

Understanding Tap Water Perceptions and Drinking Behavior in Guerneville, CA



David Thai, D.D.S.
Sonoma County
Wednesday, June 11, 2025



Intro

Dental Director,
West County Health Centers

- Dental Clinics in Guerneville & Sebastopol CA

Federally Qualified Health
Center (FQHC)

- Serving over 10,000 patients in rural western Sonoma County across 10 sites

Patients n = 11,097	
<i>Race/Ethnicity</i>	
African American/Black	126 (1.1%)
Asian/Asian American	109 (1.0%)
Hispanic/Latino	1765 (15.9%)
Native Peoples	52 (0.5%)
Pacific Islander	43 (0.4%)
White	7503 (67.6%)
Multi-racial	355 (3.2%)
Other	1144 (10.3%)
<i>Gender</i>	
Male	2782 (25.1%)
Female	4075 (36.7%)
Trans	105 (0.9%)
Undisclosed	195 (1.8%)

Background

Concerns About Tap Water Quality in Guerneville, CA

- Residents express apprehensions regarding the quality and consumption of Guerneville's tap water and access to drinking water.
- Low intake of plain drinking water has been associated with several health-related issues, including hypertension, higher body mass index, and dental decay.

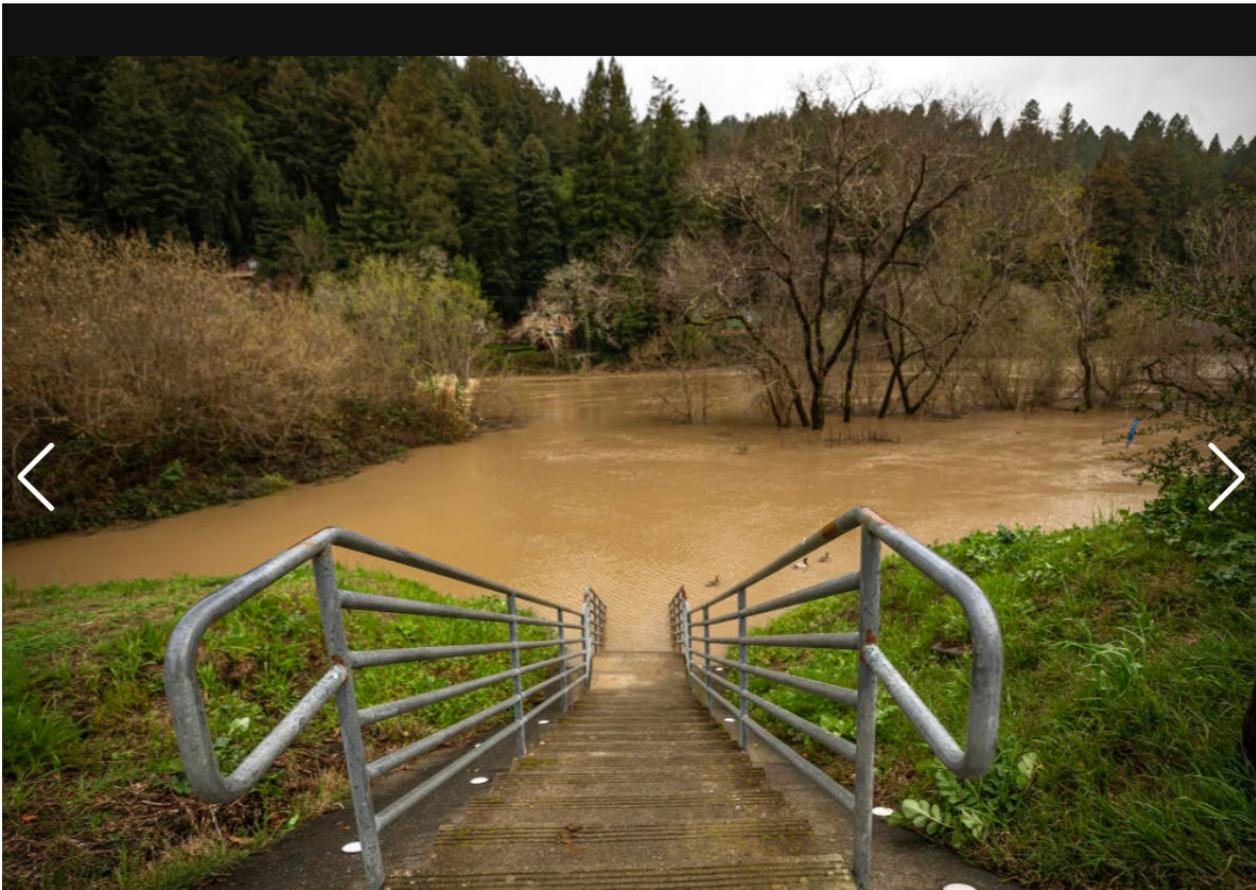
Current Water Supply Systems

- 87% of residents' water source is from *Sweetwater Springs Water District*
- 13% of residents' water is from well water on their property
- The Russian River County Sanitation District, operated by Sonoma Water to treat wastewater, serves Guerneville

Partially treated wastewater spills into Russian River after treatment plant power outage

Sonoma Water says rain-swollen Russian River quickly diluted spill between Guerneville and Monte Rio. Spill occurred March 1 and 2 after restoration of power at treatment plant reset equipment valves and caused overflow.

| 3



COUNTY OF SONOMA

Spill of partially treated wastewater at Russian River County Sanitation District Treatment Plant

SANTA ROSA, CA | March 07, 2024

Close to Home: Wastewater to the tap? No thanks

California water regulators assert that new technology makes wastewater safe to drink. | 8

BRENDA ADELMAN

BRENDA ADELMAN CHAIRS THE RUSSIAN RIVER WATERSHED PROTECTION COMMITTEE.

January 14, 2024

