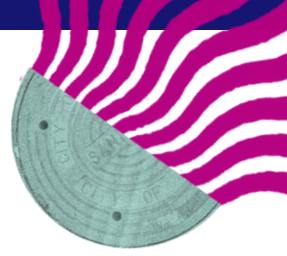


JUSTICE IN THE SEWERS *Demanding equity in Houston's \$2 billion sewage investment*

Summary of community sewage demands



Sewage pollution has long been an invisible problem across the greater Houston region. From 2011 to 2017, wastewater treatment facilities reported more than 13,000 overflows (or sewage releases), representing more than 80 million gallons of sewage evading treatment. Houston's system has been responsible for a large portion of these overflows, and Houston's lower-wealth and Black and brown communities experienced the greatest burden of sewage problems, often in the form of sewage backing up into their homes and yards. From April 1, 2021 to June 30, 2023, the City of Houston reported 2,809 overflows from its own system and 4,434 overflows more from private sewer laterals across the city, resulting in large amounts of sewage being released across the Houston area on a continual basis. (Bayou City Waterkeeper & Spatial Lab, 2023)

This brief provides background about sanitary sewer infrastructure, along with sewage problems in Houston that led a court to order the City to invest \$2 billion into sewage infrastructure through 2036. As the City marks the third year of this investment in April 2024, this policy brief offers nine sewage demands created with input from community interviews, outreach, and research, as well as organizational experience with the consent decree infrastructure

Contextualizing sanitary sewer systems and sewage

Sanitary sewer systems are a key part of public health infrastructure and play a critical role in protecting our environment. Effective sewage systems dramatically increase life expectancy by keeping pathogenic material out of drinking water, such as bacteria, intestinal parasites known as helminths, viruses, parasitic organisms, mold, and fungi ((Angelakis et. al, 2021; Kocaili and Hersek, 2023, U.S. EPA, 2023), which can cause dangerous illnesses including cholera, hepatitis, vomiting, dysentery, respiratory disease, nausea, pneumonia, aseptic meningitis, fever, and mild-to-severe gastroenteritis causing stomach cramps and diarrhea (U.S. EPA, 2004; U.S. EPA, 2023).

Residents with sewer problems engage in "compensatory behaviors," including, holding bowel movements, using less water for cleaning and washing, and eating less to avoid going to the bathroom (Flowers 2018). Living with sewer problems can also cause feelings of shame, social isolation, anxiety, and depression. Investment in sewers has positive economic and health impacts for people well beyond the immediate vicinity of the specific intervention (Ross, 2017). Despite the public benefits of sewage treatment, public lines account for only half of the total length of the sewer systems in American cities (U.S. EPA 2014). Private sewer leaks flow into streets, onto neighbors' yards, and into rivers and streams. This mismatch between private responsibility and public good (or community impact) is a policy conundrum.

In America, racial disparities in sewer provision force many people, especially in the South where housing is still shaped by the legacy of Jim Crow, live in substandard conditions with ineffective, broken, or no sewage system at all (Carrera & Flowers, 2018; Heard-Garris et. al, 2021; West, 2025). In cities like Houston, where sanitary and storm sewer infrastructure are separate, high levels of rain combined with underinvestment in infrastructure can lead to the systems to converge. Storm water may enter and overwhelm the sanitary sewer system, causing sewage overflows, and sanitary sewage can enter the storm sewer system and enter homes, neighborhoods, and waterways without treatment.

"I probably just need to look at my checkbook to see how many times I called the plumber out."

Pleasantville resident

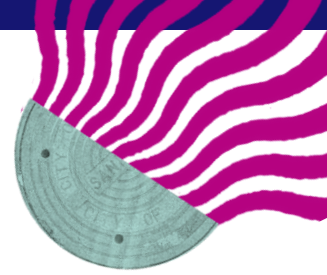
"I stopped listening after hearing \$25,000."

East End resident

"It's been a progression from help with drainage to, Mercy! I'm losing my house."

