engage communities in a "one and done" mode, in which data is extracted and put in reports that are difficult for community members to access.

"I pay the bill to [my landlord]. He is the one that goes to the water agency. I don't know anything about the services, or anything related to the water agency."

-Renter in Fullerton

Doing Civic Ethnography: Partner Experiences

Project partners reported a variety of experiences conducting civic ethnography. While some partners and their stakeholders found the process unusual or confusing in the beginning, most partners found the resulting open-ended conversations useful and illuminating. Interviewers reported difficulty controlling the flow of conversation; it required a skilled touch to help participants voice water-related topics of interest, since the open-ended structure tended to open up the conversational space rather than elicit specific detail. The Santa Ana Watershed DCI Team also concluded that **conversations were most effective when participant groups were interviewed by organizations or agencies that have a strong understanding of that stakeholder group**. For example, the Local Government Commission's grasp on the elected leader mindset and the California Rural Water Association's knowledge of challenges facing mutual water companies were assets as they conducted listening sessions with those participant groups.

Limitations of this Engagement, Listening, & Analysis Process

The piloted processes documented in this report provide useful information to support ongoing community engagement efforts and assessments. As is common with pilot programs, several limitations exist. These include: implementation costs, long-duration time commitments, limited kinds and numbers of community members engaged, large numbers of variables, and a complex analytical process. In addition, report findings may not fully represent community strengths and needs, given the limits of our network sampling process and on the numbers of sessions that could be conducted. However, these findings can inform next steps, including the expansion of community inreach processes, the development of more nuanced surveys, the workflows to conduct systems analyses, and criteria for awarding program funds, based on community strengths and needs.

Guide to Reading the Strengths and Needs Findings Section

Each analysis presents how session participants spoke about the key "physical" and "sociocultural" structural dimensions of water, and how they experience the intersections of these dimensions. This advances the aim of the report, which is to show how water is both a social and physical substance, and that making it safe and accessible for all people requires responding to how communities experience these structures differently.

Cucamonga Peak, San Gabriel Mountains / *Photo by Daniel Kosiba*

FINDINGS

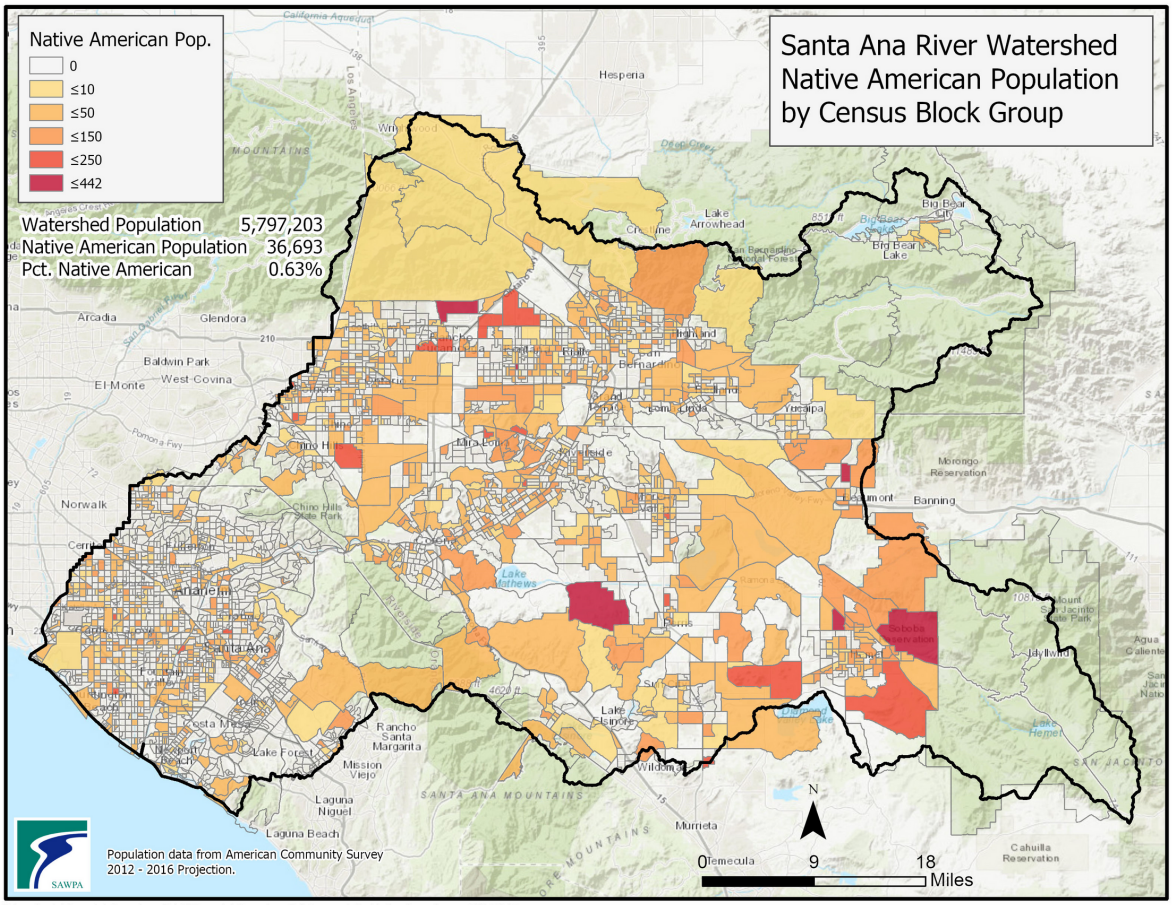
1. NATIVE COMMUNITIES

Authors: CSU San Bernardino Native Listening Session Team

This section presents a strengths and needs assessment, engagement, and listening program designed by and for people who belong to Native, Tribal, and Indigenous local communities. The California State University San Bernardino (CSUSB) Native listening session team consisted of members who have close ties with Native communities in the Santa Ana River Watershed. Approximately 36,700 individuals in the watershed identify as Native American. Of these, many belong to the historic residents of the watershed, including the Tongva, Cahuilla, Luiseño, and Acjachemen (aka Juaneño) peoples. (1)

Team members developed a Tribal Water Summit, coordinated by Tribal representatives in conjunction with the state of California and other stakeholder groups, in order to prepare deeper inroads into the experiential and socio-political understandings needed to operate in our region.

1. Many scholars and some Native or Indigenous writers use the terms "Tribal", "Native", and "Indigenous" interchangeably, but there are no singular definitions of these terms. Authors (Indigenous or First Nations) stress differing usage of the terms, (for purposes of this report), making the following operational definitions that can be applied. Tribal: most common historical usage, many laws and official reports use this now arcane, but still legal, discourse (i.e. Tribal sovereignty, e.g. Indian tribes). Native: this generic term refers to many of the Nations or Tribes or Indian Reservations within North America, and sometimes the western hemisphere, and beyond, especially with Nations, (i.e. Native or First Nations, e.g. Native Americans). Indigenous: the broadest and internationalist usage; it now enjoys the greatest acceptance, although lacks specificity in U.S. law and recognition discourse (i.e. Indigenous Peoples, e.g. Indigenous Peoples UN Declaration). - Noted by Professor James Fenelon, Center for Indigenous Peoples Studies, CSUSB



This CSUSB-based team participated in planning and coordination for the entire summit and contributed to the overall success of the summit while learning lessons about planning for initial listening sessions. This process resulted in additional listening sessions that presented opportunities to learn from Indigenous Communities regarding their unique cultural, historical, and present perspectives on water-related themes and issues, including strengths and needs. **These events involved a total of over 200 participants and are described below:**

Four preview Native informational and presentation events (2017)
The Tribal Alliance held informational meetings with the Torres-Martinez, Cahuilla, and Morongo peoples. These meetings included over 100 participants, buttressed by formal and informal interviews and rolling discussions with various Tribal managers, leaders, and active members, including two Native team leaders, Julia Bogany and Luke Madrigal.

Two formal listening sessions (2018)
The first formal listening session was held at the Tongva (youth) Cultural Center, was Tongva-led, and included "urban" Native American participants. The second listening session was Cahuilla-led and included many other Native/Tribal participants from California and nationally known Tribes. The second session produced even more responses and data than the first, including cultural water stories.

These sessions included at least 40 participants.

Two field-testing sessions (2019)
A multi-Tribal session was conducted at a professional office in Temecula in order to collect further data to field-test responsive output and suggestions from earlier listening sessions. A second field-testing session was held at the University of California, Riverside (UCR), with the support of their Policy Institute. This session was Cahuilla and multi-Tribal and included over 20 participants. Cultural perspectives were shared informally at Temecula and formally at UCR. Legal policy breakdowns were shared at UCR in a professional presentation.

Two formal follow-up feedback-response sessions (2019)
The first formal feedback-response session was held at Claremont Colleges; this was Tongva-led and included multiple Tribal participants including Chumash representation. At this session, the Native Listening Session Team presented findings and elicited direct feedback and suggestions for potential projects. The second feedback-response session was held at the Sherman Indian School, was Cahuilla-led, and included multi-Tribal participants. Here, the team shared initial analysis output and probable findings. A Cahuilla-Apache-Tribal woman with emphasis on water and sacred lands also presented. These efforts reached over 200 participants.

Rubidoux Mountain / *Photo by SAWPA*

Native Listening Session Findings: Perspectives from Cahuilla, Tongva and Urban Natives

Each of the sessions had representatives from multiple Native/Tribal communities, including the Cahuilla, Tongva, Payuchi, Chemehuevi, Acjachemen, Luiseno, Serrano California Peoples, Apachean, Taino, Huichol, Penobscot, and Lakota, to name a few. Participants ranged from community leaders, to Tribal lawyers, ex-chair and Tribal council members, Native academics, medicine people, singers, college students, and Native veterans and others.

General themes emerged from these sessions, including participants' perspectives related to their spiritual connection to water and their role, or lack thereof, in decisions about water that may impact the greater community. This often included recognition of historical documentation of seasonal rains, including how water connects to the land and wildlife. Over time, the diversion of water resources to serve development has resulted in changes to wildlife diversity and cultural activities, including access to water for cultural activities and native plants.

Although there is a strong interest to be recognized and represented when water-related decisions are cultivated, **participants conveyed that communication with governmental entities is inconsistent, therefore Native/Tribal concerns and beliefs are often marginalized.**

Table 1. ***Perspectives in Cahuilla Land*** Strengths, Structural Challenges, and Needs Example Quotes

Strengths	Structural Challenges	Needs
• Water is a rich theme across these communities in respect to their spiritual connection to the Earth and water rights. • Recognize that water dictated where people settled and as such we should be mindful that if this is taken away it will impact communities for present and future generations. • Water can heal solutions are in our landscape. • Recognize that water is part of all communities not just Native/Tribal communities. "We don't own it, it owns us."	• Trends in water management have created barriers for them to connect to the land and water spirits (gates, reservoirs, etc.). • Designation of "Disadvantaged" is derogatory and often creates barriers to participation in decision making processes. • Lack of representation in governmental process means they are often "marginalized" in respect to inclusion on water decisions. • Many don't get involved until it impacts them as individuals.	• Community needs opportunities to contribute to water management by sharing their knowledge related to their documented historical records to accurately recognize water and its contributions to communities and help to address how to we balance development with the rights of water (spiritually). • They want to learn to "talk water" with water community (i.e. agencies, providers, etc.). • Want action oriented results.

Table 2. ***Perspectives From Tongva and Urban Natives*** Strengths, Structural Challenges, and Needs Example Quotes

Strengths	Structural Challenges	Needs
• Historical wisdom of Environment; understand cause and effect. • Coordinate and Host outreach summits. • Line of communication with Tribal government and other sovereign people.	• Concerns fall on deaf ears • Profiteering water districts steal water to sell back to them. • Government agencies do not want to recognize, listen to Tongva people because they know it's native water and they don't want to recognize native rights. • Agencies and water companies take from the land and do not give back to the land or communities. • Discrimination.	• Respect for rights and needs. • Need to transition from a consultant to a decision maker in water issues. • More accountability of companies and government agencies related to water management. • Greater understanding of water governance and agency roles to build coalitions. • Unity across all communities: non-Native, Native, government, etc.

As a result of this exclusion, **many Native/Tribal communities feel they need to formally "claim [their] water rights" to gain recognition in water governance and management,** which often results in conflicts with water agency missions and objectives. It was noted, however, that to participate in such decisions, they need to be more organized in their participation strategies. During the sessions, it was suggested several times that the inclusion of Native/Tribal communities would enhance water management because of their unique history and spiritual connection to water, which recognizes the responsibility to balance human needs while simultaneously supporting ecosystems.

The listening sessions produced several strengths, structural challenges, and needs (Tables 1 and 2) as expressed by the participants. Categorical results of audio recordings taken during the listening session and analyzed using NVivo software are presented in Appendix 3: Listening Session Thematic Detail Tables.

Next steps

The Native listening team is currently conducting two Orange county sessions. Findings from these sessions will be included in this report when they are finalized.

Community Listening Session
Provided by The Newkirk Center for Science & Society

2. LOCAL COMMUNITIES

Across the watershed, nearly 1 in 3 residents qualifies as economically "disadvantaged." The CSUSB project partners are developing a way to more accurately map the complex geographic distribution of economic disadvantage, which currently relies on census block mapping that can often overlook neighborhood-scale income disparities.

In addition to income inequality, residents within all the watershed's counties experience other physical and sociocultural inequities. New research indicates that within the racially and economically diverse Inland Empire counties (Riverside and San Bernardino), one in five residents is an immigrant facing increasing social hardships. Only four out of ten jobs available in these counties provide sufficient income for working families. (2) Orange County is equally racially and economically diverse, marked by extreme wealth disparities, and is faced with high profile challenges to assist people living with homelessness. The ongoing impact of the foreclosure crisis and population increases have created demands for affordable housing and utilities that outpace availability. Our thematic analyses show how these structural issues factor into community experiences with water.

2. UC Riverside reports: https://socialinnovation.ucr.edu/state-immigrants-inland-empire and https://socialinnovation.ucr.edu/state-work-inland-empire

This section reports findings from the 19 listening sessions conducted by project staff and hosted by community groups for their local constituents. Although these sessions were held separately from the Native listening sessions, some attendees also identify as Native, Tribal, or Indigenous.

The discussion centers on the most frequently coded themes within the whole local community session dataset; these themes represent approximately 50% of all coded data for this participant group. However, these codes may or may not rise to the top in every individual listening session's data. The Listening Session Thematic Detail Tables (Appendix 3) provide the top 4 - 6 codes for each local community session, the proportion of strength vs. need mentions for each theme, and representative quotes.

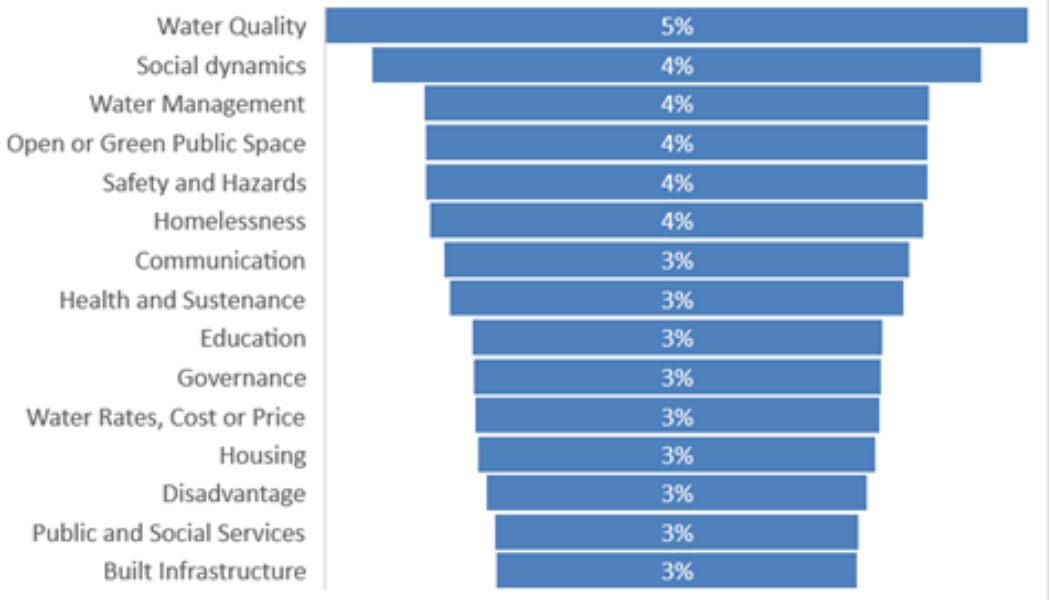
LISTENING BY THE NUMBERS

2 years of data collection

19 local community listening sessions held

239 community members shared their watershed experiences and perspectives

Top 50% of Themes in the Local Community Listening Sessions Dataset



Physical Structural Strengths & Needs: The Challenges of Living in Big Systems

While civic authorities often understand and take pride in how well complex water systems function, many community members find these systems invisible and disjointed. Participants in our sessions sometimes mention access to **good quality** water as a strength but mostly view it as a need, based on their direct relationship with home and public tap water appearance, smell, or taste and/or their indirect exposure to emerging media coverage of water crises in underserved communities. Our data suggests that community concerns are equally likely to be direct (water smells bad) or indirect (knowledge from trusted sources other than water-related agencies), but also that they want to become more **educated** about their water systems.

Although state and local water authorities focus on sewer/septic and flooding as key problems for communities, these were top themes in only a few local community sessions. This may reflect a seasonal experience bias, since most sessions occurred in spring and summer. However, it may also reflect evidence that such infrastructures are invisible to communities unless they fail.

Sociocultural Structural Strengths & Needs: Removing Obstacles to Community Involvement

Social dynamics coding reveal stories of place-based community strengths, such as the benefits that come with cultural diversity and collaboration. Communities across the watershed are united in their sense of cultural cohesion and pride. Coding for **water management** often intersected with coding for water quality in community water stories because both categories highlight participants' concerns with being vulnerable in complex, largely invisible systems that they neither fully understand nor completely trust. Local community sessions reveal people's concerns about inaccessible or **hazardous** water system processes and about their particular systemic needs such as: proof of **water quality** at the tap, information about home pipe and fixture safety, the means to address school water fixture problems, areas of standing water, polluted gutters, and drought-prone landscapes. Participants name access to local green spaces and parks as strengths, but are also uncertain that authorities will help them keep these spaces **healthy** and **safe** for families and children.

"The chlorine is supposedly good, but it gives it a taste that is not very good."

"The problem here is that the water here...looks weird, cloudy."

"I think water quality is way down on the list of priorities.... For the impoverished, the access to water has always been a problem by political design."

-Orange County Residents

Participants mention living in supportive neighborhoods with helpful, but often unevenly distributed, **public and social services**, which they point to as problems with **governance**. This theme becomes a need when it intersects with other themes such as **communication, disadvantage, and safety & hazards**. At those intersections, we find participants expressing experiences of being vulnerable to the compounded impacts of economic, physical, and sociocultural structural "disadvantage" when it comes to water safety, public safety, access to housing, and reliable and unobstructed transportation. For example, in one area session participant reported that the closure of a fire department led insurance companies to withdraw coverage in the affected area. Residents expressed dismay about the lack of this public service and fears about their safety, the safety of their homes, and their economic security, should their homes be damaged or destroyed in a wildfire.

Homelessness was a cross-cutting structural theme. People experiencing homelessness explain access to water as a vital need and understand the negative impact of encampments on waterscapes, but they also note that they are unfairly singled out as water polluters. Among participants who are sheltered but also live with other forms of social exclusion (e.g., renters and immigrant homeowners), some session attendees felt that there is too much funding directed to homeless persons rather than to other social groups in need. Others want authorities to address homelessness as a key public safety problem.

Community Recommendations: Fixing Structural Disadvantage

Community members offer suggestions for how to address water-based social exclusion and inequality. Some top needs and "asks" include: more sustained **communication** inreach from water agencies, more access to culturally appropriate water system information, access to water system personnel for community collaboration, access to water testing and **infrastructure** remediation on the "consumer" side of the system, access to affordable **housing**, and more consistent **water rate** controls.

"What makes [our community] safe is that we watch over each other."

"When it rains ... under the house- it floods completely. We have to pump our home every time it rains..."

-Riverside residents

"Our water is all naturally occurring water. And it surprises me that we would be part of the Santa Ana River Watershed because we have nothing to do with the Santa Ana River."

-San Bernardino resident

Local Government Commission partners meet with an elected offical

Provided by the Local Government Commission

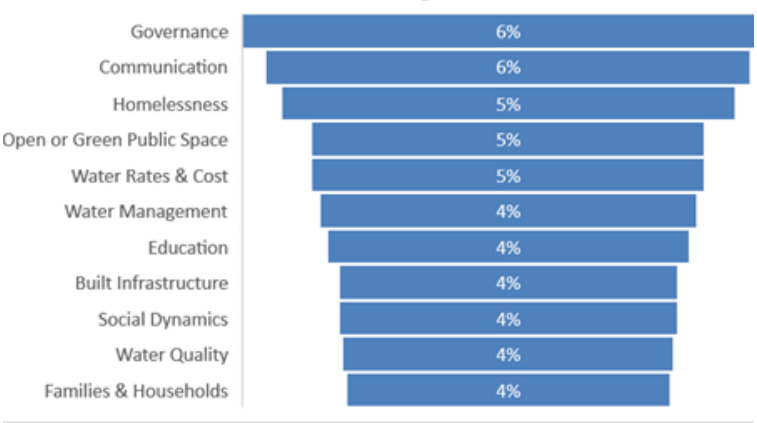
3. ELECTED OFFICIALS

There are approximately 615 elected officials in the Santa Ana River Watershed. Elected officials were not required to participate in the Proposition 1 IRWM needs assessment process, but they are uniquely positioned to facilitate equitable community involvement in water planning. Elected officials tend to have interdisciplinary approaches to challenges. As generalists, they can find ways to bring balance, creativity and multi-benefit solutions to the highly specialized water sector. Public officials are also well-connected, and by engaging them early on in decision-making, they can bring political will, support, and resources to facilitate community participation.

SAWPA, in partnership with the Local Government Commission, took the opportunity to solicit perspectives from a sample of these decision-making community members. This section discusses the most frequently coded themes within the elected official session dataset; these themes represent approximately 50% of all coded data for these sessions. The Listening Session Thematic Detail Tables (Appendix 3) show the top 4 - 6 theme codes for elected officials grouped by county, including the proportion of strength vs. need mentions for each theme and representative quotes.

Elected official participants in listening sessions point out that they have multiple community roles: as residents, constituent representatives, and sometimes as private sector professionals. In listening sessions, these officials often display their knowledge of programs and projects designed to strengthen community assets and alleviate needs. While election cycles influence the ways elected officials prioritize their attention to community problems, they also report understandings of persistent patterns in community needs.

