



# HOUSEHOLD WATER SECURITY IN METROPOLITAN DETROIT: MEASURING THE AFFORDABILITY GAP

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## INTRODUCTION

“Affordability gap,” “water burden,” “water poverty,” and “water inequity,” represent different terms for the same phenomenon: a household’s struggle to afford safe, sufficient and reliable water service.<sup>1,2,3</sup> This lack of access to affordable water represents one of the greatest challenges to water security in Metropolitan Detroit.

The United States Environmental Protection Agency considers an affordable bill to be 4.5% of monthly household income for water and wastewater service.<sup>4</sup> While there is an ongoing debate about whether percentage-of-income is the most accurate determination of affordability, it remains the federal standard and most commonly used metric.<sup>5</sup>

The issue of water affordability has been an area of concern and contention in the City of Detroit for over a decade.<sup>6</sup> A University of Michigan survey of low-income water customers indicates that wa-

ter-related challenges span the Detroit Metro area, serving as a daily struggle for low-income households and a business challenge for water utilities.

This policy brief summarizes low-income residents’ reported experiences with water in Wayne, Oakland, and Macomb Counties (Detroit and its surrounding suburbs). It analyzes a statistically significant sample of 413 low-income households to provide a regional outlook for water access and affordability. Results reveal that despite the provision of assistance, low-income customers continue to pay unaffordable water rates, requiring them to cut-back on other expenses needed to lead healthy and productive lives. It also demonstrates that low-income customers value, and are willing to pay what they can afford for water and wastewater service. These findings demand an immediate programmatic and policy response at all levels of government.

## KEY FINDINGS

- Unaffordability is a regional issue. Low-income residents in each county reported paying on-average 10% of their monthly household income for water services, more than double the U.S. Environmental Protection Agency’s estimate of 4.5% of income as an affordable rate.
- Households value water service and are willing to pay what they can afford. Less than 2% of respondents expected free water services. There is a \$45.08 gap between what residents are paying and what they estimate they can afford to pay for water services.

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1 Kayaga, S., & Franceys, R. (2007). Costs of urban utility water connections: Excessive burden to the poor. *Utilities Policy*, 15(4), 270-277.

2 Sullivan, C. (2002). Calculating a water poverty index. *World development*, 30(7), 1195-1210.

3 Robinson, P. B. (2002). “All for some”: water inequity in Zambia and Zimbabwe. *Physics and Chemistry of the Earth, Parts A/B/C*, 27(11-22), 851-857.

4 U.S. Environmental Protection Agency. *Affordability Criteria for Small Drinking Water Systems : An Epa Science Advisory Board Report a Report By the Environmental Economics Advisory Committee of the Epa Science Advisory*. 2002.

5 Wutich, A., Budds, J., Eichelberger, L., Geere, J., Harris, L. M., Horney, J. A., & Shah, S. H. (2017). *Advancing methods for research on household water insecurity: Studying entitlements and capabilities, socio-cultural dynamics, and political processes, institutions and governance*. Water Security.

6 Sabourin, Claire. “Responding to the Detroit Water Crisis: The Great Lake Water Authority and the City of Detroit.” *Washington University Journal of Law and Policy* 51, no. 1 (2016): 305-27.

- Bills are paid, but unaffordable. Residents are making trade-offs to pay their bills. 84% of low-income residents reported cutting back on monthly expenses to make payment on their water bills. 51% of households are switching-off between energy and water bills.
- Assistance is helping reduce costs, but is not closing the affordability gap. Almost 80% of households on assistance still reported paying over 4.5% of their income for water services. 94.3% were still cutting-back on monthly expenses to keep-up with their bills. 25.6% of households not receiving assistance were unaware of assistance programs.

## THE GROWING WATER AFFORDABILITY GAP

An affordability gap represents the difference between the amount of money residents are currently paying for a service, and the amount of money they can afford to pay. In this brief, an affordable water and wastewater bill is self-reported by survey respondents and compared against the federal standard: 4.5% of monthly household income.

A number of factors contribute to the growing affordability gap across the country:

- Costs to replace aging infrastructure, maintain water quality, and adapt to climate change<sup>7</sup>
- Decreased federal funding<sup>8</sup>
- Declining populations<sup>9</sup>
- Stagnant wages<sup>10</sup>

Similar dynamics have contributed to increased water rates and a growing affordability gap for households in Metro Detroit.