Melrose Park resident

JUSTICE IN THE SEWERS *Demanding equity in Houston's \$2 billion sewage investment*



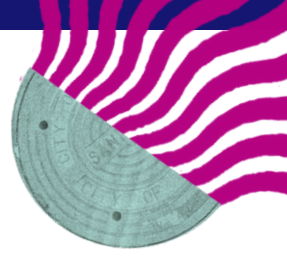
Community sewage demands

Through interviews and direct assistance to community members dealing with sewage problems on their property, research into best practices across the United States, and our own experience during the implementation of the consent decrees, we have developed the following sewage demands:

- 1. Invest \$20 million into a private sewer lateral repair fund to be administered by Houston Public Works/Houston Water and seek funding.** The City should (i) set up the fund from an administrative perspective within Houston Water, (ii) allocate funds under the annual city budget, (iii) modify the consent decree's stipulated penalties provision and/or to add a supplemental environmental project, (iv) create a state-level supplemental environmental project to supplement funding through state-level enforcement efforts, and (v) pull down funds available through the Infrastructure Reduction Act, Bipartisan Infrastructure Law, Community Development Block Grants, and other federal funding sources. **By committing \$20 million, the city will invest one penny into private sewer laterals for every one dollar it spends on the public system through the consent decree.**
- 2. Make funding flexible to address health impacts of sewage.** Given the health impacts of sewage problems, the fund should allow residents' reimbursement for healthcare costs associated with sewage problems and make testing available to ensure sewage has not had impacts on drinking water.
- 3. Evaluate neighborhoods for sewer-line replacement across an entire street or neighborhood.** Northeast Houston residents voiced concerns about their lines as a whole, especially given examples when the City of Houston insists line repairs are residents' responsibility only for residents to discover the problems originated in the city's line. Community sewer lines in the City's oldest neighborhoods (such as the East End) should also be disconnected and fully phased out.
- 4. Create transparency in ongoing consent decree planning** by sharing processes and timelines on the City's wastewater consent decree page. This will enable community members to understand opportunities to give input and advocate more effectively for themselves and their neighbors.
- 5. Create language accessibility in ongoing consent decree processes** by translating all information into the city's major languages, including, at a minimum, Spanish, Vietnamese, and Mandarin and by providing interpretation services when conducting any outreach or in-person community meetings in the top languages identified in the specific neighborhoods or City Council districts.
- 6. Create transparency and internal and external clarity about the City's obligations to investigate and determine the root cause of sewage issues.** This should be published on the City's wastewater consent decree website and shared with Public Works staff. This can avoid residents needing to advocate relentlessly when City staff disclaims the responsibility to repair problems that the City in fact regards as its obligation.
- 7. Change policy to require, and allocate funding to support, investigation of the root cause of sewage problems to avoid unfair costs being imposed on community members.** This can avoid residents hiring their own plumbers to identify problems that are in fact the City's responsibility, as well as reduce cost burdens of addressing private sewer lateral problems, and result in less sewage problems for all residents.
- 8. Remove barriers to reporting.** Create ways to report sewage problems at homes that do not place community members at risk for incurring fines. Having a private-sewer lateral fund accessible to lower-wealth residents and investigating the root cause would both help remove this barrier.
- 9. Close gaps and fix errors in data.** The City's private sewer lateral data is limited because the City does not include volume in their reporting, and underreporting by residents means the City's data is under-inclusive. Further, the data contains errors. For example, 97.5 % of private sewer lateral datapoints from July 1, 2022 through June 29th, 2023 (extracted from the City of Houston's 2023 annual report) has incorrect zipcodes.