Top 51% of Themes in the
Elected Official Listening Sessions Dataset



Physical Structural Strengths & Needs: the Problem of Water in the Context of Growth and Development

Most elected officials in the sessions focus on strengths and needs related to the **governance** and funding of community development. Some needs they mention include housing, jobs, and public services maintenance and expansion. Overall, the interviewees celebrate the vibrancy of their constituencies and describe successful collaborative initiatives to build healthy natural and social spaces and create jobs. However, they also express an urgent need for project development funding, and refer to the structural challenge of managing the hard physical and soft social interfaces of water providers and water consumers. Two such interfacing problems that this analysis identified are: failures of aging **built infrastructures** and increasing social stresses brought on by **water rate** increases to remediate these infrastructural failures. When it comes to civic collaboration, elected officials cite good relationships with water agencies and report successful collaborative project outcomes. However, elected officials are also sensitive to

LISTENING BY THE NUMBERS

4 counties included

11 elected official listening sessions held

13 officials shared their watershed experiences and perspectives

"Unless people understand [water] in its most basic form, we will continue to make legislation and run local governments without focusing on real priorities."
- Elected Official

"I worry that . . . we're spending too many resources talking to the same people we've been talking to for the past 20 years: water district officials, city council members, county bureaucrats. Where we should be instead talking to neighborhood leaders, PTA leaders, folks in those [environmentally exposed] areas that are really the ones that aren't being talked to."
- Elected Official

ongoing conflicts between the infrastructural demands of businesses and those of residents. Citing the benefits **open and green public spaces** bring to their communities, elected officials also feel the need to balance their stewardship of the economy with care for social and natural ecologies.

Sociocultural Structural Strengths & Needs: Making Water More Equitably Governable

Elected officials frequently describe the complex **social dynamics** that produce community strengths and needs, from the **family and household** to county levels. A significant proportion of elected officials describe the challenges of governance at the intersections of physical and sociocultural structural problems. They often emphasize the role of effective **communication** (from town hall meetings to social media) in addressing **water management** and quality concerns, increasing civic involvement, and identifying community needs. Elected officials express their challenges coordinating internal departmental and external interjurisdictional relations, coordinating funding opportunities, reducing barriers to agency coordination, and communicating with diverse community groups. This group also frequently discussed the structural themes of **homelessness** and income precarity. Some elected officials cited progress in these arenas while others were worried about increases in homelessness and other forms of social burden.

Elected Official Recommendations: Increasing Civic Communication and Collaboration

Elected officials provided a variety of recommendations for strengthening community resilience and remediating problems that impact community water experiences, including: wanting more publicly-facing collaboration and coordination among public agencies and water agencies, more effective and culturally appropriate forms of community **education** and outreach, more temporary and permanent housing, and the need to have agencies coordinate new water projects including aquifer recharge, stormwater capture, and conservation.

Levee / *Photo by SAWPA*

4. WATER-RELATED AGENCIES & MUTUAL WATER COMPANIES

The Santa Ana River Watershed includes over one hundred water-related entities that serve drinking water to 98% of the watershed's population and may also manage water problems like flooding. Of these entities, 60 are local city utilities or water districts and approximately 50 are private water providers, including many mutual water companies. The 60 water districts and city-operated public utilities range in size from 3,000 to over 145,000 connections and serve a total of 90% of the watershed's population. The mutual water companies, on the other hand, are much smaller, serving between one and 3,000 connections each.

This section is based on listening sessions with small numbers of people from water-related agencies and mutual water companies who agreed to participate in this novel data collection process. It summarizes and compares major themes discovered in these sessions. These subject groups were not required to participate in the Proposition 1 IRWM needs assessment process. However, SAWPA management sought to gather this limited but important collection of views from water-related agencies and companies in order to support a comparative analysis of different watershed perspectives.

LISTENING BY THE NUMBERS

11 water-related agency listening sessions held

8 mutual water company listening sessions held

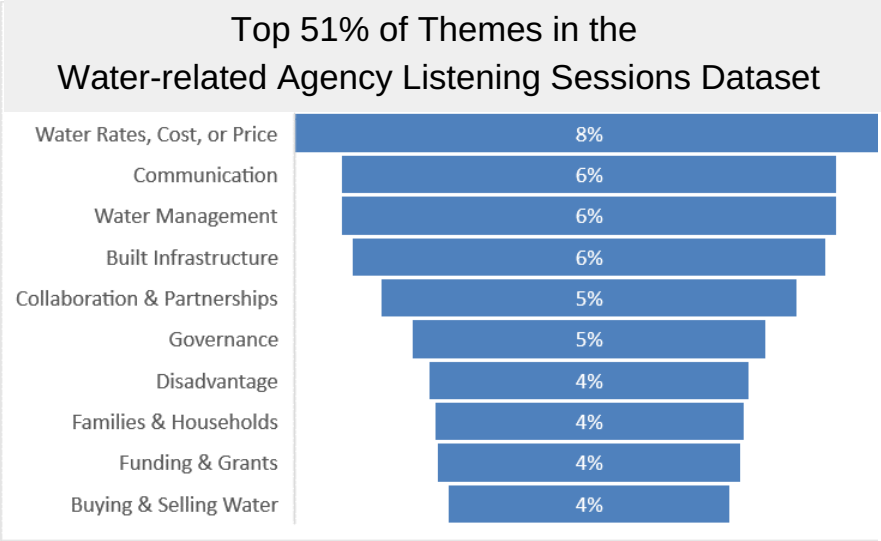
28 agency and company people shared their watershed experiences and perspectives

In general, water-related agency and mutual water company participants align in their understanding of "disadvantaged" community burdens. Yet, as one agency participant notes, water managers and providers face daily challenges that make it possible to adopt an "our side of the meter vs. their side of the meter" perspective. Both groups express frustration that community members do not understand what it takes to manage water. While water-related agency participants are likely to describe system-scale knowledge of community strengths and needs, mutual water company participants often report that they gather community knowledge via direct interactions with customers, including groups they are concerned about who are on fixed incomes or are impacted by housing shortages.

Physical Structural Strengths & Needs: Maintenance, Upgrading, Safety Assurance, and Cost Control

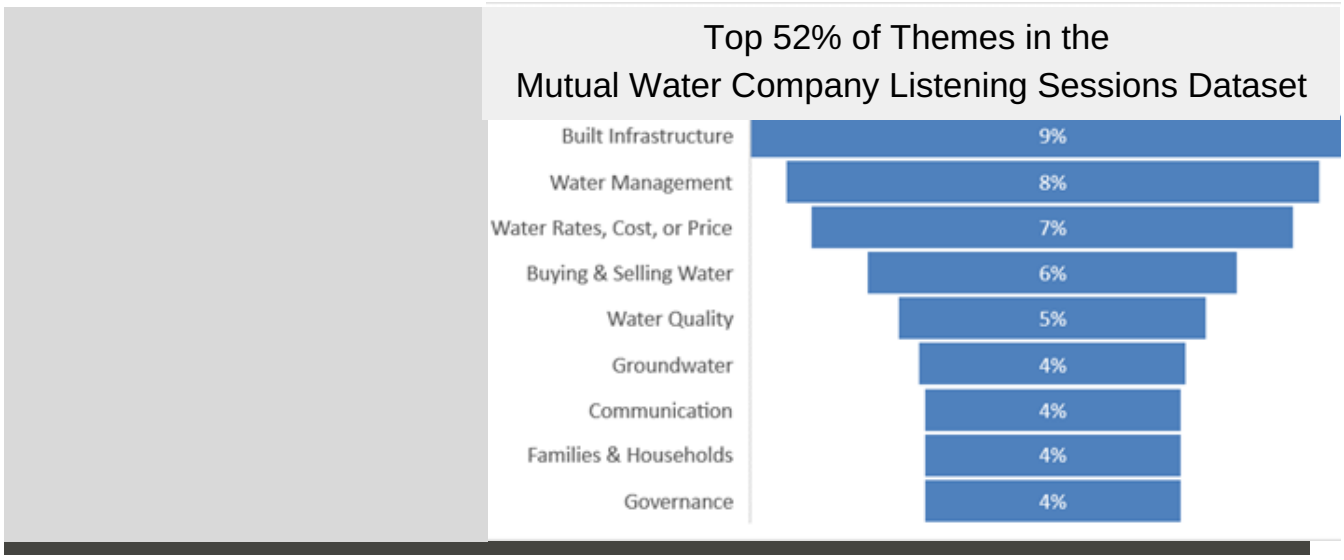
Both water-related agency and mutual water company participants express the need for built **infrastructure** upgrades and maintenance, although it was more frequently mentioned by mutual water company participants. Agency participants are more likely than mutual water company respondents to report access to funding opportunities and pride in successful new **water management** and **collaboration** programs for conservation and monitoring. But they are also concerned with the growing cost of large scale projects. Such projects include extending delivery systems for growing populations, enabling stormwater capture, moving toward indirect and direct potable reuse, and creating system-wide drought resilience and **groundwater** supplies. Statements from both groups reveal the unevenness of water quality throughout the watershed, with mutual company participants reporting more details about these challenges.

Mutual water company participants also report a variety of funding challenges and building needs, such as leak detection and control. Although some of these participants want new technologies, **infrastructure** and appropriate integration with larger public works systems, some also want to maintain their systemic independence. Mutual water company participants also relay their experiences being caught between cost burdens, such as those created by regulatory compliance, labor costs, the need to **buy and sell imported water**, and their commitment to provide affordable water to small, overtaxed communities that struggling with **rate increases.**



Sociocultural Structural Strengths & Needs: Toward Socially Integrated Water Management

Both water agency and mutual water company participants express a strong sense of connection with the households they serve. Both groups also express the need for more direct interactions with members of the community served to improve two-way communication. Both groups cite frustrations with communication barriers and some participants note the general public's lack of understanding of water delivery costs, crises, and "hidden" problems. Several agency participants report being concerned that they cannot reach community members about water programs or reassure them about the area's **water quality**. Several mutual water company participants say that they rely on informal means of communication. And they convey detailed understandings of small rural community values, cohesion, and sense of place. Some mutual water company participants mention that they don't consider their communities to be "disadvantaged," even if the official data show otherwise. Nevertheless, people in both participant groups express concerns about the rise of homelessness and economic disadvantage in their areas, even if they often have differing place-based and political perspectives on the sources of and solutions to these problems.



". . . We do our job, and people turn the taps on, and it's the silent services provided. Unless the tap turns, and water doesn't come out, then it's not as silent."
-Water agency staff

"In my dream world what I would love is to have a center here where people can come, and we can offer educational resources for them."
-Water agency manager

"We have done a lousy job of educating water consumers as to what it takes to run and operate and maintain a water system."
-Water agency manager

"Our pipes are over 50 years old . . . We're also looking at doing a complete repiping of the area. If we can find a grant, I would be thrilled, because that would allow us to do more for the community."
-Mutual water company employee

Water-Related Agency and Mutual Water Company Recommendations: Increasing Responsiveness to Growing Water Challenges

Water agencies and mutual water companies are united in their intentions to be responsive to emerging water challenges. But people in both groups report feeling hampered by public misunderstanding of what they do, lack of funds, and the need for more support for cross-agency collaboration. Specific recommendations from both groups include: more coordinated **governance** processes, new technologies for communication and monitoring, targeted funding for vital water quality and supply management projects, support from other public agencies for outreach to educate communities about utilities systems, and integrated **management** programs that respect specific agency and system service area needs.

5. CONNECTIONS & DISCONNECTIONS
Comparing Participant Perspectives

In the previous sections we highlighted the top sociocultural and physical structural strengths and needs expressed within each participant group. **This section relates these structural factors by identifying thematic Connections & Disconnections among and between groups.**

By "connections" we mean evidence of experiential alignment - such as being connected by shared social experiences of belonging or racism, or being connected by a particular physical water system. **By "disconnections" we mean evidence of experiential differences** - such as having disparate experiences of physical access to water - recreational or drinking - than another group, or being socially disconnected from access to water information or conservation tools.

We note that connections and disconnections interact. And it's clear that connections are not necessarily "good" or that disconnections are not necessarily "bad." For example, urban dwellers can be connected by hazardous water systems they cannot separate from. Rural people who receive affordable water can be advantageously disconnected from more expensive water supply chains, but also be unable to connect with new sewer systems.

These analyses help to explain why one participant group's strength may be another's need. In addition, the representative quotes in the Listening Session Thematic Detail Tables (Appendix 3) reveal additional structural factors that influence strength and need differences.

Connections/Disconnections: Top 4 Themes in the Dataset

Water Management

Data reveal connects and disconnects within water management processes. In general, elected officials and water-related agency participants **connect** in their concern with the management of "big systems" or watershed-scale terms. This is a **disconnect** from the perspectives of most mutual water company and local community participants, who are more likely to connect in concerns about

being vulnerable to the management - or lack of management - of “small scale” systems and structures, including local water processing sites, neighborhood piping, and household piping. One result of this is that mutual company participants and the local communities they serve express **interconnected** needs to retain independent water and **septic** systems to avoid the costs and loss of autonomy that results from being connected to larger water systems. Further, elected officials and agency participants often express successes **connecting** and share water management processes. However, data also indicate that this is a **disconnection** from the experiences of many local community members, who feel alienated from water management structures that they regard as complex and exclusive. Community members often report that their relationships to physical water structures (e.g., hard infrastructure) and sociocultural water management structures (e.g., water decisions) are determined by their socially- and place-marked identities (such as race/ethnicity, immigration status, home ownership status and income status).

Water Rates and Cost

Given the watershed’s income and water delivery disparities, its communities are **disconnected** by differences in water rates, rate structures, cost burdens, and the pricing impact of drought conditions. Some water agency and mutual water company employees report feeling good about their locally “affordable” water (e.g., as a result of water supply or rate structures), but this view **disconnects** from others in these groups who are concerned about how rate increases are created by water management integration structures (e.g., imported water or state-level pricing rules). Elected officials, water-related agency participants and mutual water company participants **connect** in their awareness of and concerns about unequal community cost burdens, and also by their convictions that particular community groups do not understand water economics. Community members **connect** to this view

“We have all these different districts that handle water. They need to [do a] better job of informing people [about who] they are and where they get their water.”

- Renter

“People were saying, ‘You asked us to cut back . . . our water consumption. Yet there's still housing being built and developed.’ I think that's going to be a big issue in the future. It's really going to be incumbent on us to ensure we have sufficient supplies.”

- Water Agency Employee

when participants comment that they do not understand why rates rise so often, despite, for example, community-wide efforts to conserve. Non-homeowners in particular relay how they are unfairly burdened by water costs and a few note that water rate increases can translate into rent increases or evictions. Water agencies, mutual water companies, and elected officials connect in their shared concern that people in designated "disadvantaged" communities who buy bottled drinking water are compounding their economic burdens. However, their opinions that buying drinking water is "unnecessary" **disconnects** from those of community members who feel it is a health necessity (see Water Quality below).

"This month, my landlord decided to raise my rent because he complained that the water bill [wasn't] lower. It just kept adding up, adding up."

- Renter

"The water bill is the highest bill we pay."

- Homeowner

". . . The cost in communities like [this overburdened one is] much higher than they are in Beverly Hills. It's not equitable."

- Elected Official

Communication

This theme reveals deep structural connections and disconnections. Elected officials and water managers **connect** in their views that more social outreach – such as "bill stuffers" and social media outreach - is needed to counter "disadvantaged" community reliance on bottled water. They cite immigrant cultures and language barriers as reasons why community members "misunderstand" water quality information. At the same time, elected officials and agency participants acknowledge that their own communication limitations, such as lack of translation services or culturally appropriate approaches, **disconnect** them from communities. Local community members, not surprisingly, report feeling **disconnected** from and distrustful of official messages about water, even if some suspect their water is probably safe. Community members report obtaining water information via conduits in their own local, regional, national and international social **connections**.

"Is it safe for me to drink my tap water? I never got any letters or anything from the water agency to tell me that, you know?"

- Gardener/Renter

"I live in a community [that] I am very proud of. The organizations that are here are very proactively trying to work these problems. That does include communication. A lot of these water issues are bigger than one, or two, or five, or twenty agencies. But we're trying to figure out how to tackle issues."

- Water Agency Employee

"[We need to] help disadvantaged communities . . . [by using tracking technologies] to see where [bad water] pockets are, bad water quality, or bad water wells, or bad water infrastructure."

- Elected Official

Some note, for example, that cases in Michigan and Los Angeles reveal how official communications cannot be trusted. People experiencing disadvantage **connect** in their experiences of being unable to get help with issues such as flooding, standing water, poor tasting/smelling water, corroded school water fountain fixtures or lack of water bottle filling stations at schools, and home infrastructure problems. In addition, some people with housing vulnerabilities, including renters and people experiencing homelessness, say that they can't access information that they need **and** trust, and that they do not receive the "bill stuffers" that go to their landlords.

Water Quality

This theme is structurally connected to all other themes above. Elected officials, mutual water company participants, and water-related agency respondents tend to **connect** in their views that the watershed's drinking water quality is acceptable for all communities. However, participants in these groups can also **disconnect** from this general opinion. This occurs when participants acknowledge particular "hot spots" of contamination or compromised quality or that water quality problems disproportionately burden people of color, immigrants, and those in economically overburdened and "downstream" areas. Among local community members, many **connect** in their expressions of chronic water quality uncertainty, worry, and experiences of health threats. Such **disconnects** between authorities and local community participants occur along physical and social structural lines. For example, elected officials and water agency participants often report feeling satisfactorily **connected** to scientific water quality testing reports, whereas local community members feel **disconnected** from such official and experientially "distant" evidence. Instead, they explain that they rely on the physical evidence of their own senses to assess water quality, such as smell, taste, and visual properties. In addition, as discussed above, people experiencing water insecurity are more likely

"One thing that I am very thankful for [here] is . . . the easy access to the water, and . . . the treatments that they do to the water to make it drinkable."
- Immigrant Community Leader

"I used to work in a lab across the street from [a manufacturing company] a few years ago. And they came around and let us all know, you know, 'Don't drink the water right now.'"
- Person Experiencing Homelessness

"The water that we get in my house, I use [it] to shower, to wash, to clean and everything. But I do not drink it directly . . . Drinking straight out of the tap? Never. I will never do that."
- Parent

"Water flows into the valley, and into all of our flood control channels. We're having to dedicate a great deal of our time and effort and money to ensure that we clean up the watershed [of trash and debris]."
- Elected Official

to view themselves as **connected** in social structural terms with those in comparably overburdened communities who discover that their water is unsafe.

Suggested Applications

These analyses can be used as conversation pieces to stimulate discussions about how and why community members at large, elected officials, water agencies, and mutual water companies may view watershed structures differently. We recommend these comparisons as models for making sense of strengths and needs assessments and for using them to structure next-step planning processes and community dialogues. Indeed, one DCI partner, the Local Government Commission, has already experienced success using these Connections and Disconnections to stimulate discussion among policymakers.

Using the Data: A Case Study

As part of the Santa Ana Watershed Ambassador Program for local policymakers, the Local Government Commission (LGC) asked public official attendees to engage with the **connections and disconnections** in the first round of workshops, titled **Understanding Your Watershed**. LGC staff began by providing an overview of the DCI program, the ethnographic approach to SAWPA's strengths and needs assessment, and outlining how the UCI team organized the preliminary findings into connections and disconnections.

Each table of 3-5 participants was then assigned one water-related topic (e.g. education, communication, flood control, parks and trails, everyday access to safe drinking water, etc.) with sample connections and disconnections associated with each topic.

Attendees were instructed to discuss:

- how the issue impacted their agency,
- who in their agency is responsible for addressing the issue, and
- what other agencies, jurisdictions, departments, organizations, or staff members may be equipped to help address the issue.

Each group was then asked to list one or two immediate next steps they could take to engage with individuals on the topic.

After the individual group breakouts, each table shared what they discussed and what immediate next steps they could take to engage others on this topic. Overall, attendees enjoyed engaging with this activity and **thinking beyond their own jurisdictional boundaries to consider "blind spots"** that they may not have seen or who else they may need to engage to address these complex issues.

Welcome sign at Huerta del Valle Community Garden / *Photo by Arthur Levine*

EVOLVING INVOLVEMENT

Informing New Processes, Bridging Gaps, and Developing Resources

The Santa Ana Watershed DCI Team built several resources connected to this strengths and needs assessment project. This suite of tools and processes are designed to sustain an ongoing community involvement process. They include: training programs, technical assistance project processes, a GIS tool that more accurately maps "disadvantaged" communities, and a water internship program to train future water policy participants.

Informing New Processes

Linking Technical Assistance Funds to Strengths and Needs Themes

When project partners met with listening session participants, they listened for potential projects with the goal of developing Technical Assistance (TA) programs based on themes that emerged. The listening process called attention to the kinds of TA projects possible, and it remains an important evidence base. However, the Santa Ana Watershed DCI Team ultimately chose to directly solicit projects from public agencies and nonprofits in the watershed. The team developed a set of criteria that potential projects need to meet in order to be considered eligible for grant funds. One criterion stipulates that project goals must be in alignment with the findings of this report. **One opportunity for process improvement would be to focus TA funding on projects that directly address disconnections between various watershed stakeholders, as these represent clear barriers between communities and their designated representatives.**

Downtown Riverside / *Photo by SAWPA*

Water Agency Engagement Training
One of the primary goals of this approach to "disadvantaged" community involvement has been to evaluate how the ethnographically informed listening process might be a tool that water agencies can adopt to improve their community engagement efforts. The Newkirk Center for Science and Society has piloted a community engagement and listening "train-the-trainer" manual—a guidebook for water agency personnel to learn the civic ethnography methodology. The train-the-trainer manual is based on field experience and engagement science best practices and has been tested with a pilot manager group. By piloting this process with a small group, the Newkirk team has been able to tailor the listening process to build an engagement toolkit for those working on the front lines of watershed management.

Bridging Gaps: Communicating the Findings of this Report

The Santa Ana Watershed DCI Team is reporting the findings of this report back to the stakeholders of the watershed through the **Watershed Ambassador Program, Community Water Conversations,** and **Water Agency Trainings.** These education and training workshops equip local community members, policymakers, and water agencies, respectively, with the insight and resources necessary to take further action toward overcoming barriers to inclusive participation.

Developing Resources

Community Information GIS Tool
As a complement to this report, the CSUSB Team developed a geographic information system (GIS) database which can be used to add geospatial context to the community information gathered during the community engagement activities (see Appendix 4). The database consists of a series of maps describing the community demographics as well as information about the water service providers that serve the SAR Watershed communities. One of the goals of developing the database was to explore ways to spatially define communities beyond simply displaying census tracts with the median household income. The GIS Appendix explains current ways that communities are described, the limitations and problems associated with such descriptions, methodologies to redefine communities, and a summary of the community data.

CivicSpark Fellows, Postdoctoral Scholars, and Community Water Interns

Twenty-five young people played integral roles in this project, showing how institutions in the watershed are committed to involving and training early career professionals.

Three postdoctoral scholars at UCI and eight CivicSpark Fellows working at SAWPA gained leadership experience in project management and collaboration. CivicSpark is a Governor's Initiative AmeriCorps program dedicated to building capacity for local governments to address emerging environmental and social equity resilience challenges such as climate change, water resource management, affordable housing, and mobility. Since 2016, four pairs of Fellows have supported SAWPA in the implementation of the Disadvantaged Communities Involvement program. The Fellows have contributed to the One Water One Watershed Plan Update 2018 and the Community Water Experiences Strengths and Needs Assessment, conducted research pertaining to the intersection of homelessness with water, and co-managed the Community Water Internship program. Fellows have also supported SAWPA staff and DCI program partners in the management of this project, including drafting meeting notes, conducting interviews, developing outreach materials, launching grant activities, and facilitating collaborative efforts.