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Action requested

If you receive an envelope (like the one shown here) in your mailbox or on your door, please fill out the income survey inside and return it using the self-addressed stamped envelope. A large response rate is required for the survey to be considered valid.

Surveys will be mailed to households the last week of February 2024.

This survey will be conducted by the Rural Community Assistance Corporation (www.RCAC.org). Your responses to this survey will be kept anonymous. No personal identifying information will be reported in the survey results. All respondents' personal information will remain confidential.

Russian River County Sanitation District

WE NEED YOUR HELP!

RESIDENT SURVEY



Overview of Intervention

OBJECTIVE:

To understand the association between tap water quality perceptions, primary drinking water source, and beverage consumption in Guerneville, CA in order to guide interventions to improve water consumption in the community, supporting water to be a beverage consumed over sugar-sweetened beverages.

Survey Demographics (n=141)

Age

18-24	15 (10.7%)
25-44	47 (33.6%)
45-64	60 (42.9%)
65+	18 (12.9%)

Gender

Male	60 (42.9%)
Female	78 (55.7%)
Other	2 (4.7%)

Race/Ethnicity

White only	51 (36.2%)
Hispanic only	71 (50.4%)
Other	4 (2.8%)
2 races or more	9 (6.4%)
Prefer not to say	6 (4.3%)

Survey Demographics (n=141)

Education

<i>Less than or some high school, no diploma</i>	37 (26.62%)
<i>High school graduate or the equivalent (GED)</i>	60 (43.2%)
<i>Associate Degree, Trade/Technical/Vocational Training</i>	22 (15.8%)
<i>Bachelor's degree</i>	12 (8.6%)
<i>Master's degree</i>	8 (5.8%)

Home Ownership Status

<i>Privately-Owned</i>	41 (29.9%)
<i>Renter</i>	84 (61.3%)
<i>No permanent residence/transitory</i>	12 (8.8%)

Employment Status

<i>Full-time outside the home</i>	62 (45.9%)
<i>Full-time from home</i>	6 (4.4%)
<i>Hybrid part-time at home and outside home</i>	17 (12.6%)
<i>Currently seeking employment</i>	11 (8.5%)
<i>Retired</i>	19 (14.1%)
<i>Student</i>	4 (3.0%)
<i>Prefer not to say</i>	16 (11.9%)

Survey Demographics (n=141)