JUSTICE IN THE SEWERS *Demanding equity in Houston's \$2 billion sewage investment*



In 2021, a federal court ordered Houston to invest \$2 billion in sanitary sewers over 15 years

In 2018, Bayou City Waterkeeper sent the City of Houston a notice of intent to sue over more than 9,300 sewage overflows as violating the Clean Water Act. This prompted the U.S. Environmental Protection Agency, joined by the Texas Commission on Environmental Quality, to file a federal enforcement action. In the spring of 2021, a federal judge in Texas approved a legal settlement requiring the City of Houston to invest \$2 billion in its sanitary sewer system through 2036. The agreement requires the City to meet strict timelines to eliminate releases of untreated sewage into local neighborhoods, parks, and bayous. The consent decree requires the City of Houston to invest \$2 billion in long-overdue infrastructure updates, pay \$4.4 million in fines for past overflows, and also pay ongoing and future fines as more sewage releases occur. Through July 2023, the city has paid an additional \$1.4 million in penalties for ongoing sewage overflows.

The City's reports show that problems on private property present a major problem

The consent decree requires periodic reporting of its progress, which is compiled on [the City's website](#) and analyzed on Bayou City Waterkeeper's [Justice in the Sewers hub](#). These reports include data about sewer back-ups into homes and businesses caused by breaks or blockages in the sewer line, in the portion called the "private sewer lateral," that connects homes and businesses to the city's main system. The 2023 annual report, spanning July 2022 to June 2023, lists 1,701 sewage overflows associated with private sewer laterals (see Table X.D). The 2022 annual report, covering July 2021 to June 2022, lists 2,636 overflows associated with private sewer laterals (see Table X.D. at the end of the report). The 2021 annual report, covering April 2021 to June 2021, lists 584 overflows associated with private sewer laterals (see Table X.D).

While laterals are private property, the impacts of lateral back-ups and spills are not limited to one household. The EPA reports that in a typical municipal system private lines make up about half of the overall length of the system. (U.S. EPA, 2014) Private sewer leaks flow into streets, onto neighbors yards and into rivers and streams.

This risk is compounded by the fact that many of the most impacted communities from sewage overflows, both from the city system and from private portions, also have open-ditch drainage. This means that sewage is open to the air, and that children and other vulnerable persons are much more likely to come into contact with it and suffer health consequences. In 2014 a full 40% of open-ditch drains in Houston were found to be dysfunctional by Houston Public Works. Many residents report that heavy rains cause private overflows, which indicates that neither system functions properly and that their inadequacies are interacting in dangerous ways.

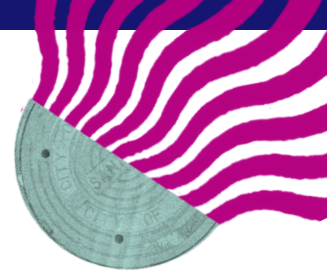
The consent decree requires enforcement of sewage problems on private property

For problems with private sewer laterals, the consent decree focuses on education and enforcement, rather than providing financial assistance for repairing broken sewer lines, as cities like Jackson and St. Louis have done. By focusing on education and enforcement, the consent decree leaves lower-income residents to figure out their sewage problems on their own — or potentially face fines of their own.

City staff is often unclear on municipal obligations for repairing sewer problems

In Northeast Houston, residents report being told by the city that sewage problems were their own responsibility, only to find out otherwise through relentless follow-up or by hiring their own plumber. In the East End, the city alternated between telling residents that they needed to repair their community sewer line and that the city would repair the issue. With complaints being listed as resolved without any real resolution, city residents generally regard 311 as unreliable at best — or "a joke." Even those who say you can trust the city say you "need to stay on them" and call them everyday. One interviewee reported the issue to the city 20 years ago and has still not gotten any help. Receiving incorrect or inconsistent messages creates unnecessary stress on the part of residents, compounding the stress of dealing with an ongoing sewage problem.