The Water Resources and Policy Initiatives (WRPI) team, in partnership with the CivicSpark Fellows, administered the Community Water Internship. Over the course of three years, 60 paid undergraduate and graduate interns from local colleges and universities were placed at

Research Interns / *Photo by Erica Fletcher*

public agencies and nonprofit organizations to implement engagement and education programs related to "disadvantaged" community involvement. WRPI managed the operational aspects—recruiting, hiring, and payroll—while the CivicSpark Fellows provided monthly check-in calls and professional development trainings. Throughout the project period, 15 of these interns supported the data collection, management, and analysis efforts of this strengths and needs assessment.

Crystal Cove / *Photo by SAWPA*

CONCLUSIONS & RECOMMENDATIONS

***Authors*: SAWPA DCI Team**

As is often the case with innovative programs, implementing an initiative like the Disadvantaged Communities Involvement program is easier said than done. The team involved in this approach has learned a great deal about the barriers and challenges to strengthening agency engagement with overburdened and underrepresented groups. This section presents several conclusions and recommendations.

Core Conclusions for the Watershed

Language Barriers

One of the consistent needs that surfaced throughout the program implementation process was the need for water agencies to commit to bridging language barriers between their staff and the communities they serve. With such a diverse watershed population, it is necesssary that water-related decision-makers work with local constituents to identify translation projects and offer translators for relevant public meetings. This team recognizes the efforts that many agencies and offices are already implementing to overcome these barriers and encourage their continued commitment. Using DCI grant funds, SAWPA offers on-call translation services to public agencies and nonprofits. This includes providing translation consultants for live translation of public meetings and for translation of water-related documents. This process, though helpful and necessary, has presented coordination challenge. This team recommends that water-related agencies serve non-English-speaking residents by hiring multilingual staff or having internal translators available. Such processes can reduce customer wait-time and increase responsiveness.

Communication

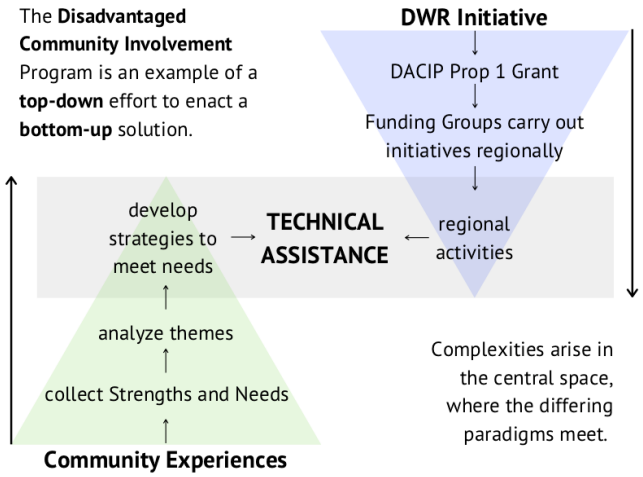
One of the factors that limits agency, decision-maker, and community member connections is simply a lack of funding or staff time devoted to communications. This is not to say that there are not many diligent efforts being conducted by individual agencies. Rather, this is a broad acknowledgement that resource providers can do a better job of ensuring that critical water information is accessible to various publics, especially those most vulnerable to water-related challenges. Community members say that they often do not know how to find answers to their water-related questions or that they are not sure how to interpret the information they do find. This team recommends that water agencies review the Listening Session Thematic Detail Tables in Appendix 3 to understand how communications can be improved. **The team also recommends that water decision-makers devote staff time to maintaining long-term relationships with community-based organizations that have relationships with underrepresented and overburdened communities in order to better understand localized communication preferences.**

Tap Water Quality

The most critical disconnection surfaced in this report are the prevalent community concerns about tap water quality. It is clear that water agencies need to engage with these concerns differently than they have historically. Community concerns are not only linked to reasons previously assumed by water providers, such as immigrant-status or lack of education. Water providers put a great deal of effort into guaranteeing the quality of the water that flows through their systems, but are limited in their power to address concerns posed by aging infrastructure, especially on private property. This report indicates that more work is necessary to overcome the physical and social connections and disconnections that may impair water quality between the facility and the faucet, especially in economically disadvantaged communities. **This team recommends that water agencies work directly with community-based organizations to hear and respond to the localized concerns that people have about tap water.**

Connecting Strengths and Needs to Technical Assistance Projects

The ethnographic model of collecting strengths and needs is unfamiliar to most public planning agencies, both as an approach and as a dataset. The insights that can be gleaned are highly valuable, but are also complex and difficult to interpret and implement. One way to visualize the interplay between findings and activities is presented in the figure below.



The DCI program, and IRWM in general, can be thought of as a top-down effort to enact a bottom-up solution. It is the responsibility of regional authorities to gather civic input (community experiences) and translate those themes into strategies to meet the needs that emerge. This program has sought to facilitate this process through a Technical Advisory Committee. **This team recommends that DCI program groups across the state design strong and inclusive working group structures that are able to connect the strengths and needs surfaced by communities to actionable projects and programs.** Due to critical time constraints, this team's ability to derive projects directly from the findings has been limited, however **there are many projects embedded within this dataset. This team recommends deeper engagement with this report's findings in order to translate coded themes into strategies to meet needs.** Indeed, this team plans to continue to engage with the findings in the next steps detailed below.

Next Steps for the Santa Ana River Watershed

Following the publication of this report, the Santa Ana Watershed DCI Team plans to convene core partners to discuss next steps. Building from the findings of the report, the Team hopes to direct remaining grant time and funds to selecting Action Items for Implementation. Several potential activities could include:

- Translating core findings from the Thematic Detail Tables into Fact Sheets for distribution to relevant authorities.
- Hosting additional educational workshop convenings similar to the Watershed Ambassador Program for Local Policymakers, as facilitated by the Local Government Commission.
- Hosting additional two-way dialogue-based convenings between local water agency staff and disadvantaged communities, as facilitated by the UCI Newkirk Center for Science and Society.
- Developing curriculum for watershed education, emphasizing available resources.

Parties interested in learning more about the next steps this Watershed will take to implement the findings of this report can tune in to the DCI program website https://sawpa.org/owow/dci-program/ for updates or contact DCIProgramTeam@sawpa.org with questions.

Future Funding of Innovative Involvement Approaches

This team strongly recommends that the state of California and agencies across the state continue to fund disadvantaged community involvement programs. Public resource agencies must sustain communication and coordination efforts in order to effectively engage overburdened communities in planning.

This team commends the state on implementing this Proposition 1 bond-funded grant and **recommends the continued support of long-term strategies to overcome structural and systemic exclusions.**

The Santa Ana Watershed DCI Team offers our deepest thanks and appreciation to the many individuals who contributed to this report. Should any reader have further questions, please reach out to us at DCIProgramTeam@sawpa.org.

Crystal Cove / *Photo by SAWPA*


SAWPA

SAWPA Ethnographic Strengths and Needs Assessment Listening Session Instrument and Protocol

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Instrument

(adapt as needed to your data management plan, interviewees, and interviewing style)

INTERVIEWER SAYS: "Thank you for meeting with us. We're interested in gathering stories about different communities within the Santa Ana River Watershed. We are here today to listen to your perspective(s) on your community and your local water.

"This interview might be a bit different from what you're used to! We will ask a couple of broad, open-ended questions. There are no right or wrong answers. Please respond however you'd like. We might ask for clarification or pose follow up questions, but our goal is for this interview to be more like a conversation.

"As we specified in the invitation, we anticipate that this interview will take [60 minutes/90 minutes]. We want to be respectful of your time, and may need to direct the conversation a bit to stay within that time frame. If you'd like to continue the discussion past that time, we can find an avenue to do so, either by scheduling a follow-up interview or communicating over email or phone. Do you have any questions?"

AFTER answering any questions, INTERVIEWER SAYS: "We will be taking written notes while we speak, and we would also like to ask for your permission to record this interview. We will only record the interview itself - not this introduction and not the wrap-up at the end. The audio file will be transcribed by a member of our team, and any information that could identify you personally, such as your name, will be removed during the transcription process to protect your privacy. After transcription, the audio file will be deleted. The anonymized transcription will be shared with the members of our research team as needed for data analysis and writing our final report for SAWPA. You may ask that we stop or pause the recording at any time. Do you have any questions?"

AFTER answering any questions, INTERVIEWER SAYS: "May I/we have your permission to record this interview?"

IF RESPONDENT agrees, INTERVIEWER turns on audio recorder and places it in a space visible to both the interviewer and respondent(s).

Interview Questions and Prompts

(tailor, add, or omit prompts and follow-up questions as needed)

1. INTERVIEWER ASKS: You probably consider yourself to be a member of many communities.

Today, we'd like you to think of yourself as a member of the _____ community. We'd like to start out by asking you to describe some aspects of your community in general. Please tell us about your community's strengths, and what it needs.

a. If respondent does not agree with community definition or identification, ask them to explain and use that designation.
b. Check that respondent answers both parts of the question; repeat as necessary.
c. Ensure that we get both strengths and needs: "You've identified a set of [strengths or needs], can you tell me more about your community's [strengths or needs]?"
d. If respondent describes a need or problem, then ask: "How big do you think this [need or problem] is? Who or what else might be affected?"
e. If respondent has listed multiple needs, then ask: "You've described multiple needs. If you had a fixed budget to address your community's needs, how would you spend it?"
f. If respondent has listed multiple strengths, then ask: "You've described multiple strengths. If you had a fixed budget to enhance your community's strengths, how would you spend it?"

2. INTERVIEWER ASKS: We are also very interested in your perspectives on water issues. Please tell us about water in the community.
    a. If they claim they're not sure what to say, then ask: "We just want to know your thoughts and experiences with water in the community, meaning any issue or experience you feel is important." Ask follow-up questions to elicit responses on specific issues, such as water quality, drought, etc.
    b. Direct the conversation to specific strengths and needs: "Thinking specifically about water, please tell us about your community's strengths and what it needs."
    c. Direct the conversation to specific goals and barriers: "Specific to water, what do you see as your community's priorities? Are there barriers to accomplishing them? What might help you accomplish them?"
    d. If respondent describes a need or problem or barrier, then ask: "How big do you think this [need or problem or barrier] is? Who or what else might be affected?"
    e. If respondent is non-agency, then ask: "How does [water agency] fit into your perspective on your community? What do you see as the agency's priorities in this respect?"
    f. If respondent is agency, then ask: "How does [water agency] engage [the public/ different communities]? What do you see as the agency's priorities in this respect?"

Protocol Summary for Training Session

The goal of ethnographic research is to produce case study evidence about the diversity of sociocultural experiences, and yield generalizable knowledge about social processes, cultural meanings, and the explanatory models people use in their everyday lives. Based on a sampling from community groups (agency representatives, elected officials, mutual water companies, underserved and underrepresented communities) within the Santa Ana River Watershed, we will conduct ethnographic interviews to collect community members' narratives of local water-related strengths, needs, and opportunities.

These interviews will be guided by a shared instrument: a set of carefully crafted, open-ended questions and prompts posed to all subject groups, and designed to elicit narrative responses on broad topics such as “community strengths” and “water stories.” This approach will create an opportunity for respondents to talk about issues, strengths, and needs not already anticipated by SAWPA, its partners, and the State of California water departments. Based on analysis of this data, we will make recommendations about the most pressing issues and opportunities for water agency projects and capacity building.

Implementation

Ethnographic interviewing produces a semi-structured conversation during which interviewees can form organic, free-form responses. We will use a relatively simple instrument based on two open-ended questions (Questions 1 and 2) asked of all community groups, with suggested prompts or follow-up questions (1a-1e, 2a-2e) that can be tailored, expanded on, or omitted to fit different community groups and partner needs. Where possible, this **civic ethnography** interviewing instrument will be added onto established questionnaires or protocols that the partners have used with their respective community groups in the past. This blended approach will allow the partners to tailor activities as needed and avoid duplication of efforts, while also maintaining consistency between partners.

We anticipate that this interview instrument will elicit approximately 30 minutes of response from individual or small group interviews, and up to 75 minutes for large groups. Including both intro and outro with respondents, the full session should be scheduled for 45 minutes for individuals or small groups, 90 minutes for large groups. Each partner should evaluate whether this time commitment makes sense for their process and respondents and revise as needed.

Interviewers should discuss how responses will be captured, stored, and shared with respondents prior to beginning the interview, and seek permission to use an audio recorder for the interview portion of the interaction only (excluding intro and outro, etc). If the respondent is not comfortable with audio recording, the interviewer will take notes according to a pre-established note-taking strategy according to institutional protocols and guidelines. Interview responses will be transcribed according to a standardized transcription system (including anonymizing speakers as appropriate), which will capture as much verbatim data as possible for content analysis.

UCI Data Analysis Theme Codebook for

Santa Ana Watershed Community Water Experiences: An Ethnographic Strengths and Needs Assessment

Includes: Total Number of Coded References in the Local Community, Elected Official, Water-related Agency, and Mutual Water Company Dataset

Code	Description	# of Coded References in the Dataset
Water Management	References to water management processes, practices, procedures, and plans. Includes descriptions of water agency interactions and projects; the day-to-day work of managing water from the household to community scales; stories about the successes or failures of water management.	413
Water Rates & Cost	References to water rates, prices, and cost from both individual water customers and agencies. Includes topics such as: changing rates, rate structures, ability or inability to pay water prices, water pricing in the public or private sector, and the cost of water relative to other essential services.	405
Communication	References to information dissemination or need for information. Includes references to communication issues, concerns, policies, and recommendations that link locals, public officials, outside experts, agencies, and other organizations. Includes references to formal and informal outreach policies and methods used by water agencies, mutual water systems, and other public agencies.	387
Water Quality	References to information about or perceptions of water quality. Includes topics, such as: pollutants and contamination; concerns about tap water (from drinkability to pressure); trusting or not trusting the safety of water; water quality testing processes; sensory and conceptual knowledge about water quality; and education and outreach about water quality.	381
Built Infrastructure	References to built infrastructure or infrastructure building from the household to watershed scale. Includes topics about: infrastructure needs, development needs, lived experiences, and funding issues, regardless of whether that infrastructure is specifically related to water.	362

Code	Description	# of Coded References in the Dataset
Social Dynamics	References to the social and cultural dynamics of particular communities, such as: cultural and social norms; inter- and intra-community relations; evidence for community experience trends; local traditions and processes; respondents' attempts to characterize their community as a specific type of social world or place.	351
Governance	References to the day-to-day work of governing, e.g., discussion of city, district, county, and state policies and their rules, regulations, and laws. Includes other topics such as: dealings with other officials; descriptions of government processes, norms, and practices; barriers and obstacles to governance; public processes; and descriptions of government agency identity, relations, and differences.	332
Homelessness	References to experiences, explanations, cultural models, issues, and opinions about homelessness and people experiencing homelessness. Includes references to issues related to a lack of housing or shelter. Also includes discussions of housing insecurity in general and trends in housing displacement and dispossession.	279
Green Space & Healthy Habitats	References to experiences of and access to parks, public open space, green space, playgrounds, natural areas, habitat restoration, and trails and trail systems. Includes references to natural beauty, silence/tranquillity, and air quality.	266
Families & Households	References to the family and household scale of community experience. Includes discussions of policies targeting particular kinds of families or households. Includes specific references to water system concerns and experiences at the scale of the household, such as: piping and plumbing and access to household-level water information.	263
Buying & Selling Water	References to water buying and selling at consumer, household, business, municipal, and/or regional level. Includes the description of water in economic terms (water "consumers," etc). Also includes economized practices such as water banking.	259

Code	Description	# of Coded References in the Dataset
Disadvantage	References to "disadvantage" or "disadvantaged communities," or related categories like "underserved" or "marginalized," and discussion of whether specific communities meet those definitions. Includes references to the politics of disadvantage and lack of equity. References specific to disadvantaged communities, such as opportunities for funding, development, and empowerment.	259
Education	References to topics such as: educational programs and efforts; knowledge deficits or access; talk about a lack of understanding or information; specific educational needs and programs for different communities and groups.	254
Conservation & Natural Resources	References to voluntary and/or enforced water conservation practices and policies, regardless of whether they are directly related to drought. Includes topics such as the logics of conservation and using less water. Also includes references to the unintentional or social-systemic effects of conserving water.	227
Safety & Hazards	References to kinds of safety and security, such as physical, community, health, or spatial safety. Includes references to and from agencies tasked with providing safety, such as the police department, fire department, and public health department.	223
Health & Sustenance	References to individual, family, and public health, including access to medical care, mental health, and personal or collective wellbeing. Also references to water-related and air-related threats to personal or public health.	203
Timeframes & History	References to timeframes and temporal processes, such as: local history or traditions; timelines for specific projects or plans; historical dynamics and problems; the slowness or rapidity of change; and how historical processes shape current strengths and needs.	196
Housing	References to housing such as: access and availability; affordability; building and development; density and density of owners vs. renters; public housing; and gentrification.	192

Code	Description	# of Coded References in the Dataset
Collaboration & Partnerships	References to the presence or absence of collaborations or partnerships among agencies, sectors, cities, and groups. Includes formal collaboration (e.g., flood control working with transportation on a specific project) or informal collaboration (e.g., different neighborhood groups spontaneously sharing a community event).	189
Funding & Grants	References to community, municipal, regional, and state funding processes and needs – including, related to, and also excluding, water. Includes mention of funding and grant writing projects; challenges and experiences; agency and company budgets and budgeting; and specific funding projects.	186
Class & Privilege	References to class and privilege such as socioeconomic class and kinds of advantage; economic privilege and access; wealth and wealthy people; lack of wealth or access to wealth and economic privilege; and economic disparity.	167
Economy, Employment, & Business	References to economic and business processes such as: business ownership and development; employment; commercial districts or corridors; business development; and the impact of business in areas. Includes discussion of economic sectors and jobs such as the health sector, the tech sector, and the tourism industry. Also includes concerns about employment.	161
Age & Generation	References to issues specific to older vs. younger people and/or different generations. Includes issues and examples of problems or challenges faced by seniors or elderly people. References to age or generation-specific groups, such as retirement spaces and communities or children's activities or spaces.	157
Regulations & Laws	References to legal and regulatory processes such as: rules and compliance; laws and implications of laws; interpretations of the law in general or specific laws in particular; legal issues; code enforcement; and experiences with courts.	149

Code	Description	# of Coded References in the Dataset
Flooding, Stormwater & Snow	References to issues related to water volume including flooding, floods, rainstorms, stormwater, snowfall, and flood control. References to flooding, stormwater, and snow in terms of infrastructure, cultural logics, and policies and plans of flood control districts.	140
School & Afterschool	Topics relating to schools and/or students, including safe routes to schools for children and the availability of afterschool programs.	129
Transportation	References to transportation and transit projects, policies, plans, experiences, and/or issues. Discussion of transportation infrastructure; commuting times, habits, and traffic; commuter cities; and transportation needs.	125
Groundwater	References to experiences, cultural models, and problems related to groundwater supplies and using groundwater. Implicit discussions of groundwater use, such as: wells, water table changes, water levels, pollutant leaching, and infiltration.	124
Public & Social Services	References to experiences and access to government-funded services, such as healthcare, the fire department, police department, EMT services, the DMV, and public parks/pools. Also refers to processes and access to public benefits (e.g., MediCal & CalFresh) and community events/programs, such as health fairs.	119
Drought	References to experiences, policies, social changes, and trends explicitly related to drought.	115
Planning Processes	References to experiences with specific public and private plans and planning processes. Includes in-progress or desired plans and planning processes. References to planning-centered connections or disconnections among different agencies or publics.	114
Civic Engagement and Service	References to: civic activity, volunteerism, human resources, work, and projects accomplished by residents and/or citizens acting in a service or volunteer capacity. Also includes civic activities and activism, such as running for office or participating in community leadership.	105

Code	Description	# of Coded References in the Dataset
Diversity	References to the diversity of people, languages, opinions, cultures, socioeconomic classes, generations within a given community, as defined by respondents.	104
Building & Development	References to visible (vs. hidden infrastructural) building and development projects such as: housing, commercial development, zoning issues related to building or development, urban growth, and ongoing construction projects.	100
Lawns, Gardens & Private Open Space	References to private or household-scale lawns and gardens, grass, landscaping or xeriscaping, and other managed green spaces. Includes discussion of trends in lawns within specific neighborhoods or communities.	99
Mobility & Access	References to social, economic, digital, and/or physical mobility of residents. Also includes mentions of ability to participate in the political or planning process as a result of one's mobility or lack of mobility.	92
Recycled & Reclaimed Water	Topics such as: infrastructure and programs to reclaim more water; purple pipe systems; toilet to tap; uses of recycled water; and concerns over recycled water.	89
Pollution	References to air and water pollution; potential pollutants; specific examples or threats of pollution; and household or public-scale health issues related to pollution.	85
Renters	References to identity and experience as a renter; working with renters; or renting housing (apartments, houses). Includes references to renter relations with landlords; paying water bills via landlord or third party; rental costs vs. mortgages; and difficulties of rental costs.	85
Climate & Weather Changes	References to bodily and collective weather experiences and impact, such as: comparisons between or changes in weather, season, and/or climate; rising heat or temperatures; dehydration; and more or less rain. Explicit mention of climate change.	73

Code	Description	# of Coded References in the Dataset
Water Access	Specific references to processes and structures that make water available, including: options for accessing water; water as a public good or human right; limitations on water access, such as poor water quality; what kinds of water people are able to access. Also may include references to animals' ability access to water.	72
Neighborhoods & Blocks	References to neighborhood-scale and block-scale issues, programs, and trends. Also includes mentions of HOAs and small-scale spaces served by mutual water systems.	70
Immigrants	References to immigrants and immigration such as: experiences or references to immigrant communities; immigration and migration processes; immigration policy; and immigrant stigma, burden, and targeting.	66
Importing Water	Discussion of moving water into communities, including: imported water, imported water sources, and efforts to use less imported water. Also includes discussion of water autonomy with regard to water systems that are self-sustaining and therefore do not use imported water.	66
Scale	References to differences in scale or scalar dynamics, such as: relationships between city and county or state; policies or programs that do or do not scale up or down; the challenges of being a small water system or managing a large city; and having a small or large budget relative to needs or population.	58
Irrigation	References to irrigation and its forms and dimensions, such as: large or small-scale; sprinkler systems; and concerns around frequency or use of irrigation for agriculture, lawns, and open space.	52
Integration	References to integrated planning, policy-making, and thinking. Explicit talk about integrating multiple sectors or agencies, the silo effect, or multi-benefit projects.	47
Sewer & Septic	References to sewer and/or septic systems, including: need for new or replacement systems; aging and damaged systems; funding; and upgrading.	37

Code	Description	# of Coded References in the Dataset
Sustainability	Explicit references to “sustainability" or "sustainable" things or processes, such as: sustainable plans; groundwater sustainability; and sustainable food and water systems.	36
Energy	References to energy and energy concerns, including: utility companies; cost of energy for residents; energy infrastructure projects and politics; the energy cost of water and water delivery.	27
Environmental Justice	Explicit references to environmental justice as a framework or concept, including issues connected to environmental justice or “environmental justice communities,” as named by respondents. Discussion of equity and difference that fits within an environmental justice framework, such as air pollution that disproportionately impacts poor communities, or superfund sites in poor communities.	16
Paving	References to paving over, pavement, and overpaving, particularly as they pertain to water issues.	13
Fires	References to fire, including: fire risk; wildfires; fire management, and fire departments. Includes mention of the effects of fires, such as mudslides, erosion, and habitat loss.	10
Resilience	Explicit references to "resilience," including resilient communities, resilient kinds of people, and/or systems. Includes discussion of resilience as a strength among particular groups or places.	6

Table 1: **NATIVE COMMUNITIES: Categorical Results of Listening Sessions** (Analysts: CSUSB Native Listening Team)

1. ***Native Group*: Cahuilla and Urban Tribes**	
Themes	Examples given by participants in listening sessions
1. Legal/Societal Structures	• Political structure of tribal governance can lead to isolation of knowledgeable individuals. • Alteration Of landscape has resulted in diversion of water and no separation between people, land and water. • Desire to have tribal leaders on local resource boards so that their knowledge can be shared and their communities represented. • Our responsibility is to the water - we don't own it.
2. Consultation, consent, and agreement	• Consultation is necessary to work with Native/Tribal communities. • Debriefing is an important process in working with multiple communities to reach a common goal. • Environmental groups have advocated that Native nations have equal voting seats. • Native/Tribal communities have inherited rights that need to be recognized.
3. Discrimination, resistance, revitalization	• Disadvantaged is an inappropriate term. • Non-Indian communities think of water differently, so communication is needed to support collaboration.
4. Spiritual, land, culture, and water	• Water is a central theme in the Native/Tribal communities and is embedded in spiritual and historical narratives, prayers, dance and songs. • Water themes are part of designs that define many of the Native/Tribal communities. • Belief that spirits are in the water.

