

Marin City Climate Resilience and Health Justice



Photo courtesy of Marin City Climate Resilience and Health Justice



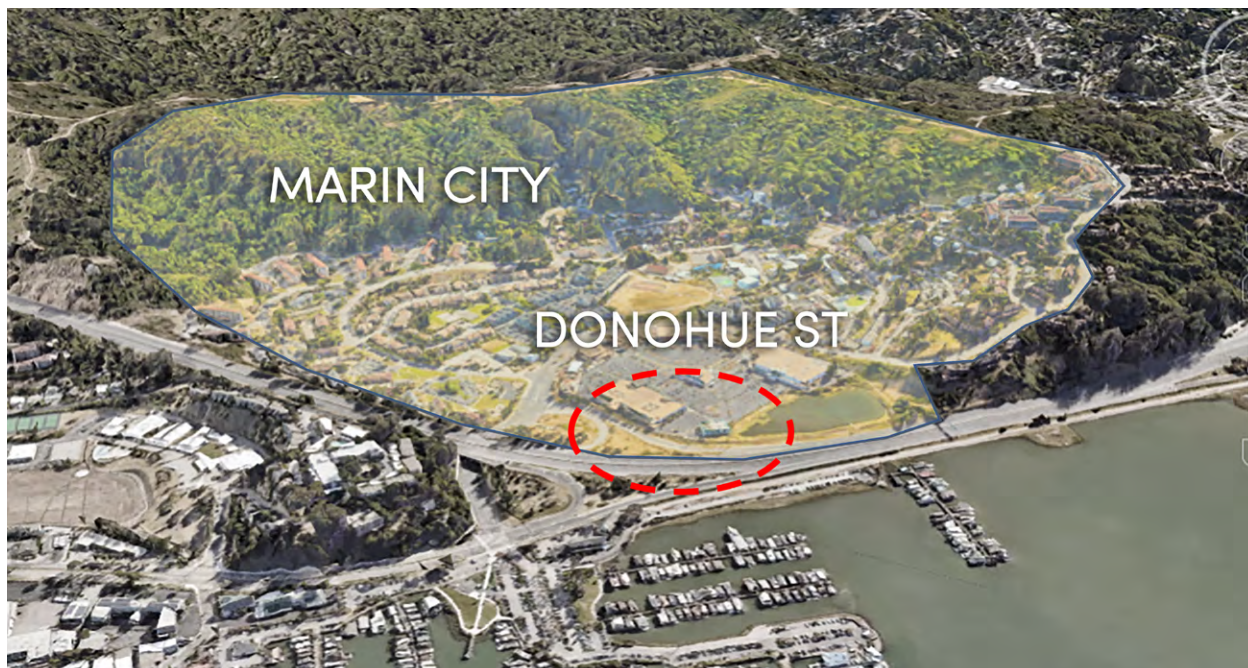
Marin City Climate Resilience and Health Justice addresses critical community issues including emergency preparedness, adaptation to climate change and sea level rise, and pollution, and promotes community engagement and social equity.

Marin City Climate Resilience and Health Justice (MCCRJ) is an African American led environmental justice organization based in Marin City, California, made up of community members and allies advocating for climate resilience and health justice for one of the most vulnerable communities in the County of Marin. Their work seeks to establish equitable inclusion in planning and community preparedness, as well as the equitable allocation of resources. MCCRJ addresses critical community issues including emergency preparedness (including flood and hazard mitigation planning), adaptation to climate change and sea level rise (including wetland restoration), and pollution (water, air, and soil quality), while promoting community while promoting community engagement, including Youth Leadership Development, and social equity.

Project Description

Marin City Climate Resilience and Health Justice worked with local community members to understand how water issues manifest in Marin City from the community's perspective, and how to address them, by conducting needs assessment activities including a water survey, stakeholder engagement, and community forums regarding water issues.





Marin City is shaped like a bowl. Highway 101 blocks stormwater from flowing out from the watershed to the Bay and also contributes stormwater runoff to Marin City. The community has only one road in and out (Donohue Street), and that road floods. It's an unincorporated community and depends on the County of Marin for public works. This image shows the topography of Marin City, to highlight where the runoff accumulates. Illustration provided by Marin City Climate Resilience and Health Justice.



Above: Welders at the Marinship yard around 1943. Large numbers of women, Caucasian and African American, entered the yards during World War II. Photograph from “Marinship At War,” by Charles Wollenberg. Available at: African American History - San Francisco Maritime National Historical Park (U.S. National Park Service) ([nps.gov](https://www.nps.gov))

To the Right: The Marinship factory built Liberty Ships in World War II, operating around the clock. Photo: The Marin History Museum, via Marin Magazine