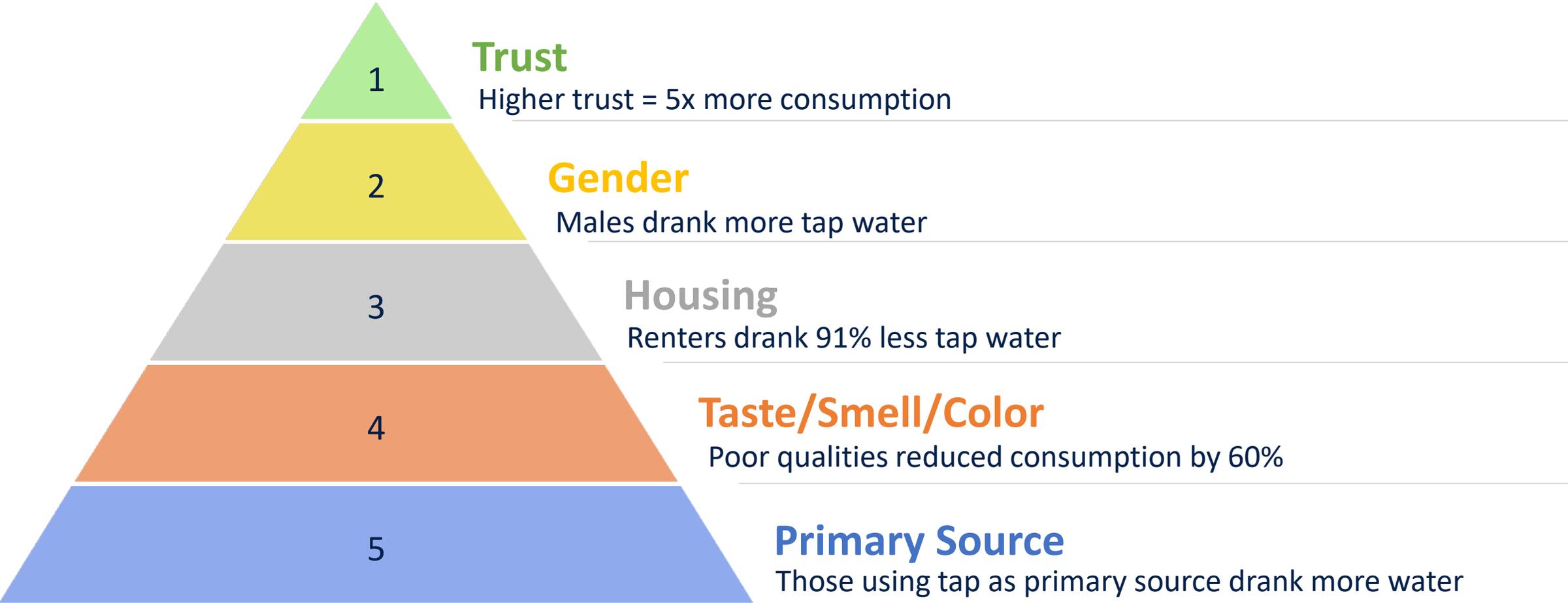
<i>Home Water Source</i>	Total	Tapwater from home	Bottled Water, Outside Home
<i>Municipal Water Company</i>	110 (79.1%)	53 (48.2%)	57 (51.8%)
<i>Well/Spring</i>	22 (15.8%)	9 (40.9%)	13 (59.1%)
<i>No permanent residence/transitory</i>	7 (5.0%)	0	7 (100%)

<i>Uses Filtration Device at Home</i>	Total	Tapwater from home	Bottled Water, Outside Home
<i>Yes</i>	60 (44.1%)	45 (75.0%)	15 (25.0%)
<i>No</i>	76 (55.9%)	16 (21.1%)	60 (78.9%)

Key Findings

- Non-Tap Water users tend to consume more Bottled Water and have higher Sugar-Sweetened Beverages (SSB) intake.
 - 52% never or rarely consumed Tap Water
 - 53% consumed bottled water everyday
 - 60% mistrust Tap Water as safe to drink
- Education level predicts Tap Water usage
- Renters & lower income individuals are less likely to install home water treatment devices, which is a major predictor.
- 57% of Tap Water drinkers employ carbon filters.