2. ***Native Group*: Tongva and Urban Tribes**	
Themes	Examples given by participants in listening sessions
1. Legal/Societal Structures	• California tribes: there is formality or courtesy to reach out to them but there is no "teeth" or accountability to not following Native wishes about land-use.
2. Consultation	• "If we're not at the table, we're on the menu." • More recognition and citizen involvement needed.
3. Signs of Discrimination	• More education in school. • Wasteful companies take water and trees from land and give nothing back to the community
4. Spiritual	• Government agencies do not want to recognize/listen to Tongva people because they know its native water and they do not want to recognize where its been taken from. • Atrocity when developers do not divert projects for Native burial sites preservation
5. Environment	• Historical Wisdom and of Environment • Ceremonial sites including Big Bear, sacred mountain Spirit in Hot Springs • Tongva support kept a dangerous development project from destroying Bighorn Sheep and migratory bird paths.
6. Sovereignty	• Environmental concern around indigenous sovereignty, water quality environmental urgency and how indigenous knowledge systems can unite pedagogy and activism. • Environmental justice and indigenous.
7. Water Issues	• Each person/people was uniquely connected to water issues act of resistance

Table 2: **LOCAL COMMUNITIES - All Listening Sessions by Community Area** (Analysts: UCI Anthropology)

Total sessions = 19; total participants = 239

Note: data may be coded as both a strength and need, therefore row percentages may add up to < or > 100%

1. Fullerton Area Community Listening Session #1 / Orange County (participants = 9)

Area with household incomes < 80% statewide MHI. Host organization serves: people experiencing homelessness, housing insecurity, racism, underemployment, joblessness, hunger and thirst, food and water insecurity; people aware of environmental contamination

Themes (# of coded instances)	Strengths or Assets (% of coded instances)	Needs or Problems (% of coded instances)	Representative Quotes
1. Homelessness (50)	• Funding for affordable housing and community services for people experiencing homelessness (6%)	• Need for more affordable and sustained housing • Safety and wellbeing concerns associated with social stigma, encampment and shelter living, and policing in public spaces (66%)	• (S) "Governor Brown…freed up a lot of money for the homeless and for social services, and for people with mental health problems. He freed up a lot. It just has to be used." • (S) "People here have a heart towards homeless people. The churches that are feeding people, I think that's good. I'm getting myself out of homelessness, and [I want to get involved in] helping others." • (N) "I've been homeless for seven years and it's tough. I'm really tired of it." • (N) "I've had two chances with housing vouchers, and they only give you four months to do it, I would only pay 225 a month. For a one bedroom. And, gone! You know, it was so frustrating, I cried so much." (N) "My heart goes out to the homeless... And realistically I'm a step away from there, because I can't afford to live in a one-bedroom apartment with my social security income. I mean, I just give about half of it to my granddaughter, so she can make ends meet"
2. Buying & Selling Water (37)	• Free bottled water available at community organizations (20%)	• High cost of water for renters, and people experiencing homelessness. • Lack of clean, safe water availability (80%)	• (S) "I get my water from the churches in the area." • (N) "Oh the water is okay, but the money [cost of tap water]! We are poor!" • (N) "Because I don't have residency, I buy bottled water just because it's more convenient…tastes better." • (N) "Everything you pay for. You pay for good water. You pay for everything. Cause it's all about money."

3. Health & Sustenance (28)	• Social services: Food banks, churches, home health, transitional housing centers, a community center "cool down room" (25%)	• Lack of access to food and bottled water • Need hot and cold weather-protection • Need mental health services • Public fountains broken or appear unsafe, hot in summer (75%)	• (S) "I was really surprised to see at the community center they had a room called a cool down room. And the fire department was there, and they had water, and ice." • (N) "Everything is more and more expensive. We have to pay more and more, and we have no money. Even to buy food to eat, have to come to food bank."
4. Water Quality (26)	• Sensory and community-based perceptions that tap water is safe (8%)	• Sensory and community-based information concerns re: tap water "bad taste" and quality • Preference for bottled water despite the high cost • Fears of unknown or unreported contamination (58%)	• (S) "I don't really like to drink tap water but I have been and it seems to be alright. I haven't got sick from it or anything." • (N) "There's maybe only one or two water fountains at the park, and sometimes they don't even work right." • (N) "Even being homeless, we didn't drink it [tap water]. We made sure we always had bottled water cause... you need H20 for everything, like your body. To survive! So I didn't want to put tainted or bad H20 in my body. So, you never know what you're gonna get, you might get sick. I didn't want to take the risk." • (N) "Well, I worked in Fullerton all my life. I worked in the aerospace industry at times. My mom retired from it. Anyway, there used to be a lot of industry, industrial stuff in Fullerton and I know that they have a problem with the ground water....cyanide because there was a lot of plating going on [in local industries]... [industry authorities] came around and let us all know, you know, don't drink the water right now." (N) "I don't know if we have a Flint situation, I haven't seen anything on the news, but you never know."

2. Fullerton Area Community Listening Session #2 / Orange County (participants = 10)

Area with household incomes < 80% statewide MHI. Host organization serves: people for whom English is a second language, non-English speakers, Spanish speakers, immigrants, underserved families, renters, people experiencing racism

Themes (# of coded instances)	Strengths or Assets (% of coded instances)	Needs or Problems (% of coded instances)	Representative Quotes
1. Water Quality (18)	• Sensory perceptions of tap safety for drinking and cooking (11%)	• Sensory concerns re: tap water taste/smell • Need for maintenance of public water fountains in parks • Need for better rain and flood drainage systems (56%)	• (S) "I feel comfortable because in our communities at least the water is clear and has no odor." • (N) "When you ask for water in the restaurants, we don't know the quality of the water. It tastes funny, but we have to drink it." • (N) "The water that we get in my house, I use to shower, to wash, to clean and everything. But I do not drink it directly. I cook with that water, knowing that because of the boiling process, in a sense, it will kill any bacteria or germs that are in the water. Drinking straight out of the tap? Never. I will never do that."
2. Buying & Selling Water; Water Rates & Cost (11)	• [None identified] (0%)	• Water cost burdens renters who are billed by landlords and who may not have access to water usage rate information. (82%)	• (N) "It [the water bill] is the highest bill that we pay." • (N) "At this point, we pay a lot of money for the water service. Besides that, we have to go and purchase gallons of water from another store. We really don't know if the water we are purchasing -- the extra water we're purchasing -- is drinkable, or what is the level of cleanliness..." • (N) "Now I pay more rent because the water is too expensive -- or the water bill is too expensive."
3. Health & Sustenance (8)	• Health education via a local community center.	• Sensory-based and information-based concerns, including: health and safety of standing water, water quality in public systems, e.g., pipes and fountains	• (S) "I feel very proud about this community center, because we get a lot of help towards our kids, and health." • (N) "Especially in schools and parks, the tips of the water fountains are very old. There's oxidation. We can't stop our children from drinking that water. Most of them tend to touch that tip with their mouth. How can we get information for someone to...do an inspection?"

	(13%)	• Sensory and information based uncertainty about bottled water safety (75%)	
4. Communication (8)	• [None evident in transcript] (0%)	• While some participants did report receiving letters from their water service company, they did not read it • Uncertainty about whom to contact regarding water quality, drainage issues, and odor from irrigation systems (100%)	• (N) "Regarding the information about water, we don't know anything about the services relating to the water services... I rent a house, but I don't have to go to the water services agency to pay my bill. My landlord gives me a copy, and then I pay the bill to him. He is the one that goes to the water agency. I don't know anything about the services, or anything related to the water agency." • (N) "My question is, if it's not the rainy season, or it hasn't rained at all, why is there water in those channels? It's water that doesn't flow. It just puddles throughout the channel. It creates mosquitos, my concern is a health concern. Also, a very unpleasant odor after a few days. What can we do?"
5. Water Management (7)	• Water treatment system (14%)	• Lack of knowledge about water governance/management and which public agencies they can contact about concerns. (71%)	• (S) "One thing that I am very thankful for [here] is that the easy access to the water, and that the treatments that they do to the water to make it drinkable." • (N) "There's too much trash from the people in our community that just throw the trash everywhere. With the business owners not caring about the letting the water run, and the drains because it's clogged, the water accumulates and it creates a bad odor, and other hazards. Especially for our children. Sometimes they step in the water, and it's a very unpleasant smell."

3. Santa Ana Area Community Listening Session #1 / Orange County (participants = 22) Area with household incomes < 80% statewide MHI. Host organization serves: people for whom English is a second language, non-English speaking people, mothers, immigrants, homeowners, renters; people experiencing racism and citizenship-status discrimination			
Themes (# of coded instances)	Strengths or Assets (% of coded instances)	Needs or Problems (% of coded instances)	Representative Quotes
1. Water Quality (26)	• Acknowledgement of information available about "award winning" Santa Ana water (4%)	• Sensory-based concern and expressions of mistrust about the taste, appearance, smell of tap water • Confusion about media messaging about water quality in their area. (96%)	• (N) "Children complain about the taste of water." • (N) "When I wash the dishes and leave them to dry without draining them, they have a white stripe. Or, sometimes, I have cooked with that water, to prepare meat, and it also leaves a white layer around. Then that gives me a lot of insecurity, and I don't feel safe to use or to drink it." • (N) "The chlorine is supposedly good, but it gives it a taste that is not very good." • (N) "The problem here is that the water here looks like is cloudy. [It] looks weird, cloudy." • (N) "After it came out on the news that it [the tap water] was the best, after a short time, they said that there were problems with the water again. I do not know if there were [issues], they did not name or anything, but they said that the water caused diseases."
2. Safety & Hazards (17)	• Sense of unity and empowerment to advocate for local change. (5%)	• Concerns about gang violence • Concerns about the rise of homelessness in their areas • Need for safe play areas • Need for more green space (94%)	• (S) "We feel confident to ask for the things we want for the well-being of the community, as is the case of the courtyard, that we have a camera. We unite, and we ask them for things for our city that we need to feel safer." • (N) "The problem is that there are not enough safe areas for children in school, even parking is not very safe, we need more spaces like this for children, you know, areas for children to feel free, more areas to play freely... We definitely need more green space and parks."
3. Flooding & Stormwater (14)	• Rainfall contributes to landscape beauty	• Concerns about flooding and flood damage	• (S) "We are blessed right now that we have a lot of water. We already needed it a lot, because the river was drying up. [Before] there were many fires where there are trees,

	(7%)	• Concerns about street flooding • Concerns about refuse in standing pools of water, lack of sufficient drainage systems (93%)	many things were burned with [the drought].. Now with so much water, we have beautiful landscapes." • (N) "On the block, every time it rains, homes collapse, and our families are affected."
4. Communication (13)	• Sense of empowerment to create community events and advocate for their needs with city representatives (31%)	• Concerns about mixed media and government agency messages about the quality of their water (54%)	• (S) "We go out to the city, we make neighborhood gatherings, come from the city, and there we ask what we need, and if they can solve it for us." • (N) "On our water bill we get, it does say that we have this award-winning water, but we also have to clean out our faucets and all our outside plumbing due to our water's mineral deposits. So we're constantly having to clean all of that. And it gets thick if you don't keep up with it all the time... It builds up, it gets so hard."
5. Age & Generation; Safety and Hazards; Social Services (12)	Children's programs provided by local community groups (17%)	• Concerns about children's safety in public spaces perceived as unsafe per gangs, unhoused people • Better drainage systems around their children's schools (83%)	• (S) "We like the Madison Park Association that has programs like folklórico, health or food classes, exercise classes." • (N) "The problem is that there are not enough safe areas for children in school. We need more spaces like this [community organization] for children, you know, areas for children to feel free, more areas to play freely."

4. Santa Ana Area Community Listening Session #2 / Orange County (participants = 12)

Area with household incomes < 80% statewide MHI. Host organization serves: people for whom English is a second language, Spanish speakers, Native people, immigrants, underserved families; people experiencing racism; people aware of environmental contamination; people involved in community organizing

Themes (# of coded instances)	Strengths or Assets (% of coded instances)	Needs or Problems (% of coded instances)	Representative Quotes
1. Civic engagement & Service; Diversity (11)	• Opportunities for civic engagement in water and other areas (27%)	• Need to factor in social and cultural history of communities into water management • Need for paid internships and other forms of compensation for community members' time and effort in water planning and involvement (82%)	• (S) "I think [there need to be more] opportunities for youth and community members from those [native] communities [and other communities of color] to be able to possibly interact or engage with different organizations that are doing water work. Whether that's on a scientific level, or on a community level. I think some of the opportunities are afforded to students, which is great." • (N) "Sometimes I take photos, and sometimes I send them to whomever the appropriate water authority is. But sometimes I just feel like I'm wasting my time." • (N) "I think that there's a lot of diversity within different communities that we come from, but also I think traditional cultural knowledges that are still here and still fighting to be acknowledged... I think that's a strong point, but also a struggle. At least for me, being an indigenous person, it's very important that there's acknowledgment, but also meaningful engagement with local folks whose ancestral territory we're on."
2. Water Quality (5)	• [None identified]	• Sensory and information-based concerns about tap water quality and safety • Lack of access to clean water, particularly with respect to local homeless populations • Analysis of water access and quality	• (N) "People don't have the strongest trust in water. Either they buy water bottles from Costco, or they don't use tap water. There's that community perception of water there. But there's also the hard facts, and the public data from Orange County Water District that shows us how widespread that contamination is." • (N) "Right now, we're going to see the worst of the impacts of heat waves, extreme heat and weather conditions, hurting and harming vulnerable communities. Whether they're homeless people, homeless veterans, elders and seniors, and I worry people don't have access to clean water." • (N) "We had to treat so many people for heat-related illnesses at the [other] community center. I don't want to see that. It's going to continue to happen... It's a structural

	(0%)	problems as structural and systemic (100%)	oppression. It's a systemic inequality. It can be addressed by providing more access to safe clean drinking water."
3. Water Management (4)	• [None identified] (0%)	• Need to increase community involvement in water management, particularly with respect to Native groups. • Need to clean superfund sites • Need to educate local industries about water conservation (100%)	• (N) "How can we address that contamination of that superfund site in a way that not only brings communities into healthy environments to live in, but also cleans up that mess? Right now it's zoned for industrial. Unless something is done about that, I don't know if the kinds of solutions [the local district] is proposing is going to be able to address... the continuing contamination." • (N) "We [need to] oversee responsibility to incorporate [Native groups] with development, with water issues, with cultural sites. So it's not just a cultural thing. It's also an environmental thing. It's also an involvement thing."
4. Neighborhoods & Blocks (4)	• Sense of neighborhood trust and congeniality (75%)	• Need for neighborhood-centered community outreach to all in the area (25%)	• (S) "We get along with them [our neighbors]. We have barbecues. We hang out with them, trust them. We help each other."

5. Santa Ana Area Community Listening Session #3 / Orange County (participants = 6) Area with household incomes < 80% statewide MHI. Host organization serves: Community members focused on food and green space reform; people experiencing food insecurity; people aware of water treatment and contamination			
Themes (# of coded instances)	Strengths or Assets (% of coded instances)	Needs or Problems (% of coded instances)	Representative Quotes
1. Built Infrastructure (23)	• Ellis sewage treatment plant's mission to recycle water and to educate community members (22%)	• Need for pedestrian infrastructure: crosswalks, streetlights, trees to shade sidewalks • Need for more parking in neighborhoods and in the city center • Need for more community gathering spaces (65%)	• (S) "That was a lot of foresight in the Ellis sewage treatment plant. When I went out there in the 60s, they were only using surface digesters, and spreader bars. Now they have it enclosed, they get a lot of it out first, and then next door is the reverse osmosis plant recycling the water." • (N) "If the streets are half a mile, or a mile apart from each other, you're not going to walk all the way to the light that has a crosswalk. … There's definitely not enough crosswalks, or even crosswalks that have lights or anything." • (N) "Some people say, 'Oh, we don't have anything in our communities.' [We need to make] sure that each city has some type of place-making [site] where the community can come and gather."
2. Open or Green Public Space & Healthy Habitats (22)	• Local community-based educational and recreational opportunities (18%)	• Controversial water conservation measures e.g. replacing trees with Astroturf • Need for irrigation systems to maintain public area trees for their beauty and shade • Access to water in local parks for projects and consumption (77%)	• (S) "We've gone to the riverbed farms in Anaheim where they do aquaponics where they have the fish that fertilizes the plants, and the plants clean -- it's just amazing. They get the whole community together. It's very water friendly. They have people [who are] disabled, [with] special needs, help garden. They're on elevated beds, so almost anybody can do it. It'd be just wonderful to have something locally around here as well." • (S) "[The] Ponderosa Family Resource Center… is really impressive. They got input from the community on what they wanted. It's got so many elements. Skateboard park. All kinds of programs that the community -- and there's a library right next door too. There's all kinds of resources." • (N) "I think it would be really, really nice to have more urban gardens. Provide more green spaces. It would also be kind of like a community hub as well." • (N) "If we eliminate plant life on the street, that helps clean the street, we lose. You get a lot more dust off of a dry street because of less vegetation."

3. Water Quality (12)	• Using ozone as a water treatment mechanism • Quality water in the county • Availability of water testing programs (18%)	• Need for more community outreach and education about water quality in the area • Need for greater access to water: refill stations in public schools, updating water fountains in public parks (66%)	• (S) "Who here knows that our water is treated with ozone? Very high tech." • (N) "We know there are places in California that have very bad water, and you can't drink it from the tap. Here, in this part of Orange County, we are very lucky that we don't have to that. But I have families that are spending a lot of money on bottled water, when they don't have to, and could use that money on food instead." • (N) "We've...been discussing the idea of the bottle fountains at schools. Schools shouldn't have to compromise on their kids' drinking water. Especially with the...fact that the first two months of the school year, it'll be 90 degrees out every day. These kids shouldn't be compromising on their [access to] water because the fountains don't work well, or they don't want to use them."
4. Social Dynamics (12)	• Community centers and public spaces that celebrate local culture contribute to community cohesion (50%)	• Need for more community centers and public services, e.g., local libraries (33%)	• (S) "Latino culture... [is] depicted in the stores...Where they have the murals and stuff. People love that. It's who they are." • (S) "The community center... It's fairly new. It was built extensively with community input. It has all kinds of different resources... We have a lot of different centers, but I think that one is a particularly diversified use kind of a place." • (N) "[We need] more community libraries or community centers or... literacy centers." • (N) "Libraries are just so pivotal for promoting literacies, community programs, and that's really sobering to learn that there's only two libraries in one of the major cities in California."
5. Transportation (11)	• [None identified] (0%)	• Transportation safety problems: excessive driving, unsafe driving habits • Pedestrian safety problems: inaccessible walking space, especially for schoolchildren (100%)	• (N) "If you don't have crosswalks, sidewalks...people are going to walk in the street." • (N) "The biggest I hear about has to do with pedestrian safety, from walking to schools. People riding skateboards or bicycles... It is not a safe place to be any kind of pedestrian. It's not even just a safe place to drive a car in many of these neighborhoods."

6. Lake Forest Area Community Listening Session / Orange County (participants = 11) Area with household incomes < 80% statewide MHI. Host organization serves: people for whom English is a second language, immigrants, Spanish-speakers, renters; people experiencing personal and community safety concerns; people experiencing racism			
Themes (# of coded instances)	Strengths or Assets (% of coded instances)	Needs or Problems (% of coded instances)	Representative Quotes
1. Safety & Hazards; Timeframes and History (33)	• Sense of physical safety via security surveillance • Access to quality water, even in periods of drought (12%)	• Concerns about safety and wellbeing due to heightened security surveillance, racism • Need for safety services re: homeless populations, car break-ins, drug dealing, and a lack of police response to crimes • Impacts on waterscape and water availability due to agriculture, rapid development (76%)	• (S) "I like that it's safe to go on a walk in the afternoon." • (N) "It [helicopter patrols at night] feels really weird because we came to a community that was originally for retirees, where the ambulances, firetrucks, and police cars aren't allowed to have their sirens on. They could flash their lights, but the sirens were silent." • (N) "The community needs more [police] services... I've had two attempted break-ins [at my home]." • (N) "I do note some racism, I see it in different things, the police, workers—businesses, here there are not a lot of family-owned business."
2. Public & Social Services (17)	• Activities and events hosted by the city and other organizations (47%)	• Mixed opinions about the police: surveillance makes some feel safe, others feel unsafe (35%)	• (S) "City Hall has classes for adults, classes for kids. There's a lot of services." • (N) "The police helicopter [flies] sometimes at 11 o'clock at night...It [feels] like crime is rising, first because of the police helicopter, and maybe because of news media. Now that we all have internet access, we look at police news-- news about our community, what happened... It's not encouraging."

3. Age & Generation (14)	• Low-cost or free afterschool programs and children's activities • Senior centers promote safety due to presence of security guards (43%)	• Concerns for children's safety in public spaces (43%)	• (S) "During summer vacation... City Hall puts on activities in the park, movies at the park [for children]." • (N) "I don't walk there [near homelessness encampments], why? Because you don't know what kind of mental state they're in, and my kids—they tug at my kid—if they do something to my kid..."
4. Conservation & Natural Resources (13)	• Increased awareness about water conservation efforts • Flat rates for water usage (15%)	• Need for conservation processes • Need for conservation education • Concern about future access to water with respect to drought and climate change (46%)	• (S) "Years [ago]... there was a lot of [effort to raise public] awareness about the cost [and conservation] of water. For example, showering quickly, saving water here and there, and I remember that the water commission provided low-flow shower heads...and we spent less on showers." • (N) "If the water reservoirs are now full, what do we do to ensure we don't have another drought? That's what I'd really like to know."