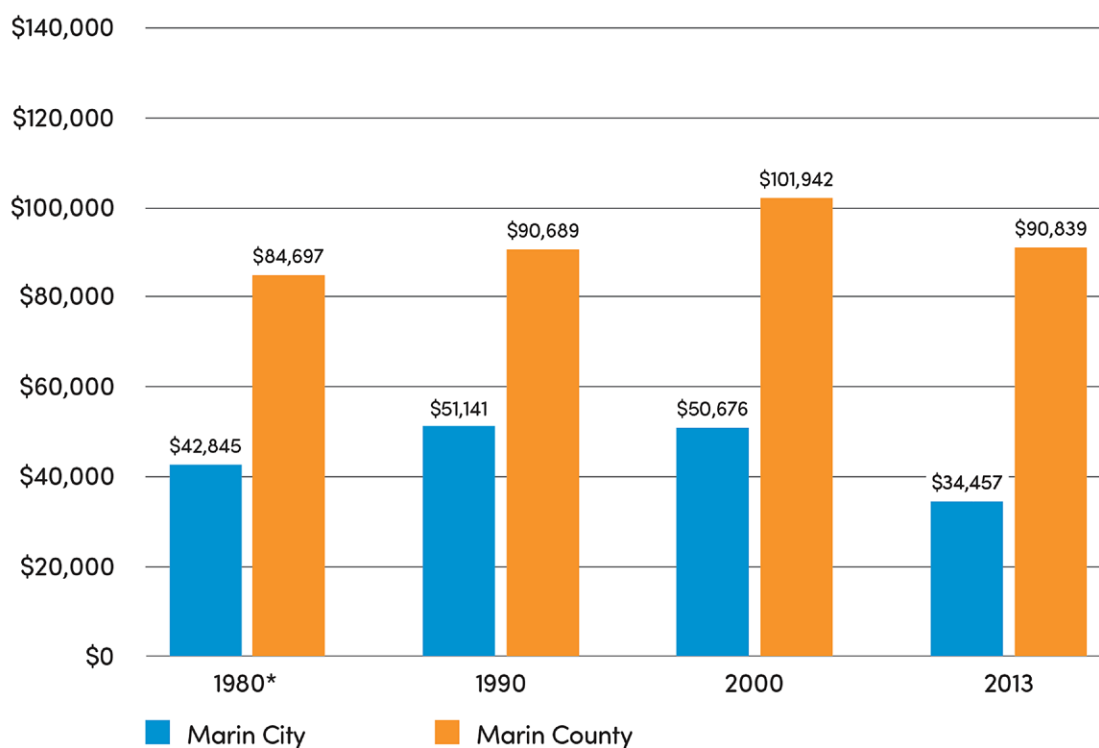


Demographics

According to the American Community Survey five-year estimate data profiles from the U.S. Census Bureau (2018), the estimated population of Marin City is 3,126. Of this population, 56% identify as white, 35% Black, 8% American Indian or Alaskan Native, 8% Asian, and 12% as some other race. 34% of the population speaks a language other than English, and 38% of the population is at or below 150% of the poverty level. From the perspective of community leaders, the population estimates, based on earlier census data, are low.

Marin City falls in the 35th percentile of Cal EnviroScreen 4.0, which identifies California communities by census tract that are disproportionately burdened by, and vulnerable to, multiple sources of pollution, in contrast to the vast majority of the rest of Marin County which falls between the fifth and tenth percentiles (California Environmental Protection Agency [Cal EPA] and Office of Environmental Health Hazard Assessment [OEHHA], 2021). This data is aggregated, and does not include some local impacts to Marin City, including significantly shorter average lifespan.

Median Income, Marin City vs. Marin County, 1980–2013, 2013



U.S. Census 1980, 1990, 2000; American Community Survey 2009–2013.

*Median income not available in 1980; average income shown. Center for Community Innovation, University of California, Berkeley, 2015

History of Environmental Injustice and Inequity in Marin City

Marin City is a disadvantaged and overburdened community in Marin County. The area was developed to house people who worked at the Marinship factory during WWII. After the war, it was one of the only places where African Americans could live due to redlining. Though redlining was outlawed more than half a century ago, its harmful effects are still felt by residents of Marin City, as in many other redlined communities that continue to be the most impacted by pollution (Fears, 2022). Marin County overall currently ranks 2nd in racial inequity in California, according to the Advancement Project California, and topped this list in 2018. Moreover, Marin County was ranked 4th in the state for racial disparity regarding proximity to hazardous waste sites, used in the Advancement Project as an indicator for healthy built environments (Halstead, 2021).

Marin City is one of the highest density low-income areas in Marin County and is home to the county's only family-based public housing (Crispell, 2015). Residents earn a significantly lower family income than anywhere else in the county (U.S. Census Bureau), experience one of the highest chronic disease rates, and the highest disability rate in Marin. Residents have the lowest life expectancy rate in the county and live 17+ fewer years than their affluent neighbors on either side of the community, according to the community's own research as shared by Marin County's public health officer (Burd-Sharps & Lewis, 2012; Halstead, 2015). Marin City children have the lowest school performance (California Department of Education, 2019) and have been found by the state of California to have been subjected to discrimination by the Sausalito Marin City School District as recently as 2019 (The People of the State of California v. Sausalito Marin City School District, 2019).

There is no barrier between Highway 101 and the Marin City community, which is partially encircled by and exposed to both air and water pollution from the highway. According to CalEnviroScreen 4.0, Marin City is in the 99th percentile for exposure from traffic, the 62nd percentile for toxic releases, and 47th percentile for diesel particulate matter. Marin City is also in the 24th percentile for exposure to Particulate Matter 2.5 (PM_{2.5}), and the 84th percentile for impaired waters. The community is also concerned about air vapors backing up in pipes from decommissioned contaminated sites, including two gas stations, two dry cleaners, and three kerosene stations. Marin City Climate Resilience and Health Justice partnered with Audubon California to test sediment in the drainage pond in Marin City in 2021, and found high levels of lead, nickel, and zinc, as well as high levels of chromium.