RESULTS: TAP CONSUMPTION FREQUENCY



Water Project Team Origin Story Timeline

1/9/23: Met with Laurel Chambers as part of UCSF Champion Provider Fellowship Program application

1/10/23: Met with Andrea Pickett & Laurel Chambers

1/27/23: Collaborated on nutrition classes with LHD

2/13/23: Accepted to UCSF Champion Provider Fellowship 2023 cohort

3/23 – 7/23: Met once a month with LHD to discuss and design PSE under Healthy Food and Beverage Standards

7/25/23: Andrea Pickett asked if we were interested in mentoring a UCSF Dental Public Health Resident, Dr. Lauren Gritzer

7/26/23: Decided that Dr. Gritzer is a great fit to join our Water Project

8/4/23: Andrea Pickett promoted and connected us with Ariel Thomas-Urlik to resume Water Project

8/28/23: Lisa Steinman with LHD joined team

9/23-1/23: Survey Design, IRB outcome exemption letter received on 1/23/24

2/5/23-4/05/23: Surveys Distributed & Completed, \$5 Safeway incentive gift cards were given courtesy of LHD

4/5/23 to present: Survey Analysis Completed

Dr. Lauren Gritzer Created Policy Brief

Improving Tap Water Quality Perceptions and Reducing Sugar-Sweetened Beverage Consumption in rural Sonoma County, CA

Access to safe and appealing drinking water is essential for public health. In Guerneville, California, negative perceptions of tap water quality have led many residents to prefer bottled water and sugar-sweetened beverages (SSBs), increasing the risks of obesity, diabetes, and dental decay. Shifting these perceptions is vital for promoting healthier drinking habits and enhancing public health outcomes.

Residents' distrust in the organoleptic properties (taste, smell, color) and safety of tap water significantly influence their drinking choices. While tap water meets safety standards, negative perceptions drive residents toward bottled alternatives, perceived as safer and more palatable. These findings align with research demonstrating that trust in water quality is essential for public consumption patterns.^{1,2}

The study in Guerneville highlights that homeowners, English speakers, and individuals with higher education are more likely to drink tap water, while renters and Hispanic residents favor bottled water. This disparity suggests the need for interventions targeting specific demographic barriers.^{3,4}

Reducing SSB intake is critical to improving public health and curbing the rise of chronic diseases.^{5,6} Addressing tap water quality perceptions presents a public health opportunity to promote better hydration habits, reduce SSB consumption, and support long-term health improvements.

Recommendations

Healthcare Clinic Guidelines	
Promote Water Literacy	Develop drinking-related nutritional literacy guidelines and educational programs and materials on the benefits and safety of tap water, enhancing public understanding through brochures, posters, and patient discussions.
Encourage Water Filtration	Advocate for home water filtration devices to improve tap water taste and safety, especially for renters and those with negative perceptions. Provide affordable and effective options to build trust.
Regular Counseling	Integrate discussions on water consumption and the risks of SSBs into routine healthcare visits, boosting overall health literacy.
Community Water Utility Actions	

Enhance Water Quality	Improve tap water taste, smell, and appearance through advanced treatment techniques to increase public acceptance.
Public Engagement	Conduct community outreach on tap water safety and benefits, ensuring transparency and addressing common concerns to rebuild trust.
Feedback Mechanisms	Establish reporting channels for tap water issues and regularly analyze feedback to identify improvements and ensure timely responses.

Implementation Strategies

Training for Healthcare Providers	Equip dental and medical professionals with resources and training to effectively communicate the importance of tap water consumption.
	Use workshops and continuing education to integrate water literacy into healthcare practice.
Community Partnerships	Collaborate with local organizations to distribute water filters and educational materials to underserved populations. Install water filler stations in public parks.
	Partner with community groups to enhance the reach and impact of these initiatives.
Monitoring and Evaluation	Track intervention impacts on water consumption and health outcomes.
	Regular monitoring and evaluation refine strategies to meet community needs.