7. Costa Mesa Area Community Listening Session / Orange County (participants = 2) Host organization serves: people involved in nonprofit work focused on environmental and water-related conservation with members of disadvantaged communities in Orange County)			
Themes (# of coded instances)	Strengths or Assets (% of coded instances)	Needs or Problems (% of coded instances)	Representative Quotes
1. Education (23)	• Water education programs • Public tours of water recycling plants (9%)	• Need for more community education on water-related resources • Need for more avenues for civic engagement • Need for conservation education (87%)	• (S) "The GWRS [groundwater replenishment system], they've got an endless tour." • (N) "What you end up having [without greater community education on water-related issues] is misinformation going out. Like I'm thinking of the desal[ination] plant. They put in a really hard campaign, was it last year? At these disadvantaged communities. They had Spanish speakers telling these people, 'How much do you pay for that gallon of water, how would you like to pay cents for it? That's what is going to cost us to make this desalinated water." Complete false information."
2. Conservation & Natural Resources (18)	• The aquifer and the Santa Ana river as high quality, bountiful resources (61%)	• General community education about natural resources and water conservation techniques • Need to educate wealthy communities about natural resources and water conservation (50%)	• (S) "Santa Ana won an award for - maybe like two years in a row — I think, for having the best water quality in the nation, I think. … partially because of that ground water. So that's another thing to be proud of." • (S) "We are literally sitting on an aquifer the size of Lake Mead….we could go years, decades without having…imported water in the area… It's very high quality water." • (N) "With my students, when I ask them, you know, how many of them drink bottled water because you think that that's the only safe drinking water? And a lot of them raise their hands. [We need to get] resources out there to the communities, so that they know… their water is safe to drink." • (N) "The fact is, when you look at the numbers, the highest water use is in the wealthiest communities. They are the ones with the giant landscapes."
3. Communication (18)	• Manageable size of public and social services	• More language- and culturally-appropriate communication to	• (S) "[The mayor] is actually very approachable." • (N) "I talk to people a lot, they are disjointed and not a part of the community- How would I even participate? Why would people listen to me? How would I do something?"

	• High politician visibility • Local water conservation programs • Communication among stakeholders. (22%)	publics about local water sources • More information about the high water quality • More information about whom to contact within one's water service districts regarding water issues • Low public attendance at community meetings (78%)	• (N) "Unfortunately, there is sometimes a language barrier, so maybe providing a translator at these [public] meetings. Or something that would, or a recap in different languages, something that would help the communities stay involved. Just because they do live and work here, so it is important to provide that"
4. Water Management (17)	• Certain water districts were mentioned as setting new standards in water conservation and management (12%)	• Wide variances or lack of incentives to coordinate water conservation and management (82%)	• (S) "OC was the first -we were the first ever in the world to do full tertiary treatment, so taking our sewage and turning it into drinking water. And so then putting it into the ground, and then pumping it up and using it again." • (S) "Water districts like the Mount Miguel…are just obsessive about conservation and things like that, to improve their water supply and their business model…that's not common, but that's an example…They are actually working to reducing water pollution in the creeks… So that they don't have to buy extra water to keep their rates down." • (N) "We have all these different districts that handle water. They need to do a better job of informing people of who they are and where they get their water." • (N) "My city…is not very interested in conserving water, and the reason is, is because their business model is that they make the money to run the district, to run their system, through water sales. So the less water they sell, the less money they have, the more they have to raise rates, politicians don't like to raise rates."
5. Social Dynamics (15)	• Social diversity • Environmental diversity (13%)	• Sense of social separations in "enclaves" (87%)	• (S) "You get exposed [to] a lot more [diversity], living in these communities than you would elsewhere… Also the diversity in the terrain— so you have the coast, you also have the beautiful mountains, and then…urban areas…good downtowns. • (N) "I would like the community in Orange County to have more of a sense of ownership of the county. [people's sense of regional pride or belonging] is very compartmentalized."

8. Anaheim Area Community Listening Session / Orange County (participants = 13) Area with household incomes < 80% statewide MHI. Host organization serves: people experiencing homelessness, people in precarious housing; renters; people working to alleviate poverty and homelessness			
Themes (# of coded instances)	Strengths or Assets (% of coded instances)	Needs or Problems (% of coded instances)	Representative Quotes
1. Housing (20)	• Historic areas (5%)	• Lack of affordable and available housing • Need to change zoning laws to build more housing on existing lots and unused public space (75%)	• (S) "I like the historical houses in Anaheim that have the plaques on them. I've lived in one of those houses, it is a rental property, and it was actually somewhat affordable at the time, because it was during the recession." • (N) "There is not enough money for people with precarious housing. There is not enough money for the homeless. There is not enough money for healthcare... There [are] 80,000 people on the waitlist for housing."
2. Homelessness (20)	• [None identified] (0%)	• Need for services: public restrooms, emergency shelter, safe parking lots, and permanent housing • Homelessness policies influenced by federal, regional, and water districts (100%)	• (N) "The city of Anaheim has used access to water as a punishment... depriving people of the one thing they need to stay alive, whether it be through hygiene, or whether it be through water [access]. They are punishing people- the lower income people." • (N) "Poverty and homelessness know no boundaries. It is not like the LA county thing, it is a worldwide thing."
3. Water Quality & Water Access (34)	• Perceptions of high-quality tap water	• Water quality and access problems for people experiencing homelessness • Water quality concerns for renters and people	• (S) "I turn on my tap, and I pretty much accept that good water is going to come out of that." • (S) "I don't see as though we've ever had a problem, or a lack of confidence [in water quality] in this area." • (N) "I think water quality is way down on the list of priorities, because we've never thought about that. For the impoverished, the access to water has always been a problem by political design."

	(6%)	living in houses with aging pipes (94%)	• (N) "I'm always concerned about children in poverty, who might be exposed to lead in their water. Even if the quality of water is good in the community, the pipes that are delivering the water that are corroding. And we know that is happening in LA. So I would imagine that is happening in some of the units in Anaheim and Santa Ana as well." • (N) "The majority of [people in poverty] don't feel safe drinking tap water. And they are really afraid of tap water. Its wealthier people who know that tap water is safe, and they are educated enough to feel comfortable drinking it."
4. Governance (16)	• Civic engagement and empowerment (19%)	• Complacency and neglect by government authorities • Need for greater minority representation in public offices (81%)	• (S) "The legal people [e.g., ACLU] in Orange County are the ones really, really driving the change." • (N) "The county has enough money and resources, enough funds to solve a lot of issues... [But] they don't really have the motivation to solve the issues that needs solving. Instead, they just sit on it."

9. Garden Grove Area Community Listening Session / Orange County (participants = 6) Area with household incomes < 80% statewide MHI. Host organization serves: people for whom English is a second language, immigrant and first-generation people, renters, people facing racism and citizenship-status discrimination			
Themes (# of coded instances)	Strengths or Assets (% of coded instances)	Needs or Problems (% of coded instances)	Representative Quotes
1. Health & Sustenance; Public & Social Services (16)	• [None identified] (0%)	• Food insecurity • Water quality • Healthcare and mental health issues • Problems faced by undocumented individuals (88%)	• (N) "For Orange County... the average rent is like $1,800... and I know many families make only $1,800. So they are kind of forced to choose between [rent] versus the necessities... And I know families that ... face that hunger issue... I know students [who] come to school to eat. And during the summer [when school is out], it's a problem for them."
2. Water Quality, Septic & Sewer (15)	• Perception that water accessibility and quality are better here vs. other countries and U.S. states (27%)	• Concerns about plumbing and septic issues • Need for more communication and education about water management (73%)	• (S) "We moved from Philadelphia ten years ago, and I was really surprised to see how water is recycled, reclaimed [in Irvine], and I love that. " • (N) "A lot of times, it's not just that the water quality is bad, it is that it is the [plumbing]. The cost to replace those [pipes], those really rusted [pipes] it is really a lot... So even though, it could be that the quality of water is good, but the plumbing is [not]..." • (N) "Is it safe for me to drink my tap water? I never got any letters or anything from the water agency to tell me that, you know? So when we are talking about, "Do you drink that?" Nobody ever tells me it's safe to do that... I think it should just be more transparent with the local issues and [do] outreach to the different housing communities to let us know, specifically, is it safe in our own... communities where we live."
3. Public & Social Services; Open or Green Public Space & Healthy Habitats (12)	• Water recycling programs • Open and green spaces	• Need for community outreach, education, culturally appropriate services, and translation services • Services for undocumented people	• (S) "Compared to where I used to live, I think we have many parks. So public facilities, and I also noticed there are like, parks- not normally involved, like lakes- but still they have water in there. I am just not sure how they maintain those waters. And also, those biking trails. So we do have good exercise, public exercise facility available. There's a lot more dog parks here too." • (N) "I've known students who, who haven't eaten the whole day, and [they] come to the after school program [at a community center] hungry, because food is not as edible as it is made out to be."

	(15%)	• Need to improve the food and water quality in schools (85%)	• (N) "I think another aspect on it is the stigma of asking for help... people want help, but don't know where to go to look for it."
4. Immigrants (10)	• Water access and quality good compared to participants' home countries (20%)	• Need for public translation in more languages than Spanish • Need for culturally-specific and/or transcultural health education events (80%)	• (S) "In Vietnam, it is hard for me to get water, it is not really clean and fresh. Even when you want to drink tap water, it is really hard for you to get it." • (N) "I'm from the Philippines to here. And I would say... this [water] is a lot safer in a sense, than over there. I would say its a lot safer, but I still wouldn't drink tap water." • (N) "Because of the diversity that we have, we need programs in different languages or with interpreters."
5. Disadvantage (10)	• [None identified] (0%)	• High cost of living and utilities • Food insecurity • High utilities • Lack of access to culturally-appropriate health and social services, particularly for undocumented people (100%)	• (N) "I've known students who, who haven't eaten the whole day" • (N) "Being able to purchase a [water] filter is so financially privileged. And I know that there are people that cannot afford to use those things, but they don't have the choice. So it's just all that is available to them is the tap water."

10. Riverside Area Community Listening Session #1 / Riverside County (participants = 13) Area with household incomes < 80% statewide MHI. Host organization serves: People experiencing homelessness, people experiencing food and water insecurity, people doing conservation work			
Themes (# of coded instances)	Strengths or Assets (% of coded instances)	Needs or Problems (% of coded instances)	Representative Quotes
1. Homelessness (41)	• Friendly, helpful demeanor of those who serve homeless populations (2%)	• People experiencing homeless are concerned with displacement and damage to belongings as a result of encampment deterrence and eradication • Need water for consumption and hygiene • Need restroom facilities, laundry services • Need for safety services • Experiences of stigma and blaming by those experiencing homelessness (98%)	• (N) "There's cars down there that are stripped, abandoned, left, sitting on rocks. It's crazy... We... the homeless [are] getting blamed for it all, like the fires down there or all the mess. But it's really ... not us, it's a lotta just the regular, everyday people. Having fun at the river, you know what I mean? But, we're the scapegoats for everything so. You kinda get used to it." • (N) "If we could just have a shower and wash our clothes... a lot of the young people [who are homeless] would be able to get jobs... And that doesn't seem like a big thing to me, to have a little spot somewhere in the world, close by to where we're all camping out over there, so that we could just take a shower real quick and wash our clothes... That would help everybody so much."
2. Pollution (16)	• [None identified]	• Air pollution • Water pollution in a nearby lake • Refuse in local parks	• (N) "It would be nice to have actual alternatives to cars... The air quality here is bad. It's always been bad, it's a lot better than it used to be, 20, 30 years ago. But I mean, I'm one of millions of people with asthma. And it would be so nice to have a bike highway, you know."

	(0%)	(100%)	• (N) "I grew up in Perris, and I would not drink the tap water in Perris. I was not allowed to. And we were like, we weren't that far from a superfund site."
3. Open or Green Public Space & Healthy Habitats (14)	• [None identified] (0%)	• People experiencing homelessness note waterway pollution by non-homeless residents: e.g., dirt biking, off-roading • Homelessness deterrence programs disrupt lives of people experiencing homelessness • Concerns with pollution in public spaces • Concerns with environmental impact of development and urbanization (100%)	• (N) "We should remember that the built environment should not supersede the natural wild environment, we still need to consider that we're not environmentalists just for animals.... I guess like thinking about peoples' relationships to the [Santa Ana] river and to water and thinking about that as being as important as habitat restoration and preservation." • (N) "Our only recreational area that we have is basically Lake Perris, and there's a nickname that goes along with it, it's called Lake Parasite. It's not really swimmable." • (N) "I leave that park, I have to make sure every piece of trash is picked up. Because it is a mess. And I understand that. Even in the library bathrooms, I go in there, and I'll clean them." • (N) "People [are] competing for land and open space when there's a whole lot of build out happening, a lot of development happening in here and Riverside and the Valley. Places there were very rural communities are suddenly becoming not very rural and even urbanizing. Like Fontana for example."
4. Water Quality (12)	• [None identified] (0%)	• Sensory-based and information-based concerns about tap water taste • Concerns about aging pipe infrastructures • Concerns about public water fountains quality (58%)	• (N) "Do you feel like it [the tap water] tastes funky to you? It does to our family. Our family does not enjoy it." • (N) "I like the way bottled water tastes. Tastes clean." • (N) "That's one of our oldest parks. Those pipes [that run to the water fountains] are old."
5. Conservation & Natural Resources (10)	• Conservation and preservation of natural resources	• Offroading causes noise, water, and open space pollution	• (S) "I have a huge bias as far as what my focus is regarding you know the environment and wildlife and rivers and everything."

	(20%)	• Need for greater education on preserving local habitats (50%)	• (N) “And they [residents] like to water greenery all day, but it doesn't seem like they like to water the people [experiencing homelessness].” • (N) “It's getting out of control. They're shooting guns down there. Yeah no, they don't disrespect our- but they just don't care for us people…. just making a mess, killing wildlife, riding through the water, you know.”

11. Riverside Area Community Listening Session #2 / Riverside County (participants = 6) Area with household incomes < 80% statewide MHI. Host organization includes: people working for nonprofit assisting underserved families			
Themes (# of coded instances)	Strengths or Assets (% of coded instances)	Needs or Problems (% of coded instances)	Representative Quotes
1. Social Dynamics (21)	• Sense of community and neighborhood safety (24%)	• Sense of loss of community due to: job insecurity, lack of affordable housing, generational differences in technology use, and the afterschool activity costs (71%)	• (S) "What makes it safe is that we know each other... We watch over each other." • (N) "We built this idea of work harder to earn what you get. But no matter how hard you work sometimes, it's like something is always there to stop you. You don't know how hard people work, and they still can't make it."
2. Water Management (18)	• Water program subsidies: xeriscaping, free water-saving showerheads (11%)	• Need for information on water quality • Need for information to participate in household water conservation and usage management • Lack of incentive for renters to xeriscape because of price and landlord resistance (89%)	• (S) "The city just paid a lot of people…based off [yard] sizes…. Certain areas were getting letters that if they wanted to switch, they'd pay them a percentage…many homeowners have…completely changed their yard through the program." • (N) "[Utility companies] tell us how much we use, but we don't know what item to cut... What's the item using [the most water]-- do we have a leak? Or are you washing your clothes too many times? What is it?"
3. Homelessness (17)	• [None identified]	• Concerns about the growth of the homeless population	• (N) "The homeless population has increased a lot. The help for them has decreased." • (N) "Many of our homeless are mentally ill, as well as [those in] our jails. So the mental health issue is huge."

	(0%)	• Concerns with health and safety issues with increased rates of homelessness • Need for services and shelter to alleviate homelessness (100%)	
4. Housing (15)	• [None identified] (0%)	• Scarcity of affordable housing • Cost of living increases prevent community stability and longevity (100%)	• (N) "Most people live in Southern California are spending big bucks -- most of their money, their income, just to try and get a decent home or apartment." • (N) "I think when you do get that education, it's almost like you're punished for [it]. You go to school... You end up with loans. You try to buy a home, and now your loans are keeping you back from those programs that help you....the housing market is really difficult." • (N) "The homeless situation is very complicated and has issues on many levels. But I think that a lot of [it] could [be] solved if we had more housing -- more houses built that aren't running 300,000, 400,000 dollars."
5. Built Infrastructure (15)	• School water refill stations (33%)	• Need for more water conservation infrastructure: e.g., low flush toilets, water refill stations, and home refits • Better storm drainage systems, as well as the need for better drainage (80%)	• (S) "A contractor with our district ... came to the house, and they recommended low-flow toilets...they gave me all new sprinkler heads that were reduced flow. Also, a unit on the roof that detected the weather [to prevent sprinkler system from running on rainy days]. • (N) "To build new housing will take at least two or three years...it's going to take two or three years to do that." • (N) "I go to Mount San Jacinto just to walk with my kids. They have water fountains in the football area, but they don't have a water refill station. Those water fountains do not look taken care of. They look dirty."

12. Quail Valley Area Community Listening Session / Riverside County (participants = 44) Area with household incomes < 80% statewide MHI. Host organization involves: people working to alleviate environmental health hazards and environmental injustice			
Themes (# of coded instances)	Strengths or Assets (% of coded instances)	Needs or Problems (% of coded instances)	Representative Quotes
1. Built Infrastructure; Sewer & Septic (47)	• [None identified] (0%)	• Lack of drainage causes unsafe transportation conditions • Need to lift moratoriums on city-wide sewer system construction (100%)	• (N) "This little town is very country-like. It doesn't have the infrastructure... We don't have sewer systems... We have a lot of older water systems." • (N) "There are no proper drains. Many families in the "core area" bought years ago, because property values were so low, compared to surrounding areas."
2. Governance (23)	• Politician presence and support • Smooth approval process for water-related home improvements (9%)	• Lack of government coordination and communication among public agencies: confusing bureaucratic processes, ambiguous departments, shortsighted water management governance (91%)	• (S) "Our Mayor, our council member, they come up [to monthly community meetings], and they support us." • (N) The fact that they won't let me build is really aggravating…I keep having to go to the [city] office, and they keep giving me a different excuse each time." • (N) "I went to the city. And nothing happened. So you people are not working together, that's the problem."
3. Regulations & Laws (20)	• Need for development regulations	• The moratorium on building prevents residents from fixing existing systems or selling homes	• (S) "Because of the 'haphazard' way our homes and yards have evolved over the years, there is no extra space for more people and more homes." • (N) "Many other people- their septic tank is leaking. They are afraid to go to city building department, because they are shutting [the houses] down. And they don't give a permit for just the repair…You aren't serving the community. You are destroying the community."

	(5%)	(95%)	• (N) "They have a moratorium for this entire area for fifteen years, and those poor people are never going to get their sewers. So they are never going to be able to sell their lots. They are never going to be able to improve their house. And therefore, the entire neighborhood is going to be depleted. It's going to be a depression."
4. Housing (18)	• [None identified] (0%)	• Lack of resources for home retrofit: sewer, flooding (100%)	• (N) "You could sell it [your home], but who is going to buy it if they can't improve it? That's what I'm saying, your value is down because they've created a blight." • (N) "The water that flows behind my house, who knows where that water comes from? If you drive through the grid, it is [the] hills. And you'll see green in the middle of the summer, when there hasn't been rain for months. Where do you think that water is coming from? It's overflowing from septics." • (N) "When it rains ... under the house- it floods completely. We have to pump our home every time it rains... We built a tread, like a little drainage on the side, but water keeps on going in. And every year, when it rains and it pours, we can be draining our house for about almost a month or two months... Because there is no drainage system, there is nowhere for the water to run or anything like that."
5. Disadvantage (16)	• [None identified] (0%)	• Chronic infrastructure underdevelopment • Lack of funding for home improvements, including sewer retrofit impact homeowner social mobility (100%)	• (N) "Many families in the "core area" bought years ago, because property values were so low, compared to surrounding areas. Most are low income, including myself and "hooking up" to the sewer would be prohibitive."

13. Moreno Valley Area Community Listening Session / Riverside County (participants = 12)

Area with household incomes < 80% statewide MHI. Host organization serves: non-English speakers; immigrants, refugees, members of a religious minority; people experiencing racism and citizenship-status discrimination; personnel serving refugee populations

Themes (# of coded instances)	Strengths or Assets • (% of coded instances)	Needs or Problems (% of coded instances)	Representative Quotes
1. Class & Privilege; Disadvantage; Public & Social Services (15)	• [None identified] (0%)	• Need for interpreting services at public agencies • Need job opportunities for immigrants • Need better public transportation • Need more responsive public safety services (87%)	• (N) "Somebody broke into my car. They took my bag, my school bag. When I called the police, ... I waited for hours and hours, but they would not respond to me." • (N) "[We need] discounted bus passes for kids... We don't have as much public transportation as other cities."
2. School & Afterschool (15)	• Schools accept and integrate immigrant children (33%)	• Need for interpreters for parents • Need for free afterschool/summer activities (67%)	• (S) "The school is over there [close by] ... We don't feel strange -- near all the people." • (N) "The kids end up doing their own interpreting, and they end up interpreting what they want, and say what they want. It's not always the best that kids that speak English -- you can't really rely on that. Moms and dads need to be a part of that process. So interpreters is very important." • (N) "We need more summer programs for children at a very, very low, or no fee."
3. Immigrants; Diversity (11)	• Scholarship programs for immigrant children (27%)	• Need for immigrant employment and social services • Fear for safety as immigrants (73%)	• (S) "Because they have green cards, they [qualify for] federal [aid]. I am so happy for the scholarship. This year, both my daughters graduated." • (N) "If we want house, it's expensive also, especially for immigrants." • (N) "When we [hear] the news -- [about] the shootings of Muslims... the kids are scared. When they walk around the park, I hope they [are]...safe."

14. Chino – Montclair Area Community Listening Session / San Bernardino County (participants = 12) Host organization serves: renters, families, children			
Themes (# of coded instances)	Strengths or Assets (% of coded instances)	Needs or Problems (% of coded instances)	Representative Quotes
1. Lawns, Gardens, & Private Open Space (36)	• Community interest in drought tolerant landscapes (33%)	• Barriers to drought tolerant landscapes: cost, education • Landlords demand lawn upkeep from renters (67%)	• (S) "As I look around our community, I see a lot of drought tolerant [lawns], moving in that direction..." • (N) "We have neighbors who like green lawns, but because of water rationing... they do artificial grass. And some of them [are] trying to buy plants but you could see that they don't know what to do with them. So they end up dying..."
2. Social Dynamics (25)	• Close-knit community w/opportunities for cultural change (50%)	• Need for community education and involvement • Generational differences in water conservation (50%)	• (S) "We live in a very nice and quiet neighborhood most of the time." • (N) "I wonder if it's [the lack of water conservation] because we're not in a drought at this time...now it's just not a priority. And then it goes back to complacency."
3. Drought (21)	• Water conservation education (14%)	• Need for more education and cultural change about water use (86%)	• (S) "I do find a lot of [water conservation education] activities from Riverside, Claremont, and also this particular water district." • (N) "There's a lot of elderly people, and you take a garden hose away from a 70-year-old man that's been watering his lawn for the past 40 years- it's difficult....It's very important to educate on the importance of the plants that are native to California and drought-tolerant."
4. Communication (20)	• Community information via social media	• Need for greater communication with public agencies, via in-person contact and	• (S) "Chino Basin here they do a very good job marketing what they have to offer. In Rancho, I would say maybe one event a month... I like the demonstration garden here because I can see what it would look like." • (N) "Seeing... hydrants or sprinklers that are erupting all over the place and then wanting to get on it and call someone. But who do you call?"