Graphic by: Claire D'Aoust

### DATA AND METHODS

Between September 2017 and March 2018, a research team from the University of Michigan School for Environment and Sustainability surveyed 413 low-income households in the Detroit Metropolitan Area about their experiences with water access, water and wastewater bills and

water shut-offs. The specific research area was Wayne, Oakland, and Macomb Counties, areas which predominantly receive water and wastewater service from the Great Lakes Water Authority (GLWA). The sample size achieved a 95% confidence interval when comparing results to the

7 Mack, E. A., & Wrase, S. (2017). A burgeoning crisis? A nationwide assessment of the geography of water affordability in the United States. *PloS one*, 12(1), e0169488.

8 Eskaf, Shadi. "Four Trends in Government Spending on Water & Wastewater." Environmental Finance Blog — UNC Environmental Finance Center, 2015. <http://efc.web.unc.edu/2015/09/09/four-trends-government-spending-water/>

9 Mack & Wrase.

10 Shambaugh, J., & Nunn, R. Why Wages Aren't Growing in America. Harvard Business Review. <https://hbr.org/2017/10/why-wages-arent-growing-in-america>. Oct 24, 2017

population of households at or below 200% of the federal poverty line (FPL).

The research team conducted the 35-question surveys both in-person at agencies and events providing social services and over the phone using the Qualtrics platform. These responses were compiled in Microsoft Excel and analyzed using statistical software. The research team conduct-

ed interviews with local experts, ranging from government officials, legal scholars, community advocates, to utility employees. The interview transcripts were coded and analyzed for key themes or concepts regarding water security, affordability, and access in order to develop a deeper understanding of the issues. A literature review, survey results and interviews informed future policy recommendations.

## FINDINGS

### **UNAFFORDABILITY IS A REGIONAL ISSUE AND LOW-INCOME HOUSEHOLDS ARE STRUGGLING.**

Survey results indicate that low-income residents across Wayne, Oakland, and Macomb Counties are paying more than double an affordable rate, paying on-average 10% of their household income. This results indicate that unaffordability is a regional issue, not just limited to the City of Detroit.

### **HOUSEHOLDS ARE FEELING THE SQUEEZE.**

When paying an average monthly bill of \$98.61, 72.8% of customers reported that it was a struggle to pay their water bill “at least some of the time,” and 21.82% of households reporting that it is “always” a struggle to stay current on their bill.

### **HOUSEHOLDS VALUE WATER SERVICE AND ARE WILLING TO PAY WHAT THEY CAN AFFORD.**

Low-income households understand the value of water and do not expect free service. Only 1.4% of respondents said they wanted or expected free water. When asked how much they could afford to pay for water given their current budget, households estimated that they could afford to pay on-average \$53.53 a month, two thirds of what they are currently paying. These results indicate that for low-income residents in Metro Detroit, there is \$45.08 monthly affordability gap and \$540.96 annual affordability gap.

The lowest-income households — at or below 100% of the federal poverty line — estimated that they could afford to pay on-average 7% of their monthly income for water, half of what they are currently paying now. While higher than the federal govern-

ment affordability threshold, household responses suggest that households could stay current on payment if they received a more affordable bill.

### **BILLS ARE PAID, BUT UNAFFORDABLE. RESIDENTS ARE MAKING TRADE-OFFS TO PAY THEIR BILLS.**

This regional assessment of affordability demonstrates a troubling phenomenon: “paid, but unaffordable bills.”<sup>11</sup> Faced with rising water bills, low-income households are cutting back on other expenses needed to lead healthy and productive lives. 84% of low-income residents reported cutting back on monthly expenses to ensure they can make payment on their water and sewer bill. Foregone expenses include housing, medicine and medical/dental care, transportation, fresh fruits and vegetables and school supplies. 51% of households are switching-off between paying their energy and water bills.

While trade-offs may help low-income households make ends meet in the short-term, they can have harmful ripple effects. 52% of households with school-age children are cutting back on school supplies, which has the potential to impact academic success. 71% of households with working-age people are reducing expenditures on transportation, which can limit employment prospects. The latter is particularly problematic as the Detroit Metro area has the greatest spatial mismatch between where African American job seekers live — in the city — and where jobs are located — in surrounding suburban areas.<sup>12</sup>

11 Colton, R. D. (2004). Paid but unaffordable: The consequences of energy poverty in Missouri. National Low-Income Energy Consortium (NLIEC). June. <http://www.nliec.org/2004%20Conference/MOoverview.pdf>

12 Grengs, Joe. 2010. “Job accessibility and the modal mismatch in Detroit.” *Journal of Transport Geography*, 18(1): 42-54.