Pollution and hazardous waste combine with the chronic flooding Marin City has been experiencing for 80 years due to stormwater from torrential rains, groundwater emergence, king tides and sea level rise. Residents refer to the landscape as "the bowl without a spout," reflecting not only the physical dimensions of the community but also the flooding that takes place when excess water cannot drain from the watershed to the Bay because of missing drain pipes as well as the lack of an adequate drainage system. Since October 2014, flooding has closed southbound traffic completely on Highway 101 and blocked the only vehicular entrance and exit into and out of Marin City three times.

To get into or out of Marin City during these flooding events, community members have had to wade through flood waters, despite the possibility that broken or leaking pipes (detailed in the 2017 Marin City Drainage Study) might cause additional water contamination. In a 2017 flooding event, a school bus driver left children on the opposite side of the highway and did not inform their parents, leaving them to walk through contaminated water to get home. On October 24, 2021, families were forced to park their cars outside of Marin City and walk through three to four feet of contaminated flood waters to get home. People working at and visiting the Gateway Shopping Center in Marin City were stuck inside Marin City for hours. During the same event, contaminated water cascaded down from Highway 101 into the front yards and homes of several community members.

The chronic flooding in Marin City disrupts routine activities such as going to school or work. Chronic flooding also prevents important services, such as the fire department, from being able to reach the community. Additionally, many residents with chronic health conditions – in the community with one of the highest chronic disease rates in the county – rely on specialty doctors outside of Marin City who they cannot reach during large flooding events. These flooding events and their impacts on Marin City have generated anxiety about not being able to get out of Marin City to make it to doctor's appointments, or about children not being able to get home from school.

Stormwater flooding causes additional expenses for homes, churches, and businesses. In addition to these direct flooding impacts, homeowners in the area known as the “Bowl” have high maintenance costs associated with their homes flooding, and many residents are affected by mold and mildew issues due to flooding.

Marin City also has extensive sewage backup problems that have affected residents’ apartments, and even caused businesses to close or move due to not having reliable bathrooms. During the October 24, 2021 flooding event, residents witnessed water shooting up from manholes. The County Chief Engineer told residents it was sewage water shooting up from the manholes and entering the water they were walking through to get home.

The water issues Marin City experiences are complicated by jurisdictional and property owner challenges and conflicts. For example, many key problems with water drainage take place under or on the property of the Gateway Shopping Center. The owner has resisted paying to clear clogged drainage pipes and to install a needed water pump. Moreover, Marin City is unincorporated, which means it is bound to the administration and decision-making of Marin County rather than having the ability to self-determine and self-regulate at a local level.

There is a deeply felt and growing understanding in the Marin City community that the negative health impacts they experience are tied to discriminatory and exclusive decision-making, policies, and practices that have resulted in a highly disproportionate pollution burden. To date, the county has not taken adequate steps to address these impacts to Marin City, and Marin City Climate Resilience and Health Justice is seeking funding to ensure they can continue to build community capacity to participate in local decision-making to reduce environmental health burdens in Marin City.

For eight years, Marin City representatives and residents have been calling for Flood Control Zone 3 and the County Board of Supervisors to address Marin City’s flooding issues, especially the need for improved access via the sole vehicular entrance, which is in a low-lying location that has been flooding for decades (County of Marin, 2021). Marin City Climate Resilience and Health Justice encouraged the county to apply for Federal Emergency Management Agency (FEMA) funding to help pay for drainage improvements in Marin City. Marin County applied for \$4.9 million in FEMA money, and received the first tranche, but is using those funds to pay for flooding mitigation actions that are primarily focused on protecting Highway 101. The County has acknowledged that these improvements will not eliminate the flooding that will increasingly affect Marin City due to climate change.

The Marin City community is still working to inventory and address the many different pollution sources that threaten the community, including flooding and contamination in runoff, cracked and leaking pipes, historic dumping sites, air pollution, and the ways that these exposures are tied to negative health impacts. Marin City Climate and Health Justice is working to advance the most effective strategies for effecting positive change.

Community-Identified Strengths and Assets

Situated in a bowl-shaped watershed in between Sausalito and Mill Valley, with a beautiful and varied topography that includes steep forested open space hills to the west encircled by Highway 101, and bounded by Richardson Bay on the east side, Marin City has a proud heritage as a traditionally African-American ship-building community in World War II. Many of the residents are related to the war-effort workers who were the original residents of Marin City. The tight-knit Marin City community has come together to build a healthier and more prosperous community through initiatives like the development of the Rocky Graham Park, the campaign for a local grocery store, the launch of the teen center and the proposed Center for Community Life. Marin City Climate and Health Justice builds community engagement to protect the health and resilience of Marin City residents.



Meeting between Marin City Climate Resilience and Health Justice members and U.S. Census representatives.
Photo: Terrie Green

Needs Assessment Process

Summary of Outreach and Education Efforts

In 2019-2020, Marin City Climate Resilience and Health Justice carefully conducted over 280 water needs assessment surveys with residents of Marin City. Community members were engaged in a variety of ways, including at existing events and community gathering places to make sure they were met where they are. The majority of respondents to the survey (86%) are renters in Marin City. The survey included questions about community strengths, water-related and environmental challenges, what's going well and not going well with water in Marin City, as well as specific questions about concerns with water quality, infrastructure, emergency preparedness, and knowledge about Marin City's water system and source.