	(50%)	social media interaction. (50%)	(N) “So I don't see [city] really putting in the effort to... say... "Here's some options"... I have to go to other cities to kind of get the information [on water conservation].”
5. Water Management (18)	• Community in-reach via regular events (22%)	• Need for more communication about public services and strategic plans. (78%)	• (S) “[Chino Basin] do have a lot of community services. They let you know about. The one thing they do have is the water service.” • (N) “I mean we could all conserve and try to conserve as much as we can, but is there anything down the line that somebody's looking at the big picture?”

15. Big Bear Area Community Listening Session #1 / San Bernardino County (participants = 10) Area with household incomes < 80% statewide MHI. Host organization serves: people with fixed and low incomes, seniors			
Theme (# of coded instances)	Strengths or Assets (% of coded instances)	Needs or Problems (% of coded instances)	Representative Quotes
1. Building & Development (18)	• [None identified] (0%)	• Water district governance divisions lead to higher water prices (78%)	• (N) "[The water district service area of Big Bear] is very broke[n] up... It's like one of those redistricting maps for legislators, you know, they got little tentacles going everywhere.
2. Economy Employment, & Business (17)	• Good retail sector • Tourism & development supports economy (12%)	• Tourism and development problems: high cost of living, pollution, and gentrification (71%)	• (S) "Big Bear would not be Big Bear if there was no ski slope." • (N) "The village is gentrified. Most of the locals don't eat there. It's for the Porsches and the Ferraris..." • (N) "My insurance basically went up about fifty percent. I'm anticipating that every year now... These are surprises that people can't handle."
3. Governance (16)	• [None identified] (0%)	• The bond used to improve water infrastructure has led to high rates in water (88%)	• (N) "The city of Big Bear Lake does not run very efficiently" • (N) "Now [certain places] are paying money toward [refinanced bonds], not the water.
4. Water Management (13)	• [None identified] (0%)	• City policy to conserve water for all social sectors: monitor usage by ski companies, agriculture (69%)	• (N) "Our water is all naturally occurring water. And it surprises me that we would be part of the Santa Ana River Watershed because we have nothing to do with the Santa Ana River." • (N) "They [the municipal water district] manage it [the water] but it's still is owned by the growers in Redlands... It's a very strange system."

16. Big Bear Area Community Listening Session #2 / San Bernardino County (participants = 8)

Area with household incomes < 80% statewide MHI. Participants included: people for whom English is a second language; immigrants and first generation residents, renters, victims/survivors of trauma; people experiencing racism, housing insecurity

Themes (# of coded instances)	Strengths or Assets (% of coded instances)	Needs or Problems (% of coded instances)	Representative Quotes
1. Water Quality (21)	• Participants hear that the water is safe to drink (42%)	• Sensory-based concerns about tap water chlorination • Uncertainty about safety of rental home piping (58%)	• (S) "I've [been living] here since I was a little girl. To me, [the water] taste is normal." • (S) "Scientifically, water here is good for human consumption." • (N) "I had to drink from the tap the other day because I didn't have bottled water, and it didn't taste like chlorine compared to the water in the city, right? Over there you can't even drink it. It tastes horrible."
2. Mobility & Access (20)	• Low traffic congestion • Workplaces are close by (20%)	• Public assistance program needs: childcare, local DMV (90%)	• (S) "Work here is not like in the city. Here you can walk to work, and there's less traffic, which is an advantage." • (N) "[We need a government office in order] to be able to apply for cash aid, food stamps, etc."
3. Health & Sustenance (17)	• Family environment (18%)	• Public health needs: social services center; affordable, culturally competent medical and mental health care (72%)	• (S) "Children here grow in a more relaxed and safer environment." • (N) "I don't go to the doctor here... There are only two clinics, and I've heard things like they don't make appointments [for you]. You know, they're not very polite. Sometimes, there's no one who speaks your language."
4. Economy Employment, & Businesses (17)	• Water-based tourism economy and jobs	• Water-based tourism industry fluctuates with rainfall, snowfall	• (S) "We had a very good winter this year." • (N) "If there's no water...ski centers take water from the lake, then the lake goes down. And by the time the lake opens, people [tourists] don't come because it's too shallow. This affects us."

	(41%)	(65%)	
Renters (14)	• Rent can be more affordable than the surrounding areas. (29%)	• Rental housing scarcity; families must share rentals (57%)	• (S) "Rent is sometimes double in other towns." • (N) "Before, there used to be a variety of houses for rent, but now everything is vacation rentals [for tourists]. People cannot find permanent housing."

17. Big Bear Area Community Listening Session #3/ San Bernardino County (participants = 11)

Area with household incomes < 80% statewide MHI. Host organization serves: people experiencing employment insecurity; immigrants and first-generation people; people living with disabilities; renters; people in need of healthcare; personnel serving disadvantaged families and youth

Themes (# of coded instances)	Strengths or Assets (% of coded instances)	Needs or Problems (% of coded instances)	Representative Quotes
1. Open or Green Public Space & Healthy Habitats (25)	• Natural surroundings and wildlife (40%)	• Insecurity about vulnerability to natural disasters (64%)	• (S) "We have nature everywhere and it's beautiful and pristine, and people can get up here so it's mostly from huge cities that people can get away" • (N) "Everyone in Big Bear who lives here is in constant fear of wildfire. We're surrounded by what's been a very dry forest."
2. Economy, Employment, & Businesses (23)	• Small businesses support local nonprofits (9%)	• Housing and income insecurities • Tourism industry employment insecurity due to climate and economic changes (65%)	• (S) "A lot of small businesses within the community contribute…very generously to the non-profit projects." • (S/N) "Full time rentals have gotten into the Airbnb business and so that's diminished affordable housing for just an average income for families. On the one hand, it's great because it brings the tourists and the tourism trade, but for residents here it's also a challenge." • (N) "People are working two or three jobs minimum wage just to keep the towns going. There's not a lot of work up here yet."
3. Flooding, Stormwater & Snow (21)	• [None identified] (0%)	• Weather: heavy rains, snowfall, and mudslides result in impassible roads, road damage, and higher likelihood of car accidents. (100%)	• (N) "We get a water an erosion problem here from the rains." • (N) "Ever since that large forest fire, pretty much anytime it rains there's mudslides and landslides that will wash across that road and put it out of business… Flash flooding and landslides are a big problem on Highway 38 pretty regularly."
4. Mobility & Access (19)	• Transportation and road	• Weather and tourism impacts road access,	• (S) "The CalTrans [alert system] tells us something's going on…. It really does help."

	condition alerts: CalTrans and City agencies (26%)	traffic patterns, and access to social services (74%)	• (N) "We've used to have a transitional assistance office up here in Big Bear for people to apply for Medi-Cal, Cal-Works, CalFresh, and we don't have that anymore. That would be a big thing for our community if we could get another big town office back up here."
5. Disadvantage (17)	• [None identified] (0%)	• Communities are disadvantaged due to lack of: affordable housing, job training for adults, ESL classes for native Spanish speakers, afterschool/childcare programs, a funded fire department, and accessible fire insurance. (100%)	• (N) "It made my jaw drop started looking for rentals. [they're] hard [to afford] … • (N) "I think, one of the things that's really needed is adults having job skills." • (N) "My [fire insurance] company of 24 years you know didn't renew because of the risk of fire danger. So that can relate directly to the water issue, I think."

18. and 19. Ontario Area Community Listening Sessions (2 sessions, same day) / San Bernardino County (participants = 32) Area with household incomes < 80% statewide MHI. Host organization serves: people for whom English is a second language; Spanish speakers; immigrants, renters; gardeners and food producers			
Themes (# of coded instances)	Strengths or Assets (% of coded instances)	Needs or Problems (% of coded instances)	Representative Quotes
1. Education (34)	• City-sponsored community services, events, classes (35%)	• More community education programs, e.g., ways to conserve resources like water (53%)	• (S) "There's a lot in the community centers, there's a lot of activities where one can bring their kids. The library here is excellent... This makes the city beautiful to live in." • (S) "[In schools] there's a lot of communication with the teachers, or with the principals. [and] there's a lot of variety if [children] want to learn something else outside of what the school has. • (N) "[We need] to create consciousness amongst people about the use of water, to optimize the way we use it, and create consciousness amongst youth, so they get used to and it becomes a habit."
2. Water Rates & Cost (29)	• [None identified] (0%	• The cost of water is extraordinarily high (100%)	• (N) "I am unhappy because I have no money left over [after paying the water bill]." • (N) "For example, at home sometimes we're paying at least $500 each month when it's like the summer....we're very careful to use the washing machine when its full and to be careful in all aspects like if you bathe, or to use less and turn it off because otherwise the cost is so high.
3. Public & Social Services (28)	• Community-based organizations provide social services • City agencies provide outreach and services (54%)	• Need to make parks more accessible and family-friendly by limiting crime and impact of homelessness (71%)	• (S) "There are many resources, it's just the question of knowing." • (N) "People use marijuana and go to smoke in the parks. So because of this, it's a big reason why people don't go out with their kids to the parks."
4. Social Dynamics (25)	• Participants feel accepted and supported in	• Challenges to peaceful, friendly community dynamics:	• (S) "We're multicultural here. We come from many countries." • (S) "Even though a lot of time we may not speak the same language, I'm always greeted with a smile. Everyone wants to just live peacefully..."

	their communities (56%)	targeting/deporting undocumented residents, lack of civic engagement, and lack of public and social services awareness (40%)	• (N) "I don't know if the city can...protect us from the raids [of undocumented residents]. When you're not a bad person you're not a bad resident, you don't deserve that your family is cut, that your heart is cut in half. They don't deserve that. • (N) "The people should propose change, they should participate, vote and say what should change and all that but the majority of the time everything is in run by politicians."
5. Conservation of Natural Resources; Flood Control (24)	• Community garden irrigation system (8%)	• Need infrastructure to mitigate street flooding • Conservation education • Green economy jobs (92%)	• (S) "I like the irrigation system they're implementing here because it's saving a lot of water." • (N) "Farms flood a lot when it rains... I've had experiences where my car has stopped and I've had to leave walking because of all the water in the streets." • (N) It really excites me to think that we could have jobs...dedicated to better the environment and...to take care for our water resources, which is the most precious thing we have. A lot of people work in the wineries, they would work in a lot of jobs but if it were possible, more jobs taking care of water would be great, I think."
6. Water Quality (20)	• Perceptions of good water quality vs. that of other cities • Belief that the tap water must be high quality because of its high cost (25%)	• Sensory and information-based concerns about tap water safety ("bad" taste and smell) • Perception that tap water only safe for cooking and washing • Rental homes with aging plumbing systems (45%)	• (S/N) "I think that the quality of water here in Ontario is good. I drink water from the tap. I buy bottled water too, but I do it because when I have visitors, they prefer it in bottles." • (N) "We use it for the house, to clean, in the kitchen or bathroom but no, not to drink..."

Table 3: **ELECTED OFFICALS: Grouped by 4 Watershed Counties** (Analysts: UCI Anthropology)

Total listening sessions = 11; total participants = 13

Note: data may be coded as both a strength and need, therefore row percentages may add up to < or > 100%

1. Los Angeles County Elected Officials (listening sessions = 1, participants = 1)

Themes (# of coded instances)	Strengths or Assets (% of coded instances)	Needs or Problems (% of coded instances)	Representative Quotes
1. Water Management (11)	• Sufficient water and water processing infrastructure (72%)	• Increasing development and potential stress on water infrastructure (9%)	• (S) "We have two or three water treatment facilities. We own significantly a lot of water. We're never going to go bankrupt when it comes to water." • (N) "People aren't accounting for the fact that with each house you build, you're going to have at least two toilets, one bathtub, two faucets, three sinks . . . What are you going to do to make sure you can capture it, you can treat it, and you can disperse it?"
2. Communication (6)	• Multiple communication strategies and platforms • Primary communication via water bill (100%)	• [none identified] (0%)	• (S) "We do [get water conservation information out to the public] through the water bill. We started to make a series of videos to [go into] detail [about] what happens, and so people understand [their] lawns. I think that if you show people stuff in layman's terms, they'll understand it. People like to be talked to, not talked down to. Or talked at."
3. Transportation (5)	• [none identified] (0%)	• Roads need maintenance (100%)	• (N) "I would say the largest issues we have is public safety and street maintenance."
4. Conservation & Natural Resources (5)	• Conservation communication and success measures (100%)	• [none identified] (0%)	• (S) "Our conservation efforts are always spot-on. We still have those who think that they can take 20-minute showers, but we also have people who have let their entire lawns go to crap." • (S) "We have calendars; we tell the kids that you have to conserve water. We have a really good system with that. Can it be better? Of course."

2. Orange County Elected Officials (listening sessions = 5, participants = 6)			
Themes (# of coded instances)	Strengths or Assets (% of coded instances)	Needs or Problems (% of coded instances)	Representative Quotes
1. Water Rates & Cost (35)	• Water is an affordable utility (6%)	• Rising rates for all customers • Rising rates burden for those in poverty (94%)	• (N) ". . . Who ends up suffering are those that we really want to help . . . The cost in communities like this are much higher than they are in Beverly Hills. It's not equitable."
2. Education (35)	• Water education via schools, city broadcast systems • Water ambassador program (14%)	• More culturally-tailored community education campaigns: ground water quality preservation, pollution • More culturally-sensitive water system/ infrastructure education • More education about water issues in relation to other processes (transportation, housing) (86%)	• (N) "[We need] to help disadvantaged communities . . . [by using tracking technologies] to see where [bad water] pockets are, bad water quality, or bad water wells, or bad water infrastructure." • (N) "Voters [are] not clearly understanding what the water issue is, how complex it is." • (N) "If you do any kind of education to constituents, [it should be] that water is free . . . What they're paying for is infrastructure and to maintain the infrastructure . . . Residents are confused."
3. Communication (32)	• Communication successes using small focus groups rather than surveys	• More culturally tailored community communication • Ways to coordinate communication • Outreach to underserved communities at preferred hubs: e.g., churches, schools, community centers, neighborhood groups	• (N) "We need to do a better job of finding more effective ways to pitch [our messaging] . . . regarding water use, water quality, proper sanitation, how to conserve." • (N) "There are so many messengers when it comes to water, probably like two dozen different agencies or more in Orange County alone. People don't know who to turn to." • (N) "Different communities, they look to different places for information." • (N) "I worry that…we're spending too many resources talking to the same people we've been talking to for the past 20 years: water district officials, city council members, county bureaucrats. Where we should be instead talking to neighborhood

	(3%)	• Work with community-based orgs to do outreach (97%)	leaders, PTA leaders, folks in those Environmental Screen areas – [they] are really the ones that aren't being talked to."
4. Built Infrastructure (31)	• Recent bond to upgrade aging sewer infrastructure • Flood containment progress (6%)	• Aging public and private water infrastructure • Problems at the intersection of flood control and transportation (e.g., school area flooding) • Competing demands for infrastructure funds: e.g., neighborhoods vs. homeless communities, residential vs. corporate sectors • Show communities how infrastructure works • More stormwater/aquifer recharge capture (80%)	• (N) "By the time water gets to your home, it's generally okay because it's a closed system…But [then] it gets through [old] plumbing, old infrastructure onsite. And then some communities are -- some homes have water softeners, other things. Are they properly maintained? Probably not." • (N) "3 of the 4 schools are within the flood hazard zone." • (N) "54% of our [Santa Ana] residents don't have access to a car." • (N) "[There is] water flowing off of the parcels into the streets, and then the streets weren't designed to handle that level of rain. Again, it's their old, old infrastructure, old blocks…" • (N) "Now the downside of [conservation], which was very hard to explain to our residents, [is] that when you conserve, less money is going into the system to maintain the infrastructure, so the Water District has to raise the rates."
5. Homelessness (31)	• Riverbed encampment clearing (10%)	• More temporary and permanent housing • More relocation and assistance funding • Managing encampment waste • Problems at intersection of homelessness and public safety (90%)	• (N) "Our housing is both transitional and supportive housing. We certainly can benefit from more emergency shelter." • (N) "[There] is too much time and interest on [the homelessness matter] rather than [how to help] low-income Latino communities, or low-income Black communities, or neighborhoods of high density. I'm very frustrated and discouraged with the amount of attention and resources that it's getting."

3. Riverside County Elected Officials (listening sessions = 3, participants = 3)			
Themes (# of coded instances)	Strengths or Assets (% of coded instances)	Needs or Problems (% of coded instances)	Representative Quotes
1. Governance (25)	• Environmental governance successes (20%)	• Revenue challenges for new cities and new initiatives, e.g., "healthy communities," and cannabis dispensary regulation • Improving public participation in governance processes, e.g, transportation (80%)	• (N) "The four newest cities in California happened to be in Riverside County, and [they] lost Vehicle License Fees revenue" • (N) "Folks have an interesting view of governing now . . . They're either intimidated by it or they're not sure or they don't know when the meetings are or that kind of thing."
2. Open or Green Public Space & Healthy Habitat (22)	• Recreational amenities that "connect to the watershed" • Greening projects • Community-based green space activism • Active transportation initiatives (45%)	• Conflicts between public and commercial use of open/green space • Conflicts between calls for more green space and for more parking • Need green space management improvements • More publicly accessible open water areas (41%)	• (S) *Projects described*: "Edible path to school" (planting fruit trees along walkways, crest to coast trail development(s), Santa Ana River Trail. • (S/N) "And the residents across there have fought many years to keep the open [riverside hill] space(s). They've passed different initiatives to protect them…Well, the power lines are going to cross the river . . . It's a challenge for our commercial corridor." • (N)"There was a huge conflict between people users and horse utilizers [along the river] . . . It was a disaster because . . . the road in that particular area is very narrow, rural, no curbs and gutters, no sidewalks . . . There were times you could not get an emergency vehicle down there if you needed to."
3. Communication (20)	• Communicating programs, e.g., Healthy Jurupa Valley Initiative	• Need to improve info dissemination and person-to-person communications	• (S) "The public utility goes out to [public events] to give out information to people walking by. We do it in all those ways to educate the public. But the bill stuffers typically are the ones, I think that [they] get the best feedback." • (S/N) "We have a lot of services available to our residents, but they don't know about them."

	• Water conservation messaging successes • Bill stuffers (40%)	 (25%)	• (N) “We need different avenues to get information out to people . . . We lost our weekly paper that was here for many, many years.” • (N) “[We need] boots on the ground [who] literally would go out and visit the neighbors who were knowledgeable about what the city's doing.” • (N) “We need help in marketing [a program] and educating the public about this watershed.”
4. Social Dynamics (13)	• Civic involvement (85%)	• Need for more civic collaboration (15%)	• (S) “[Riverside county] has a strong community identity and a willingness to partner in a very strong partnership and across partisan lines. We focus on issues rather than ideologies.” • (S) “And it's good to have some common, mutually-beneficial projects. [And] there's some conflicts between cities. [Collaborations] give us something to come together and be proud of.”
5. Collaborations & Partnerships (12)	• Regional conservation policy and development collaboration • Homelessness policy and response collaboration (100%)	• [none identified] (0%)	• (S) *Collaborations described*: "Love Your Neighbor” campaign, Santa Ana River Conservancy Plan, rubber dam aquifer replenishment project, Riverside city executive leadership team. • (S) “I'm encouraged in that I'm hearing…how it's a regional issue and we have to collaborate as much as possible on it.”

4. San Bernardino County Elected Officials (listening sessions = 2, participants = 3)			
Themes (# of coded instances)	Strengths or Assets (% of coded instances)	Needs or Problems (% of coded instances)	Representative Quotes
1. Homelessness (17)	• [none identified] (0%	• Economic crises leading to increased homelessness • Flooding and contamination in homeless encampments • Increasing and uneven cost of homelessness management among agencies (100%)	• (N) "When we have . . . low-wage earning families, and when the economies go down, or fail to keep up with water rates…all kinds of interest rates that are now going up…we then have displacement of people... They end up in a very high [risk] of becoming homeless." • (N) "Encampments are in flood control channels." • (N) "It's an interjurisdictional issue."
2. Regulations & Laws (13)	• [none identified] (0%)	• Need for agencies share costs of water hazard management • Need for pollution regulation reform • Need for increased citizen participation (100%)	• (N) "Unless people understand [water] in its most basic form, we will continue to make legislation and run local governments without focusing on real priorities." • (N) "I need legislation. I need…something that will help me to keep [people experiencing homelessness] out of my flood control channels, districts."
3. Water Quality (12)	• Good ground water filtration system (8%)	• Multiple sources of contamination • Need for interagency collaboration to co-manage contamination sources and mitigation funding (58%)	• (N) "So in a nutshell, all of the social ills – in one way or another, impact the quality of clean, pristine water. All of them. I don't think there is one, whether it's industrial, whether it's the economy, whether it's existing, or pre-existing environmental concerns . . . Everything impacts water and water is life."

4. Water Management; Governance (12)	• [none identified] (0%)	• Need to match water management processes to population increases • Need to manage water rate increases as climate changes • Flood control coordination problems (100%)	• (N) "Water flows into the valley, and into all of our flood control channels. It makes it extremely difficult for us to be able to address what we would want to be as a high water quality potable delivery. We're having to dedicate a great deal of our time, and effort, and money to ensure that we clean up the watershed [from trash and debris]."
5. Transportation (11)	• [none identified] (0%)	• Roads need paving • Traffic congestion • Air pollution along transportation corridors (100%)	• (N) "We not only have our pollution to deal with . . . our existing transportation hubs, but we deal with everybody else's air pollution. When it rains, we then get the acid rain that eats through concrete, kills our trees, and gets into our vegetation, and gets into mother's milk, and all that kind of good stuff. It gets into our water table. Once it gets into our water table, it costs more money to filter…We've got percolate. We've got lots of lime. We've got lots of a number of different fertilizers that were permitted to be used years ago, and now are off the acceptable list."