Conclusion

Improving perceptions of tap water quality and encouraging its consumption can reduce dependence on bottled water and SSBs. This shift supports public health by decreasing chronic disease prevalence while promoting environmental sustainability by reducing plastic waste. By implementing targeted interventions through healthcare clinics and community water utilities, we can foster healthier drinking habits and enhance well-being in the rural Sonoma County area.⁷

¹ Collier SA, et al. Estimate of Burden and Direct Healthcare Cost of Infectious Waterborne Disease in the United States. *Emerging Infectious Diseases*. 2021;27(1):140-9.

² Patel AI, et al. Drinking Water in the United States: Implications of Water Safety, Access, and Consumption. *Annual Review of Nutrition*. 2020;40(1):345-73.

³ Delpla I, et al. Perception of tap water quality: Assessment of the factors modifying the links between satisfaction and water consumption behavior. *Sci Total Environ*. 2020;722:137786.

⁴ Hu Z, et al. Bottled Water: United States Consumers and Their Perceptions of Water Quality. *International Journal of Environmental Research and Public Health*. 2011;8(2):565-78.

⁵ Rosinger AY. Using Water Intake Dietary Recall Data to Provide a Window into US Water Insecurity. *The Journal of Nutrition*. 2022;152(5):1263-73.

⁶ Park S, et al. Factors Related to Water Filter Use for Drinking Tap Water at Home and Its Association With Consuming Plain Water and Sugar-Sweetened Beverages Among U.S. Adults. *Am J Health Promot*. 2022;36(5):813-22.

⁷ This policy brief is based on the analysis and findings presented in the report by Lauren Gritzer, DDS, MPH, Kristin S. Hoelt, MPH, PhD, and Christina Hecht, PhD.

Partnerships



Andrea Pickett, MPH
Ariel Thomas-Urlik, MPH
Laurel Chambers, MPH
Lisa Steinman



Lauren Gritzer, DDS, MPH
Kristin Hoeft, MPH, PhD
Cristin Kearns, DDS, MBA, PhD
Christina Hect, PhD



Sloane Pagal
Amber Johnson



Che Casul



Bryan Albee

Guerneville Water Fountain Replacement

Goal: Install Filtered Water Refill Station by bus stop to increase community water consumption, decrease community consumption of sugary beverages, and reduce plastic bottle waste.



Graton Town Square Filtered Water Refill Station



Filtered water refill station to be utilized by day laborers, bikers, market and concert visitors.

Trust in Tap: Improving Water Perceptions to Support Community Health and Prevent Chronic Disease

Lauren Gritzer, DDS, MPH
Dental Public Health Advisor, Dean's Office
Clinical Assistant Professor, Dept of Preventive and Restorative Dental Sciences

April 7, 2025

Dr. Lauren Gritzer presented Trust in Tap at the 2025 National Oral Health Conference (NOHC) in Orlando, Florida

BACKGROUND

Health Implications of Tap Water Quality and Drinking-Related Nutritional Literacy



Water is a cornerstone of public health



Rural communities face unique barriers to safe water access and trust



Essential for body homeostasis, but water underexamined



Inadequate tap water intake is associated with increased sugar-sweetened beverage (SSB) consumption, raising the risk of diet-related chronic diseases.