	RENT	PROPERTY TAX	TRANSPORTATION	MEDICINE	MEDICAL OR DENTAL CARE	FRESH PRODUCE	SCHOOL SUPPLIES
PERCENTAGE OF RESPONDENTS WHO CUT BACK	34%	49%	68%	38%	47%	63%	60%

Graphic by: Claire D'Aoust

Reductions in medicine, medical and dental care, and fresh fruits and vegetables, which were all reported, puts the mental and physical health of elders and the healthy development of young children at-risk.<sup>13</sup>

**LACK OF WATER ACCESS CAUSES DISTRESS AND PUTS VULNERABLE POPULATIONS AT-RISK.**

Water struggles are taking a mental and emotional toll on low-income households in the Detroit Metro area. Survey respondents reported feeling worried, angry, depressed, bad, and generally impoverished. These findings support research which found a correlation between water insecurity and psychosocial distress.<sup>14</sup>

One of the most acute sources of psychosocial distress is the prospect of a water shutoff. Much attention has been given to City of Detroit, which at its height, shut-off water service to 100,000 people in 2014, a practice denounced by the United Nations Special Rapporteur on the human right to water and sanitation and the Special Rapporteur on right to adequate housing.<sup>15 16</sup> In 2017, it was estimated that one in 10 Detroiters still experienced a shutoff.<sup>17</sup> Municipalities across the Detroit Metropolitan region continue to carry-out water shutoffs, even if households are only a month or two behind on payment.<sup>18</sup> In this study, 169 or 39.4% of households reported having experienced a shutoff in the past two years. 48.6% of those

households had elders or children below the age of 18 living in the home. Children, the elderly and the infirmed are at greatest risk of the negative health impacts of lacking access to clean water and as, such require additional protection from water shutoffs.<sup>19</sup>

Water shut-offs and rising water prices can also cause significant social disruption. 20 households surveyed — or 4.8% — reported that a child missed school because of water issues. Eight households surveyed lost their housing due to a water issue. Some municipalities in Metro Detroit, unpaid water bills can be added as a lien on property taxes, a contributing factor to housing vulnerability.<sup>20</sup>

**ASSISTANCE IS NECESSARY TO HELP MAINTAIN ACCESS.**

Water assistance is a critical component of a broader social safety net, intended to give households a boost in times of economic shock or hardship. Survey results demonstrate the continuing need for assistance. In fact, many of the people who are struggling to pay their water bills are already seeking such help, with 55% of households reporting that they were already enrolled in an assistance program.

Households struggling, but not enrolled in an assistance program reported a range of reasons

13 Prentice, A. (2004). Diet, nutrition and the prevention of osteoporosis. *Public health nutrition*, 7(1a), 227-243.

14 Gaber et al. "Water Insecurity and Psychosocial Distress: A Case Study of the Impacts of the Detroit Water Shutoffs"

15 Hackman, Rose. "What Happens When Detroit Shuts Off the Water of 100,000 People" *The Atlantic*. 17 July 2014. <https://www.theatlantic.com/business/archive/2014/07/what-happens-when-detroit-shuts-off-the-water-of-100000-people/374548/>

16 UN News. "In Detroit, city-backed water shut-offs 'contrary to human rights,' say UN experts," 20 Oct 2004. <https://news.un.org/en/story/2014/10/481542-detroit-city-backed-water-shut-offs-contrary-human-rights-say-un-experts>

17 Kurth, Joel. "Detroit shut water to 1 in 10 homes this year. Yes, that's progress: Bridge. 5 Dec 2017. <https://www.bridgemi.com/detroit-journalism-cooperative/detroit-shut-water-1-10-homes-year-yes-thats-progress>

18 Mapping the Water Crisis. (2016). Retrieved from <https://wethepeopleofdetroit.com/communityresearch/water/>

19 Howard and Bartram, "Domestic Water Quantity , Service Level and Health."

20 Mapping the Water Crisis.

for not seeking assistance. 8.3% did not qualify for the program, 5.8% said the programs did not work for them, and 7.1% reported that their time on the program had expired. 25.6% of households not currently receiving assistance reported that they did not know about assistance programs. The latter was an especially surprising finding given that surveys were administered at social service agencies and events, so residents would likely be eligible for and often already seeking wraparound services.