Table 4: **WATER-RELATED AGENCIES - Grouped Into 3 Watershed Management Areas** (Analysts: UCI Anthropology)

Total listening sessions = 11; total participants = 16

Note: data may be coded as both a strength and need, therefore row percentages may add up to < or > 100%

1. Big Bear and Upper Santa Ana Watershed Area Agencies (listening sessions = 3; participants = 3)			
Theme (# of coded instances)	Strengths or Assets (% of coded instances)	Need or Problem (% of coded instances)	Representative Quotes
1. Communication (50)	• Direct community engagement: open houses, tours, student programs • Information systems (67%)	• Seasonal residency impairs communication with residents (outreach and in-reach) • Need for translation services (33%)	• (S) "Often times they [low-income areas] will just call us and say, "Hey, our members want to know about this. And so we put together something and go out. And obviously we do a lot of advertising on the radio and in the newspapers and press releases and our website. We also have a program in the schools, so we have water conservations kits that we've been working with a few classrooms each year." • (N) "[We have a large] population of people who don't live here year-round. How do we reach out to them and make sure that they understand the needs of our community in terms of the water? . . . Some of them are just moving from one house to another, but a lot of it is new people who have not owned a house up here before. So it's a massive amount of people to educate every year." • (N) "We are really starting to offer more and more of our [conservation] materials [and all] of our rebates and applications and program info in Spanish as well. But I do think that is a challenge that we haven't really approached up until very recently."
2. Collaboration & Partnerships (41)	• Agency personnel feel like they are part of their communities • Inter-agency relations: government, private, non-profit • Inter-agency projects: Bear Valley Water Sustainability Project, solar projects, nature preserve projects, water conservation management, pipeline	• More social media-based collaboration	• (S) "Everybody at the grocery store or the donut shop know you by name, and it's nice . . . And we really have a lot of camaraderie between the agencies. So, pretty cool community. All because we're working together." • (S) "A lot of non-profit agencies have kind of stepped into fill that void for domestic violence, homeless, whatever it might be . . . because we don't have a lot of county services in the region, or the area. And we are super isolated." • (S) "We have utility meetings each month to collaborate with other agencies and hold community outreach meetings each year to engage the community on projects." • (N) "You need more buy in from your own members of your agency in order to do [collaboration] . . . In the day of social media and outreach, you have to have the information out there, and people do see if there is a considerate effort coming from the top-down."

	replacement, Clean Water Factory (80%) • Non-profits "fill gaps" in public services (80%)	 (20%)	
3. Social Dynamics (38)	• "Isolated" and "uphill" geography fosters social connection • Water management and monitoring can alleviate disadvantage • Innovative water and energy projects elevate communities in regional social standing (50%)	• Need for more jobs • Managing water demand/issues of seasonal population • Managing controversial water projects: e.g., recycling, toilet to tap • Need culturally and linguistically appropriate engagement processes • Need community meeting spaces (50%)	• (S) "They take water seriously up here. Down the hill, it's very common for the average household to use 15, 20 unit or hundred cubic feet per month. Up here, the average is in the 4 to 5 range" • (S) "Often times [low income] people have two and three jobs. So if they're not home all day and we see that there's a leak at the property, we can address it more quickly. And then those people don't have to wait until they get some water bill that's 400 dollars." • (N) "Getting better jobs in the area is key to helping out the disadvantaged community." • (N) "[The] language barrier is a definite one here." • (N) "In my dream world what I would love is to have a center here where people can come and we can offer educational resources for them."
4. Water Rates & Cost (37)	• Affordable rates • Public hearings about rate changes (25%)	• Rate increases are burdensome and misunderstood • Community concerns about tap water quality • Reforming rate structures to charge for excessive usages (75%)	• (S) "Now we're about ten bucks lower a month than the average. Which is great for our disadvantaged community that now we're affordable." • (N) "San Bernardino is a low-income community, it is extremely felt when we have to raise rates. Nobody wants to raise rates." • (N) "We're gonna be having a public hearing, making sure people have an opportunity to…get concerns addressed about the water rates." • (N) "Simply because less water is used that doesn't necessarily change the cost to provide that service . . . So community buy-in is a huge deal. Because all of that pertains to how we receive our financial resources."
5. Conservation & Natural Resources (35)	• Conservation program successes: education, water-saving fixtures, rebates, turf removal • Conservation collaborations	• Smaller agencies need staff and funding for conservation programs • Maintain conservation standards beyond drought cycles	• (S) Respondent 1: "We work with the teachers, and they go through an entire segment with the students where they're actually measuring how much water their [home] fixtures use. If they install all the new stuff that we've provided, they go back and re-measure how much are they saving. So it's a cost saving to their family." Respondent 2: "We basically get the kids to rag on their parents to conserve water."

	(80%)	(20%)	• (S) "We banded together to do a regional conservation campaign . . . 20 different agencies." • (N) "There needs to be a greater awareness of the programs and incentives available to them, and we are working on that. But you know, for our size, typically, if you go to other water agencies there are more staff dedicated to doing just that." • (N) "With the 'drought is over' messaging…the government [is] rescinding some of the requirements that are for water agencies, but not on the user end."

2. Orange County Watershed Management Area Agencies (listening sessions = 4, participants = 9)			
Theme (# of coded instances)	Strengths or Assets (% of coded instances)	Need or Problem (% of coded instances)	Representative Quotes
1. Water Rates & Cost (64)	• Disadvantaged communities conserve water • Public dialogues about rate increases • Rate increase transparency: education via websites, community fora, and social media • Tiered rate systems (50%)	• Rate increases are socially unequal • Rate increases are perceived differently per: generation, income level • Need to communicate why rate increases vary • State water board taxes (50%)	• (S) "Water pricing is also a concern for us and our residents here. Disadvantaged communities tend to actually be [at the] forefront of conservation. They're very conscientious about water wasting and spending money . . . on water." • (S) "The younger generation seems to understand that the need of the water rate increase for proper maintenance and upgrade of old infrastructure, and also the safeguard of a water system." • (N) "We have a pretty high income in Orange County . . . So, from an ability to simply afford water bills…it would be a problem typically with those that are low-income [or] retired and have limited incomes." • (N) "The state is trying to…put a water tax on us…we are opposed to that…we're not necessarily opposed to helping out with lifeline rates and other types of activities. We're just not in sync with the state water board."
2. Built Infrastructure (42)	• Funding for projects • Communication to publics about infrastructure needs • Newer infrastructure than other CA counties, but different within the county (40%)	• Need resources for maintenance and upgrades of aging systems • Need infrastructure communication and education • Flood infrastructure needs • Need to coordinate infrastructure issues: e.g., transportation & water, waste collection & water • Disagreement about aging infrastructure (60%)	• (S) "We have very few areas that have 100-year-old pipes . . . I think we do a good job at taking care of our water and wastewater facilities and making the investments that are necessary to make those reliable out into the future." • (S) "There was a lighting project . . . Local young people said they'd love to paint a mural and have that be a component of the project . . . People are willing to step up." • (N) "In Santa Ana the water system is aging." • (N) "The challenge is making the public pay attention . . . Traffic is easy, water is challenging, it's a challenge to get people involved. A lot of it can be project-driven." • (N) "We have flood channels going through disadvantaged communities, and we need to improve those channels."

3. Water Management; Governance (40)	• Effective local government • Agency pride • Integrated management • Responsive to communities • Plan implementation (50%)	• Changing water management environment • Reliance on imported water • Need for more local managerial control (50%)	• (S) "Local government always tries to look for ways to help the residents, I believe." • (S) "We've got great employees . . . [who are] service oriented" • (S) "We will be able to proceed with our upgrade and maintenance program for our water management plan." • (N) "We will never totally get off the import system." • (N) "Just change the California constitution to allow water agencies to deal with the economic issues and affordability issues of water and give them the local control."
4. Communication (37)	• Information platforms: websites, social media, apps for reporting problems • Translation services (50%)	• Indirect communication • Need more water system communication • Need culturally appropriate communication (50%)	• (S) "If they see there's a pothole or trash, or an oil spill or graffiti, there's an app where they can take a picture and send it." • (N) "We in the water industry are unwilling to spend that type of money promoting and educating folks about water. Cause we do our job, and people turn the taps on, and it's the silent services provided. Unless the taps turn, and water doesn't come out, then it's not as silent." • (N) "We have done a lousy job of educating water consumers as to what it takes to run and operate and maintain a water system." • (N) "Even though we are very involved and reach out to different backgrounds, I am not so sure as to how it is effective in [bridging] different generation gaps, within the different backgrounds."

3. Riverside County/ San Jacinto River Watershed Management Area Agencies (listening sessions = 4, participants = 4)			
Theme (# of coded instances)	Strengths or Assets (% of coded instances)	Need or Problem (% of coded instances)	Representative Quotes
1. Water Management; Collaboration and Partnerships (72)	• Awareness of disadvantaged community needs • Successful management plans, e.g., indirect potable reuse, long term conservation • Incentivized private sector management partnerships • Programs to involve communities in conservation e.g., automated meters, leak alerts • "Multi-use" and "multi-benefit" projects (80%)	• Development strains on systems (20%)	• (S) "So what we've tried to do is get input from this very diverse community." • (S) "[We try] to do interface with disadvantaged communities as much as possible to ensure that things like septic systems issues are in – public health issues are being taken care of." • (S) "Working with [partners] to try to get that school expansion implemented. It's got water and sewer implications" • (N) "People were saying, 'You asked us to cut back . . . our water consumption. Yet there's still housing being built and developed.' I think that's going to be a big issue in the future. It's really going to be incumbent on us to ensure we have sufficient supplies."
2. Built Infrastructure; Septic and Sewer (69)	• Public-private project collaboration • Monitoring failing water/waste systems • Some areas with new infrastructure	• Aging infrastructure • Hilly geography impacts cost of infrastructure • Disadvantaged communities on septic vs. sewer • Need sewer system upgrades • Need to support stressed water company systems • Urban flooding problems	• (S) "Another sector of our customer base . . . wants to use technology. [They are] very interested in that – very interested in advancing that forward. We need to make sure we're not neglecting that group." • (S) "Infrastructure crosses over multiple jurisdictions. We really value our relationships with those [stakeholders] – the cities and the county." • (N) "Where the area [has a] severely disadvantaged community, the geology of the area is not particularly conducive to septic." • (N) "Now we think about storm water as not only a risk, but a resource. We think about it [like] – 'Okay, we have to protect the community from flooding, but also can we collect this water and recharge it in the ground?'"

	(75%)	• New infrastructure needs (25%)	
3. Communication (60)	• Direct community engagement • Good, integrated media interfaces • Media: bill stuffers more popular than digital interfaces (50%)	• Need for better public understanding of water systems and costs • Uneven processes for engaging "disadvantaged communities" (50%)	• (S) "We have some staff, and board members, who are out in the community constantly." • (S) "[There is an] opportunity to interface and problem-solv[e]. We're trying to create an interface with influential public, and people who are interested in water issues in the community, who are leaders in the community." • (N) "The Spanish-speaking community . . . [is] really, I think, a blind spot we have, that we really need to do much more work." • (N) "Our entire water department is [x] people that are running the well, and doing the maintenance, and doing the construction, and doing the valve turning . . . They're hard workers. I think that that's sometimes hard for the community to understand that, because so much of what we do is behind the scenes."
4. Water Quality (55)	• High quality water • Water filling stations with quality and conservation information (40%)	• Water management area variations in quality • System-wide variations in taste, e.g., due to chlorination processes • Need for communication about water quality • Homeless encampments "threaten" water quality (60%)	• (S) "We pay for the fill station . . . It has a counter on it for the number of bottles, plastic bottles not used. Over it, it has a kiosk with information about public water systems, water quality." • (S/N) "[We try] to . . . interface with disadvantaged communities as much as possible . . . But water quality issues, on the water supply system. That's something we're very cognizant of." • (N) "Smaller systems in our service area . . . are struggling with water quality issues." • (N) "If there's misinformation about water system, or water quality, how do we get out and get ahead of that? What are the mechanisms on social media? What are the mechanisms with community leaders?"
5. Water Rates & Cost (51)	• Tier plans to control rates • Evidence-based rate structure revisions (90%)	• Reliance on imported water (10%)	• (S) "So we provide a low-income rate program . . . It's because we have the multiple [water] sources. What we do with the lowest tier, the lowest tier is actually based on our actual cheapest water supply." • (S) "We adopted a revision to our rate structure . . . which is a multi-tiered sewer structure. Which was one of the first in the industry. It was to try to address some of these affordability issues."

Table 5: **MUTUAL WATER COMPANIES: Grouped Into Watershed Management Areas** (Analysts: UCI Anthropology)

Total listening sessions = 8; total participants = 12

Note: data may be coded as both a strength and need, therefore row percentages may add up to < or > 100%

1. Upper Santa Ana River Watershed Management Area Mutual Water Companies (listening sessions = 2; participants = 3)			
Themes (# of coded instances)	Strengths or Assets (% of coded instances)	Needs or Problems (% of coded instances)	Representative Quotes
1. Built Infrastructure (7)	• Systems are sufficient (90%)	• Need for new wells (10%)	(S/N) "We have a community center that we all get together . . . Maybe possibly. . .we would like to drill a third well somewhere in our distribution system. So far, we haven't needed to do so. One day . . . we would like to."
2. Water Management (7)	• Companies and communities collaborate to manage & conserve water • Communication: confidence reports (90%)	• Homeowners surprised by fees (10%)	(S) "Everyone here is pretty water wise. You don't see a lot of waste happening anywhere."
3. Water Access/Sources (5)	• Sufficient sources (100%)	• [none identified] (0%)	(S) "We don't have many water outages."
4. Water Quality (5)	• Treated water • Water that does not need treatment (75%)	• Variance in quality (25%)	(S) "So far, probably our major strength is our [natural water] sources. We do not have to treat our water whatsoever." (S) "Everyone loves our water. It's clean. It's ice-cold." (S/N) "We don't issue too many boil water notices."
5. Social Dynamics; Families & Households (4)	• Cohesive community (100%)	• [none identified] (0%)	(S) "This is a small town. Everyone has my cellphone number. If there's ever a problem, they're like my eyes. They can call me or text me. Everyone here is pretty close knit. We all look out for each other. This is a wonderful community."

2. Middle Santa Ana River Watershed Management Area Mutual Water Companies (listening sessions = 3; participants = 4)			
Themes (# of coded instances)	Strengths or Assets (% of coded instances)	Needs or Problems (% of coded instances)	Representative Quotes
1. Built Infrastructure; Septic and Sewer (36)	• Leak improvements • Stormwater management successes • Service area growth (20%)	• Leak variance • Declining water levels • Well stability variance • System replacements and upgrades: pumps, wells, lines, meters, service nodes, and piping • Septic reliance due to cost of sewer transition • Contaminant detection funding • Service area growth (80%)	(S/N) "We don't have leaks like we used to." vs. "We do have quite a few service leaks. The polyurethane we put in in the '80s, and '90s, and it hasn't quite lived up to what they advertised. We're replacing [polyurethane] with copper." (S/N) "We have quite a few wells. The ones further away from the river . . . they don't fluctuate near as much. The ones near the river, they're more seasonal." (N) "Declining water levels . . . It's affecting our wells . . . They're at a historic low." (N) "The perchlorate station — that was our first project out of the six that we had to go out and get funding for." (N) "I tell you one need: In [town], they keep talking about needing to get off of the septic system, and [to] get some actual sewer laterals in. One of my board members would be really happy with us putting that down."
2. Water Rates & Cost; Buying and Selling Water (31)	• Tiered system • Affordable water supply for community vs. other suppliers	• Non-profit status impacts business decisions • Low income communities • Service and rate changes from other suppliers • Need water restrictions to control costs • Increasing costs: equipment, labor	(S) "[Is] drinking water considered affordable for the community? Yes . . . we're one of the cheapest ones around." (S) "[A] tiered system helped with conservation." (N) "It's poverty-stricken over here." (N) "[X agency] just increased our service charge . . . Plus they just increased their rates again . . . but we know that people here cannot afford an increase. They are barely making it now."

	(50%)	(50%)	
3. Water Management; Funding (29)	• Shareholder customer model • Some funding available • Conscientious management (40%)	• Persistent issues: contamination, equipment • Drought management • Need management support (60%)	(S) "I like to think we go above and beyond what like a normal for-profit company would do — they're in it to make a dollar. [If] we see a shareholder need help, we usually go and help." (S/N) "Being a mutual, we only sell water at a cost. And our assessment fund is only for the infrastructure, it is not to be ran for general funds or wages, or anything. And I can account for every penny!" (N) "We can't hold meetings because we don't have a quorum on our board."
4. Water Quality (21)	• [none identified] (0%)	• Contaminant problems: perchlorate, nitrites (100%)	(N) "We are starting to experience a nitrate problem . . . It's the biggest issue we're dealing with right now." (N) "We're starting to look at some kind of treatment or some kind of other remediation. It was just a matter of time before it hit us."

3. Anaheim Bay/Huntington Harbor/Bolsa Chica Watershed Management Area Mutual Water Companies (listening sessions = 3; participants = 5)			
Themes (# of coded instances)	Strengths or Assets (% of coded instances)	Needs or Problems (% of coded instances)	Representative Quotes
1. Built Infrastructure (16)	• Local infrastructure independence: well water, road repair • Some systems use internet-based monitoring (20%)	• Aging interconnected infrastructures: new wells, well repair, piping, roads • Need usage monitoring systems • Multiple local infrastructure problems create tax and other burdens on communities (80%)	(S) "We're such a unique area. We own our own roads, so we're also looking at repairing our roads. We maintain the area, as far as trimming trees…Things like that. We're just in an entire little environment." (N) "Another stress on our community is [that] we want to stay with our water wells. We don't want to be involved with [another supplier]….After we pay for those wells, we're not going to have a whole bunch of money left over." (N) "One last weakness — Our pipes are over 50-years-old, as [are those in] much of the surrounding cities area . . . We're also looking at doing a complete re-piping of the area. Our roads are in disrepair. We're just going to take it a bite at a time. If we can find a grant, I would be thrilled, because that would allow us to do more for the community . . . We have water flow issues." (N) "We don't monitor water usage yet. We might at some point in time."
2. Water Management (16)	• Water treatment • Web-based monitoring improves management (100%)	• [none identified] (0%)	(S) "The data goes to the Cloud. The Cloud feeds the program. You have an app where you can check it. And our water engineer is excited about that. 'Can you come out here and see why so-and-so has low water pressure?' 'I can check it on the Internet.'" (S) "They treat the water with whatever they need to treat it with. It's usually chlorine. When we clean out the system. Other than that, no, no ongoing issues."
3. Water Rates & Cost (16)	• Affordable water supply for communities (40%)	• Consumer utility tax and cost burden (60%)	(S) "Strengths? From what I hear, it's relatively cheap compared to being on city water. We have a storage capacity. In the event of an emergency or a power outage, we actually have water onsite." (N) "I understand infrastructure needs probably more than most. I also understand that — when you get hit with the gas tax, when you get hit with the water tax. And cities — our city we had to do a one cent sales tax, because we couldn't survive without it. By the time the food chain ends up at the city, there's not much left. It's like — at what point does the consumer say 'Enough'?"

4. Homelessness (14)	• Successes reforming services (10%)	• Need for shelters and affordable housing • Need for integrated social services • Perception that services attract low-income people and people living with homelessness (90%)	(S) "We've been really proactive on the homeless issue. We're actively involved in the lawsuit and the judge and all that in Orange County. We're looking at possibly housing more people." (N) "One of the challenges we face pretty frequently is homelessness, and challenges of affordable housing." (N) "Mental health is definitely a key. Treating substance abuse at some level is going to be important." (N) "Additional homeless shelters . . . are bringing in more unemployed and economically disadvantaged people into the area."
5. Governance (12)	• Successes managing homelessness challenges (10%)	• Regulatory compliance burdens • Governance priorities are not aligned with mutual companies' or customers' needs (90%)	(N) "I think the structure above, like the department of drinking water — that all keeps changing. It's hard to decipher, and it's hard for them to give me an answer — for a small water system, such as ours." (N) "[The] state's current direction [is] to provide water to people that are low income by implementing a statewide tax on all water agencies. [Customers] do not feel it is appropriate and do not know how it will be implemented by Orange County Water [that] is the agency [to which] they pay for water." (N) "There was some discussion of the benefits to being a mutual water company versus a county water district. And they have occasionally considered become a county water agency, but were not sure of the steps to take in order to perform this action and what real benefits there would be for their customers to change their type of agency."

Spatial Descriptions of Disadvantaged Communities, Beyond Census Tracts

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Figures and Tables

Introduction

One of the deliverables for the Disadvantaged Communities Involvement (DCI) Program was to develop "spatial descriptions of disadvantaged communities (DACs), beyond census tracts" with other relevant supporting data. This appendix describes some of the considerations that went into the approach to defining communities beyond census tracts, the methodology used to describe communities, and a summary of community-based water service provider data in the Santa Ana River (SAR) Watershed. The community descriptions developed for this project are useful for many reasons that we will describe, but they do not replace or supersede the current regulatory framework that is used to qualify communities for the various California State DAC assistance programs.

The result of this work is a geographic information system database. This appendix will focus on the community descriptors portion of the database using water service provider boundaries as proxy for non-census based communities. The GIS database also contains other relevant information including:

- Census, Social Vulnerability Index
- Census, Cal Enviro-Screen 3.0
- Census, Demographic Data
- Public School Locations (Public Schools are considered SDACs)
- Service Area Provider Educational Programs
- California State Water Resources Control Board (SWRCB) Service Provider Permit Data
- FEMA Flood Data
- Jurisdictional Boundaries

Current Regulatory Framework

DWR's Disadvantaged Communities Mapping Tool (Figure 1) displays census data used in the current regulatory framework to qualify communities for DAC assistance and is used to identify disadvantaged locations across the state. Within the mapping tool, disadvantaged communities are categorized into block groups and census tracts as defined by California law:

- **Disadvantaged Community:** defined as households making less than 80% of state median household incomes
- **Severely Disadvantaged Community:** defined as households making less than 60% of state median household incomes

The American Community Survey 2016 five-year estimate for California Statewide Median Household Income (MHI) is $63,783. The 80% threshold is thus $51,026 and 60% is $38,270. The Census data used for these determinations are available to various California agencies that provide DAC assistance through the DWR Disadvantaged Communities Mapping Tool.
URL https://gis.water.ca.gov/app/dacs/

Within the SAR Watershed there are:

- there are 3,157 block groups, 1,993,536 households, and 5,993,401 persons in our study area
- there are 944 DAC block groups, by tract-level classifier, containing 546,514 hh, and 1,735,903 persons

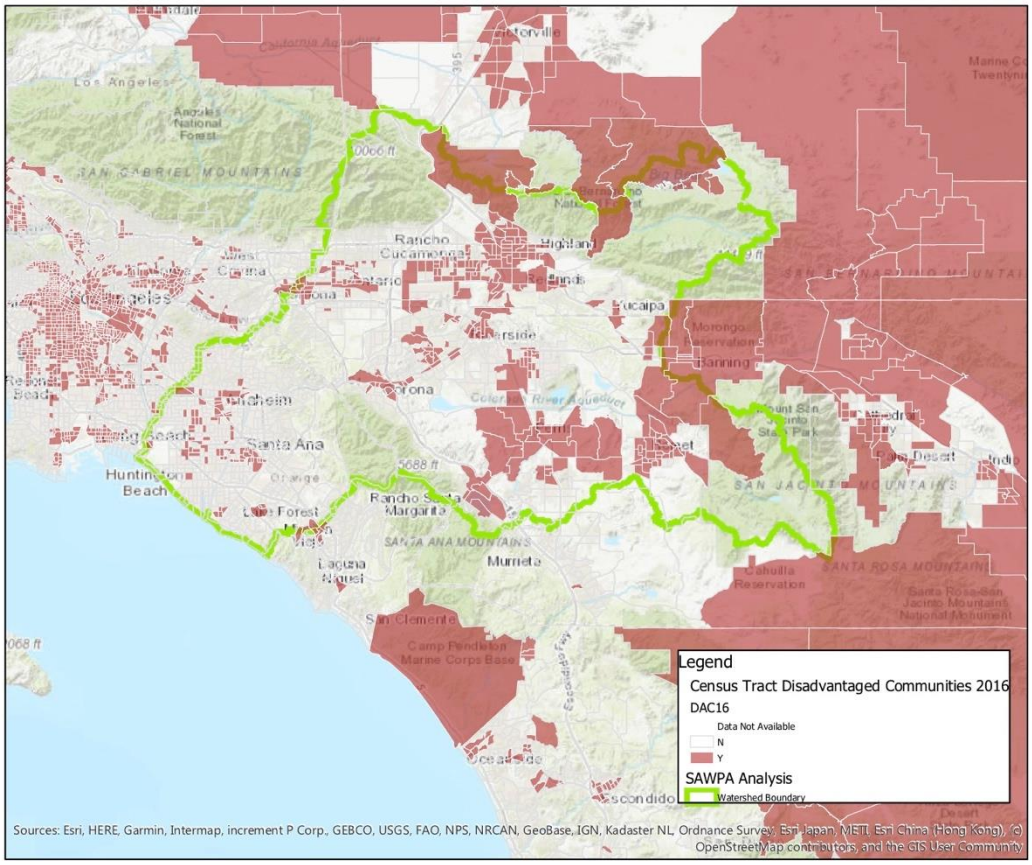


Figure 1. California Department of Water Resources Disadvantaged Communities Mapping Tool Showing Census tracts that currently meet the MHI within SAR Watershed

Issues with the Current Framework

There are five issues with using census tract and block group polygons to determine regulatory compliance. Our work focused on beginning to address these issues. The five issues identified are:

1. Census tract/block polygons do not represent communities; they are somewhat arbitrarily drawn polygons generally adhering to street layout patterns. They also do not align with boundaries of the lead agencies (water provider service area) that generally lead on DAC assistance projects.
2. The averaging averages method commonly used to apportion Census MHI to lead agency boundaries can be non-representative of the actual MHI.