The findings from the survey were presented back to the community and agencies in a number of forums, including to seniors at the Senior Sunshine Club, to the Marin City Community Services District three times, at a county wide conference on seniors and aging, at the Environmental Forum of Marin, to 377 attendees of the MLK Jr. Conference, at Marin City's community forum, and to a panel of local government agencies.

Needs Assessment Findings



Drinking Water



Flooding



Industrial Contamination

Overall, the highest priority issues identified through the needs assessment are: tap water quality, aging infrastructure/pipes, and flooding, all of which affect public health.



Marin City Climate Resilience and Health Justice's Young Environmentalists conducting the water survey with community members in front of CVS Pharmacy. Photo courtesy of Marin City Climate Resilience and Health Justice

Frequent responses to the open-ended survey question, “what’s not going well with water in Marin City” included:

- “everything”
- the taste (sometimes specified as metallic)
- the smell
- that it’s cloudy or discolored (brown, yellow, grey, and white were mentioned)
- the water is “hard”
- the water leaves “green slime” residue
- skin effects such as burning or itching
- presence of black dirt
- fluctuations in quality and service
- toilet and shower backups
- flooding
- old infrastructure/pipes
- water pressure
- concern about a Superfund site in Marin City

“The water is very BAD, we cannot drink it, we have to buy water which is not easy.”

Responses to the open-ended survey question, “what’s going well with water in Marin City?” included:

- frequently: “nothing”
- “The area is beautiful and thriving regardless of the systemic neglect from housing!”
- some said “it’s available,” “seems clean”
- some said they hadn’t noticed any problems, or that the water is good

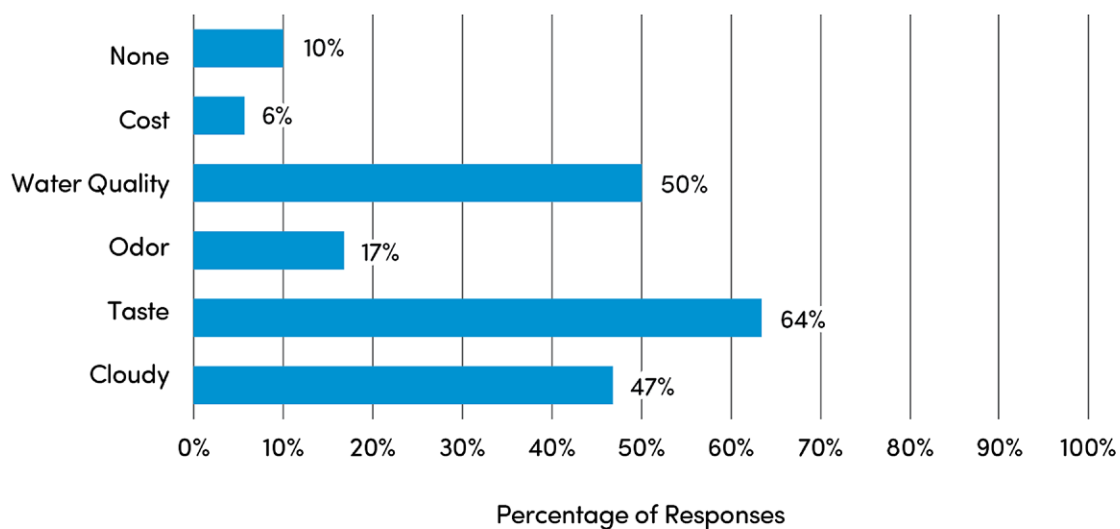


Drinking Water Quality

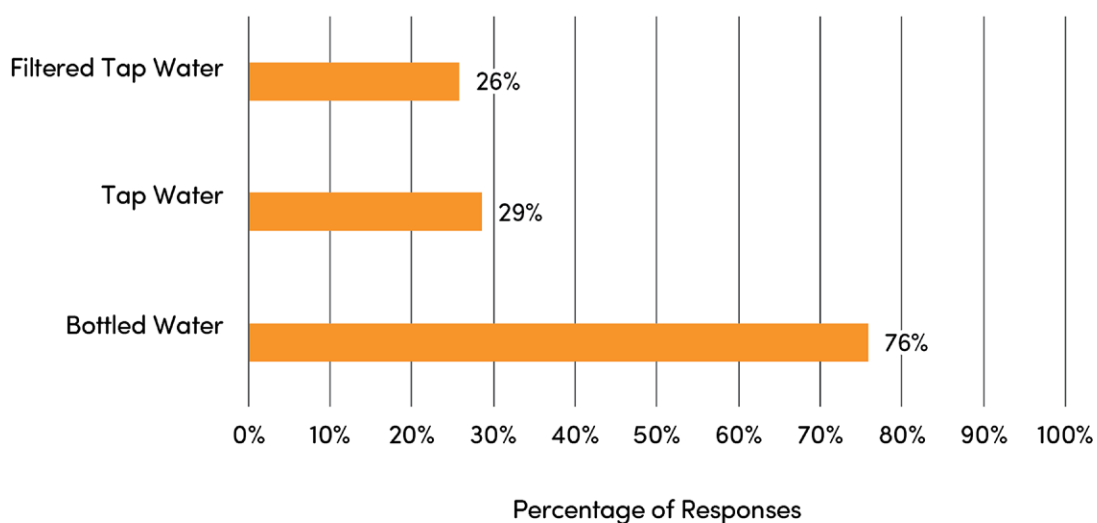
Overall, 68% of participants responded that they are worried about water quality in Marin City. 76% of respondents drink bottled water at home, rather than tap water (29%) and filtered tap water (26%), which is a major additional expense. 64% of respondents who expressed concern about their drinking water quality experienced taste issues, while 47% said their water has a cloudy appearance. 50% of those that expressed concern had general distrust of their water quality, not specifically rooted in appearance or taste. Respondents could choose more than one option for why they are concerned about tap water.