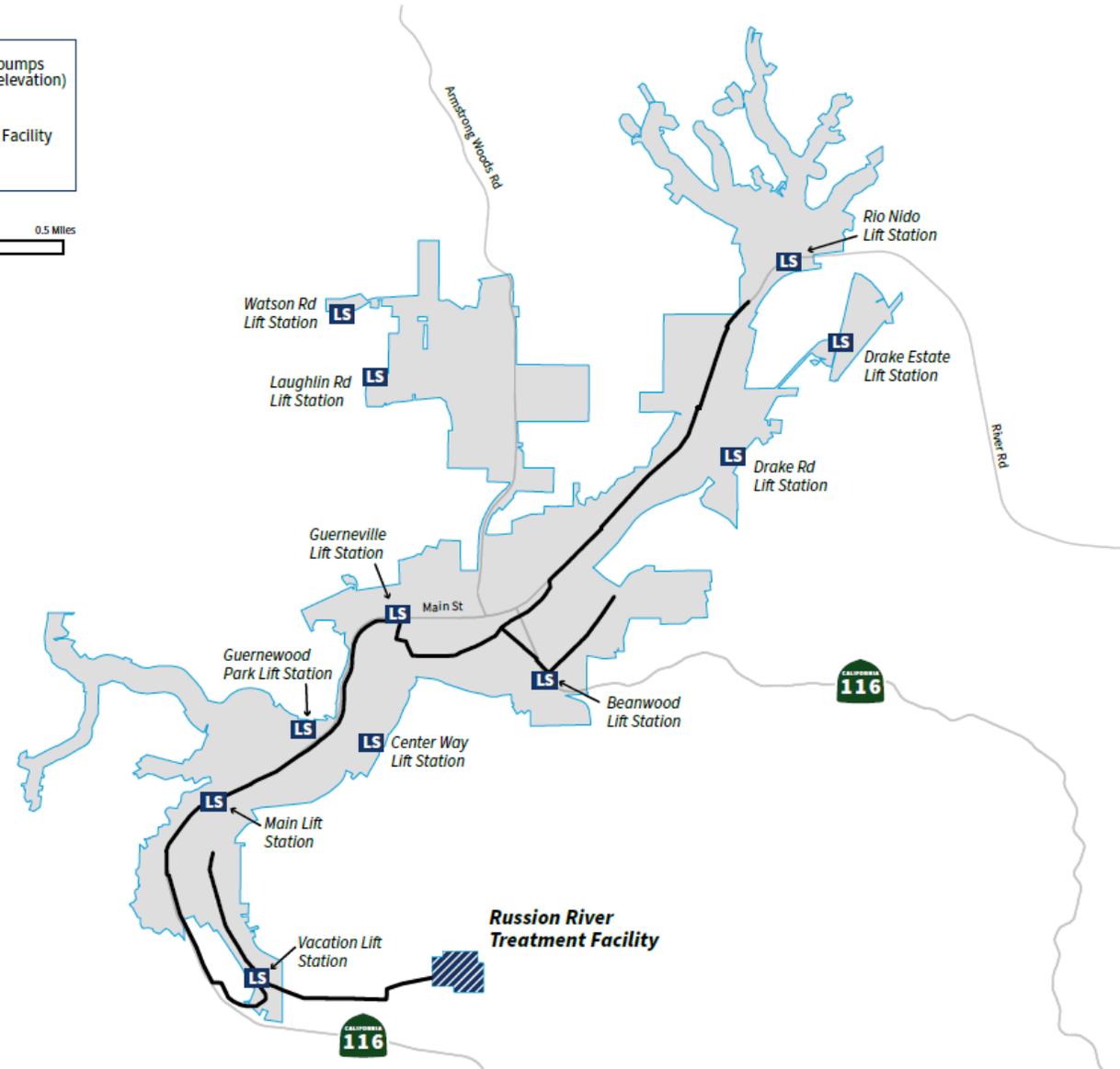
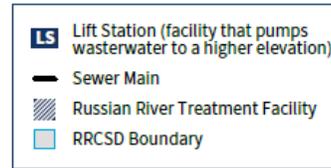
Current drinking-related nutritional literacy efforts mainly focus on pediatrics and fluoride

Current Policies

- California State rules do not allow sewage spill penalty money to be used toward repairs and maintenance of Guerneville's water treatment system, even though it was recently determined that \$48.3 million is needed to improve and maintain Russian River County Sanitation District water treatment infrastructure
- Proposition 218 – Russian River County Sanitation District
- Sanitation Rate Relief Program

Next Steps

Collaborate with partners to apply for CalRecycle Beverage Container Recycling Grant to fund the install of more filtered water refill stations throughout high foot traffic areas across rural West Sonoma County



Areas Seeking Input:

- How best to approach state policy change to allow for sewage spill penalty \$ to be used towards repairs and maintenance of Guerneville water infrastructure?
- Any other funding avenues to install filtered water refill stations throughout high foot traffic areas across rural West Sonoma County?

Keep the Conversation Going

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Thank you



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