3. The condition is binary—a community either qualifies or it doesn't. There is very few consistently used variables in the prioritization of need.
4. The income intervals reported in the census data do not correspond to the calculated 80% and 60% income amounts in California.
5. Over counting and under counting DACs is also possible; for example a census tract may not qualify but block groups within it do.

Item 1 - Census/Block polygons representing communities

The question of what constitutes a community is complex. The definition is both geographic and thematic. Communities can be defined by jurisdictions or geographic features. They can be defined by issues and interests. Communities can be contiguous or dispersed. In most cases the current regulatory frame work does not define what a community is, with exceptions such as public schools. Policy simply states that for a community to qualify for DAC assistance programs, it must meet the MHI requirement. In the execution of a DAC assistance project, for example, construction of a new water distribution system, California state agencies generally require a lead agency with authority to pass a binding resolution supporting the project. A lead agency is also required to administer the CEQA process and other permitting related to the project.

Often the water service provider for the project location is designated as the lead agency. This often requires the water service provider boundary to qualify under the MHI. In general and by default, in executing DAC assistance projects, the water service area boundary is generally consider the technical definition of community. This community definition then requires some type of comparison between the service area boundary geometry with the census tract/block geography to determine MHI. There are two methods generally used to determine the MHI of a water service provider boundary. One is an income survey where residents of the area are surveyed. In general if half or greater of the households are under the MHI, the area is qualified. The second method involves a comparison of the two geographies (tract, service area) and is discussed in Item 2.

Item 2 - Mean of Medians

One of the current methods commonly used to apportion census polygon data to the service area boundary is to apportion the census household count in overlapping polygons by percent of the area of overlap. The MHI for each tract or block group overlapping the service area boundary is then calculated, and then the medians across all tracts or block groups are averaged. This can lead to cases where the calculated MHI is incorrect. Table 1 illustrates the issue; the mean of medians method in this example produces an MHI of $116,500. The actual median is $40,000.

Area or Household	*Income (mean/median)*
Block Group 1	
Household a	**$20,000**
Household b	**$30,000**
Household c	**$36,000**
Household d	**$40,000**
BG 1 Median	**($33,000)**
Block Group 2	
Household e	**$41,000**
Household f	**$200,000**
Household g	**$225,000**
BG 2 Median	**($200,000)**
Mean of Medians 1 & 2	**($116,500)**
Overall Median	**($40,000)**

Table 1. Overall median income compared to mean of medians

Item 3 Binary Choice, No Prioritization

The current regulatory framework for qualifying communities for DAC assistance programs is adequate at distinguishing locations based on income. It has helped ensure that the limited resources that are available for these programs are focused on the locations that they are intended to serve. Unfortunately, the need for DAC assistance across these locations is not equal. Some DAC locations have more need than other DAC locations. Although qualifiers are sometimes used in determining need, for example a water quality violation and population under 10,000 in general locations that qualify under the MHI are all eligible for the same assistance.

Item 4 Census Income Intervals Compared to CA MHI

To identify socio-economic characteristics, census blocks represent the smallest geographical area for which the US Census Bureau collects and tabulates data, and the Census Block Group level boundaries represent the next geospatial level above census blocks. Block Level is the smallest geographical entity for which the Census published 10-year data. To estimate population data between this 10-year period, the Census also tabulates and releases the American Community Survey which consist of five-year estimates (Census Blocks, 2018). The 2016 five-year estimates of household counts within a given income interval (i.e. $50,000 to $59,999) (Table B19001) were downloaded from the Census Bureau's American Factfinder data extraction portal (Census Factfinder, 2018).

The American Community Survey 2016 five-year estimate for California Statewide Median Household Income is $63,783. The 80% threshold is thus $51,026 and 60% is $38,270. Water agencies with a customer base with estimated median household incomes below these thresholds qualify as disadvantaged and severely disadvantaged, respectively. Because the

income interval breaks used for Table B19001 do not match the 80th and 60th percentiles of the state median income, over- and misrepresentations can occur.

Item 5 - Over and Under Counts

Figure 2 illustrates the location of the possible over/under counts within the SAR Watershed. Table 2 quantifies these potential over/under counts.

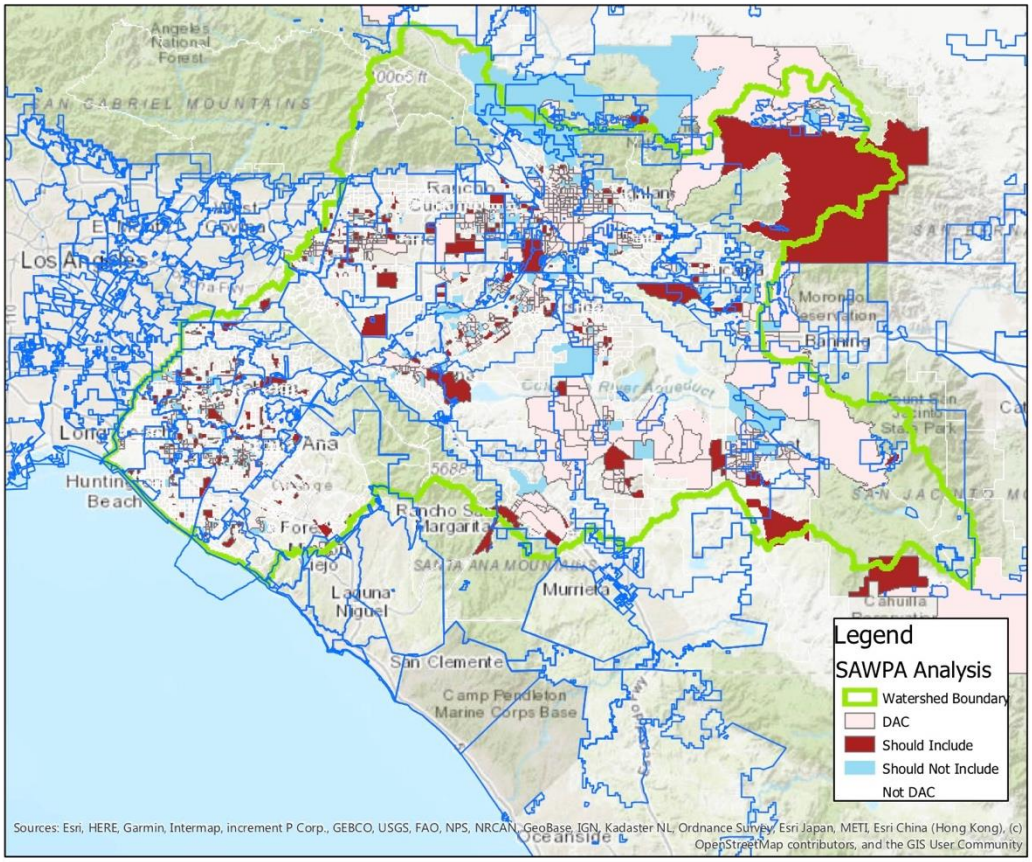


Figure 2. Potential over under counts of DACs in the SAR

Table 2. Results of SAR Identified disadvantaged communities using Census Block Groups verses a Tract Level Geography.

	Num of Tracts	Num of Block Groups	Population	Households
Tract-level Classifier	332	944	1.74M	546,514
Would not be included (if by BG)		196	342,121	100,227
Would be included (if by BG)		286	480,484	158,153

Based on the 2016, five-year ACS the following community household (HH) income characteristics were identified across the SAR Watershed (also see Table 1).
There are

- there are 3,157 block groups, 1,993,536 households, and 5,993,401 persons in our study area
- there are 944 DAC block groups, by tract-level classifier, containing 546,514 hh, and 1,735,903 persons
    - of these there are 196 block groups (100,227 hh, 342,121 persons) which are classified as DAC (by tract-level classifier) even their block-level MHI is above the DAC threshold
    - there are additionally 286 block groups (158,153 hh, 480,484 persons) that are denied DAC classification because their parent tract is above the income threshold

Approach and Methodology

To understand and spatially illustrate the socioeconomic characteristics of the SAR Watershed and relate them to water service agencies, GIS software and data from multiple regional and federal agencies were collected to determine spatial relationships between DACs and water service agency boundaries so that stakeholders could better understand the characteristics of the communities in which they interact. GIS is a powerful computer software tool that can be used to develop, store, analyze, and spatially display complex sets of data and information including the natural resource, socio-economic and utility provider characteristics of a given location. Ultimately, different sets of data can be displayed or "layered" on top of one another to produce content-specific maps, allowing users to visually interpret what would otherwise be a large spreadsheet of numbers and figures. As a starting point for project partners to understand more about the data that "represents" the priority communities identified by the DWR DAC Mapping Tool, the CSU WRPI team began to conceptualize and develop a robust GIS mapping tool that was created in tandem with the ethnographic components of the project methods.

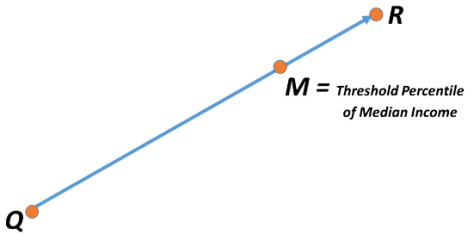
In an effort to develop better methods to address the issues with the current regulatory framework, especially within the framework of underserved and disadvantaged communities, Dr. Michael Reibel of Cal Poly Pomona led the development of a street-weighted interpolation methodology. This methodology aims to assign relevant information, such as median household income, to different zonal systems, i.e. service areas, using street density. Street density can be leveraged to indicate where residential populations are potentially greatest, and therefore, is an informative method to more accurately assign data to different spatial units. The process of combining data and moving it to different scales and spatial units is termed, data apportionment. Apportionment is a way to summarize data at a more useful scale, allowing for data-driven real-world applications such as analyzing change over time, providing services, and implementation of legislation.

To accomplish this goal the following procedures were followed:

1. Download water agency digital service area boundary files from the California Environmental Health Tracking Program's Drinking Water Systems Geographic Reporting Tool, also known as the Water Boundary Tool (WBT) at http://www.cehtp.org/water/
2. Download Census block group level digital boundary files from https://www.census.gov/geo/maps-data/data/cbf/cbf_blkgrp.html
3. Download block group level American Community Survey 2016 or current five-year estimates of household counts within income intervals (Table B19001) using the Census Bureau's American Factfinder data extraction portal at: https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_16_5YR_B19001&prodType=table

It is recommended that the following steps be completed in an Excel file that can then be converted to a GIS shape file or feature class.

- Note that relevant California law and regulations define disadvantaged communities as those with <80% of state median household income and severely disadvantaged communities as those with <60% of state median household income. The American Community Survey 2016 five-year estimate for California statewide median household income is $63,783. The 80% threshold is thus $51,026 and the 60% threshold is $38,270. Water agencies with estimated median household incomes below these thresholds qualify as disadvantaged and severely disadvantaged, respectively.
- Because the income interval breaks used for Table B19001 do not match the 80th and 60th percentiles of state median income, you have to proportionally assign people counted in the income intervals that straddle these boundaries to one side or the other of the boundaries. For example, to estimate the population at or below income threshold M if you have a count interval that runs from Q to R:



1. Sum counts in all income intervals less than (up to) income count break point Q.

2) Calculate the proportion of the distance along the income (vertical) dimension from Q to R that gets you to M as follows: (M-Q)/(R-Q).

3) Multiply the count in interval R to Q by that (decimal) proportion and add the result to the sum from step 1.

Figure 3. The vertical dimension is income level, the horizontal dimension is the

cumulative count

As a result, for the 80% of state HMI threshold of $51,026, you first subtotal the counts in all the categories below $50,000. Then you estimate the proportion of the $50,000 to $59,999 count that falls between $50,000 and $51,026 as:

$51,026 - $50,000 = $1,026
$59,999 - $50,000 = $9,999
$1,026/$9,999= .1026

Next, multiply the count for the interval $50,000 to $59,999 by .1026, add that amount to the subtotal of counts below $50,000 and you have your estimated population below the threshold. Apply same computation for all block groups, then repeat using the SDAC threshold.

4. Download digital georeferenced street network data (line objects) as TIGER/Line shapefiles from the U.S. Census Bureau geography website at https://www.census.gov/cgi-bin/geo/shapefiles/index.php
5. Re-project all geographic files to NAD 1983 State Plane California Zone V.
6. Load everything into an ArcMap project and join the income table fields to the block group boundaries.
7. Create intersections (areas of overlap) of block groups and water agency areas, save as a feature class.
8. Merge source zone (block group) total population counts and interpolated count estimates of source zone populations below DAC and SDAC thresholds into these intersection zone records (one to many).
9. Create subsets of the street network within (corresponding to) both the block groups and the block group/water area intersection zones (use identity tool to chop up the street layer in this manner).
10. Compute aggregate (total) lengths for the street networks in each block group and each intersection zone.
11. Calculate the street weights (Wst) for each intersection zone as the ratio of the aggregate length of the street vectors in the intersection zone (Lst) to the aggregate length of the street vectors in the source zone (Ls):

$$W_{st} = \frac{\sum L_{st}}{\sum L_s}$$

12. Weight the source zone (block group level) total population and household counts below income thresholds that are attached to the intersection zones: multiply by the intersection zone street weights computed in the previous step.
13. Sum the weighted intersection zone counts across their corresponding target zones (water agency service areas).
14. For the water agency service areas, take the ratio of the count estimates below the DAC and SDAC thresholds (numerators) to the weighted and summed population estimates (denominators) to get the estimated percentage of each water agency's population below the DAC and SDAC thresholds.

SAR Watershed Community Data Summary

The modeling resulted in a GIS map layer of the service area boundaries with a gradient color scheme showing the percentage of households within that service area under the MHI threshold. A majority of the service provider areas in the SAR Watershed do not meet the MHI threshold based on this model. They would also most likely not pass an income survey. There is also the phenomenon of DAC census tracts within a service area that as a whole would not likely meet the MHI requirement. Figure 4 shows the service areas in the SAR Watershed with only the service areas meeting or within 5% of meeting the MHI requirement in color. Figure 4 also shows where service areas that do not qualify based on this model have DAC tracts within them (in the hatch pattern).

Service areas that have 50% or more of the households meeting the MHI can be further parsed by sorting the areas by range from highest to lowest percentage of households below the MHI. This will allow for DAC assistance providers to evaluate how many DAC households would benefit from a project done in one service area compared to another. We are not suggesting that this should be the only criteria used in evaluating a project location, but with limited DAC assistance funding, it can be used to help maximize benefits. Another use of the percentage of households index is when a service area is within 5-10% of the 50% threshold. The community would have a high likelihood of passing an income survey to determine eligibility.

The map also displays where service areas that do not meet the MHI based on this model have census tracts within them that do meet the MHI. These service areas, on a case by case basis, can approach state agencies to allow a sub-region of a service area to be considered for DAC assistance. For example, a low-income mobile home park within an affluent service area may qualify the service area as lead agency based on an income survey. Generally, it must be demonstrated that the assistance project will directly benefit the DAC sub-region of the service area.

The SAR Watershed contains 93 SAPs. Of those, 22 meet the DAC MHI based on the apportionment model. There are six SAPs that meet the SDAC MHI. In addition, there are 13 SAPs where 45% to 50% of the households meet the DAC MHI, and there are six SAPs where 45% to 50% of the households meet the SDAC MHI. These 19 SAPs within the 5% range of qualifying would be good candidates for income surveys if assistance projects are identified in their service area.

One of the additional qualifiers used by the SWRCB is preference for SAPs with under 10,000 connections. Within the SAR Watershed, there are 15 SAPs that meet the DAC MHI and have less than 10,000 connections. There are six SAPs that meet the SDAC MHI and have fewer than 10,000 connections. Five of the 15 less than 10k DAC SAPs have fewer than 1,000 connections. Three of the six less than 10k SDAC SAPs have fewer than 1,000 connections. In general, the smaller number of connections is an indication of an SAP with fewer resources to address issues and ones most likely in need of assistance. The range of the number of connections for all SAPs

within the SAR Watershed is quite large, ranging from four to 137,037, with an average of 18,928. The range of the number of connections for DAC and SDAC SAPs is 22 to 49,080, with an average of 7,985. The average number of connections for DAC and SDAC SAPs is less than half of the number of connections for all of the SAPs. Again, this is an indication that, in general, DAC and SDAC SAPs are going to be smaller and have fewer resources to address issues.

Within the SAR Watershed there are an additional 47 SAPs that contain pockets of census tracts that meet the MHI for DAC or SDAC. These are illustrated in Figure 4. There are 56 SAPs that contain pockets of DAC or SDAC census block groups. While these pockets were not sufficient in number of households compared to the total households within the SAP to model it as a DAC SAP, these areas are important in considerations for DAC assistance, and there are ways to qualify sub-regions within an SAP for assistance.

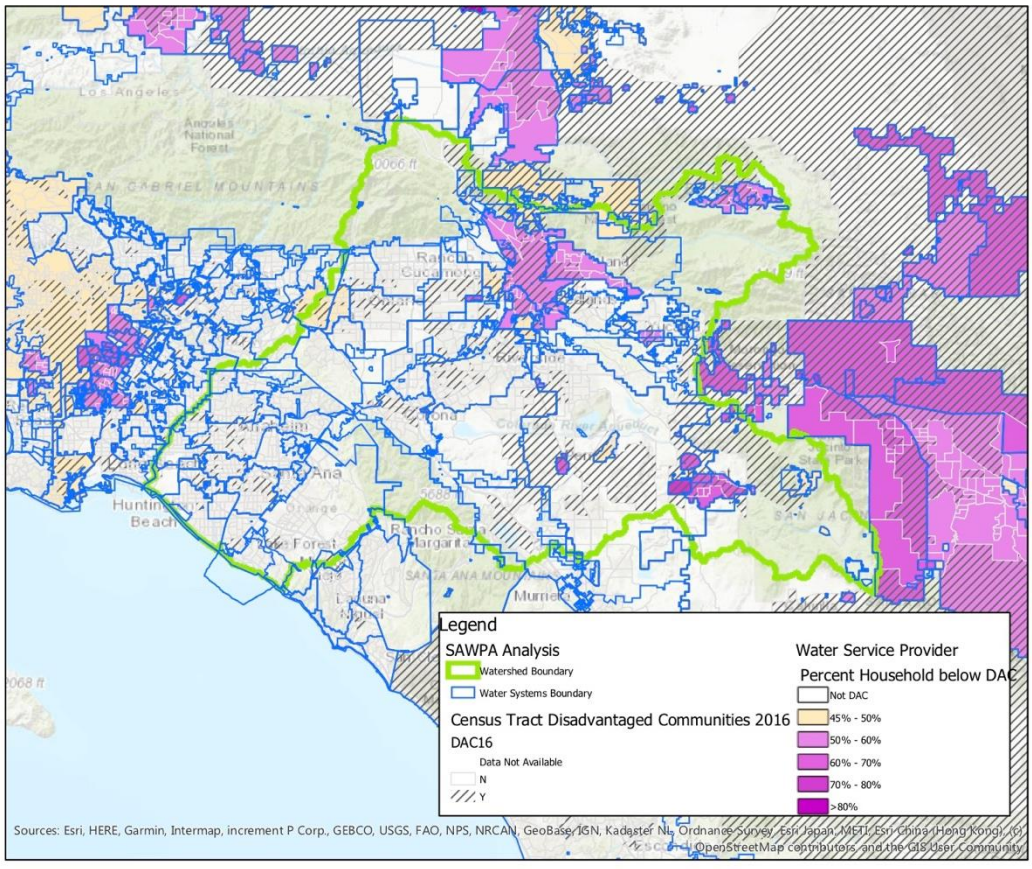


Figure 4. Water Service Provider Boundaries with Apportioned MHI

The statistics presented were generated from a sub-set of the GIS database. The SAP portion of the GIS database contains many attributes describing various conditions found within the SAPs.

Table 3 describes the sub-set of SAP attributes used in developing the statistics with the source of the attribute data.

Table 3 SAP Data Dictionary

Field Name	Data Description	Source
Is_DAC	The service area provider meets the DAC MHI requirement	Apportionment model.
Is_SDAC	The service area provider meets the DAC MHI requirement	Apportionment model.
Public_Water_System_Number	State assigned number from the SWRCB permit database	SWRCB SAP permit database.
Population	Service area population	SWRCB SAP permit database
Connections	Number of service connections	SWRCB SAP permit database
Type	Service Area type	SWRCB SAP permit database
County	Service area County	SWRCB SAP permit database
Number of Schools	SDAC school count within service area	https://www.cde.ca.gov/ds/si/ds/fspubschls.asp
Household Total	Total number of households	Apportionment model.
HH_DAC_Percent	Percentage of households meeting the DAC MHI	Apportionment model.
HH_SDAC_Percent	Percentage of households meeting the SDAC MHI	Apportionment model.
Source_of_Water	- Sources of water	SWRCB SAP permit database
Age	Age ranges by percent	Apportionment model.
Ethnicity	Ethnicity types by percent	Apportionment model.
English_as_a_Second_Language	By Percent	Apportionment model.