JUSTICE IN THE SEWERS *Demanding equity in Houston's \$2 billion sewage investment*



Lack of transparency in city's consent decree

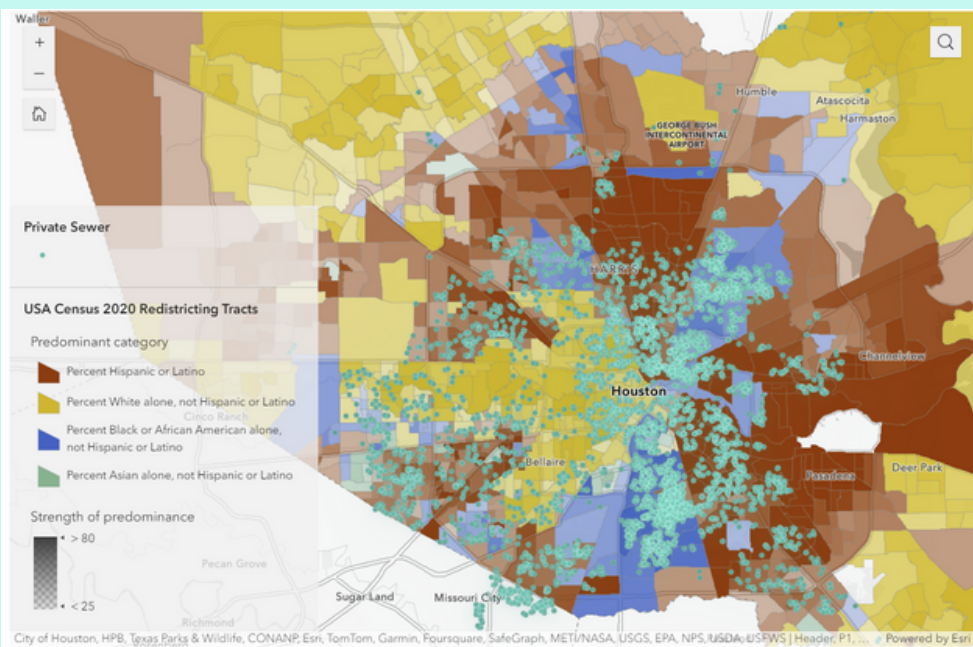
Though city residents were aware of the consent decree, they report that it is opaque to them. The city's website includes monthly reporting of sewage overflows, periodic updates about technical investments, and an annual report that reiterates much of this information, as well as a short set of frequently asked questions. The website lacks any information to aid residents' understanding about the consent decree's ongoing implementation and opportunities to give feedback, despite the consent decree requiring ongoing evaluation and planning. Residents also report feeling in the dark about how ongoing planning and how sewage lateral data is informing action by City.

The failure to address private sewage laterals presents an issue of environmental justice

Rice University's Spatial Studies Lab and Bayou City Waterkeeper translated the city's reporting under the consent decree into an interactive map. This map looks at the data received so far from the city through its consent decree-mandated reports, alongside the U.S. Census Bureau data reflecting income and race or ethnicity. Data on the map shows that sewage problems across the city disproportionately expose Black, Brown, and underinvested communities to unsafe sewage across the city. This is true both along the city-owned system, which is the focus of the consent decree, and on private property, for which the City has disclaimed any financial responsibility, even when property owners lack resources to make repairs.

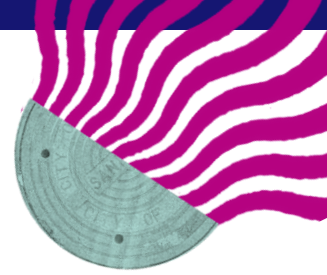
By failing to provide any financial assistance to lower-wealth property owners, Houston's consent decree compounds this environmental injustice. Many residents choose to live with sewage or incomplete use of key portions of their homes, such as bathrooms and kitchens.