**ASSISTANCE IS HELPING REDUCE COSTS, BUT IS NOT CLOSING THE AFFORDABILITY GAP.**

The WRAP has helped low-income residents reduce their bills and make monthly payments. 62.8% of survey respondents owe money on their water bill, with an average debt of \$670.74. This amount of debt can be paid down within a year if their municipality has opted-in to the WRAP's arrearage forgiveness program and the customer remains current on payment. Customers can

**WATER RESIDENTIAL ASSISTANCE PROGRAM (WRAP)**

The lack of a national water assistance program means that water authorities and departments must fund and administer programs at the local, or in the case of Metro Detroit, regional level.

The largest assistance program in Southeast Michigan is the Water Residential Assistance Program (or WRAP), funded by the Great Lakes Water Authority and administered by community action agencies. Communities that opt-in to the program can offer residents: \$25 of monthly bill assistance, conservation in the form of water saving education and plumbing repairs, and up to \$700 in arrearage forgiveness. The WRAP is intended to complement community action agencies' wraparound service model, which seeks to meet all of their clients' social and economic needs.

Graphic by: Claire D'Aoust

also reduce costs through the WRAP's household repair and fixture replacement program. Water conservation and efficient appliances have the potential to reduce high usage customer bills by up \$420/year.<sup>21</sup>

Survey participants enrolled in the WRAP reported that the WRAP is helping, making it less of a struggle to pay their water bills. However, survey results found that households on assistance were still paying unaffordable bills and making trade-offs

to make payment to the water department. 79.1% of households on WRAP still reported paying over 4.5% of their income for water and wastewater service, with bills as high as 20% of monthly income. 94.3% of assistance recipients were still cutting-back on monthly expenses to keep up with their water bills.

Households on assistance continue to bear a significant water burden. Assistance is easing the strain, but low-income customers are still grappling with unaffordable bills.

## CONCLUSION

Survey results indicate the pressing need to address the unaffordability gap for water services in the Detroit Metro area. Unaffordable water bills are taking a toll on low-income households and water utilities and local governments, alike. If households are unable to make payments in the long-term, utilities will not have sufficient funding for operations and capital improvements. Shutoffs and unaffordable bills, also undermine the very purpose of public water systems, built to improve public health.

While it is hard to gauge the counterfactual, such findings suggest that assistance programs like the WRAP may not have the flexibility, reach, and impact needed to meet the needs of low-income households. As the survey results indicate, for many more, maintaining reliable access to clean water remains a daily struggle. The public health and well-being of the Detroit Metro area community demands action to close this affordability gap and ensure access to safe, reliable, and affordable water and wastewater services.

## POLICY RECOMMENDATIONS

For Southeast Michigan, the creation of the Great Lakes Water Authority and the WRAP represent an opportunity to develop a water system that works for customers and utilities. The following are policy and programmatic changes that directly address the findings from this study. Recommendations can be adopted at the federal, state, regional, county or local level.

### **GIVEN THAT WATER BILLS ARE UNAFFORDABLE FOR LOW-INCOME RESIDENTS ACROSS THE REGION:**

- Pursue system efficiencies and equitable cost sharing across the region to reduce fixed costs to residential customers.

### **GIVEN THAT HOUSEHOLDS VALUE WATER SERVICE AND WILL PAY WHAT THEY CAN AFFORD:**

- Provide adequate funding for assistance, including securing new financing, for discounts, arrearage forgiveness, household repairs and fixture replacements.

### **GIVEN THAT BILLS ARE PAID, BUT UNAFFORDABLE:**

- Explore alternative rate structures — such as lifeline rates and income-based credits — that target low-income customers and safeguard public health.
- Guarantee shutoff protection for households with vulnerable populations: seniors, children and those with serious health conditions.

### **GIVEN THAT ASSISTANCE IS HELPING, BUT NOT CLOSING THE AFFORDABILITY GAP:**

- Increase outreach to residents unfamiliar with the program
- Incentivize participation in assistance programs, e.g., through financial support, co-administration, etc.
- Expand eligibility for assistance and support for those at or above 150% FPL