When asked their beliefs about what contributes to poor water quality, 72% of respondents cited “faulty water system” and 65% said pesticides, followed closely by vehicle fluids (41%). Respondents could choose more than one option for what they thought contributes to poor water quality.

If yes, what are your concerns about your drinking water?



Which of the following do you generally drink at home?





A broken pipe main in Marin City from Fall 2020 at the intersection of Phillips Drive and Drake Avenue. The break closed down a church and a school for a week as water overflowed. Photo: Terrie Green



An example of a broken water main. Photo courtesy of Marin City Climate Resilience and Health Justice

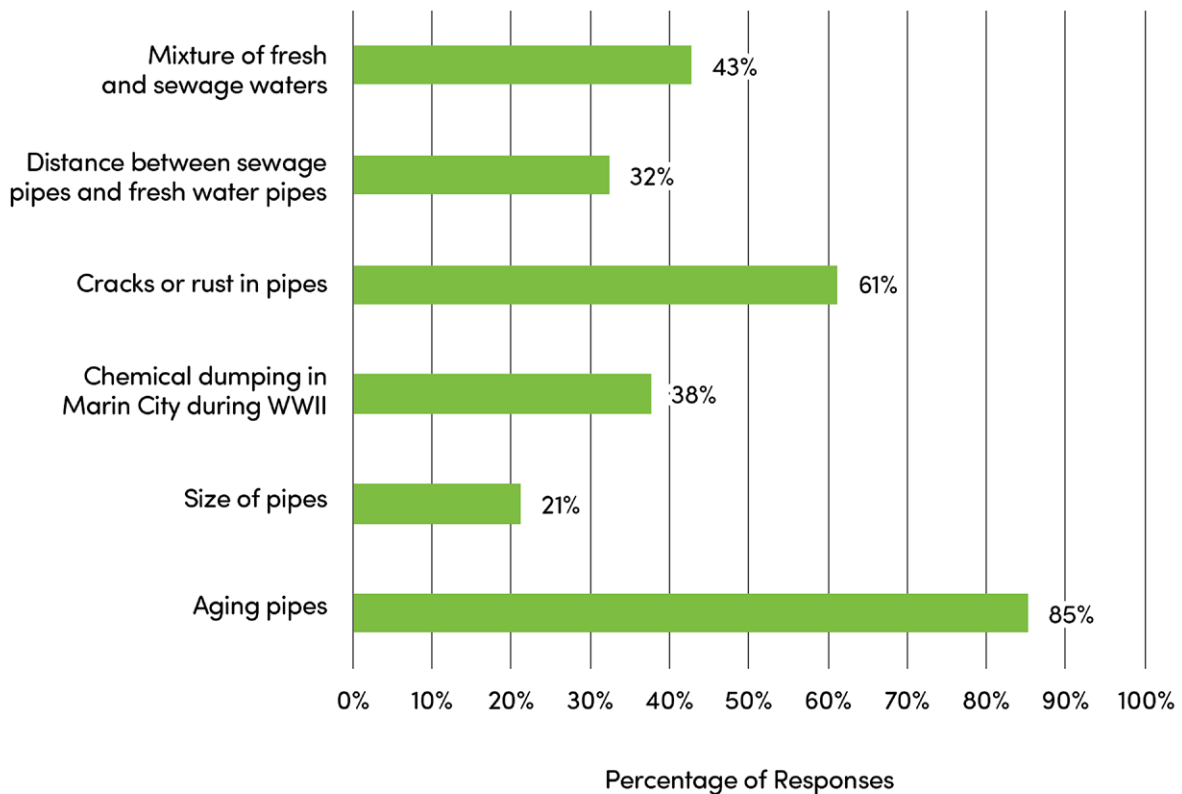


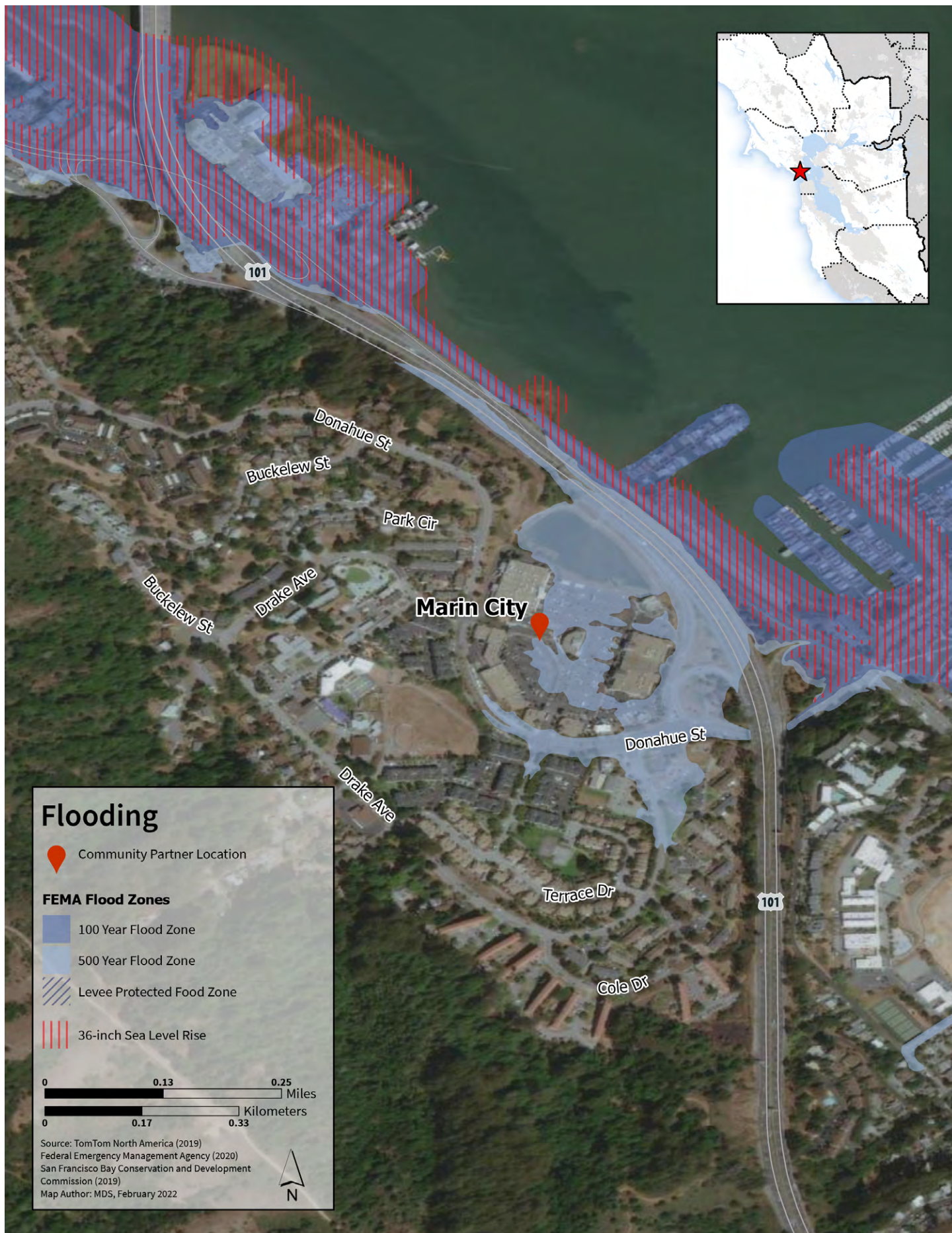
Infrastructure and Contamination

In addition to drinking water quality concerns, respondents are concerned about infrastructure and contamination in Marin City. 85% of respondents are concerned about aging pipes; 61% are concerned about cracks or rust in pipes; 43% the potential mixture of drinking and sewage waters; 40% about chemical dumping in Marin City during WWII, and 32% about the distance between sewage pipes and freshwater pipes. 43% responded that they are very concerned about whether the water treatment system is safe and built to handle growth in the future. Respondents could choose more than one option.

Marin City Climate Resilience and Health Justice members raised concerns about these infrastructure issues in a 2020 meeting of the Flood Control Zone 3. Marin City Climate Resilience and Health Justice also shared the survey findings with the Marin City Community Services District and has encouraged the County of Marin's Department of Public Works to address the infrastructure deficiencies in Marin City.

Do you have any concerns about the infrastructure of Marin City's water system that might be impacting your quality of life and safety?