Further compounding the environmental injustice, if a resident wants to ask the City to investigate a possible leak on the municipal side they face the risk of learning that the problem is their responsibility and incurring fines ranging from \$200 to \$2,000 (City of Houston, n.d.-a). If a resident is unable to afford to address the sewage issue on their property within the time frame given by the city, they are then violating Section. 7.1735 of the Texas Water Code which states any resident who has unaddressed raw sewage on the property must be charged with a Class C misdemeanor (Texas State Capital, n.d.). If residents are unable to pay the fine, city governments then offer an "alternative option" for them to spend time in jail (City of Houston, n.d.-b). Residents report feeling reluctant to report problems at their homes, including those that emanate from problems with the city's main system, due to concerns about potential fines. Without a clear plan to address these problems, Houston's \$2 billion investment will leave these communities behind and reinforce rather than resolve inequities.



Bayou City Waterkeeper's analysis of City of Houston data reflecting overflows from private sewer laterals against federal census tract data shows that sewage overflows on private property disproportionately occur in Black and Hispanic/Latine communities.

JUSTICE IN THE SEWERS *Demanding equity in Houston's \$2 billion sewage investment*



Impacts of sewage injustices

Data received through the City of Houston's consent decree reporting reveals environmental injustice but does not account for residents' lived experiences. Through interviews, we learned:

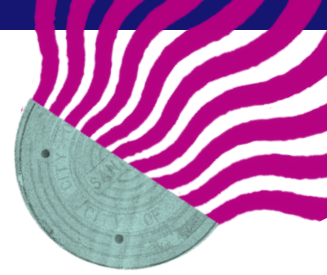
- People often live with inadequate sewage for years and do not report the issue. All residents interviewed reported ongoing problems over many years. One resident in Northeast Houston has lived with sewage issues for 20 years, despite lots of work to solve the problem.
- Sewer problems can lead to mental health problems. In interviews, people felt isolated, embarrassed, "stuck," and depressed. They stopped inviting friends and family over, or even felt that they are going crazy. Complicating our understanding of mental health impacts was residents' stress over the lack of official response and the city closing cases that should not be closed at all.
- Sewer problems can lead to physical health problems. People reported holding in bowel movements or having diarrhea that they cannot resolve. Health impacts are not confined to the home because sewage isn't either.
- Sewer problems make property much less usable and degrade properties beyond the sewage system. Dysfunctional sewage infrastructure leads to collapsed asset value and furthers cycles of poverty. Lack of usability ranges from losing one of two bathrooms and having to go to a neighbor in the morning, to not being able to go to an entire side of the house. Importantly, this affects two parts of the house most important to health: the bathroom and kitchen. Often the yard of the house is totally unusable or unsafe to use, and damage extends to fences falling over to entire floors rotting out.

Systemic interconnections of sewage failures

1. **"Private" sewage issues often extend beyond individual homes and enter the city's MS4 storm water system.** Most individuals interviewed report private sewer problems, as well as sewage in drainage ditches or on the street. It smells badly of sewage on the blocks where interviews were carried out. This means that sewage problems that are deemed private emanate into public systems, including the City of Houston's "MS4" stormwater system. Sewage is in drainage ditches, yards and on the street. Multiple interviewees explained how the city is addressing problems one at a time by pumping sewage or cleaning out lines, without addressing the root cause. That indicates that a household-by-household approach can only go so far. This also suggests that the private sewer problems are caused by disinvestment and neglect.
2. **"Private" problems in some cases are caused by problems with the city's infrastructure.** Disinvestment in the city portion of the line can cause breaks on the private side, muddying responsibility for repairs.
3. **Sewage problems are compounded by drainage problems.** Bad drainage means that sewage sits in communities. And if there is sewage in communities, bad drainage can push sewage into people's homes.
4. **Sewer problems in homes are connected to external factors such as storms, major construction in the community, and white flight.** Neighbors often all have issues; this points to local, not individual causes. This indicates that sewer issues are not caused by individual choices. Respondents believe that as the racial make-up of their community changed, the city invested less, leading private lines to degrade.
5. **The City is a bad sewer communicator, and people do not trust that the City will help.** 311 is described as a "joke." And City representatives are said to be "dismissive" of residents' sewage concerns. City representatives insist homeowners investigate their side first, which alone is costly. The City has done little-to-nothing to tell people about the consent decree. Some residents reported the City taking action at properties so that sewage is less visible, but did nothing to make it less dangerous. Even those who say you can trust the city say you "need to stay on them" and call them everyday.
6. **People cannot afford to make repairs.** When they can, they don't have enough to resolve the problem only a temporary fix. People sometimes pay for a low cost fix, but the true cost of repairs for an entire sewer system is about \$8,000-12,000. Median incomes in the communities surveyed are roughly \$36,000. One interviewee dug up and replaced his line himself a decade ago. Small landlords with very low income may be a particular area of concern. Financial strain may be related to mental health struggles Sewage problems also increase the cost of living.

JUSTICE IN THE SEWERS

Demanding equity in Houston's \$2 billion sewage investment



Resources

- Angelakis, A. N., Vuorinen, H. S., Nikolaidis, C., Juuti, P. S., Katko, T. S., Juuti, R. P., Zhang, J., & Samonis, G. (2021). Water Quality and Life Expectancy: Parallel Courses in Time. *Water*, 13(6), 752. <https://doi.org/10.3390/w13060752>
- Bayou City Waterkeeper, Justice in the Sewers Hub, <https://bayoucitywaterkeeper.org/justice-in-the-sewers-hub/>
- Bayou City Waterkeeper, Justice in the Sewers Map, <https://bayoucitywaterkeeper.org/justice-in-the-sewers-map/>
- Carrera, J, Flowers, C. (2018). Sanitation Inequity and the Cumulative Effects of Racism in Colorblind Public Health Policies. *The American Journal of Economics and Sociology*, 77(3-4), 941-966. Wiley Online Library.
- City of Houston, Houston Consent Decree, <https://www.houstonpublicworks.org/wastewater-cd>
- Environmental Protection Agency. (2023, May 31). Sanitary Sewer Overflow (SSO) Frequent Questions. Environmental Protection Agency; Environmental Protection Agency. <https://www.epa.gov/npdcs/sanitary-sewer-overflow-ssso-frequent-questions#:~:text=As%20a%20result%2C%20they%20may,Sewage%20in%20drinking%20water%20sources>
- Environmental Protection Agency. (2014, June). Private Sewer Laterals. Environmental Protection Agency. <https://www3.epa.gov/region1/sso/pdfs/PrivateSewerLaterals.pdf>
- Environmental Protection Agency. (2004). Report to Congress on the Impacts and Control of CSOs and SSOs (pp. 1-26). United States Congress. https://www.epa.gov/sites/default/files/2015-10/documents/csosortc2004_chapter06.pdf
- Heard-Garris, N., Boyd, R., Kan, K., Perez-Cardona, L., Heard, N. J., & Johnson, T. J. (2021). Structuring Poverty: How Racism Shapes Child Poverty and Child and Adolescent Health. *Academic Pediatrics*, 21(8, Supplement), S108-S116.
- Flowers, C. C. (2018). Decreased Food and Water Intake Attributable to Failing Sanitation in the United States. *American Journal of Public Health*, 108(10). <https://doi.org/10.2105/ajph.2018.304688>
- Kocaili E. K., & Hersek, C. M. (2023). Historical Evaluation of Public Toilets as Public Spaces. *Gazi University Journal of Science Part B: Art Humanities Design and Planning*, 11(1), 77-90. <https://dergipark.org.tr/en/pub/gujsb/issue/76466/1245107>
- Ross, I. (2017, December 8). Sanitation as a public good and private asset. *WASHeconomics.com*. <https://washeconomics.com/2017/12/08/sanitation-as-a-public-good-and-private-asset/#:~:text=An%20excreta%2Dfree%20living%20environment>
- West, C. (2015). Prophetic Imagination: Confronting The New Jim Crow & Income Inequality in America. *Engaging Pedagogies in Catholic Higher Education*, 1(1). <https://digitalcommons.stmarys-ca.edu/epiche/vol1/iss1/1/>