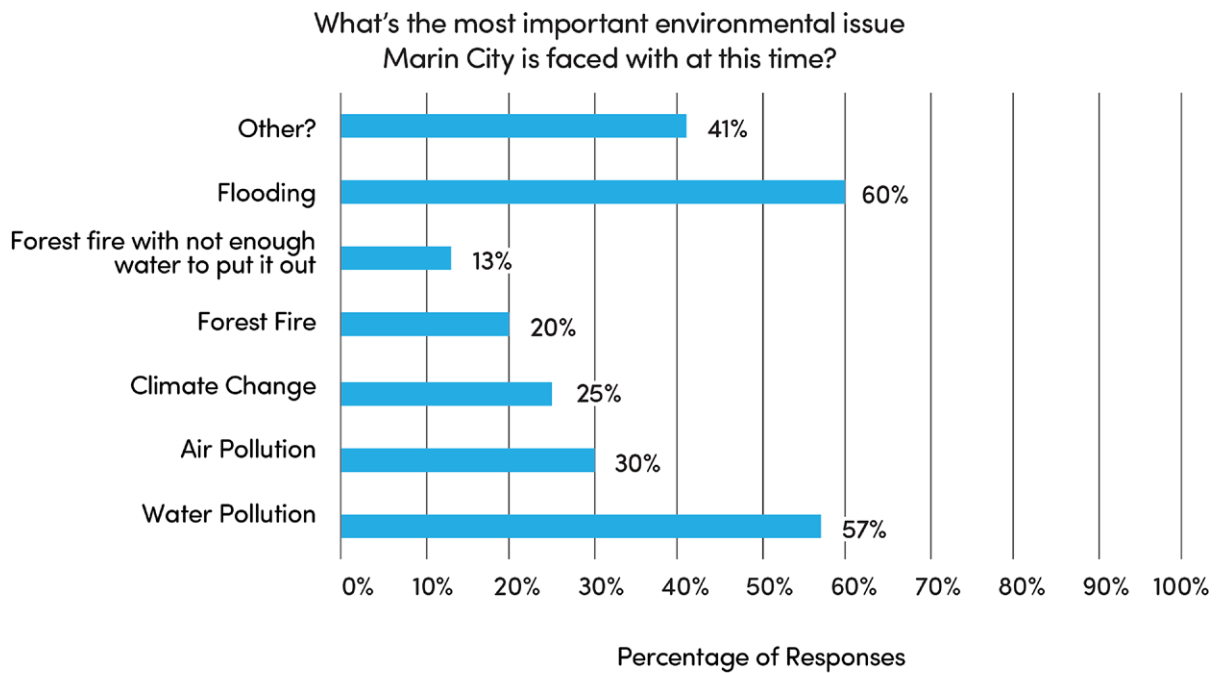
Flooding

60% of respondents cited flooding as the most important environmental issue that Marin City is faced with at this time, followed by air pollution (30%) and climate change (25%).



2014 flooding on Highway 101 blocking the only entry/exit into Marin City. Photo: Brent Ward

When floodwater blocks the ramps for Highway 101 on Donohue Street, people cannot get in and out for medical care, work, or school. While many parts of Marin County experience flooding, this is the only community that becomes completely cut off.





Flooding in 2017 blocked the entry/exit to Marin City. Photo from [Flooding closes roads in San Mateo, Napa \(sfchronicle.com\)](https://www.sfchronicle.com/bayarea/article/Flooding-closes-roads-in-San-Mateo-Napa-13678231.php)

Information and Education

When asked, “**How can we better prepare our residents from life and property damage in the disastrous event of fire, flooding, droughts, and infrastructure failure?**” 86% of respondents said education and awareness, and 57% responded “offering a community emergency preparedness class” would help with preparedness.

This desire for education and information was also reflected in a series of questions concerning knowledge about Marin City’s water system and source: 81% of respondents do not know where their home water originates from, 81% don’t know the source/provider, and 75% responded that they don’t know where the storm runoff drains to.

When asked what is the best way to teach residents about conservation/water efficiency and the impacts of drought, 67% of respondents chose hands-on trainings, 63% of respondents chose community-based education opportunities, i.e., seminar or lecture series held within and by the community, and 49% of respondents chose educational materials distributed to residences by mail. Respondents could choose more than one option.



Marin City Climate Resilience and Health Justice staff meet with Dr. Kristina Hill and UC Berkeley students. Photo courtesy of Marin City Climate Resilience and Health Justice

Public Health Impacts

Many of the Marin City Water Assessment questions were focused on understanding the health impacts of environmental issues that Marin City residents are facing.

When asked about issues associated with climate change and flooding respondents were most concerned about, 74.82% of respondents said mold and mildew, 60.95% respiratory diseases and allergies (asthma, rhinitis, atopic dermatitis/eczema, common cold), 54.74% poor mental health, 53.65% loss of human life, 51.82% sewage spillovers, and 51.46% waterborne infectious diseases (Giardia, Cholera, Botulism, E. Coli, Dysentery). Respondents could choose more than one option.

When asked about other concerns about Marin City, many respondents say they are concerned about housing (67%), lack of a grocery store (57%), health (52%), education (52%), employment (48.71%) and road access to Marin City being cut off (47%). Respondents could choose more than one option.



Next Steps

Marin City Climate Resilience and Health Justice continues to advocate and strategically collaborate with the County of Marin and other agencies, advocacy groups, and governmental entities to cross-educate, exchanging community knowledge of flood patterns over time, water concerns, infrastructure conditions, and pollution sites with expertise in sea level rise vulnerability assessment, hazard mitigation methods and processes, planning processes, and more. Marin City Climate Resilience and Health Justice continues work to see permanent remedies implemented to protect the Marin City community, and will continue to expand their collaborative efforts to focus on stormwater, drinking water, pollution/hazards facing Marin City, and public health.

Specific next steps Marin City Climate Resilience and Health Justice plans to pursue include:

- Work collaboratively with Marin City Community Services District to fully develop the Disaster Preparedness Council to ensure readiness for floods, earthquakes, fire and other disasters.
- Participate in the DACTI Program Tap Water Quality Testing Effort and follow up on testing results.
- Conduct groundwater testing.
- Advocate for a more comprehensive flood study to, among other things, look at and assess water management challenges in Marin City. Specific ideas for the comprehensive flood study to explore and assess include:
 - Installing drain pipes to divert excess stormwater straight down Donohue Street and out/under the freeway to the Bay
 - Bringing in pumps as needed for flooding before more permanent solutions are implemented
 - Elevating the sidewalk coming out of Marin City, with a particular emphasis on ensuring that all children have a safe route to schools, between Marin City and Sausalito
 - Assessing flow of water coming down into Marin City from the watershed
 - Increasing the diameter of stormwater and sewage pipes from two to four feet
 - Repairing floodgate(s) and all malfunctioning flap gates immediately
 - Removing accumulated sediment from the Marin City drainage pond to increase water capacity for flood retention
 - Assessing the public health impacts of flooding (including mold and mildew from repeated exposure, particularly in the Bowl)
 - Inventorying and mitigating impacts from 12 acres of metals/pollutants coming from Highway 101 into the drainage pond in runoff; detailed in the 2017 Marin City Flood Drainage Study, which did not offer any measures to mitigate these impacts.
- Recommend a task force to address infrastructure issues related to old pipes in Marin City, including sanitation and sewage, drainage systems, and water supply. This task force of governmental and other partners should assess and prioritize the replacement of aging and/or missing infrastructure. This should also include a study to evaluate the impacts of old lead pipes. The 2017 Marin City Flood Drainage Study showed rusted, cracked, and missing pipes. Recently, several major pipes have burst.
- Pursue a program to educate community members about how to detect sewage leaks themselves and who to call when they see a problem.

- Conduct a comprehensive hazard assessment, which will include testing soil to identify any groundwater pollution (cracked or rusted pipes, runoff from Highway 101, etc.) and bringing in a group to assess a possible Superfund site on Phillips Drive as well as other sites. Community members and oral history from original residents indicate that there may be other contaminated sites from WWII-era dumping that need to be investigated. For example, a dump site on top of a hill by the old water tank flows into a major creek bed. A lot of trees and bushes have grown over the area, and Marin City Climate Resilience and Health Justice needs funding to have professionals pull out the brush, document the containers, and conduct soil testing. Other potential pollution sources should be identified and assessed, including two old gas stations, two old dry cleaners, three old kerosene stations, and old dumping areas for Marinship and other groups.
- Require Caltrans to divert and filter pollutants from Highway 101 coming into the Marin City drainage pond and main drainage ditch which flows right into the community.
- Advocate for defensible barriers to decrease noise pollution, as well as other solutions to reduce asthma and respiratory diseases from breathing hazardous chemicals due to freeway vehicle exhaust/unhealthy air emissions.
- Turn the drainage pond into a multi-benefit site for recreation, flood mitigation, and wetland habitat. Marin City Climate Resilience and Health Justice would like to work with Marin City Community Services District to develop a new park next to the pond with the following provisions:
 - Soil and sediment testing of drainage pond, and toxic sediment removal
 - Developing educational programs based around the drainage pond, water system, and habitat
- Assess and address public health impacts related to all of these next steps and project development ideas. Community members are specifically concerned about the potential mixture of sewage and fresh waters, tap water quality impacts, air quality impacts, pollution in floodwaters (that they sometimes have to wade through), and other public health impacts of flooding. Flooding contributes to mold and mildew in homes, which adds to asthma and respiratory diseases. Residents are also concerned about not being able to get to doctors when there's flooding, health impacts from pipes, and pollution from Highway 101.

Program development will focus on the following:

- Tap water and groundwater quality testing
- Environmental hazard identification and assessment
- A public health impact assessment
- A comprehensive resilience plan for Marin City
- Infrastructure needs assessment of broken, leaking, missing pipes
- Habitat restoration/flood protection project for drainage pond
- Staff salaries, stipends, capacity building, and training
- Advocate for defensible barriers to decrease noise pollution and for other solutions to decrease asthma and respiratory diseases from breathing vehicle exhaust and unhealthy air emissions from Highway 101, as well as polluted stormwater runoff
- EPA assessment of potential Superfund site(s)
- Needs assessments with community members on air quality impacts and the development of policy recommendations to improve air quality



Location of an unassessed Superfund site in Marin City. Photo courtesy of Marin City Climate Resilience and Health Justice

References

- Burd-Sharps, S., & Lewis, K. (2012). *A Portrait of Marin*. American Human Development Project. http://www.measureofamerica.org/docs/APOM_Final-SinglePages_12.14.11.pdf
- California Department of Education. (2019). *District Performance Overview - Sausalito Marin City*. <https://www.caschooldashboard.org/reports/21654740000000/2019>
- California Environmental Protection Agency and Office of Environmental Health Hazard Assessment. (2021). *CalEnviroScreen 4.0*. [Map] <https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40>
- County of Marin. (2021, March 11). Marin City Flood Mitigation Project Moves Forward. [Press release] <https://www.marincounty.org/main/county-press-releases/press-releases/2021/dpw-marincitypond-031121>
- Crispell, M. (2015). *Marin City: Historic African American Enclave at Risk*. University of California Berkeley Center for Community Innovation. http://iurd.berkeley.edu/uploads/Marin_City_Final.pdf
- GRASS Development Team (2012). *Geographic Resources Analysis Support System (GRASS) Software, Version 6.4.1*. Open Source Geospatial Foundation. <http://grass.osgeo.org>.
- Halstead, R. (2015, March 25). Marin Ranked Healthiest County in State for Sixth Year but Economic Inequality a Pitfall. *Marin Independent Journal*. <https://www.marinij.com/2015/03/25/marin-ranked-healthiest-county-in-state-for-sixth-year-but-economic-inequality-a-pitfall/>
- Marin Flood Control Zone No. 3, Wood Rodgers, & Horizon Water and Environment. (2018, January). *Marin City Flood Drainage Study*. Marin County Flood Control and Water Conservation District. https://www.marinwatersheds.org/sites/default/files/2020-07/Combined_MarinCityDMP_Report%20%282%29.pdf
- The People of the State of California v. Sausalito Marin City School District (CA Sup. Ct. 2019). <https://www.smcsd.org/documents/About-Us/Desegregation/News/AG%20Final%20Judgement.pdf>
- United States Census Bureau. *2014-2018 American Community Survey- Marin City CDP*. U.S. Census Bureau's American Community Survey Office.